GDCM

3.2.10

Generated by Doxygen 1.17.0

1 GDCM Documentation 1

2 Todo List 3

3 Deprecated List 5

4 Bug List 7

5 Directory Hierarchy 9

5.1 Directories . . . 9

6 Namespace Index 23

6.1 Namespace List . . . 23

7 Hierarchical Index 25

7.1 Class Hierarchy . . . 25

8 Class Index 35

8.1 Class List . . . 35

9 File Index 49

9.1 File List . . . 49

10 Directory Documentation 57

10.1 Common Directory Reference . . . 57

10.2 DataDictionary Directory Reference . . . 59

10.3 DataStructureAndEncodingDefinition Directory Reference . . . 60

10.4 InformationObjectDefinition Directory Reference . . . 61

10.5 MediaStorageAndFileFormat Directory Reference . . . 62

10.6 MessageExchangeDefinition Directory Reference . . . 65

10.7 Python Directory Reference . . . 67

10.8 Source Directory Reference . . . 67

10.9 Utilities Directory Reference . . . 68

10.10 VTK Directory Reference . . . 68

10.11 Wrapping Directory Reference . . . 69

11 Namespace Documentation 71

11.1 gdcm Namespace Reference . . . 71

11.1.1 Detailed Description . . . 86

11.1.2 Typedef Documentation . . . 86

11.1.2.1 AEComp . . . 86

11.1.2.2 ASComp . . . 86

11.1.2.3 BOOL_FUNCTION_PFILE_PFILE_POINTER . . . 86

11.1.2.4 CSComp . . . 86
11.1.2.5 DAComp . . . 87
11.1.2.6 DTComp . . . 87
11.1.2.7 FileList . . . 87
11.1.2.8 IconImage . . . 87
11.1.2.9 LOComp . . . 87
11.1.2.10 LTComp . . . 87
11.1.2.11 MacroEntry . . . 87
11.1.2.12 NestedMacroEntries . . . 87
11.1.2.13 PNComp . . . 88
11.1.2.14 SHComp . . . 88
11.1.2.15 STComp . . . 88
11.1.2.16 TMComp . . . 88
11.1.2.17 UCComp . . . 88
11.1.2.18 UIComp . . . 88
11.1.2.19 URComp . . . 88
11.1.2.20 UTComp . . . 88
11.1.3 Enumeration Type Documentation . . . 89
11.1.3.1 CompOperators . . . 89
11.1.3.2 ECharSet . . . 89
11.1.3.3 ENQueryType . . . 90
11.1.3.4 EQueryLevel . . . 90
11.1.3.5 EQueryType . . . 90
11.1.3.6 ERootType . . . 90
11.1.3.7 LodModeType . . . 91
11.1.4 Function Documentation . . . 91
11.1.4.1 add1() . . . 91
11.1.4.2 backslash() . . . 91
11.1.4.3 Clamp() . . . 91
11.1.4.4 clean() . . . 92
11.1.4.5 doround() . . . 92
11.1.4.6 GetVRFromTag() . . . 92
11.1.4.7 operator"!=() [1/2] . . . 92
11.1.4.8 operator"!=() [2/2] . . . 92
11.1.4.9 operator<<() [1/59] . . . 92
11.1.4.10 operator<<() [2/59] . . . 93
11.1.4.11 operator<<() [3/59] . . . 93
11.1.4.12 operator<<() [4/59] . . . 93
11.1.4.13 operator<<() [5/59] . . . 93

11.1.4.14 operator<<() [6/59] . . . 93
11.1.4.15 operator<<() [7/59] . . . 93
11.1.4.16 operator<<() [8/59] . . . 93
11.1.4.17 operator<<() [9/59] . . . 94
11.1.4.18 operator<<() [10/59] . . . 94
11.1.4.19 operator<<() [11/59] . . . 94
11.1.4.20 operator<<() [12/59] . . . 94
11.1.4.21 operator<<() [13/59] . . . 94
11.1.4.22 operator<<() [14/59] . . . 94
11.1.4.23 operator<<() [15/59] . . . 94
11.1.4.24 operator<<() [16/59] . . . 95
11.1.4.25 operator<<() [17/59] . . . 95
11.1.4.26 operator<<() [18/59] . . . 95
11.1.4.27 operator<<() [19/59] . . . 95
11.1.4.28 operator<<() [20/59] . . . 95
11.1.4.29 operator<<() [21/59] . . . 95
11.1.4.30 operator<<() [22/59] . . . 95
11.1.4.31 operator<<() [23/59] . . . 96
11.1.4.32 operator<<() [24/59] . . . 96
11.1.4.33 operator<<() [25/59] . . . 96
11.1.4.34 operator<<() [26/59] . . . 96
11.1.4.35 operator<<() [27/59] . . . 96
11.1.4.36 operator<<() [28/59] . . . 96
11.1.4.37 operator<<() [29/59] . . . 96
11.1.4.38 operator<<() [30/59] . . . 97
11.1.4.39 operator<<() [31/59] . . . 97
11.1.4.40 operator<<() [32/59] . . . 97
11.1.4.41 operator<<() [33/59] . . . 97
11.1.4.42 operator<<() [34/59] . . . 97
11.1.4.43 operator<<() [35/59] . . . 97
11.1.4.44 operator<<() [36/59] . . . 97
11.1.4.45 operator<<() [37/59] . . . 98
11.1.4.46 operator<<() [38/59] . . . 98
11.1.4.47 operator<<() [39/59] . . . 98
11.1.4.48 operator<<() [40/59] . . . 98
11.1.4.49 operator<<() [41/59] . . . 98
11.1.4.50 operator<<() [42/59] . . . 98
11.1.4.51 operator<<() [43/59] . . . 98
11.1.4.52 operator<<() [44/59] . . . 99

11.1.4.53 operator<<() [45/59] . . . 99
11.1.4.54 operator<<() [46/59] . . . 99
11.1.4.55 operator<<() [47/59] . . . 99
11.1.4.56 operator<<() [48/59] . . . 99
11.1.4.57 operator<<() [49/59] . . . 99
11.1.4.58 operator<<() [50/59] . . . 99
11.1.4.59 operator<<() [51/59] . . . 100
11.1.4.60 operator<<() [52/59] . . . 100
11.1.4.61 operator<<() [53/59] . . . 100
11.1.4.62 operator<<() [54/59] . . . 100
11.1.4.63 operator<<() [55/59] . . . 100
11.1.4.64 operator<<() [56/59] . . . 100
11.1.4.65 operator<<() [57/59] . . . 100
11.1.4.66 operator<<() [58/59] . . . 101
11.1.4.67 operator<<() [59/59] . . . 101
11.1.4.68 operator==() . . . 101
11.1.4.69 operator>>() [1/3] . . . 101
11.1.4.70 operator>>() [2/3] . . . 101
11.1.4.71 operator>>() [3/3] . . . 101
11.1.4.72 Round() . . . 101
11.1.4.73 roundat() . . . 102
11.1.4.74 x16printf() . . . 102
11.1.5 Variable Documentation . . . 102
11.1.5.1 GlobalInstance . . . 102
11.2 gdcm::network Namespace Reference . . . 102
11.2.1 Enumeration Type Documentation . . . 107
11.2.1.1 EEventID . . . 107
11.2.1.2 EStateID . . . 107
11.2.2 Function Documentation . . . 108
11.2.2.1 GetStateIndex() . . . 108
11.2.3 Variable Documentation . . . 108
11.2.3.1 cMaxEventID . . . 108
11.2.3.2 cMaxStateID . . . 108
11.3 gdcm::SegmentHelper Namespace Reference . . . 109
11.4 gdcm::terminal Namespace Reference . . . 109
11.4.1 Detailed Description . . . 109
11.4.2 Enumeration Type Documentation . . . 110
11.4.2.1 Attribute . . . 110
11.4.2.2 Color . . . 110

11.4.2.3 Mode . . . 110
11.4.3 Function Documentation . . . 111
11.4.3.1 setattribute() . . . 111
11.4.3.2 setbgcolor() . . . 111
11.4.3.3 setfgcolor() . . . 111
11.4.3.4 setmode() . . . 111

12 Class Documentation **113**

12.1 gdcm::network::AAbortPDU Class Reference . . . 113
12.1.1 Detailed Description . . . 114
12.1.2 Constructor & Destructor Documentation . . . 114
12.1.2.1 AAbortPDU() . . . 114
12.1.3 Member Function Documentation . . . 114
12.1.3.1 IsLastFragment() . . . 114
12.1.3.2 Print() . . . 114
12.1.3.3 Read() . . . 115
12.1.3.4 SetReason() . . . 115
12.1.3.5 SetSource() . . . 115
12.1.3.6 Size() . . . 115
12.1.3.7 Write() . . . 115
12.2 gdcm::network::AAssociateACPDU Class Reference . . . 116
12.2.1 Detailed Description . . . 117
12.2.2 Member Typedef Documentation . . . 117
12.2.2.1 SizeType . . . 117
12.2.3 Constructor & Destructor Documentation . . . 117
12.2.3.1 AAssociateACPDU() . . . 117
12.2.4 Member Function Documentation . . . 118
12.2.4.1 AddPresentationContextAC() . . . 118
12.2.4.2 GetNumberOfPresentationContextAC() . . . 118
12.2.4.3 GetPresentationContextAC() . . . 118
12.2.4.4 GetUserInformation() . . . 118
12.2.4.5 InitFromRQ() . . . 118
12.2.4.6 IsLastFragment() . . . 118
12.2.4.7 Print() . . . 118
12.2.4.8 Read() . . . 119
12.2.4.9 SetCalledAETitle() . . . 119
12.2.4.10 SetCallingAETitle() . . . 119
12.2.4.11 Size() . . . 119
12.2.4.12 Write() . . . 119

12.2.5 Friends And Related Symbol Documentation . . . 119
12.2.5.1 AAssociateRQPDU . . . 119
12.3 gdcm::network::AAssociateRJPDU Class Reference . . . 120
12.3.1 Detailed Description . . . 121
12.3.2 Constructor & Destructor Documentation . . . 121
12.3.2.1 AAssociateRJPDU() . . . 121
12.3.3 Member Function Documentation . . . 121
12.3.3.1 IsLastFragment() . . . 121
12.3.3.2 Print() . . . 121
12.3.3.3 Read() . . . 121
12.3.3.4 Size() . . . 121
12.3.3.5 Write() . . . 122
12.4 gdcm::network::AAssociateRQPDU Class Reference . . . 122
12.4.1 Detailed Description . . . 124
12.4.2 Member Typedef Documentation . . . 124
12.4.2.1 PresentationContextArrayType . . . 124
12.4.2.2 SizeType . . . 124
12.4.3 Constructor & Destructor Documentation . . . 124
12.4.3.1 AAssociateRQPDU() [1/2] . . . 124
12.4.3.2 AAssociateRQPDU() [2/2] . . . 124
12.4.4 Member Function Documentation . . . 124
12.4.4.1 AddPresentationContext() . . . 124
12.4.4.2 GetCalledAETitle() . . . 124
12.4.4.3 GetCallingAETitle() . . . 125
12.4.4.4 GetNumberOfPresentationContext() . . . 125
12.4.4.5 GetPresentationContext() . . . 125
12.4.4.6 GetPresentationContextByAbstractSyntax() . . . 125
12.4.4.7 GetPresentationContextByID() . . . 125
12.4.4.8 GetPresentationContexts() . . . 125
12.4.4.9 GetReserved43_74() . . . 125
12.4.4.10 GetUserInformation() . . . 125
12.4.4.11 IsAETitleValid() . . . 126
12.4.4.12 IsLastFragment() . . . 126
12.4.4.13 Print() . . . 126
12.4.4.14 Read() . . . 126
12.4.4.15 SetCalledAETitle() . . . 126
12.4.4.16 SetCallingAETitle() . . . 126
12.4.4.17 SetUserInformation() . . . 127
12.4.4.18 Size() . . . 127

12.4.4.19 Write() . . . 127
12.4.5 Friends And Related Symbol Documentation . . . 127
12.4.5.1 AAssociateACPDU . . . 127
12.5 gdcm::AbortEvent Class Reference . . . 128
12.6 gdcm::network::AbstractSyntax Class Reference . . . 129
12.6.1 Detailed Description . . . 129
12.6.2 Constructor & Destructor Documentation . . . 129
12.6.2.1 AbstractSyntax() . . . 129
12.6.3 Member Function Documentation . . . 130
12.6.3.1 GetAsDataElement() . . . 130
12.6.3.2 GetName() . . . 130
12.6.3.3 operator==() . . . 130
12.6.3.4 Print() . . . 130
12.6.3.5 Read() . . . 130
12.6.3.6 SetName() . . . 130
12.6.3.7 SetNameFromUID() . . . 130
12.6.3.8 Size() . . . 130
12.6.3.9 Write() . . . 131
12.7 gdcm::AnonymizeEvent Class Reference . . . 131
12.7.1 Detailed Description . . . 133
12.7.2 Member Typedef Documentation . . . 133
12.7.2.1 Self . . . 133
12.7.2.2 Superclass . . . 133
12.7.3 Constructor & Destructor Documentation . . . 133
12.7.3.1 AnonymizeEvent() [1/2] . . . 133
12.7.3.2 ~AnonymizeEvent() . . . 133
12.7.3.3 AnonymizeEvent() [2/2] . . . 133
12.7.4 Member Function Documentation . . . 134
12.7.4.1 CheckEvent() . . . 134
12.7.4.2 GetEventName() . . . 134
12.7.4.3 GetTag() . . . 134
12.7.4.4 MakeObject() . . . 134
12.7.4.5 operator=() . . . 134
12.7.4.6 SetTag() . . . 135
12.8 gdcm::Anonymizer Class Reference . . . 135
12.8.1 Detailed Description . . . 138
12.8.2 Constructor & Destructor Documentation . . . 139
12.8.2.1 Anonymizer() . . . 139
12.8.2.2 ~Anonymizer() . . . 139

12.8.3 Member Function Documentation . . . 139
12.8.3.1 BALCPProtect() . . . 139
12.8.3.2 BasicApplicationLevelConfidentialityProfile() . . . 139
12.8.3.3 CanEmptyTag() . . . 139
12.8.3.4 Clear() [1/2] . . . 139
12.8.3.5 Clear() [2/2] . . . 140
12.8.3.6 ClearInternalUIDs() . . . 140
12.8.3.7 Empty() [1/2] . . . 140
12.8.3.8 Empty() [2/2] . . . 140
12.8.3.9 GetBasicApplicationLevelConfidentialityProfileAttributes() . . . 140
12.8.3.10 GetCryptographicMessageSyntax() . . . 141
12.8.3.11 GetFile() . . . 141
12.8.3.12 New() . . . 141
12.8.3.13 RecurseDataSet() . . . 141
12.8.3.14 Remove() [1/2] . . . 141
12.8.3.15 Remove() [2/2] . . . 141
12.8.3.16 RemoveGroupLength() . . . 142
12.8.3.17 RemovePrivateTags() . . . 142
12.8.3.18 RemoveRetired() . . . 142
12.8.3.19 Replace() [1/4] . . . 142
12.8.3.20 Replace() [2/4] . . . 142
12.8.3.21 Replace() [3/4] . . . 143
12.8.3.22 Replace() [4/4] . . . 143
12.8.3.23 SetCryptographicMessageSyntax() . . . 143
12.8.3.24 SetFile() . . . 143
12.9 gdcm::AnyEvent Class Reference . . . 144
12.10 gdcm::network::ApplicationContext Class Reference . . . 145
12.10.1 Detailed Description . . . 146
12.10.2 Constructor & Destructor Documentation . . . 146
12.10.2.1 ApplicationContext() . . . 146
12.10.3 Member Function Documentation . . . 146
12.10.3.1 GetName() . . . 146
12.10.3.2 Print() . . . 146
12.10.3.3 Read() . . . 146
12.10.3.4 SetName() . . . 146
12.10.3.5 Size() . . . 146
12.10.3.6 Write() . . . 147
12.11 gdcm::ApplicationEntity Class Reference . . . 147
12.11.1 Detailed Description . . . 148

12.11.2 Member Function Documentation . . . 148
12.11.2.1 IsValid() . . . 148
12.11.2.2 Print() . . . 148
12.11.2.3 SetBlob() . . . 148
12.11.2.4 Squeeze() . . . 148
12.11.3 Member Data Documentation . . . 149
12.11.3.1 Internal . . . 149
12.11.3.2 MaxLength . . . 149
12.11.3.3 MaxNumberOfComponents . . . 149
12.11.3.4 Padding . . . 149
12.11.3.5 Separator . . . 149
12.12 gdcm::network::AReleaseRPPDU Class Reference . . . 149
12.12.1 Detailed Description . . . 150
12.12.2 Constructor & Destructor Documentation . . . 150
12.12.2.1 AReleaseRPPDU() . . . 150
12.12.3 Member Function Documentation . . . 150
12.12.3.1 IsLastFragment() . . . 150
12.12.3.2 Print() . . . 151
12.12.3.3 Read() . . . 151
12.12.3.4 Size() . . . 151
12.12.3.5 Write() . . . 151
12.13 gdcm::network::AReleaseRQPDU Class Reference . . . 151
12.13.1 Detailed Description . . . 152
12.13.2 Constructor & Destructor Documentation . . . 153
12.13.2.1 AReleaseRQPDU() . . . 153
12.13.3 Member Function Documentation . . . 153
12.13.3.1 IsLastFragment() . . . 153
12.13.3.2 Print() . . . 153
12.13.3.3 Read() . . . 153
12.13.3.4 Size() . . . 153
12.13.3.5 Write() . . . 153
12.14 gdcm::network::ARTIMTimer Class Reference . . . 154
12.14.1 Detailed Description . . . 154
12.14.2 Constructor & Destructor Documentation . . . 154
12.14.2.1 ARTIMTimer() . . . 154
12.14.3 Member Function Documentation . . . 154
12.14.3.1 GetElapsedTime() . . . 154
12.14.3.2 GetHasExpired() . . . 155
12.14.3.3 GetTimeout() . . . 155

12.14.3.4 SetTimeout() . . . 155
12.14.3.5 Start() . . . 155
12.14.3.6 Stop() . . . 155
12.15 gdcm::ASN1 Class Reference . . . 155
12.15.1 Detailed Description . . . 156
12.15.2 Constructor & Destructor Documentation . . . 156
12.15.2.1 ASN1() [1/2] . . . 156
12.15.2.2 ∼ASN1() . . . 156
12.15.2.3 ASN1() [2/2] . . . 156
12.15.3 Member Function Documentation . . . 156
12.15.3.1 operator=() . . . 156
12.15.3.2 ParseDump() . . . 156
12.15.3.3 ParseDumpFile() . . . 157
12.15.3.4 TestPBKDF2() . . . 157
12.16 gdcm::network::AsynchronousOperationsWindowSub Class Reference . . . 157
12.16.1 Detailed Description . . . 157
12.16.2 Constructor & Destructor Documentation . . . 157
12.16.2.1 AsynchronousOperationsWindowSub() . . . 157
12.16.3 Member Function Documentation . . . 158
12.16.3.1 Print() . . . 158
12.16.3.2 Read() . . . 158
12.16.3.3 Size() . . . 158
12.16.3.4 Write() . . . 158
12.17 gdcm::Attribute< Group, Element, TVR, TVM > Class Template Reference . . . 158
12.17.1 Detailed Description . . . 160
12.17.2 Member Typedef Documentation . . . 160
12.17.2.1 ArrayType . . . 160
12.17.3 Member Enumeration Documentation . . . 161
12.17.3.1 anonymous enum . . . 161
12.17.4 Member Function Documentation . . . 161
12.17.4.1 GDCM_STATIC_ASSERT() [1/3] . . . 161
12.17.4.2 GDCM_STATIC_ASSERT() [2/3] . . . 161
12.17.4.3 GDCM_STATIC_ASSERT() [3/3] . . . 161
12.17.4.4 GetAsDataElement() . . . 162
12.17.4.5 GetDictVM() . . . 162
12.17.4.6 GetDictVR() . . . 162
12.17.4.7 GetNumberOfValues() . . . 162
12.17.4.8 GetTag() . . . 163
12.17.4.9 GetValue() [1/2] . . . 163

12.17.4.10 GetValue() [2/2] . . . 163
12.17.4.11 GetValues() . . . 163
12.17.4.12 GetVM() . . . 164
12.17.4.13 GetVR() . . . 164
12.17.4.14 operator"!=() . . . 164
12.17.4.15 operator<() . . . 164
12.17.4.16 operator==() . . . 164
12.17.4.17 operator[]() [1/2] . . . 165
12.17.4.18 operator[]() [2/2] . . . 165
12.17.4.19 Print() . . . 165
12.17.4.20 Set() . . . 165
12.17.4.21 SetByteValue() . . . 165
12.17.4.22 SetByteValueNoSwap() . . . 166
12.17.4.23 SetFromDataElement() . . . 166
12.17.4.24 SetFromDataSet() . . . 166
12.17.4.25 SetValue() . . . 167
12.17.4.26 SetValues() . . . 167
12.17.5 Member Data Documentation . . . 167
12.17.5.1 Internal . . . 167
12.18 gdcm::Attribute< Group, Element, TVR, VM::VM1 > Class Template Reference . . . 168
12.18.1 Member Typedef Documentation . . . 170
12.18.1.1 ArrayType . . . 170
12.18.2 Member Enumeration Documentation . . . 171
12.18.2.1 anonymous enum . . . 171
12.18.2.2 anonymous enum . . . 171
12.18.3 Member Function Documentation . . . 171
12.18.3.1 GDCM_STATIC_ASSERT() [1/4] . . . 171
12.18.3.2 GDCM_STATIC_ASSERT() [2/4] . . . 171
12.18.3.3 GDCM_STATIC_ASSERT() [3/4] . . . 171
12.18.3.4 GDCM_STATIC_ASSERT() [4/4] . . . 171
12.18.3.5 GetAsDataElement() . . . 172
12.18.3.6 GetDictVM() . . . 172
12.18.3.7 GetDictVR() . . . 172
12.18.3.8 GetNumberOfValues() . . . 172
12.18.3.9 GetTag() . . . 172
12.18.3.10 GetValue() [1/2] . . . 172
12.18.3.11 GetValue() [2/2] . . . 172
12.18.3.12 GetValues() . . . 173
12.18.3.13 GetVM() . . . 173

12.18.3.14 GetVR() . . . 173
12.18.3.15 operator"!=() . . . 173
12.18.3.16 operator<() . . . 173
12.18.3.17 operator==() . . . 173
12.18.3.18 operator[]() . . . 174
12.18.3.19 Print() . . . 174
12.18.3.20 Set() . . . 174
12.18.3.21 SetByteValue() . . . 174
12.18.3.22 SetByteValueNoSwap() . . . 174
12.18.3.23 SetFromDataElement() . . . 175
12.18.3.24 SetFromDataSet() . . . 175
12.18.3.25 SetValue() . . . 175
12.18.3.26 SetValues() . . . 175
12.18.4 Member Data Documentation . . . 175
12.18.4.1 Internal . . . 175
12.19 gdcm::Attribute< Group, Element, TVR, VM::VM1_3 > Class Template Reference . . . 176
12.19.1 Member Typedef Documentation . . . 178
12.19.1.1 ArrayType . . . 178
12.19.2 Member Enumeration Documentation . . . 178
12.19.2.1 anonymous enum . . . 178
12.19.3 Member Function Documentation . . . 178
12.19.3.1 GDCM_STATIC_ASSERT() . . . 178
12.19.3.2 GetAsDataElement() . . . 178
12.19.3.3 GetDictVM() . . . 178
12.19.3.4 GetDictVR() . . . 179
12.19.3.5 GetNumberOfValues() . . . 179
12.19.3.6 GetTag() . . . 179
12.19.3.7 GetValue() . . . 179
12.19.3.8 GetValues() . . . 179
12.19.3.9 GetVM() . . . 179
12.19.3.10 GetVR() . . . 179
12.19.3.11 operator"!=() . . . 179
12.19.3.12 operator<() . . . 179
12.19.3.13 operator==() . . . 180
12.19.3.14 operator[]() . . . 180
12.19.3.15 Print() . . . 180
12.19.3.16 Set() . . . 180
12.19.3.17 SetByteValue() . . . 180
12.19.3.18 SetByteValueNoSwap() . . . 180

12.19.3.19 SetFromDataElement() . . . 180
12.19.3.20 SetFromDataSet() . . . 180
12.19.3.21 SetValue() . . . 181
12.19.3.22 SetValues() . . . 181
12.19.4 Member Data Documentation . . . 181
12.19.4.1 Internal . . . 181
12.20 gdcm::Attribute< Group, Element, TVR, VM::VM1_8 > Class Template Reference . . . 181
12.20.1 Member Typedef Documentation . . . 183
12.20.1.1 ArrayType . . . 183
12.20.2 Member Enumeration Documentation . . . 184
12.20.2.1 anonymous enum . . . 184
12.20.3 Member Function Documentation . . . 184
12.20.3.1 GDCM_STATIC_ASSERT() . . . 184
12.20.3.2 GetAsDataElement() . . . 184
12.20.3.3 GetDictVM() . . . 184
12.20.3.4 GetDictVR() . . . 184
12.20.3.5 GetNumberOfValues() . . . 184
12.20.3.6 GetTag() . . . 184
12.20.3.7 GetValue() . . . 184
12.20.3.8 GetValues() . . . 185
12.20.3.9 GetVM() . . . 185
12.20.3.10 GetVR() . . . 185
12.20.3.11 operator"!=() . . . 185
12.20.3.12 operator<() . . . 185
12.20.3.13 operator==() . . . 185
12.20.3.14 operator[]() . . . 185
12.20.3.15 Print() . . . 185
12.20.3.16 Set() . . . 186
12.20.3.17 SetByteValue() . . . 186
12.20.3.18 SetByteValueNoSwap() . . . 186
12.20.3.19 SetFromDataElement() . . . 186
12.20.3.20 SetFromDataSet() . . . 186
12.20.3.21 SetValue() . . . 186
12.20.3.22 SetValues() . . . 186
12.20.4 Member Data Documentation . . . 187
12.20.4.1 Internal . . . 187
12.21 gdcm::Attribute< Group, Element, TVR, VM::VM1_n > Class Template Reference . . . 187
12.21.1 Member Typedef Documentation . . . 189
12.21.1.1 ArrayType . . . 189

12.21.2 Member Enumeration Documentation . . . 189
12.21.2.1 anonymous enum . . . 189
12.21.3 Constructor & Destructor Documentation . . . 190
12.21.3.1 Attribute() . . . 190
12.21.3.2 ~Attribute() . . . 190
12.21.4 Member Function Documentation . . . 190
12.21.4.1 GDCM_STATIC_ASSERT() [1/3] . . . 190
12.21.4.2 GDCM_STATIC_ASSERT() [2/3] . . . 190
12.21.4.3 GDCM_STATIC_ASSERT() [3/3] . . . 190
12.21.4.4 GetAsDataElement() . . . 190
12.21.4.5 GetDictVM() . . . 191
12.21.4.6 GetDictVR() . . . 191
12.21.4.7 GetNumberOfValues() . . . 191
12.21.4.8 GetTag() . . . 191
12.21.4.9 GetValue() [1/2] . . . 191
12.21.4.10 GetValue() [2/2] . . . 191
12.21.4.11 GetValues() . . . 192
12.21.4.12 GetVM() . . . 192
12.21.4.13 GetVR() . . . 192
12.21.4.14 operator"!=() . . . 192
12.21.4.15 operator<() . . . 192
12.21.4.16 operator==() . . . 192
12.21.4.17 operator[]() [1/2] . . . 192
12.21.4.18 operator[]() [2/2] . . . 193
12.21.4.19 Print() . . . 193
12.21.4.20 Set() . . . 193
12.21.4.21 SetByteValue() . . . 193
12.21.4.22 SetByteValueNoSwap() . . . 193
12.21.4.23 SetFromDataElement() . . . 193
12.21.4.24 SetFromDataSet() . . . 194
12.21.4.25 SetNumberOfValues() . . . 194
12.21.4.26 SetValue() [1/2] . . . 194
12.21.4.27 SetValue() [2/2] . . . 194
12.21.4.28 SetValues() . . . 194
12.22 gdcm::Attribute< Group, Element, TVR, VM::VM2_2n > Class Template Reference . . . 195
12.22.1 Member Typedef Documentation . . . 198
12.22.1.1 ArrayType . . . 198
12.22.2 Member Enumeration Documentation . . . 198
12.22.2.1 anonymous enum . . . 198

12.22.3 Member Function Documentation . . . 198
12.22.3.1 GDCM_STATIC_ASSERT() . . . 198
12.22.3.2 GetAsDataElement() . . . 199
12.22.3.3 GetDictVM() . . . 199
12.22.3.4 GetDictVR() . . . 199
12.22.3.5 GetNumberOfValues() . . . 199
12.22.3.6 GetTag() . . . 199
12.22.3.7 GetValue() . . . 199
12.22.3.8 GetValues() . . . 199
12.22.3.9 GetVM() . . . 199
12.22.3.10 GetVR() . . . 199
12.22.3.11 operator"!=() . . . 200
12.22.3.12 operator<() . . . 200
12.22.3.13 operator==() . . . 200
12.22.3.14 operator[]() . . . 200
12.22.3.15 Print() . . . 200
12.22.3.16 Set() . . . 200
12.22.3.17 SetByteValue() . . . 200
12.22.3.18 SetByteValueNoSwap() . . . 200
12.22.3.19 SetFromDataElement() . . . 201
12.22.3.20 SetFromDataSet() . . . 201
12.22.3.21 SetValue() . . . 201
12.22.3.22 SetValues() . . . 201
12.22.4 Member Data Documentation . . . 201
12.22.4.1 Internal . . . 201
12.23 gdcm::Attribute< Group, Element, TVR, VM::VM2_n > Class Template Reference . . . 202
12.23.1 Member Typedef Documentation . . . 204
12.23.1.1 ArrayType . . . 204
12.23.2 Member Enumeration Documentation . . . 204
12.23.2.1 anonymous enum . . . 204
12.23.3 Member Function Documentation . . . 204
12.23.3.1 GDCM_STATIC_ASSERT() . . . 204
12.23.3.2 GetAsDataElement() . . . 204
12.23.3.3 GetDictVM() . . . 204
12.23.3.4 GetDictVR() . . . 205
12.23.3.5 GetNumberOfValues() . . . 205
12.23.3.6 GetTag() . . . 205
12.23.3.7 GetValue() . . . 205
12.23.3.8 GetValues() . . . 205

12.23.3.9 GetVM() . . . 205
12.23.3.10 GetVR() . . . 205
12.23.3.11 operator"!=() . . . 205
12.23.3.12 operator<() . . . 205
12.23.3.13 operator==() . . . 206
12.23.3.14 operator[]() . . . 206
12.23.3.15 Print() . . . 206
12.23.3.16 Set() . . . 206
12.23.3.17 SetByteValue() . . . 206
12.23.3.18 SetByteValueNoSwap() . . . 206
12.23.3.19 SetFromDataElement() . . . 206
12.23.3.20 SetFromDataSet() . . . 206
12.23.3.21 SetValue() . . . 207
12.23.3.22 SetValues() . . . 207
12.23.4 Member Data Documentation . . . 207
12.23.4.1 Internal . . . 207
12.24 gdcm::Attribute< Group, Element, TVR, VM::VM3_3n > Class Template Reference . . . 207
12.24.1 Member Typedef Documentation . . . 210
12.24.1.1 ArrayType . . . 210
12.24.2 Member Enumeration Documentation . . . 211
12.24.2.1 anonymous enum . . . 211
12.24.3 Member Function Documentation . . . 211
12.24.3.1 GDCM_STATIC_ASSERT() . . . 211
12.24.3.2 GetAsDataElement() . . . 211
12.24.3.3 GetDictVM() . . . 211
12.24.3.4 GetDictVR() . . . 211
12.24.3.5 GetNumberOfValues() . . . 211
12.24.3.6 GetTag() . . . 211
12.24.3.7 GetValue() . . . 211
12.24.3.8 GetValues() . . . 212
12.24.3.9 GetVM() . . . 212
12.24.3.10 GetVR() . . . 212
12.24.3.11 operator"!=() . . . 212
12.24.3.12 operator<() . . . 212
12.24.3.13 operator==() . . . 212
12.24.3.14 operator[]() . . . 212
12.24.3.15 Print() . . . 212
12.24.3.16 Set() . . . 213
12.24.3.17 SetByteValue() . . . 213

12.24.3.18 SetByteValueNoSwap() . . . 213
12.24.3.19 SetFromDataElement() . . . 213
12.24.3.20 SetFromDataSet() . . . 213
12.24.3.21 SetValue() . . . 213
12.24.3.22 SetValues() . . . 213
12.24.4 Member Data Documentation . . . 214
12.24.4.1 Internal . . . 214
12.25 gdcm::Attribute< Group, Element, TVR, VM::VM3_n > Class Template Reference . . . 214
12.25.1 Member Typedef Documentation . . . 216
12.25.1.1 ArrayType . . . 216
12.25.2 Member Enumeration Documentation . . . 216
12.25.2.1 anonymous enum . . . 216
12.25.3 Member Function Documentation . . . 217
12.25.3.1 GDCM_STATIC_ASSERT() . . . 217
12.25.3.2 GetAsDataElement() . . . 217
12.25.3.3 GetDictVM() . . . 217
12.25.3.4 GetDictVR() . . . 217
12.25.3.5 GetNumberOfValues() . . . 217
12.25.3.6 GetTag() . . . 217
12.25.3.7 GetValue() . . . 217
12.25.3.8 GetValues() . . . 217
12.25.3.9 GetVM() . . . 218
12.25.3.10 GetVR() . . . 218
12.25.3.11 operator"!=() . . . 218
12.25.3.12 operator<() . . . 218
12.25.3.13 operator==() . . . 218
12.25.3.14 operator[]() . . . 218
12.25.3.15 Print() . . . 218
12.25.3.16 Set() . . . 218
12.25.3.17 SetByteValue() . . . 219
12.25.3.18 SetByteValueNoSwap() . . . 219
12.25.3.19 SetFromDataElement() . . . 219
12.25.3.20 SetFromDataSet() . . . 219
12.25.3.21 SetValue() . . . 219
12.25.3.22 SetValues() . . . 219
12.25.4 Member Data Documentation . . . 219
12.25.4.1 Internal . . . 219
12.26 gdcm::AudioCodec Class Reference . . . 220
12.26.1 Detailed Description . . . 221

12.26.2 Constructor & Destructor Documentation . . . 221
12.26.2.1 AudioCodec() . . . 221
12.26.2.2 ~AudioCodec() . . . 222
12.26.3 Member Function Documentation . . . 222
12.26.3.1 CanCode() . . . 222
12.26.3.2 CanDecode() . . . 222
12.26.3.3 Decode() . . . 222
12.27 gdcm::Base64 Class Reference . . . 222
12.27.1 Detailed Description . . . 223
12.27.2 Constructor & Destructor Documentation . . . 223
12.27.2.1 Base64() . . . 223
12.27.3 Member Function Documentation . . . 223
12.27.3.1 Decode() . . . 223
12.27.3.2 Encode() . . . 224
12.27.3.3 GetDecodeLength() . . . 224
12.27.3.4 GetEncodeLength() . . . 225
12.27.3.5 operator=() . . . 225
12.28 gdcm::network::BaseCompositeMessage Class Reference . . . 225
12.28.1 Detailed Description . . . 226
12.28.2 Constructor & Destructor Documentation . . . 227
12.28.2.1 ~BaseCompositeMessage() . . . 227
12.28.3 Member Function Documentation . . . 227
12.28.3.1 ConstructPDV() . . . 227
12.29 gdcm::network::BaseNormalizedMessage Class Reference . . . 227
12.29.1 Detailed Description . . . 228
12.29.2 Constructor & Destructor Documentation . . . 229
12.29.2.1 ~BaseNormalizedMessage() . . . 229
12.29.3 Member Function Documentation . . . 229
12.29.3.1 ConstructPDV() . . . 229
12.30 gdcm::network::BasePDU Class Reference . . . 230
12.30.1 Detailed Description . . . 230
12.30.2 Constructor & Destructor Documentation . . . 231
12.30.2.1 ~BasePDU() . . . 231
12.30.3 Member Function Documentation . . . 231
12.30.3.1 IsLastFragment() . . . 231
12.30.3.2 Print() . . . 231
12.30.3.3 Read() . . . 231
12.30.3.4 Size() . . . 232
12.30.3.5 Write() . . . 232

12.31 gdcm::BaseQuery Class Reference . . . 232
12.31.1 Detailed Description . . . 234
12.31.2 Constructor & Destructor Documentation . . . 234
12.31.2.1 BaseQuery() . . . 234
12.31.2.2 ~BaseQuery() . . . 234
12.31.3 Member Function Documentation . . . 234
12.31.3.1 AddQueryDataSet() . . . 234
12.31.3.2 GetAbstractSyntaxUID() . . . 235
12.31.3.3 GetQueryDataSet() [1/2] . . . 235
12.31.3.4 GetQueryDataSet() [2/2] . . . 235
12.31.3.5 GetSOPInstanceUID() . . . 235
12.31.3.6 Print() . . . 235
12.31.3.7 SetSearchParameter() [1/3] . . . 235
12.31.3.8 SetSearchParameter() [2/3] . . . 235
12.31.3.9 SetSearchParameter() [3/3] . . . 236
12.31.3.10 SetSOPInstanceUID() . . . 236
12.31.3.11 ValidateQuery() . . . 236
12.31.3.12 ValidDataSet() . . . 236
12.31.3.13 WriteHelpFile() . . . 236
12.31.3.14 WriteQuery() . . . 236
12.31.4 Friends And Related Symbol Documentation . . . 236
12.31.4.1 QueryFactory . . . 236
12.31.5 Member Data Documentation . . . 237
12.31.5.1 mDataSet . . . 237
12.31.5.2 mSopInstanceUID . . . 237
12.32 gdcm::BaseRootQuery Class Reference . . . 237
12.32.1 Detailed Description . . . 239
12.32.2 Constructor & Destructor Documentation . . . 239
12.32.2.1 BaseRootQuery() . . . 239
12.32.2.2 ~BaseRootQuery() . . . 240
12.32.3 Member Function Documentation . . . 240
12.32.3.1 Construct() . . . 240
12.32.3.2 GetQueryLevelFromQueryRoot() . . . 240
12.32.3.3 GetQueryLevelFromString() . . . 240
12.32.3.4 GetQueryLevelString() . . . 240
12.32.3.5 GetTagListByLevel() . . . 240
12.32.3.6 InitializeDataSet() . . . 241
12.32.3.7 ValidateQuery() . . . 241
12.32.4 Friends And Related Symbol Documentation . . . 241

12.32.4.1 QueryFactory . . . 241
12.32.5 Member Data Documentation . . . 241
12.32.5.1 mHelpDescription . . . 241
12.32.5.2 mImage . . . 242
12.32.5.3 mPatient . . . 242
12.32.5.4 mRootType . . . 242
12.32.5.5 mSeries . . . 242
12.32.5.6 mStudy . . . 242
12.33 gdcm::SegmentHelper::BasicCodedEntry Struct Reference . . . 242
12.33.1 Detailed Description . . . 244
12.33.2 Constructor & Destructor Documentation . . . 244
12.33.2.1 BasicCodedEntry() [1/3] . . . 244
12.33.2.2 BasicCodedEntry() [2/3] . . . 244
12.33.2.3 BasicCodedEntry() [3/3] . . . 244
12.33.3 Member Function Documentation . . . 245
12.33.3.1 IsEmpty() . . . 245
12.33.4 Member Data Documentation . . . 245
12.33.4.1 CM . . . 245
12.33.4.2 CSD . . . 245
12.33.4.3 CSV . . . 245
12.33.4.4 CV . . . 245
12.34 gdcm::BasicOffsetTable Class Reference . . . 246
12.34.1 Detailed Description . . . 249
12.34.2 Constructor & Destructor Documentation . . . 249
12.34.2.1 BasicOffsetTable() . . . 249
12.34.3 Member Function Documentation . . . 249
12.34.3.1 Read() . . . 249
12.34.4 Friends And Related Symbol Documentation . . . 249
12.34.4.1 operator<< . . . 249
12.35 gdcm::Bitmap Class Reference . . . 250
12.35.1 Detailed Description . . . 253
12.35.2 Member Typedef Documentation . . . 253
12.35.2.1 LUTPtr . . . 253
12.35.3 Constructor & Destructor Documentation . . . 253
12.35.3.1 Bitmap() . . . 253
12.35.3.2 ~Bitmap() . . . 253
12.35.4 Member Function Documentation . . . 253
12.35.4.1 AreOverlaysInPixelData() . . . 253
12.35.4.2 Clear() . . . 253

12.35.4.3 ComputeLossyFlag() . . . 254
12.35.4.4 GetBuffer() . . . 254
12.35.4.5 GetBuffer2() . . . 254
12.35.4.6 GetBufferLength() . . . 254
12.35.4.7 GetColumns() . . . 254
12.35.4.8 GetDataElement() [1/2] . . . 254
12.35.4.9 GetDataElement() [2/2] . . . 255
12.35.4.10 GetDimension() . . . 255
12.35.4.11 GetDimensions() . . . 255
12.35.4.12 GetLUT() [1/2] . . . 255
12.35.4.13 GetLUT() [2/2] . . . 255
12.35.4.14 GetNeedByteSwap() . . . 256
12.35.4.15 GetNumberOfDimensions() . . . 256
12.35.4.16 GetPhotometricInterpretation() . . . 256
12.35.4.17 GetPixelFormat() [1/2] . . . 256
12.35.4.18 GetPixelFormat() [2/2] . . . 256
12.35.4.19 GetPlanarConfiguration() . . . 257
12.35.4.20 GetRows() . . . 257
12.35.4.21 GetTransferSyntax() . . . 257
12.35.4.22 IsEmpty() . . . 257
12.35.4.23 IsLossy() . . . 257
12.35.4.24 IsTransferSyntaxCompatible() . . . 257
12.35.4.25 Print() . . . 258
12.35.4.26 SetColumns() . . . 258
12.35.4.27 SetDataElement() . . . 258
12.35.4.28 SetDimension() . . . 258
12.35.4.29 SetDimensions() . . . 259
12.35.4.30 SetLossyFlag() . . . 259
12.35.4.31 SetLUT() . . . 259
12.35.4.32 SetNeedByteSwap() . . . 259
12.35.4.33 SetNumberOfDimensions() . . . 259
12.35.4.34 SetPhotometricInterpretation() . . . 260
12.35.4.35 SetPixelFormat() . . . 260
12.35.4.36 SetPlanarConfiguration() . . . 260
12.35.4.37 SetRows() . . . 260
12.35.4.38 SetTransferSyntax() . . . 261
12.35.4.39 TryJPEG2000Codec() . . . 261
12.35.4.40 TryJPEG2000Codec2() . . . 261
12.35.4.41 TryJPEGCodec() . . . 261

12.35.4.42 TryJPEGCodec2() . . . 261
12.35.4.43 TryJPEGLSCodec() . . . 261
12.35.4.44 TryKAKADUCodec() . . . 262
12.35.4.45 TryPVRGCodec() . . . 262
12.35.4.46 TryRAWCodec() . . . 262
12.35.4.47 TryRLECodec() . . . 262
12.35.4.48 UnusedBitsPresentInPixelData() . . . 262
12.35.5 Friends And Related Symbol Documentation . . . 262
12.35.5.1 ImageChangeTransferSyntax . . . 262
12.35.5.2 PixmapReader . . . 263
12.35.6 Member Data Documentation . . . 263
12.35.6.1 Dimensions . . . 263
12.35.6.2 LossyFlag . . . 263
12.35.6.3 LUT . . . 263
12.35.6.4 NeedByteSwap . . . 263
12.35.6.5 NumberOfDimensions . . . 263
12.35.6.6 PF . . . 263
12.35.6.7 PI . . . 264
12.35.6.8 PixelData . . . 264
12.35.6.9 PlanarConfiguration . . . 264
12.35.6.10 TS . . . 264
12.36 gdcm::BitmapToBitmapFilter Class Reference . . . 264
12.36.1 Detailed Description . . . 265
12.36.2 Constructor & Destructor Documentation . . . 266
12.36.2.1 BitmapToBitmapFilter() . . . 266
12.36.2.2 ∼BitmapToBitmapFilter() . . . 266
12.36.3 Member Function Documentation . . . 266
12.36.3.1 GetOutput() . . . 266
12.36.3.2 GetOutputAsBitmap() . . . 266
12.36.3.3 SetInput() . . . 266
12.36.4 Member Data Documentation . . . 266
12.36.4.1 Input . . . 266
12.36.4.2 Output . . . 267
12.37 gdcm::BoxRegion Class Reference . . . 267
12.37.1 Detailed Description . . . 268
12.37.2 Constructor & Destructor Documentation . . . 269
12.37.2.1 BoxRegion() [1/2] . . . 269
12.37.2.2 ∼BoxRegion() . . . 269
12.37.2.3 BoxRegion() [2/2] . . . 269

12.37.3 Member Function Documentation . . . 269
12.37.3.1 Area() . . . 269
12.37.3.2 BoundingBox() . . . 269
12.37.3.3 Clone() . . . 270
12.37.3.4 ComputeBoundingBox() . . . 270
12.37.3.5 Empty() . . . 270
12.37.3.6 GetXMax() . . . 270
12.37.3.7 GetXMin() . . . 270
12.37.3.8 GetYMax() . . . 270
12.37.3.9 GetYMin() . . . 270
12.37.3.10 GetZMax() . . . 271
12.37.3.11 GetZMin() . . . 271
12.37.3.12 IsValid() . . . 271
12.37.3.13 operator=() . . . 271
12.37.3.14 Print() . . . 271
12.37.3.15 SetDomain() . . . 271
12.38 gdcm::ByteBuffer Class Reference . . . 272
12.38.1 Detailed Description . . . 272
12.38.2 Constructor & Destructor Documentation . . . 272
12.38.2.1 ByteBuffer() . . . 272
12.38.3 Member Function Documentation . . . 272
12.38.3.1 Get() . . . 272
12.38.3.2 GetStart() . . . 272
12.38.3.3 ShiftEnd() . . . 273
12.38.3.4 UpdatePosition() . . . 273
12.39 gdcm::ByteSwap< T > Class Template Reference . . . 273
12.39.1 Detailed Description . . . 273
12.39.2 Member Function Documentation . . . 273
12.39.2.1 Swap() . . . 273
12.39.2.2 SwapFromSwapCodeIntoSystem() . . . 274
12.39.2.3 SwapRange() . . . 274
12.39.2.4 SwapRangeFromSwapCodeIntoSystem() . . . 274
12.39.2.5 SystemIsBigEndian() . . . 274
12.39.2.6 SystemIsLittleEndian() . . . 275
12.40 gdcm::ByteSwapFilter Class Reference . . . 275
12.40.1 Detailed Description . . . 275
12.40.2 Constructor & Destructor Documentation . . . 275
12.40.2.1 ByteSwapFilter() [1/2] . . . 275
12.40.2.2 ~ByteSwapFilter() . . . 276

12.40.2.3 ByteSwapFilter() [2/2] . . . 276
12.40.3 Member Function Documentation . . . 276
12.40.3.1 ByteSwap() . . . 276
12.40.3.2 operator=() . . . 276
12.40.3.3 SetByteSwapTag() . . . 276
12.41 gdcm::ByteValue Class Reference . . . 277
12.41.1 Detailed Description . . . 279
12.41.2 Constructor & Destructor Documentation . . . 279
12.41.2.1 ByteValue() [1/2] . . . 279
12.41.2.2 ByteValue() [2/2] . . . 279
12.41.2.3 ∼ByteValue() . . . 279
12.41.3 Member Function Documentation . . . 280
12.41.3.1 Append() . . . 280
12.41.3.2 Clear() . . . 280
12.41.3.3 ComputeLength() . . . 280
12.41.3.4 Fill() . . . 280
12.41.3.5 GetBuffer() . . . 280
12.41.3.6 GetLength() . . . 281
12.41.3.7 GetPointer() . . . 281
12.41.3.8 GetVoidPointer() [1/2] . . . 281
12.41.3.9 GetVoidPointer() [2/2] . . . 281
12.41.3.10 IsEmpty() . . . 282
12.41.3.11 IsPrintable() . . . 282
12.41.3.12 operator const std::vector< char > &() . . . 282
12.41.3.13 operator=() . . . 282
12.41.3.14 operator==() [1/2] . . . 282
12.41.3.15 operator==() [2/2] . . . 282
12.41.3.16 Print() . . . 283
12.41.3.17 PrintASCII() . . . 283
12.41.3.18 PrintASCIIXML() . . . 283
12.41.3.19 PrintGroupLength() . . . 283
12.41.3.20 PrintHex() . . . 283
12.41.3.21 PrintHexXML() . . . 283
12.41.3.22 PrintPNXML() . . . 283
12.41.3.23 Read() [1/2] . . . 284
12.41.3.24 Read() [2/2] . . . 284
12.41.3.25 SetLength() . . . 284
12.41.3.26 SetLengthOnly() . . . 284
12.41.3.27 Write() [1/2] . . . 284

12.41.3.28 Write() [2/2] . . . 285
12.41.3.29 WriteBuffer() . . . 285
12.42 gdcm::CAPICryptoFactory Class Reference . . . 285
12.42.1 Constructor & Destructor Documentation . . . 286
12.42.1.1 CAPICryptoFactory() . . . 286
12.42.2 Member Function Documentation . . . 287
12.42.2.1 CreateCMSProvider() . . . 287
12.43 gdcm::CAPICryptographicMessageSyntax Class Reference . . . 287
12.43.1 Constructor & Destructor Documentation . . . 288
12.43.1.1 CAPICryptographicMessageSyntax() . . . 288
12.43.1.2 ∼CAPICryptographicMessageSyntax() . . . 288
12.43.2 Member Function Documentation . . . 289
12.43.2.1 Decrypt() . . . 289
12.43.2.2 Encrypt() . . . 289
12.43.2.3 GetCipherType() . . . 289
12.43.2.4 GetInitialized() . . . 289
12.43.2.5 ParseCertificateFile() . . . 289
12.43.2.6 ParseKeyFile() . . . 290
12.43.2.7 SetCipherType() . . . 290
12.43.2.8 SetPassword() . . . 290
12.44 gdcm::network::CEchoRQ Class Reference . . . 290
12.44.1 Detailed Description . . . 291
12.44.2 Member Function Documentation . . . 292
12.44.2.1 ConstructPDV() . . . 292
12.44.3 Member Data Documentation . . . 292
12.44.3.1 AffectedSOPClassUID . . . 292
12.44.3.2 MessageID . . . 292
12.45 gdcm::network::CEchoRSP Class Reference . . . 292
12.45.1 Detailed Description . . . 293
12.45.2 Member Function Documentation . . . 293
12.45.2.1 ConstructPDVByDataSet() . . . 293
12.46 gdcm::network::CFind Class Reference . . . 293
12.46.1 Detailed Description . . . 294
12.47 gdcm::network::CFindCancelRQ Class Reference . . . 294
12.47.1 Detailed Description . . . 295
12.47.2 Member Function Documentation . . . 295
12.47.2.1 ConstructPDVByDataSet() . . . 295
12.48 gdcm::network::CFindRQ Class Reference . . . 295
12.48.1 Detailed Description . . . 296

12.48.2 Member Function Documentation . . . 296
12.48.2.1 ConstructPDV() . . . 296
12.49 gdcm::network::CFindRSP Class Reference . . . 297
12.49.1 Detailed Description . . . 298
12.49.2 Member Function Documentation . . . 298
12.49.2.1 ConstructPDVByDataSet() . . . 298
12.50 gdcm::Cleaner Class Reference . . . 298
12.50.1 Detailed Description . . . 301
12.50.2 Member Typedef Documentation . . . 301
12.50.2.1 CodedEntryData . . . 301
12.50.3 Constructor & Destructor Documentation . . . 301
12.50.3.1 Cleaner() . . . 301
12.50.3.2 ∼Cleaner() . . . 301
12.50.4 Member Function Documentation . . . 301
12.50.4.1 Clean() . . . 301
12.50.4.2 Empty() [1/4] . . . 302
12.50.4.3 Empty() [2/4] . . . 302
12.50.4.4 Empty() [3/4] . . . 302
12.50.4.5 Empty() [4/4] . . . 302
12.50.4.6 EmptyWhenScrubFails() . . . 302
12.50.4.7 GetFile() . . . 302
12.50.4.8 New() . . . 303
12.50.4.9 Preserve() . . . 303
12.50.4.10 Remove() [1/4] . . . 303
12.50.4.11 Remove() [2/4] . . . 303
12.50.4.12 Remove() [3/4] . . . 303
12.50.4.13 Remove() [4/4] . . . 303
12.50.4.14 RemoveAllGroupLength() . . . 304
12.50.4.15 RemoveAllIllegal() . . . 304
12.50.4.16 RemoveAllMissingPrivateCreator() . . . 304
12.50.4.17 RemoveMissingPrivateCreator() . . . 304
12.50.4.18 ReplaceCodeMeaning() . . . 304
12.50.4.19 Scrub() [1/4] . . . 304
12.50.4.20 Scrub() [2/4] . . . 304
12.50.4.21 Scrub() [3/4] . . . 305
12.50.4.22 Scrub() [4/4] . . . 305
12.50.4.23 SetFile() . . . 305
12.51 gdcm::network::CMoveCancelRq Class Reference . . . 305
12.51.1 Member Function Documentation . . . 306

12.51.1.1 ConstructPDVByDataSet() . . . 306
12.52 gdcm::network::CMoveRQ Class Reference . . . 307
12.52.1 Detailed Description . . . 308
12.52.2 Member Function Documentation . . . 308
12.52.2.1 ConstructPDV() . . . 308
12.53 gdcm::network::CMoveRSP Class Reference . . . 308
12.53.1 Detailed Description . . . 309
12.53.2 Member Function Documentation . . . 309
12.53.2.1 ConstructPDVByDataSet() . . . 309
12.54 gdcm::Codec Class Reference . . . 310
12.54.1 Detailed Description . . . 311
12.55 gdcm::Coder Class Reference . . . 311
12.55.1 Detailed Description . . . 312
12.55.2 Constructor & Destructor Documentation . . . 312
12.55.2.1 ~Coder() . . . 312
12.55.3 Member Function Documentation . . . 312
12.55.3.1 CanCode() . . . 312
12.55.3.2 Code() . . . 312
12.55.3.3 InternalCode() . . . 313
12.56 gdcm::CodeString Class Reference . . . 313
12.56.1 Detailed Description . . . 314
12.56.2 Member Typedef Documentation . . . 314
12.56.2.1 const_iterator . . . 314
12.56.2.2 const_reference . . . 314
12.56.2.3 const_reverse_iterator . . . 314
12.56.2.4 difference_type . . . 315
12.56.2.5 iterator . . . 315
12.56.2.6 pointer . . . 315
12.56.2.7 reference . . . 315
12.56.2.8 reverse_iterator . . . 315
12.56.2.9 size_type . . . 315
12.56.2.10 value_type . . . 315
12.56.3 Constructor & Destructor Documentation . . . 315
12.56.3.1 CodeString() [1/4] . . . 315
12.56.3.2 CodeString() [2/4] . . . 316
12.56.3.3 CodeString() [3/4] . . . 316
12.56.3.4 CodeString() [4/4] . . . 316
12.56.4 Member Function Documentation . . . 316
12.56.4.1 GetAsString() . . . 316

12.56.4.2 IsValid() . . . 316
12.56.4.3 Size() . . . 316
12.56.4.4 TrimInternal() . . . 316
12.56.5 Friends And Related Symbol Documentation . . . 317
12.56.5.1 operator"!= . . . 317
12.56.5.2 operator<< . . . 317
12.56.5.3 operator== . . . 317
12.57 gdcm::Command Class Reference . . . 317
12.57.1 Detailed Description . . . 319
12.57.2 Constructor & Destructor Documentation . . . 319
12.57.2.1 Command() [1/2] . . . 319
12.57.2.2 Command() [2/2] . . . 319
12.57.2.3 ~Command() . . . 319
12.57.3 Member Function Documentation . . . 320
12.57.3.1 Execute() [1/2] . . . 320
12.57.3.2 Execute() [2/2] . . . 320
12.57.3.3 operator=() . . . 320
12.58 gdcm::CommandDataSet Class Reference . . . 321
12.58.1 Detailed Description . . . 323
12.58.2 Constructor & Destructor Documentation . . . 323
12.58.2.1 CommandDataSet() . . . 323
12.58.2.2 ~CommandDataSet() . . . 324
12.58.3 Member Function Documentation . . . 324
12.58.3.1 Insert() . . . 324
12.58.3.2 Read() . . . 324
12.58.3.3 Replace() . . . 324
12.58.3.4 Write() . . . 324
12.58.4 Friends And Related Symbol Documentation . . . 325
12.58.4.1 operator<< . . . 325
12.59 gdcm::network::CompositeMessageFactory Class Reference . . . 325
12.59.1 Detailed Description . . . 325
12.59.2 Member Function Documentation . . . 326
12.59.2.1 ConstructCEchoRQ() . . . 326
12.59.2.2 ConstructCFindRQ() . . . 326
12.59.2.3 ConstructCMoveRQ() . . . 326
12.59.2.4 ConstructCStoreRQ() . . . 326
12.59.2.5 ConstructCStoreRSP() . . . 326
12.60 gdcm::CompositeNetworkFunctions Class Reference . . . 326
12.60.1 Detailed Description . . . 327

12.60.2 Member Typedef Documentation . . . 327
12.60.2.1 KeyValuePairArrayType . . . 327
12.60.2.2 KeyValuePairType . . . 328
12.60.3 Member Function Documentation . . . 328
12.60.3.1 CEcho() . . . 328
12.60.3.2 CFind() . . . 328
12.60.3.3 CMove() . . . 329
12.60.3.4 ConstructQuery() [1/2] . . . 330
12.60.3.5 ConstructQuery() [2/2] . . . 330
12.60.3.6 CStore() . . . 330
12.61 gdcm::ConstCharWrapper Class Reference . . . 331
12.61.1 Detailed Description . . . 331
12.61.2 Constructor & Destructor Documentation . . . 332
12.61.2.1 ConstCharWrapper() . . . 332
12.61.3 Member Function Documentation . . . 332
12.61.3.1 operator const char *() . . . 332
12.62 gdcm::CP246ExplicitDataElement Class Reference . . . 332
12.62.1 Detailed Description . . . 335
12.62.2 Member Function Documentation . . . 335
12.62.2.1 GetLength() . . . 335
12.62.2.2 Read() . . . 335
12.62.2.3 ReadPreValue() . . . 335
12.62.2.4 ReadValue() . . . 335
12.62.2.5 ReadWithLength() . . . 336
12.63 gdcm::CryptoFactory Class Reference . . . 336
12.63.1 Detailed Description . . . 337
12.63.2 Member Enumeration Documentation . . . 337
12.63.2.1 CryptoLib . . . 337
12.63.3 Constructor & Destructor Documentation . . . 337
12.63.3.1 CryptoFactory() [1/2] . . . 337
12.63.3.2 CryptoFactory() [2/2] . . . 338
12.63.3.3 ~CryptoFactory() . . . 338
12.63.4 Member Function Documentation . . . 338
12.63.4.1 CreateCMSProvider() . . . 338
12.63.4.2 GetFactoryInstance() . . . 338
12.64 gdcm::CryptographicMessageSyntax Class Reference . . . 338
12.64.1 Member Enumeration Documentation . . . 339
12.64.1.1 CipherTypes . . . 339
12.64.2 Constructor & Destructor Documentation . . . 339

12.64.2.1 CryptographicMessageSyntax() [1/2] . . . 339
12.64.2.2 ~CryptographicMessageSyntax() . . . 340
12.64.2.3 CryptographicMessageSyntax() [2/2] . . . 340
12.64.3 Member Function Documentation . . . 340
12.64.3.1 Decrypt() . . . 340
12.64.3.2 Encrypt() . . . 340
12.64.3.3 GetCipherType() . . . 340
12.64.3.4 operator=() . . . 341
12.64.3.5 ParseCertificateFile() . . . 341
12.64.3.6 ParseKeyFile() . . . 341
12.64.3.7 SetCipherType() . . . 341
12.64.3.8 SetPassword() . . . 341
12.65 gdcm::CSAElement Class Reference . . . 342
12.65.1 Detailed Description . . . 343
12.65.2 Member Typedef Documentation . . . 344
12.65.2.1 DataPtr . . . 344
12.65.3 Constructor & Destructor Documentation . . . 344
12.65.3.1 CSAElement() [1/2] . . . 344
12.65.3.2 CSAElement() [2/2] . . . 344
12.65.4 Member Function Documentation . . . 344
12.65.4.1 GetByteValue() . . . 344
12.65.4.2 GetKey() . . . 345
12.65.4.3 GetName() . . . 345
12.65.4.4 GetNoOfItems() . . . 345
12.65.4.5 GetSyngoDT() . . . 345
12.65.4.6 GetValue() [1/2] . . . 345
12.65.4.7 GetValue() [2/2] . . . 346
12.65.4.8 GetVM() . . . 346
12.65.4.9 GetVR() . . . 346
12.65.4.10 IsEmpty() . . . 346
12.65.4.11 operator<() . . . 346
12.65.4.12 operator=() . . . 347
12.65.4.13 operator==() . . . 347
12.65.4.14 SetByteValue() . . . 347
12.65.4.15 SetKey() . . . 347
12.65.4.16 SetName() . . . 347
12.65.4.17 SetNoOfItems() . . . 347
12.65.4.18 SetSyngoDT() . . . 348
12.65.4.19 SetValue() . . . 348

12.65.4.20 SetVM() . . . 348
12.65.4.21 SetVR() . . . 348
12.65.5 Friends And Related Symbol Documentation . . . 348
12.65.5.1 operator<< . . . 348
12.65.6 Member Data Documentation . . . 349
12.65.6.1 DataField . . . 349
12.65.6.2 KeyField . . . 349
12.65.6.3 NameField . . . 349
12.65.6.4 NoOfItemsField . . . 349
12.65.6.5 SyngoDTField . . . 349
12.65.6.6 ValueMultiplicityField . . . 349
12.65.6.7 VRField . . . 350
12.66 gdcm::CSAHeader Class Reference . . . 350
12.66.1 Detailed Description . . . 351
12.66.2 Member Enumeration Documentation . . . 352
12.66.2.1 CSAHeaderType . . . 352
12.66.3 Constructor & Destructor Documentation . . . 352
12.66.3.1 CSAHeader() . . . 352
12.66.3.2 ~CSAHeader() . . . 352
12.66.4 Member Function Documentation . . . 352
12.66.4.1 FindCSAElementByName() . . . 352
12.66.4.2 GetCSADataInfo() . . . 353
12.66.4.3 GetCSAEEnd() . . . 353
12.66.4.4 GetCSAElementByName() . . . 353
12.66.4.5 GetCSAImageHeaderInfoTag() . . . 353
12.66.4.6 GetCSASeriesHeaderInfoTag() . . . 353
12.66.4.7 GetDataSet() . . . 354
12.66.4.8 GetFormat() . . . 354
12.66.4.9 GetInterfile() . . . 354
12.66.4.10 GetMrProtocol() . . . 354
12.66.4.11 LoadFromDataElement() . . . 354
12.66.4.12 Print() . . . 355
12.66.5 Friends And Related Symbol Documentation . . . 355
12.66.5.1 operator<< . . . 355
12.67 gdcm::CSAHeaderDict Class Reference . . . 355
12.67.1 Detailed Description . . . 356
12.67.2 Member Typedef Documentation . . . 356
12.67.2.1 ConstIterator . . . 356
12.67.2.2 Iterator . . . 356

12.67.2.3 MapCSAHeaderDictEntry . . . 356
12.67.3 Constructor & Destructor Documentation . . . 356
12.67.3.1 CSAHeaderDict() [1/2] . . . 356
12.67.3.2 CSAHeaderDict() [2/2] . . . 357
12.67.4 Member Function Documentation . . . 357
12.67.4.1 AddCSAHeaderDictEntry() . . . 357
12.67.4.2 Begin() . . . 357
12.67.4.3 End() . . . 357
12.67.4.4 GetCSAHeaderDictEntry() . . . 357
12.67.4.5 IsEmpty() . . . 357
12.67.4.6 LoadDefault() . . . 357
12.67.4.7 operator=() . . . 358
12.67.5 Friends And Related Symbol Documentation . . . 358
12.67.5.1 Dicts . . . 358
12.67.5.2 operator<< . . . 358
12.68 gdcm::CSAHeaderDictEntry Class Reference . . . 358
12.68.1 Detailed Description . . . 359
12.68.2 Constructor & Destructor Documentation . . . 360
12.68.2.1 CSAHeaderDictEntry() . . . 360
12.68.3 Member Function Documentation . . . 360
12.68.3.1 GetDescription() . . . 360
12.68.3.2 GetName() . . . 360
12.68.3.3 GetVM() . . . 360
12.68.3.4 GetVR() . . . 360
12.68.3.5 operator<() . . . 361
12.68.3.6 SetDescription() . . . 361
12.68.3.7 SetName() . . . 361
12.68.3.8 SetVM() . . . 361
12.68.3.9 SetVR() . . . 361
12.68.4 Friends And Related Symbol Documentation . . . 361
12.68.4.1 operator<< . . . 361
12.69 gdcm::CSAHeaderDictException Class Reference . . . 362
12.70 gdcm::network::CStoreRQ Class Reference . . . 362
12.70.1 Detailed Description . . . 363
12.70.2 Member Function Documentation . . . 364
12.70.2.1 ConstructPDV() . . . 364
12.71 gdcm::network::CStoreRSP Class Reference . . . 364
12.71.1 Detailed Description . . . 365
12.71.2 Member Function Documentation . . . 365

12.71.2.1 ConstructPDV() . . . 365
12.72 gdcm::Curve Class Reference . . . 365
12.72.1 Detailed Description . . . 367
12.72.2 Constructor & Destructor Documentation . . . 367
12.72.2.1 Curve() [1/2] . . . 367
12.72.2.2 ~Curve() . . . 367
12.72.2.3 Curve() [2/2] . . . 367
12.72.3 Member Function Documentation . . . 368
12.72.3.1 Decode() . . . 368
12.72.3.2 GetAsPoints() . . . 368
12.72.3.3 GetCurveDataDescriptor() . . . 368
12.72.3.4 GetDataValueRepresentation() . . . 368
12.72.3.5 GetDimensions() . . . 368
12.72.3.6 GetGroup() . . . 368
12.72.3.7 GetNumberOfCurves() . . . 368
12.72.3.8 GetNumberOfPoints() . . . 368
12.72.3.9 GetTypeOfData() . . . 369
12.72.3.10 GetTypeOfDataDescription() . . . 369
12.72.3.11 IsEmpty() . . . 369
12.72.3.12 Print() . . . 369
12.72.3.13 SetCoordinateStartValue() . . . 369
12.72.3.14 SetCoordinateStepValue() . . . 369
12.72.3.15 SetCurve() . . . 369
12.72.3.16 SetCurveDataDescriptor() . . . 369
12.72.3.17 SetCurveDescription() . . . 370
12.72.3.18 SetDataValueRepresentation() . . . 370
12.72.3.19 SetDimensions() . . . 370
12.72.3.20 SetGroup() . . . 370
12.72.3.21 SetNumberOfPoints() . . . 370
12.72.3.22 SetTypeOfData() . . . 370
12.72.3.23 Update() . . . 370
12.73 gdcm::DataElement Class Reference . . . 371
12.73.1 Detailed Description . . . 373
12.73.2 Member Typedef Documentation . . . 374
12.73.2.1 ValuePtr . . . 374
12.73.3 Constructor & Destructor Documentation . . . 374
12.73.3.1 DataElement() [1/2] . . . 374
12.73.3.2 DataElement() [2/2] . . . 374
12.73.4 Member Function Documentation . . . 374

12.73.4.1 Clear() . . . 374
12.73.4.2 Empty() . . . 374
12.73.4.3 GetByteValue() . . . 375
12.73.4.4 GetLength() . . . 375
12.73.4.5 GetSequenceOfFragments() [1/2] . . . 375
12.73.4.6 GetSequenceOfFragments() [2/2] . . . 375
12.73.4.7 GetTag() [1/2] . . . 376
12.73.4.8 GetTag() [2/2] . . . 376
12.73.4.9 GetValue() [1/2] . . . 376
12.73.4.10 GetValue() [2/2] . . . 376
12.73.4.11 GetValueAsSQ() . . . 377
12.73.4.12 GetVL() [1/2] . . . 377
12.73.4.13 GetVL() [2/2] . . . 377
12.73.4.14 GetVR() . . . 378
12.73.4.15 IsEmpty() . . . 378
12.73.4.16 IsUndefinedLength() . . . 378
12.73.4.17 operator<() . . . 379
12.73.4.18 operator=() . . . 379
12.73.4.19 operator==() . . . 379
12.73.4.20 Read() . . . 379
12.73.4.21 ReadOrSkip() . . . 379
12.73.4.22 ReadPreValue() . . . 380
12.73.4.23 ReadValue() . . . 380
12.73.4.24 ReadValueWithLength() . . . 380
12.73.4.25 ReadWithLength() . . . 380
12.73.4.26 SetByteValue() . . . 381
12.73.4.27 SetTag() . . . 381
12.73.4.28 SetValue() . . . 382
12.73.4.29 SetValueFieldLength() . . . 382
12.73.4.30 SetVL() . . . 382
12.73.4.31 SetVLToUndefined() . . . 382
12.73.4.32 SetVR() . . . 383
12.73.4.33 Write() . . . 383
12.73.5 Friends And Related Symbol Documentation . . . 383
12.73.5.1 operator<< . . . 383
12.73.6 Member Data Documentation . . . 384
12.73.6.1 TagField . . . 384
12.73.6.2 ValueField . . . 384
12.73.6.3 ValueLengthField . . . 384

12.73.6.4 VRField . . . 384
12.74 gdcm::DataElementException Class Reference . . . 385
12.75 gdcm::DataEvent Class Reference . . . 385
12.75.1 Detailed Description . . . 387
12.75.2 Member Typedef Documentation . . . 387
12.75.2.1 Self . . . 387
12.75.2.2 Superclass . . . 387
12.75.3 Constructor & Destructor Documentation . . . 387
12.75.3.1 DataEvent() [1/2] . . . 387
12.75.3.2 ~DataEvent() . . . 388
12.75.3.3 DataEvent() [2/2] . . . 388
12.75.4 Member Function Documentation . . . 388
12.75.4.1 CheckEvent() . . . 388
12.75.4.2 GetData() . . . 388
12.75.4.3 GetDataLength() . . . 388
12.75.4.4 GetEventName() . . . 388
12.75.4.5 MakeObject() . . . 388
12.75.4.6 operator=() . . . 389
12.75.4.7 SetData() . . . 389
12.76 gdcm::DataSet Class Reference . . . 389
12.76.1 Detailed Description . . . 391
12.76.2 Member Typedef Documentation . . . 392
12.76.2.1 ConstIterator . . . 392
12.76.2.2 DataElementSet . . . 392
12.76.2.3 Iterator . . . 392
12.76.2.4 SizeType . . . 392
12.76.3 Member Function Documentation . . . 393
12.76.3.1 Begin() [1/2] . . . 393
12.76.3.2 Begin() [2/2] . . . 393
12.76.3.3 Clear() . . . 393
12.76.3.4 ComputeDataElement() . . . 393
12.76.3.5 ComputeGroupLength() . . . 393
12.76.3.6 End() [1/2] . . . 393
12.76.3.7 End() [2/2] . . . 394
12.76.3.8 FindDataElement() [1/2] . . . 394
12.76.3.9 FindDataElement() [2/2] . . . 394
12.76.3.10 FindNextDataElement() . . . 394
12.76.3.11 GetDataElement() [1/2] . . . 395
12.76.3.12 GetDataElement() [2/2] . . . 395

12.76.3.13 GetDEEnd() . . . 395
12.76.3.14 GetDES() [1/2] . . . 395
12.76.3.15 GetDES() [2/2] . . . 396
12.76.3.16 GetLength() . . . 396
12.76.3.17 GetMediaStorage() . . . 396
12.76.3.18 GetPrivateCreator() . . . 396
12.76.3.19 GetPrivateTag() . . . 396
12.76.3.20 Insert() . . . 397
12.76.3.21 InsertDataElement() . . . 397
12.76.3.22 IsEmpty() . . . 397
12.76.3.23 operator()() . . . 397
12.76.3.24 operator=() . . . 398
12.76.3.25 operator[]() . . . 398
12.76.3.26 Print() . . . 398
12.76.3.27 Read() . . . 398
12.76.3.28 ReadNested() . . . 398
12.76.3.29 ReadSelectedPrivateTags() . . . 398
12.76.3.30 ReadSelectedPrivateTagsWithLength() . . . 399
12.76.3.31 ReadSelectedTags() . . . 399
12.76.3.32 ReadSelectedTagsWithLength() . . . 399
12.76.3.33 ReadUpToTag() . . . 399
12.76.3.34 ReadUpToTagWithLength() . . . 399
12.76.3.35 ReadWithLength() . . . 400
12.76.3.36 Remove() . . . 400
12.76.3.37 Replace() . . . 400
12.76.3.38 ReplaceEmpty() . . . 400
12.76.3.39 Size() . . . 401
12.76.3.40 Write() . . . 401
12.76.4 Friends And Related Symbol Documentation . . . 401
12.76.4.1 CSAHeader . . . 401
12.76.4.2 operator<< . . . 401
12.77 gdcm::DataSetEvent Class Reference . . . 402
12.77.1 Detailed Description . . . 403
12.77.2 Member Typedef Documentation . . . 403
12.77.2.1 Self . . . 403
12.77.2.2 Superclass . . . 403
12.77.3 Constructor & Destructor Documentation . . . 404
12.77.3.1 DataSetEvent() [1/2] . . . 404
12.77.3.2 ~DataSetEvent() . . . 404

12.77.3.3 DataSetEvent() [2/2] . . . 404
12.77.4 Member Function Documentation . . . 404
12.77.4.1 CheckEvent() . . . 404
12.77.4.2 GetDataSet() . . . 404
12.77.4.3 GetEventName() . . . 404
12.77.4.4 MakeObject() . . . 405
12.77.4.5 operator=() . . . 405
12.77.5 Member Data Documentation . . . 405
12.77.5.1 m_DataSet . . . 405
12.78 gdcm::DataSetHelper Class Reference . . . 405
12.78.1 Detailed Description . . . 405
12.78.2 Member Function Documentation . . . 406
12.78.2.1 ComputeVR() . . . 406
12.79 gdcm::Decoder Class Reference . . . 406
12.79.1 Detailed Description . . . 407
12.79.2 Constructor & Destructor Documentation . . . 407
12.79.2.1 ∼Decoder() . . . 407
12.79.3 Member Function Documentation . . . 407
12.79.3.1 CanDecode() . . . 407
12.79.3.2 Decode() . . . 407
12.79.3.3 DecodeByStreams() . . . 408
12.80 gdcm::DefinedTerms Class Reference . . . 408
12.80.1 Detailed Description . . . 408
12.80.2 Constructor & Destructor Documentation . . . 408
12.80.2.1 DefinedTerms() . . . 408
12.81 gdcm::Defs Class Reference . . . 409
12.81.1 Detailed Description . . . 409
12.81.2 Constructor & Destructor Documentation . . . 410
12.81.2.1 Defs() [1/2] . . . 410
12.81.2.2 ∼Defs() . . . 410
12.81.2.3 Defs() [2/2] . . . 410
12.81.3 Member Function Documentation . . . 410
12.81.3.1 GetIODFromFile() . . . 410
12.81.3.2 GetIODNameFromMediaStorage() . . . 410
12.81.3.3 GetIODs() [1/2] . . . 410
12.81.3.4 GetIODs() [2/2] . . . 411
12.81.3.5 GetMacros() [1/2] . . . 411
12.81.3.6 GetMacros() [2/2] . . . 411
12.81.3.7 GetModules() [1/2] . . . 411

12.81.3.8 GetModules() [2/2] . . . 411
12.81.3.9 GetTypeFromTag() . . . 411
12.81.3.10 IsEmpty() . . . 412
12.81.3.11 LoadDefaults() . . . 412
12.81.3.12 LoadFromFile() . . . 412
12.81.3.13 operator=() . . . 412
12.81.3.14 Verify() [1/2] . . . 412
12.81.3.15 Verify() [2/2] . . . 412
12.81.4 Friends And Related Symbol Documentation . . . 412
12.81.4.1 Global . . . 412
12.82 gdcm::DeltaEncodingCodec Class Reference . . . 413
12.82.1 Detailed Description . . . 415
12.82.2 Constructor & Destructor Documentation . . . 416
12.82.2.1 DeltaEncodingCodec() . . . 416
12.82.2.2 ∼DeltaEncodingCodec() . . . 416
12.82.3 Member Function Documentation . . . 416
12.82.3.1 CanDecode() . . . 416
12.82.3.2 Decode() [1/2] . . . 416
12.82.3.3 Decode() [2/2] . . . 416
12.83 gdcm::DICOMDIR Class Reference . . . 416
12.83.1 Detailed Description . . . 417
12.83.2 Constructor & Destructor Documentation . . . 417
12.83.2.1 DICOMDIR() [1/2] . . . 417
12.83.2.2 DICOMDIR() [2/2] . . . 417
12.84 gdcm::DICOMDIRGenerator Class Reference . . . 417
12.84.1 Detailed Description . . . 418
12.84.2 Member Typedef Documentation . . . 419
12.84.2.1 FilenamesType . . . 419
12.84.2.2 FilenameType . . . 419
12.84.3 Constructor & Destructor Documentation . . . 419
12.84.3.1 DICOMDIRGenerator() . . . 419
12.84.3.2 ∼DICOMDIRGenerator() . . . 419
12.84.4 Member Function Documentation . . . 419
12.84.4.1 AddImageDirectoryRecord() . . . 419
12.84.4.2 AddPatientDirectoryRecord() . . . 419
12.84.4.3 AddSeriesDirectoryRecord() . . . 419
12.84.4.4 AddStudyDirectoryRecord() . . . 419
12.84.4.5 Generate() . . . 420
12.84.4.6 GetFile() . . . 420

12.84.4.7 GetScanner() . . . 420
12.84.4.8 SetDescriptor() . . . 420
12.84.4.9 SetFile() . . . 420
12.84.4.10 SetFilenames() . . . 421
12.84.4.11 SetRootDirectory() . . . 421
12.85 gdcm::Dict Class Reference . . . 421
12.85.1 Detailed Description . . . 422
12.85.2 Member Typedef Documentation . . . 422
12.85.2.1 ConstIterator . . . 422
12.85.2.2 Iterator . . . 422
12.85.2.3 MapDictEntry . . . 422
12.85.3 Constructor & Destructor Documentation . . . 422
12.85.3.1 Dict() [1/2] . . . 422
12.85.3.2 Dict() [2/2] . . . 423
12.85.4 Member Function Documentation . . . 423
12.85.4.1 AddDictEntry() . . . 423
12.85.4.2 Begin() . . . 423
12.85.4.3 End() . . . 423
12.85.4.4 GetDictEntry() . . . 423
12.85.4.5 GetDictEntryByKeyword() . . . 424
12.85.4.6 GetDictEntryByName() . . . 424
12.85.4.7 GetKeywordFromTag() . . . 424
12.85.4.8 IsEmpty() . . . 424
12.85.4.9 LoadDefault() . . . 424
12.85.4.10 operator=() . . . 425
12.85.5 Friends And Related Symbol Documentation . . . 425
12.85.5.1 Dicts . . . 425
12.85.5.2 operator<< . . . 425
12.86 gdcm::DictConverter Class Reference . . . 425
12.86.1 Detailed Description . . . 426
12.86.2 Member Enumeration Documentation . . . 427
12.86.2.1 OutputTypes . . . 427
12.86.3 Constructor & Destructor Documentation . . . 427
12.86.3.1 DictConverter() . . . 427
12.86.3.2 ~DictConverter() . . . 427
12.86.4 Member Function Documentation . . . 427
12.86.4.1 AddGroupLength() . . . 427
12.86.4.2 Convert() . . . 427
12.86.4.3 ConvertToCXX() . . . 427

12.86.4.4 ConvertToXML() . . . 428
12.86.4.5 GetDictName() . . . 428
12.86.4.6 GetInputFilename() . . . 428
12.86.4.7 GetOutputFilename() . . . 428
12.86.4.8 GetOutputType() . . . 428
12.86.4.9 Readuint16() . . . 428
12.86.4.10 ReadVM() . . . 428
12.86.4.11 ReadVR() . . . 428
12.86.4.12 SetDictName() . . . 429
12.86.4.13 SetInputFileName() . . . 429
12.86.4.14 SetOutputFileName() . . . 429
12.86.4.15 SetOutputType() . . . 429
12.86.4.16 WriteFooter() . . . 429
12.86.4.17 WriteHeader() . . . 429
12.87 gdcm::DictEntry Class Reference . . . 429
12.87.1 Detailed Description . . . 430
12.87.2 Constructor & Destructor Documentation . . . 431
12.87.2.1 DictEntry() . . . 431
12.87.3 Member Function Documentation . . . 431
12.87.3.1 GetKeyword() . . . 431
12.87.3.2 GetName() . . . 431
12.87.3.3 GetRetired() . . . 431
12.87.3.4 GetVM() . . . 431
12.87.3.5 GetVR() . . . 432
12.87.3.6 IsUnique() . . . 432
12.87.3.7 SetElementXX() . . . 432
12.87.3.8 SetGroupXX() . . . 432
12.87.3.9 SetKeyword() . . . 432
12.87.3.10 SetName() . . . 432
12.87.3.11 SetRetired() . . . 433
12.87.3.12 SetVM() . . . 433
12.87.3.13 SetVR() . . . 433
12.87.4 Friends And Related Symbol Documentation . . . 433
12.87.4.1 Dict . . . 433
12.87.4.2 operator<< . . . 433
12.88 gdcm::DictPrinter Class Reference . . . 434
12.88.1 Detailed Description . . . 436
12.88.2 Constructor & Destructor Documentation . . . 436
12.88.2.1 DictPrinter() . . . 436

12.88.2.2 ~DictPrinter() . . . 436
12.88.3 Member Function Documentation . . . 436
12.88.3.1 Print() . . . 436
12.88.3.2 PrintDataElement2() . . . 436
12.88.3.3 PrintDataSet2() . . . 436
12.89 gdcm::Dicts Class Reference . . . 437
12.89.1 Detailed Description . . . 438
12.89.2 Member Enumeration Documentation . . . 438
12.89.2.1 ConstructorType . . . 438
12.89.3 Constructor & Destructor Documentation . . . 438
12.89.3.1 Dicts() [1/2] . . . 438
12.89.3.2 ~Dicts() . . . 438
12.89.3.3 Dicts() [2/2] . . . 438
12.89.4 Member Function Documentation . . . 439
12.89.4.1 GetConstructorString() . . . 439
12.89.4.2 GetCSAHeaderDict() . . . 439
12.89.4.3 GetDictEntry() [1/2] . . . 439
12.89.4.4 GetDictEntry() [2/2] . . . 439
12.89.4.5 GetPrivateDict() [1/2] . . . 439
12.89.4.6 GetPrivateDict() [2/2] . . . 440
12.89.4.7 GetPublicDict() . . . 440
12.89.4.8 IsEmpty() . . . 440
12.89.4.9 LoadDefaults() . . . 440
12.89.4.10 operator=() . . . 440
12.89.5 Friends And Related Symbol Documentation . . . 440
12.89.5.1 Global . . . 440
12.89.5.2 operator<< . . . 441
12.90 gdcm::network::DIMSE Class Reference . . . 441
12.90.1 Detailed Description . . . 441
12.90.2 Member Enumeration Documentation . . . 442
12.90.2.1 CommandTypes . . . 442
12.91 gdcm::DirectionCosines Class Reference . . . 442
12.91.1 Detailed Description . . . 443
12.91.2 Constructor & Destructor Documentation . . . 444
12.91.2.1 DirectionCosines() [1/2] . . . 444
12.91.2.2 DirectionCosines() [2/2] . . . 444
12.91.2.3 ~DirectionCosines() . . . 444
12.91.3 Member Function Documentation . . . 444
12.91.3.1 ComputeDistAlongNormal() . . . 444

12.91.3.2 Cross() . . . 444
12.91.3.3 CrossDot() . . . 444
12.91.3.4 Distance() . . . 445
12.91.3.5 Dot() [1/2] . . . 445
12.91.3.6 Dot() [2/2] . . . 445
12.91.3.7 IsValid() . . . 445
12.91.3.8 Norm() . . . 445
12.91.3.9 Normalize() [1/2] . . . 445
12.91.3.10 Normalize() [2/2] . . . 446
12.91.3.11 operator const double *() . . . 446
12.91.3.12 Print() . . . 446
12.91.3.13 SetFromString() . . . 446
12.92 gdcm::Directory Class Reference . . . 446
12.92.1 Detailed Description . . . 447
12.92.2 Member Typedef Documentation . . . 448
12.92.2.1 FilenamesType . . . 448
12.92.2.2 FilenameType . . . 448
12.92.3 Constructor & Destructor Documentation . . . 448
12.92.3.1 Directory() . . . 448
12.92.3.2 ~Directory() . . . 448
12.92.4 Member Function Documentation . . . 448
12.92.4.1 Explore() . . . 448
12.92.4.2 GetDirectories() . . . 448
12.92.4.3 GetFilenames() . . . 449
12.92.4.4 GetToplevel() . . . 449
12.92.4.5 Load() . . . 449
12.92.4.6 Print() . . . 449
12.92.5 Friends And Related Symbol Documentation . . . 450
12.92.5.1 operator<< . . . 450
12.93 gdcm::DirectoryHelper Class Reference . . . 450
12.93.1 Detailed Description . . . 450
12.93.2 Member Function Documentation . . . 451
12.93.2.1 GetCTImageSeriesUIDs() . . . 451
12.93.2.2 GetFilenamesFromSeriesUIDs() . . . 451
12.93.2.3 GetFrameOfReference() . . . 451
12.93.2.4 GetMRImageSeriesUIDs() . . . 451
12.93.2.5 GetRTStructSeriesUIDs() . . . 451
12.93.2.6 GetSeriesUIDsBySOPClassUID() . . . 451
12.93.2.7 GetSOPClassUID() . . . 452

12.93.2.8 GetStringValueFromTag() . . . 452
12.93.2.9 LoadImageFromFiles() . . . 452
12.93.2.10 RetrieveSOPInstanceUIDFromIndex() . . . 452
12.93.2.11 RetrieveSOPInstanceUIDFromZPosition() . . . 452
12.94 gdcm::DPath Class Reference . . . 452
12.94.1 Detailed Description . . . 453
12.94.2 Constructor & Destructor Documentation . . . 453
12.94.2.1 DPath() . . . 453
12.94.2.2 ∼DPath() . . . 453
12.94.3 Member Function Documentation . . . 453
12.94.3.1 ConstructFromString() . . . 453
12.94.3.2 IsValid() . . . 454
12.94.3.3 Match() . . . 454
12.94.3.4 operator<() . . . 454
12.94.3.5 Print() . . . 454
12.94.4 Friends And Related Symbol Documentation . . . 454
12.94.4.1 operator<< . . . 454
12.95 gdcm::DummyValueGenerator Class Reference . . . 455
12.95.1 Detailed Description . . . 455
12.95.2 Member Function Documentation . . . 455
12.95.2.1 Generate() . . . 455
12.96 gdcm::Dumper Class Reference . . . 456
12.96.1 Detailed Description . . . 457
12.96.2 Constructor & Destructor Documentation . . . 458
12.96.2.1 Dumper() . . . 458
12.96.2.2 ∼Dumper() . . . 458
12.97 gdcm::Element< TVR, TVM > Class Template Reference . . . 458
12.97.1 Detailed Description . . . 460
12.97.2 Member Typedef Documentation . . . 460
12.97.2.1 Type . . . 460
12.97.3 Member Function Documentation . . . 460
12.97.3.1 GetAsDataElement() . . . 460
12.97.3.2 GetLength() . . . 461
12.97.3.3 GetValue() [1/2] . . . 461
12.97.3.4 GetValue() [2/2] . . . 461
12.97.3.5 GetValues() . . . 461
12.97.3.6 GetVM() . . . 461
12.97.3.7 GetVR() . . . 462
12.97.3.8 operator[]() . . . 462

12.97.3.9 Print() . . . 462
12.97.3.10 Read() . . . 462
12.97.3.11 Set() . . . 462
12.97.3.12 SetFromDataElement() . . . 463
12.97.3.13 SetNoSwap() . . . 463
12.97.3.14 SetValue() . . . 463
12.97.3.15 Write() . . . 463
12.97.4 Member Data Documentation . . . 464
12.97.4.1 Internal . . . 464
12.98 gdcm::Element< TVR, VM::VM1_2 > Class Template Reference . . . 464
12.98.1 Member Typedef Documentation . . . 467
12.98.1.1 Parent . . . 467
12.98.1.2 Type . . . 467
12.98.2 Member Function Documentation . . . 467
12.98.2.1 GetAsDataElement() . . . 467
12.98.2.2 GetLength() . . . 467
12.98.2.3 GetValue() . . . 467
12.98.2.4 GetValues() . . . 467
12.98.2.5 GetVM() . . . 468
12.98.2.6 GetVR() . . . 468
12.98.2.7 operator[]() . . . 468
12.98.2.8 Print() . . . 468
12.98.2.9 Read() . . . 468
12.98.2.10 Set() . . . 468
12.98.2.11 SetFromDataElement() . . . 468
12.98.2.12 SetLength() . . . 468
12.98.2.13 SetNoSwap() . . . 469
12.98.2.14 SetValue() . . . 469
12.98.2.15 Write() . . . 469
12.98.3 Member Data Documentation . . . 469
12.98.3.1 Internal . . . 469
12.99 gdcm::Element< TVR, VM::VM1_n > Class Template Reference . . . 469
12.99.1 Member Typedef Documentation . . . 471
12.99.1.1 Type . . . 471
12.99.2 Constructor & Destructor Documentation . . . 471
12.99.2.1 Element() [1/2] . . . 471
12.99.2.2 ~Element() . . . 471
12.99.2.3 Element() [2/2] . . . 471
12.99.3 Member Function Documentation . . . 472

12.99.3.1 GetAsDataElement() . . . 472
12.99.3.2 GetLength() . . . 472
12.99.3.3 GetValue() [1/2] . . . 472
12.99.3.4 GetValue() [2/2] . . . 472
12.99.3.5 GetValues() . . . 472
12.99.3.6 GetVM() . . . 472
12.99.3.7 GetVR() . . . 473
12.99.3.8 operator=() . . . 473
12.99.3.9 operator[]() . . . 473
12.99.3.10 Print() . . . 473
12.99.3.11 Read() . . . 473
12.99.3.12 Set() . . . 474
12.99.3.13 SetArray() . . . 474
12.99.3.14 SetFromDataElement() . . . 474
12.99.3.15 SetLength() . . . 474
12.99.3.16 SetNoSwap() . . . 475
12.99.3.17 SetValue() . . . 475
12.99.3.18 Write() . . . 475
12.99.3.19 WriteASCII() . . . 475
12.100 gdcm::Element< TVR, VM::VM2_2n > Class Template Reference . . . 476
12.100.1 Member Typedef Documentation . . . 479
12.100.1.1 Parent . . . 479
12.100.1.2 Type . . . 480
12.100.2 Member Function Documentation . . . 480
12.100.2.1 GetAsDataElement() . . . 480
12.100.2.2 GetLength() . . . 480
12.100.2.3 GetValue() . . . 480
12.100.2.4 GetValues() . . . 480
12.100.2.5 GetVM() . . . 480
12.100.2.6 GetVR() . . . 480
12.100.2.7 operator[]() . . . 480
12.100.2.8 Print() . . . 480
12.100.2.9 Read() . . . 481
12.100.2.10 Set() . . . 481
12.100.2.11 SetFromDataElement() . . . 481
12.100.2.12 SetLength() . . . 481
12.100.2.13 SetNoSwap() . . . 481
12.100.2.14 SetValue() . . . 481
12.100.2.15 Write() . . . 481

12.100.3 Member Data Documentation . . . 482
12.100.3.1 Internal . . . 482
12.101 gdcm::Element< TVR, VM::VM2_n > Class Template Reference . . . 482
12.101.1 Member Typedef Documentation . . . 485
12.101.1.1 Parent . . . 485
12.101.1.2 Type . . . 485
12.101.2 Member Function Documentation . . . 485
12.101.2.1 GetAsDataElement() . . . 485
12.101.2.2 GetLength() . . . 485
12.101.2.3 GetValue() . . . 485
12.101.2.4 GetValues() . . . 485
12.101.2.5 GetVM() . . . 486
12.101.2.6 GetVR() . . . 486
12.101.2.7 operator[]() . . . 486
12.101.2.8 Print() . . . 486
12.101.2.9 Read() . . . 486
12.101.2.10 Set() . . . 486
12.101.2.11 SetFromDataElement() . . . 486
12.101.2.12 SetLength() . . . 486
12.101.2.13 SetNoSwap() . . . 487
12.101.2.14 SetValue() . . . 487
12.101.2.15 Write() . . . 487
12.101.3 Member Data Documentation . . . 487
12.101.3.1 Internal . . . 487
12.102 gdcm::Element< TVR, VM::VM3_3n > Class Template Reference . . . 487
12.102.1 Member Typedef Documentation . . . 491
12.102.1.1 Parent . . . 491
12.102.1.2 Type . . . 492
12.102.2 Member Function Documentation . . . 492
12.102.2.1 GetAsDataElement() . . . 492
12.102.2.2 GetLength() . . . 492
12.102.2.3 GetValue() . . . 492
12.102.2.4 GetValues() . . . 492
12.102.2.5 GetVM() . . . 492
12.102.2.6 GetVR() . . . 492
12.102.2.7 operator[]() . . . 492
12.102.2.8 Print() . . . 492
12.102.2.9 Read() . . . 493
12.102.2.10 Set() . . . 493

12.102.2.11 SetFromDataElement() . . . 493
12.102.2.12 SetLength() . . . 493
12.102.2.13 SetNoSwap() . . . 493
12.102.2.14 SetValue() . . . 493
12.102.2.15 Write() . . . 493
12.102.3 Member Data Documentation . . . 494
12.102.3.1 Internal . . . 494
12.103 gdcm::Element< TVR, VM::VM3_4 > Class Template Reference . . . 494
12.103.1 Member Typedef Documentation . . . 497
12.103.1.1 Parent . . . 497
12.103.1.2 Type . . . 497
12.103.2 Member Function Documentation . . . 497
12.103.2.1 GetAsDataElement() . . . 497
12.103.2.2 GetLength() . . . 497
12.103.2.3 GetValue() . . . 497
12.103.2.4 GetValues() . . . 497
12.103.2.5 GetVM() . . . 498
12.103.2.6 GetVR() . . . 498
12.103.2.7 operator[]() . . . 498
12.103.2.8 Print() . . . 498
12.103.2.9 Read() . . . 498
12.103.2.10 Set() . . . 498
12.103.2.11 SetFromDataElement() . . . 498
12.103.2.12 SetLength() . . . 498
12.103.2.13 SetNoSwap() . . . 499
12.103.2.14 SetValue() . . . 499
12.103.2.15 Write() . . . 499
12.103.3 Member Data Documentation . . . 499
12.103.3.1 Internal . . . 499
12.104 gdcm::Element< TVR, VM::VM3_n > Class Template Reference . . . 499
12.104.1 Member Typedef Documentation . . . 503
12.104.1.1 Parent . . . 503
12.104.1.2 Type . . . 503
12.104.2 Member Function Documentation . . . 503
12.104.2.1 GetAsDataElement() . . . 503
12.104.2.2 GetLength() . . . 503
12.104.2.3 GetValue() . . . 503
12.104.2.4 GetValues() . . . 503
12.104.2.5 GetVM() . . . 504

12.104.2.6 GetVR() . . . 504
12.104.2.7 operator[]() . . . 504
12.104.2.8 Print() . . . 504
12.104.2.9 Read() . . . 504
12.104.2.10 Set() . . . 504
12.104.2.11 SetFromDataElement() . . . 504
12.104.2.12 SetLength() . . . 504
12.104.2.13 SetNoSwap() . . . 505
12.104.2.14 SetValue() . . . 505
12.104.2.15 Write() . . . 505
12.104.3 Member Data Documentation . . . 505
12.104.3.1 Internal . . . 505
12.105 gdcm::Element< VR::AS, VM::VM5 > Class Reference . . . 505
12.105.1 Member Typedef Documentation . . . 507
12.105.1.1 Type . . . 507
12.105.2 Member Function Documentation . . . 507
12.105.2.1 GetAsDataElement() . . . 507
12.105.2.2 GetLength() . . . 507
12.105.2.3 GetValue() . . . 507
12.105.2.4 GetValues() . . . 507
12.105.2.5 GetVM() . . . 508
12.105.2.6 GetVR() . . . 508
12.105.2.7 operator[]() . . . 508
12.105.2.8 Print() . . . 508
12.105.2.9 Read() . . . 508
12.105.2.10 Set() . . . 508
12.105.2.11 SetFromDataElement() . . . 508
12.105.2.12 SetNoSwap() . . . 508
12.105.2.13 SetValue() . . . 509
12.105.2.14 Write() . . . 509
12.105.3 Member Data Documentation . . . 509
12.105.3.1 Internal . . . 509
12.106 gdcm::Element< VR::OB, VM::VM1 > Class Reference . . . 509
12.106.1 Member Typedef Documentation . . . 512
12.106.1.1 Type . . . 512
12.106.2 Member Function Documentation . . . 512
12.106.2.1 GetAsDataElement() . . . 512
12.106.2.2 GetLength() . . . 512
12.106.2.3 GetValue() . . . 512

12.106.2.4 GetValues() . . . 512
12.106.2.5 GetVM() . . . 512
12.106.2.6 GetVR() . . . 512
12.106.2.7 operator[]() . . . 513
12.106.2.8 Print() . . . 513
12.106.2.9 Read() . . . 513
12.106.2.10 Set() . . . 513
12.106.2.11 SetFromDataElement() . . . 513
12.106.2.12 SetNoSwap() . . . 513
12.106.2.13 SetValue() . . . 513
12.106.2.14 Write() . . . 513
12.106.3 Member Data Documentation . . . 514
12.106.3.1 Internal . . . 514
12.107 gdcm::Element< VR::OW, VM::VM1 > Class Reference . . . 514
12.107.1 Member Typedef Documentation . . . 517
12.107.1.1 Type . . . 517
12.107.2 Member Function Documentation . . . 517
12.107.2.1 GetAsDataElement() . . . 517
12.107.2.2 GetLength() . . . 517
12.107.2.3 GetValue() . . . 517
12.107.2.4 GetValues() . . . 517
12.107.2.5 GetVM() . . . 517
12.107.2.6 GetVR() . . . 517
12.107.2.7 operator[]() . . . 518
12.107.2.8 Print() . . . 518
12.107.2.9 Read() . . . 518
12.107.2.10 Set() . . . 518
12.107.2.11 SetFromDataElement() . . . 518
12.107.2.12 SetNoSwap() . . . 518
12.107.2.13 SetValue() . . . 518
12.107.2.14 Write() . . . 518
12.107.3 Member Data Documentation . . . 519
12.107.3.1 Internal . . . 519
12.108 gdcm::ElementDisableCombinations< TVR, TVM > Class Template Reference . . . 519
12.108.1 Detailed Description . . . 519
12.109 gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n > Class Reference . . . 520
12.110 gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n > Class Reference . . . 521
12.111 gdcm::EmptyMaskGenerator Class Reference . . . 522
12.111.1 Detailed Description . . . 522

12.111.2 Member Enumeration Documentation . . . 523
12.111.2.1 SOPClassUIDMode . . . 523
12.111.3 Constructor & Destructor Documentation . . . 523
12.111.3.1 EmptyMaskGenerator() . . . 523
12.111.3.2 ∼EmptyMaskGenerator() . . . 523
12.111.4 Member Function Documentation . . . 523
12.111.4.1 Execute() . . . 523
12.111.4.2 SetInputDirectory() . . . 523
12.111.4.3 SetOutputDirectory() . . . 524
12.111.4.4 SetSOPClassUIDMode() . . . 524
12.112 gdcm::EncapsulatedDocument Class Reference . . . 524
12.112.1 Detailed Description . . . 524
12.112.2 Constructor & Destructor Documentation . . . 525
12.112.2.1 EncapsulatedDocument() . . . 525
12.113 gdcm::EncodingImplementation< T > Class Template Reference . . . 525
12.113.1 Detailed Description . . . 525
12.114 gdcm::EncodingImplementation< VR::VRASCII > Class Reference . . . 526
12.114.1 Member Function Documentation . . . 527
12.114.1.1 Read() . . . 527
12.114.1.2 ReadComputeLength() . . . 527
12.114.1.3 ReadNoSwap() . . . 527
12.114.1.4 Write() [1/2] . . . 528
12.114.1.5 Write() [2/2] . . . 528
12.115 gdcm::EncodingImplementation< VR::VRBINARY > Class Reference . . . 528
12.115.1 Member Function Documentation . . . 529
12.115.1.1 Read() . . . 529
12.115.1.2 ReadComputeLength() . . . 529
12.115.1.3 ReadNoSwap() . . . 530
12.115.1.4 Write() . . . 530
12.116 gdcm::EndEvent Class Reference . . . 530
12.117 gdcm::EnumeratedValues Class Reference . . . 531
12.117.1 Detailed Description . . . 532
12.117.2 Constructor & Destructor Documentation . . . 532
12.117.2.1 EnumeratedValues() . . . 532
12.118 gdcm::EquipmentManufacturer Class Reference . . . 532
12.118.1 Detailed Description . . . 533
12.118.2 Member Enumeration Documentation . . . 533
12.118.2.1 Type . . . 533
12.118.3 Member Function Documentation . . . 533

12.118.3.1 Compute() . . . 533
12.118.3.2 TypeToString() . . . 533
12.119 gdcm::Event Class Reference . . . 534
12.119.1 Detailed Description . . . 535
12.119.2 Constructor & Destructor Documentation . . . 535
12.119.2.1 Event() [1/2] . . . 535
12.119.2.2 ~Event() . . . 535
12.119.2.3 Event() [2/2] . . . 535
12.119.3 Member Function Documentation . . . 535
12.119.3.1 CheckEvent() . . . 535
12.119.3.2 GetEventName() . . . 536
12.119.3.3 MakeObject() . . . 536
12.119.3.4 operator=() . . . 536
12.119.3.5 Print() . . . 536
12.120 gdcm::Exception Class Reference . . . 537
12.120.1 Detailed Description . . . 538
12.120.2 Constructor & Destructor Documentation . . . 538
12.120.2.1 Exception() . . . 538
12.120.2.2 ~Exception() . . . 538
12.120.3 Member Function Documentation . . . 538
12.120.3.1 GetDescription() . . . 538
12.120.3.2 what() . . . 539
12.121 gdcm::ExitEvent Class Reference . . . 539
12.122 gdcm::ExplicitDataElement Class Reference . . . 540
12.122.1 Detailed Description . . . 543
12.122.2 Member Function Documentation . . . 543
12.122.2.1 GetLength() . . . 543
12.122.2.2 Read() . . . 543
12.122.2.3 ReadPreValue() . . . 544
12.122.2.4 ReadValue() . . . 544
12.122.2.5 ReadWithLength() . . . 544
12.122.2.6 Write() . . . 544
12.123 gdcm::ExplicitImplicitDataElement Class Reference . . . 544
12.123.1 Detailed Description . . . 547
12.123.2 Member Function Documentation . . . 547
12.123.2.1 GetLength() . . . 547
12.123.2.2 Read() . . . 547
12.123.2.3 ReadPreValue() . . . 548
12.123.2.4 ReadValue() . . . 548

12.123.2.5 ReadWithLength() . . . 548
12.124 gdcm::Fiducials Class Reference . . . 548
12.124.1 Detailed Description . . . 548
12.124.2 Constructor & Destructor Documentation . . . 549
12.124.2.1 Fiducials() . . . 549
12.125 gdcm::File Class Reference . . . 549
12.125.1 Detailed Description . . . 551
12.125.2 Constructor & Destructor Documentation . . . 551
12.125.2.1 File() . . . 551
12.125.2.2 ∼File() . . . 551
12.125.3 Member Function Documentation . . . 551
12.125.3.1 GetDataSet() [1/2] . . . 551
12.125.3.2 GetDataSet() [2/2] . . . 552
12.125.3.3 GetHeader() [1/2] . . . 552
12.125.3.4 GetHeader() [2/2] . . . 552
12.125.3.5 Read() . . . 552
12.125.3.6 SetDataSet() . . . 553
12.125.3.7 SetHeader() . . . 553
12.125.3.8 Write() . . . 553
12.125.4 Friends And Related Symbol Documentation . . . 553
12.125.4.1 operator<< . . . 553
12.126 gdcm::FileAnonymizer Class Reference . . . 554
12.126.1 Detailed Description . . . 556
12.126.2 Constructor & Destructor Documentation . . . 556
12.126.2.1 FileAnonymizer() . . . 556
12.126.2.2 ∼FileAnonymizer() . . . 556
12.126.3 Member Function Documentation . . . 556
12.126.3.1 Empty() . . . 556
12.126.3.2 Remove() . . . 557
12.126.3.3 Replace() [1/2] . . . 557
12.126.3.4 Replace() [2/2] . . . 557
12.126.3.5 SetInputFileName() . . . 557
12.126.3.6 SetOutputFileName() . . . 558
12.126.3.7 Write() . . . 558
12.127 gdcm::FileChangeTransferSyntax Class Reference . . . 558
12.127.1 Detailed Description . . . 560
12.127.2 Constructor & Destructor Documentation . . . 560
12.127.2.1 FileChangeTransferSyntax() . . . 560
12.127.2.2 ∼FileChangeTransferSyntax() . . . 561

12.127.3 Member Function Documentation . . . 561
12.127.3.1 Change() . . . 561
12.127.3.2 GetCodec() . . . 561
12.127.3.3 New() . . . 561
12.127.3.4 SetInputFileName() . . . 561
12.127.3.5 SetOutputFileName() . . . 562
12.127.3.6 SetTransferSyntax() . . . 562
12.128 gdcm::FileDecompressLookupTable Class Reference . . . 562
12.128.1 Detailed Description . . . 564
12.128.2 Constructor & Destructor Documentation . . . 564
12.128.2.1 FileDecompressLookupTable() . . . 564
12.128.2.2 ∼FileDecompressLookupTable() . . . 564
12.128.3 Member Function Documentation . . . 564
12.128.3.1 Change() . . . 564
12.128.3.2 GetFile() . . . 565
12.128.3.3 GetPixmap() [1/2] . . . 565
12.128.3.4 GetPixmap() [2/2] . . . 565
12.128.3.5 SetFile() . . . 565
12.128.3.6 SetPixmap() . . . 565
12.129 gdcm::FileDerivation Class Reference . . . 565
12.129.1 Detailed Description . . . 566
12.129.2 Constructor & Destructor Documentation . . . 566
12.129.2.1 FileDerivation() . . . 566
12.129.2.2 ∼FileDerivation() . . . 567
12.129.3 Member Function Documentation . . . 567
12.129.3.1 AddDerivationDescription() . . . 567
12.129.3.2 AddPurposeOfReferenceCodeSequence() . . . 567
12.129.3.3 AddReference() . . . 567
12.129.3.4 AddSourceImageSequence() . . . 567
12.129.3.5 Derive() . . . 567
12.129.3.6 GetFile() [1/2] . . . 568
12.129.3.7 GetFile() [2/2] . . . 568
12.129.3.8 SetAppendDerivationHistory() . . . 568
12.129.3.9 SetDerivationCodeSequenceCodeValue() . . . 568
12.129.3.10 SetDerivationDescription() . . . 568
12.129.3.11 SetFile() . . . 569
12.129.3.12 SetPurposeOfReferenceCodeSequenceCodeValue() . . . 569
12.130 gdcm::FileExplicitFilter Class Reference . . . 569
12.130.1 Detailed Description . . . 570

12.130.2 Constructor & Destructor Documentation . . . 570
12.130.2.1 FileExplicitFilter() . . . 570
12.130.2.2 ~FileExplicitFilter() . . . 570
12.130.3 Member Function Documentation . . . 570
12.130.3.1 Change() . . . 570
12.130.3.2 ChangeFMI() . . . 571
12.130.3.3 GetFile() . . . 571
12.130.3.4 ProcessDataSet() . . . 571
12.130.3.5 SetChangePrivateTags() . . . 571
12.130.3.6 SetFile() . . . 571
12.130.3.7 SetRecomputeItemLength() . . . 572
12.130.3.8 SetRecomputeSequenceLength() . . . 572
12.130.3.9 SetUseVRUN() . . . 572
12.131 gdcm::FileMetaInformation Class Reference . . . 572
12.131.1 Detailed Description . . . 576
12.131.2 Constructor & Destructor Documentation . . . 576
12.131.2.1 FileMetaInformation() [1/2] . . . 576
12.131.2.2 ~FileMetaInformation() . . . 577
12.131.2.3 FileMetaInformation() [2/2] . . . 577
12.131.3 Member Function Documentation . . . 577
12.131.3.1 AppendImplementationClassUID() . . . 577
12.131.3.2 ComputeDataSetMediaStorageSOPClass() . . . 577
12.131.3.3 ComputeDataSetTransferSyntax() . . . 577
12.131.3.4 Default() . . . 577
12.131.3.5 FillFromDataSet() . . . 577
12.131.3.6 GetDataSetTransferSyntax() . . . 578
12.131.3.7 GetFileMetaInformationVersion() . . . 578
12.131.3.8 GetFullLength() . . . 578
12.131.3.9 GetGDCMImplementationClassUID() . . . 578
12.131.3.10 GetGDCMImplementationVersionName() . . . 578
12.131.3.11 GetGDCMSourceApplicationEntityTitle() . . . 578
12.131.3.12 GetImplementationClassUID() . . . 578
12.131.3.13 GetImplementationVersionName() . . . 578
12.131.3.14 GetMediaStorage() . . . 579
12.131.3.15 GetMediaStorageAsString() . . . 579
12.131.3.16 GetMetaInformationTS() . . . 579
12.131.3.17 GetPreamble() [1/2] . . . 579
12.131.3.18 GetPreamble() [2/2] . . . 579
12.131.3.19 GetSourceApplicationEntityTitle() . . . 579

12.131.3.20 Insert() . . . 579
12.131.3.21 IsValid() . . . 579
12.131.3.22 operator=() . . . 580
12.131.3.23 Read() . . . 580
12.131.3.24 ReadCompat() . . . 580
12.131.3.25 ReadCompatInternal() . . . 580
12.131.3.26 Replace() . . . 580
12.131.3.27 SetDataSetTransferSyntax() . . . 580
12.131.3.28 SetImplementationClassUID() . . . 581
12.131.3.29 SetImplementationVersionName() . . . 581
12.131.3.30 SetPreamble() . . . 581
12.131.3.31 SetSourceApplicationEntityTitle() . . . 581
12.131.3.32 Write() . . . 581
12.131.4 Friends And Related Symbol Documentation . . . 581
12.131.4.1 operator<< . . . 581
12.131.5 Member Data Documentation . . . 582
12.131.5.1 DataSetMS . . . 582
12.131.5.2 DataSetTS . . . 582
12.131.5.3 MetaInformationTS . . . 582
12.132 gdcm::Filename Class Reference . . . 582
12.132.1 Detailed Description . . . 583
12.132.2 Constructor & Destructor Documentation . . . 583
12.132.2.1 Filename() . . . 583
12.132.3 Member Function Documentation . . . 583
12.132.3.1 EndWith() . . . 583
12.132.3.2 GetExtension() . . . 583
12.132.3.3 GetFileName() . . . 583
12.132.3.4 GetName() . . . 584
12.132.3.5 GetPath() . . . 584
12.132.3.6 IsEmpty() . . . 584
12.132.3.7 IsIdentical() . . . 584
12.132.3.8 Join() . . . 584
12.132.3.9 operator const char *() . . . 584
12.132.3.10 ToUnixSlashes() . . . 585
12.132.3.11 ToWindowsSlashes() . . . 585
12.133 gdcm::FileNameEvent Class Reference . . . 585
12.133.1 Detailed Description . . . 587
12.133.2 Member Typedef Documentation . . . 587
12.133.2.1 Self . . . 587

12.133.2.2 Superclass . . . 587
12.133.3 Constructor & Destructor Documentation . . . 587
12.133.3.1 FileNameEvent() [1/2] . . . 587
12.133.3.2 ~FileNameEvent() . . . 587
12.133.3.3 FileNameEvent() [2/2] . . . 587
12.133.4 Member Function Documentation . . . 588
12.133.4.1 CheckEvent() . . . 588
12.133.4.2 GetEventName() . . . 588
12.133.4.3 GetFileName() . . . 588
12.133.4.4 MakeObject() . . . 588
12.133.4.5 operator=() . . . 588
12.133.4.6 SetFileName() . . . 589
12.134 gdcm::FilenameGenerator Class Reference . . . 589
12.134.1 Detailed Description . . . 590
12.134.2 Member Typedef Documentation . . . 590
12.134.2.1 FilenamesType . . . 590
12.134.2.2 FilenameType . . . 590
12.134.2.3 SizeType . . . 590
12.134.3 Constructor & Destructor Documentation . . . 590
12.134.3.1 FilenameGenerator() . . . 590
12.134.3.2 ~FilenameGenerator() . . . 590
12.134.4 Member Function Documentation . . . 591
12.134.4.1 Generate() . . . 591
12.134.4.2 GetFilename() . . . 591
12.134.4.3 GetFilenames() . . . 591
12.134.4.4 GetNumberOfFilenames() . . . 591
12.134.4.5 GetPattern() . . . 591
12.134.4.6 GetPrefix() . . . 592
12.134.4.7 SetNumberOfFilenames() . . . 592
12.134.4.8 SetPattern() . . . 592
12.134.4.9 SetPrefix() . . . 592
12.135 gdcm::FileSet Class Reference . . . 592
12.135.1 Detailed Description . . . 593
12.135.2 Member Typedef Documentation . . . 593
12.135.2.1 FilesType . . . 593
12.135.2.2 FileType . . . 593
12.135.3 Constructor & Destructor Documentation . . . 593
12.135.3.1 FileSet() . . . 593
12.135.4 Member Function Documentation . . . 594

12.135.4.1 AddFile() [1/2] . . . 594
12.135.4.2 AddFile() [2/2] . . . 594
12.135.4.3 GetFiles() . . . 594
12.135.4.4 SetFiles() . . . 594
12.135.5 Friends And Related Symbol Documentation . . . 594
12.135.5.1 operator<< . . . 594
12.136 gdcm::FileStreamer Class Reference . . . 595
12.136.1 Detailed Description . . . 597
12.136.2 Constructor & Destructor Documentation . . . 597
12.136.2.1 FileStreamer() . . . 597
12.136.2.2 ~FileStreamer() . . . 597
12.136.3 Member Function Documentation . . . 598
12.136.3.1 AppendToDataElement() . . . 598
12.136.3.2 AppendToGroupDataElement() . . . 598
12.136.3.3 CheckDataElement() . . . 598
12.136.3.4 CheckTemplateFileName() . . . 598
12.136.3.5 New() . . . 599
12.136.3.6 ReserveDataElement() . . . 599
12.136.3.7 ReserveGroupDataElement() . . . 599
12.136.3.8 SetOutputFileName() . . . 599
12.136.3.9 SetTemplateFileName() . . . 599
12.136.3.10 StartDataElement() . . . 600
12.136.3.11 StartGroupDataElement() . . . 600
12.136.3.12 StopDataElement() . . . 600
12.136.3.13 StopGroupDataElement() . . . 600
12.137 gdcm::FileWithName Class Reference . . . 601
12.137.1 Detailed Description . . . 603
12.137.2 Constructor & Destructor Documentation . . . 603
12.137.2.1 FileWithName() . . . 603
12.137.3 Member Data Documentation . . . 603
12.137.3.1 filename . . . 603
12.138 gdcm::FindPatientRootQuery Class Reference . . . 603
12.138.1 Detailed Description . . . 606
12.138.2 Constructor & Destructor Documentation . . . 606
12.138.2.1 FindPatientRootQuery() . . . 606
12.138.3 Member Function Documentation . . . 606
12.138.3.1 GetAbstractSyntaxUID() . . . 606
12.138.3.2 GetTagListByLevel() . . . 607
12.138.3.3 InitializeDataSet() . . . 607

12.138.3.4 ValidateQuery() . . . 607
12.138.4 Friends And Related Symbol Documentation . . . 607
12.138.4.1 QueryFactory . . . 607
12.139 gdcm::FindStudyRootQuery Class Reference . . . 608
12.139.1 Detailed Description . . . 610
12.139.2 Constructor & Destructor Documentation . . . 610
12.139.2.1 FindStudyRootQuery() . . . 610
12.139.3 Member Function Documentation . . . 610
12.139.3.1 GetAbstractSyntaxUID() . . . 610
12.139.3.2 GetTagListByLevel() . . . 611
12.139.3.3 InitializeDataSet() . . . 611
12.139.3.4 ValidateQuery() . . . 611
12.139.4 Friends And Related Symbol Documentation . . . 611
12.139.4.1 QueryFactory . . . 611
12.140 gdcm::Fragment Class Reference . . . 612
12.140.1 Detailed Description . . . 614
12.140.2 Constructor & Destructor Documentation . . . 615
12.140.2.1 Fragment() . . . 615
12.140.3 Member Function Documentation . . . 615
12.140.3.1 ComputeLength() . . . 615
12.140.3.2 GetLength() . . . 615
12.140.3.3 Read() . . . 615
12.140.3.4 ReadBacktrack() . . . 615
12.140.3.5 ReadPreValue() . . . 616
12.140.3.6 ReadValue() . . . 616
12.140.3.7 Write() . . . 616
12.140.4 Friends And Related Symbol Documentation . . . 616
12.140.4.1 operator<< . . . 616
12.141 gdcm::Global Class Reference . . . 617
12.141.1 Detailed Description . . . 617
12.141.2 Constructor & Destructor Documentation . . . 618
12.141.2.1 Global() [1/2] . . . 618
12.141.2.2 ~Global() . . . 618
12.141.2.3 Global() [2/2] . . . 618
12.141.3 Member Function Documentation . . . 618
12.141.3.1 Append() . . . 618
12.141.3.2 GetDefs() . . . 618
12.141.3.3 GetDicts() [1/2] . . . 619
12.141.3.4 GetDicts() [2/2] . . . 619

12.141.3.5 GetInstance() . . . 619
12.141.3.6 LoadResourcesFiles() . . . 619
12.141.3.7 Locate() . . . 620
12.141.3.8 operator=() . . . 620
12.141.3.9 Prepend() . . . 620
12.141.4 Friends And Related Symbol Documentation . . . 620
12.141.4.1 operator<< . . . 620
12.142 gdcm::GroupDict Class Reference . . . 620
12.142.1 Detailed Description . . . 621
12.142.2 Member Typedef Documentation . . . 621
12.142.2.1 GroupStringVector . . . 621
12.142.3 Constructor & Destructor Documentation . . . 621
12.142.3.1 GroupDict() . . . 621
12.142.3.2 ~GroupDict() . . . 622
12.142.4 Member Function Documentation . . . 622
12.142.4.1 Add() . . . 622
12.142.4.2 GetAbbreviation() . . . 622
12.142.4.3 GetName() . . . 622
12.142.4.4 Insert() . . . 622
12.142.4.5 Size() . . . 622
12.142.5 Friends And Related Symbol Documentation . . . 623
12.142.5.1 operator<< . . . 623
12.143 gdcm::IconImageFilter Class Reference . . . 623
12.143.1 Detailed Description . . . 624
12.143.2 Constructor & Destructor Documentation . . . 624
12.143.2.1 IconImageFilter() . . . 624
12.143.2.2 ~IconImageFilter() . . . 624
12.143.3 Member Function Documentation . . . 625
12.143.3.1 Extract() . . . 625
12.143.3.2 ExtractIconImages() . . . 625
12.143.3.3 ExtractVeproIconImages() . . . 625
12.143.3.4 GetFile() [1/2] . . . 625
12.143.3.5 GetFile() [2/2] . . . 625
12.143.3.6 GetIconImage() . . . 625
12.143.3.7 GetNumberOfIconImages() . . . 626
12.143.3.8 SetFile() . . . 626
12.144 gdcm::IconImageGenerator Class Reference . . . 626
12.144.1 Detailed Description . . . 627
12.144.2 Constructor & Destructor Documentation . . . 627

12.144.2.1 IconImageGenerator() . . . 627
12.144.2.2 ~IconImageGenerator() . . . 627
12.144.3 Member Function Documentation . . . 627
12.144.3.1 AutoPixelMinMax() . . . 627
12.144.3.2 ConvertRGBToPaletteColor() . . . 628
12.144.3.3 Generate() . . . 628
12.144.3.4 GetIconImage() . . . 628
12.144.3.5 GetPixmap() [1/2] . . . 628
12.144.3.6 GetPixmap() [2/2] . . . 628
12.144.3.7 SetOutputDimensions() . . . 628
12.144.3.8 SetOutsideValuePixel() . . . 629
12.144.3.9 SetPixelMinMax() . . . 629
12.144.3.10 SetPixmap() . . . 629
12.145 gdcm::ignore_char Struct Reference . . . 629
12.145.1 Constructor & Destructor Documentation . . . 630
12.145.1.1 ignore_char() . . . 630
12.145.2 Member Data Documentation . . . 630
12.145.2.1 m_char . . . 630
12.146 gdcm::Image Class Reference . . . 630
12.146.1 Detailed Description . . . 635
12.146.2 Constructor & Destructor Documentation . . . 635
12.146.2.1 Image() . . . 635
12.146.2.2 ~Image() . . . 635
12.146.3 Member Function Documentation . . . 636
12.146.3.1 GetDirectionCosines() [1/2] . . . 636
12.146.3.2 GetDirectionCosines() [2/2] . . . 636
12.146.3.3 GetIntercept() . . . 636
12.146.3.4 GetOrigin() [1/2] . . . 636
12.146.3.5 GetOrigin() [2/2] . . . 636
12.146.3.6 GetSlope() . . . 636
12.146.3.7 GetSpacing() [1/2] . . . 636
12.146.3.8 GetSpacing() [2/2] . . . 637
12.146.3.9 Print() . . . 637
12.146.3.10 SetDirectionCosines() [1/3] . . . 637
12.146.3.11 SetDirectionCosines() [2/3] . . . 637
12.146.3.12 SetDirectionCosines() [3/3] . . . 637
12.146.3.13 SetIntercept() . . . 637
12.146.3.14 SetOrigin() [1/3] . . . 638
12.146.3.15 SetOrigin() [2/3] . . . 638

12.146.3.16 SetOrigin() [3/3] . . . 638
12.146.3.17 SetSlope() . . . 638
12.146.3.18 SetSpacing() [1/2] . . . 638
12.146.3.19 SetSpacing() [2/2] . . . 638
12.147 gdcm::ImageApplyLookupTable Class Reference . . . 639
12.147.1 Detailed Description . . . 641
12.147.2 Constructor & Destructor Documentation . . . 641
12.147.2.1 ImageApplyLookupTable() . . . 641
12.147.2.2 ~ImageApplyLookupTable() . . . 642
12.147.3 Member Function Documentation . . . 642
12.147.3.1 Apply() . . . 642
12.147.3.2 SetRGB8() . . . 642
12.148 gdcm::ImageChangePhotometricInterpretation Class Reference . . . 642
12.148.1 Detailed Description . . . 645
12.148.2 Constructor & Destructor Documentation . . . 645
12.148.2.1 ImageChangePhotometricInterpretation() . . . 645
12.148.2.2 ~ImageChangePhotometricInterpretation() . . . 645
12.148.3 Member Function Documentation . . . 645
12.148.3.1 Change() . . . 645
12.148.3.2 ChangeMonochrome() . . . 645
12.148.3.3 ChangeRGB2YBR() . . . 645
12.148.3.4 ChangeYBR2RGB() . . . 645
12.148.3.5 GetPhotometricInterpretation() . . . 646
12.148.3.6 RGB2YBR() . . . 646
12.148.3.7 SetPhotometricInterpretation() . . . 646
12.148.3.8 YBR2RGB() . . . 646
12.149 gdcm::ImageChangePlanarConfiguration Class Reference . . . 647
12.149.1 Detailed Description . . . 649
12.149.2 Constructor & Destructor Documentation . . . 650
12.149.2.1 ImageChangePlanarConfiguration() . . . 650
12.149.2.2 ~ImageChangePlanarConfiguration() . . . 650
12.149.3 Member Function Documentation . . . 650
12.149.3.1 Change() . . . 650
12.149.3.2 GetPlanarConfiguration() . . . 650
12.149.3.3 RGBPixelsToRGBPlanes() . . . 650
12.149.3.4 RGBPlanesToRGBPixels() . . . 651
12.149.3.5 SetPlanarConfiguration() . . . 651
12.150 gdcm::ImageChangeTransferSyntax Class Reference . . . 651
12.150.1 Detailed Description . . . 655

12.150.2 Constructor & Destructor Documentation . . . 655
12.150.2.1 ImageChangeTransferSyntax() . . . 655
12.150.2.2 ~ImageChangeTransferSyntax() . . . 655
12.150.3 Member Function Documentation . . . 655
12.150.3.1 Change() . . . 655
12.150.3.2 GetTransferSyntax() . . . 656
12.150.3.3 SetCompressIconImage() . . . 656
12.150.3.4 SetForce() . . . 656
12.150.3.5 SetTransferSyntax() . . . 656
12.150.3.6 SetUserCodec() . . . 657
12.150.3.7 TryJPEG2000Codec() . . . 657
12.150.3.8 TryJPEGCodec() . . . 657
12.150.3.9 TryJPEGLSCodec() . . . 657
12.150.3.10 TryRAWCodec() . . . 657
12.150.3.11 TryRLECodec() . . . 658
12.151 gdcm::ImageCodec Class Reference . . . 658
12.151.1 Detailed Description . . . 661
12.151.2 Member Typedef Documentation . . . 661
12.151.2.1 LUTPtr . . . 661
12.151.3 Constructor & Destructor Documentation . . . 661
12.151.3.1 ImageCodec() . . . 661
12.151.3.2 ~ImageCodec() . . . 661
12.151.4 Member Function Documentation . . . 661
12.151.4.1 AppendFrameEncode() . . . 661
12.151.4.2 AppendRowEncode() . . . 662
12.151.4.3 CanCode() . . . 662
12.151.4.4 CanDecode() . . . 662
12.151.4.5 CleanupUnusedBits() . . . 662
12.151.4.6 Clone() . . . 662
12.151.4.7 Decode() . . . 663
12.151.4.8 DecodeByStreams() . . . 663
12.151.4.9 DoByteSwap() . . . 663
12.151.4.10 DoInvertMonochrome() . . . 663
12.151.4.11 DoOverlayCleanup() . . . 663
12.151.4.12 DoPaddedCompositePixelCode() . . . 663
12.151.4.13 DoPlanarConfiguration() . . . 664
12.151.4.14 DoSimpleCopy() . . . 664
12.151.4.15 DoYBR() . . . 664
12.151.4.16 DoYBRFull422() . . . 664

12.151.4.17 GetDimensions() . . . 664
12.151.4.18 GetHeaderInfo() . . . 664
12.151.4.19 GetLossyFlag() . . . 664
12.151.4.20 GetLUT() . . . 665
12.151.4.21 GetNeedByteSwap() . . . 665
12.151.4.22 GetNumberOfDimensions() . . . 665
12.151.4.23 GetPhotometricInterpretation() . . . 665
12.151.4.24 GetPixelFormat() [1/2] . . . 665
12.151.4.25 GetPixelFormat() [2/2] . . . 665
12.151.4.26 GetPlanarConfiguration() . . . 665
12.151.4.27 IsFrameEncoder() . . . 666
12.151.4.28 IsLossy() . . . 666
12.151.4.29 IsRowEncoder() . . . 666
12.151.4.30 IsValid() . . . 666
12.151.4.31 SetDimensions() [1/2] . . . 666
12.151.4.32 SetDimensions() [2/2] . . . 666
12.151.4.33 SetLossyFlag() . . . 666
12.151.4.34 SetLUT() . . . 667
12.151.4.35 SetNeedByteSwap() . . . 667
12.151.4.36 SetNeedOverlayCleanup() . . . 667
12.151.4.37 SetNumberOfDimensions() . . . 667
12.151.4.38 SetPhotometricInterpretation() . . . 667
12.151.4.39 SetPixelFormat() . . . 668
12.151.4.40 SetPlanarConfiguration() . . . 668
12.151.4.41 StartEncode() . . . 668
12.151.4.42 StopEncode() . . . 668
12.151.5 Friends And Related Symbol Documentation . . . 668
12.151.5.1 FileChangeTransferSyntax . . . 668
12.151.5.2 ImageChangePhotometricInterpretation . . . 669
12.151.6 Member Data Documentation . . . 669
12.151.6.1 Dimensions . . . 669
12.151.6.2 LossyFlag . . . 669
12.151.6.3 LUT . . . 669
12.151.6.4 NeedByteSwap . . . 669
12.151.6.5 NeedOverlayCleanup . . . 669
12.151.6.6 NumberOfDimensions . . . 669
12.151.6.7 PF . . . 670
12.151.6.8 PI . . . 670
12.151.6.9 PlanarConfiguration . . . 670

12.151.6.10 RequestPaddedCompositePixelCode . . . 670
12.151.6.11 RequestPlanarConfiguration . . . 670
12.152 gdcm::ImageConverter Class Reference . . . 670
12.152.1 Detailed Description . . . 671
12.152.2 Constructor & Destructor Documentation . . . 671
12.152.2.1 ImageConverter() . . . 671
12.152.2.2 ~ImageConverter() . . . 671
12.152.3 Member Function Documentation . . . 671
12.152.3.1 Convert() . . . 671
12.152.3.2 GetOuput() . . . 671
12.152.3.3 SetInput() . . . 671
12.153 gdcm::ImageFragmentSplitter Class Reference . . . 672
12.153.1 Detailed Description . . . 674
12.153.2 Constructor & Destructor Documentation . . . 674
12.153.2.1 ImageFragmentSplitter() . . . 674
12.153.2.2 ~ImageFragmentSplitter() . . . 675
12.153.3 Member Function Documentation . . . 675
12.153.3.1 GetFragmentSizeMax() . . . 675
12.153.3.2 SetForce() . . . 675
12.153.3.3 SetFragmentSizeMax() . . . 675
12.153.3.4 Split() . . . 675
12.154 gdcm::ImageHelper Class Reference . . . 675
12.154.1 Detailed Description . . . 677
12.154.2 Member Function Documentation . . . 677
12.154.2.1 ComputeMediaStorageFromModality() . . . 677
12.154.2.2 ComputeSpacingFromImagePositionPatient() . . . 677
12.154.2.3 GetDimensionsValue() . . . 677
12.154.2.4 GetDirectionCosinesFromDataSet() . . . 678
12.154.2.5 GetDirectionCosinesValue() . . . 678
12.154.2.6 GetForcePixelSpacing() . . . 678
12.154.2.7 GetForceRescaleInterceptSlope() . . . 678
12.154.2.8 GetLUT() . . . 678
12.154.2.9 GetOriginValue() . . . 678
12.154.2.10 GetPhotometricInterpretationValue() . . . 678
12.154.2.11 GetPixelFormatValue() . . . 679
12.154.2.12 GetPlanarConfigurationValue() . . . 679
12.154.2.13 GetPMSRescaleInterceptSlope() . . . 679
12.154.2.14 GetPointerFromElement() . . . 679
12.154.2.15 GetRealWorldValueMappingContent() . . . 679

12.154.2.16 GetRescaleInterceptSlopeValue() . . . 679
12.154.2.17 GetSecondaryCaptureImagePlaneModule() . . . 680
12.154.2.18 GetSpacingTagFromMediaStorage() . . . 680
12.154.2.19 GetSpacingValue() . . . 680
12.154.2.20 GetZSpacingTagFromMediaStorage() . . . 680
12.154.2.21 SetDimensionsValue() . . . 680
12.154.2.22 SetDirectionCosinesValue() . . . 680
12.154.2.23 SetForcePixelSpacing() . . . 680
12.154.2.24 SetForceRescaleInterceptSlope() . . . 681
12.154.2.25 SetOriginValue() . . . 681
12.154.2.26 SetPMSRescaleInterceptSlope() . . . 681
12.154.2.27 SetRescaleInterceptSlopeValue() . . . 681
12.154.2.28 SetSecondaryCaptureImagePlaneModule() . . . 681
12.154.2.29 SetSpacingValue() . . . 682
12.155 gdcm::ImageReader Class Reference . . . 682
12.155.1 Detailed Description . . . 685
12.155.2 Constructor & Destructor Documentation . . . 685
12.155.2.1 ImageReader() . . . 685
12.155.2.2 ~ImageReader() . . . 685
12.155.3 Member Function Documentation . . . 685
12.155.3.1 GetImage() [1/2] . . . 685
12.155.3.2 GetImage() [2/2] . . . 686
12.155.3.3 Read() . . . 686
12.155.3.4 ReadACRNEMAImage() . . . 686
12.155.3.5 ReadImage() . . . 686
12.156 gdcm::ImageRegionReader Class Reference . . . 687
12.156.1 Detailed Description . . . 690
12.156.2 Constructor & Destructor Documentation . . . 690
12.156.2.1 ImageRegionReader() . . . 690
12.156.2.2 ~ImageRegionReader() . . . 691
12.156.3 Member Function Documentation . . . 691
12.156.3.1 ComputeBufferLength() . . . 691
12.156.3.2 GetRegion() . . . 691
12.156.3.3 Read() . . . 691
12.156.3.4 ReadInformation() . . . 691
12.156.3.5 ReadIntoBuffer() . . . 692
12.156.3.6 SetRegion() . . . 692
12.157 gdcm::ImageToImageFilter Class Reference . . . 692
12.157.1 Detailed Description . . . 694

12.157.2 Constructor & Destructor Documentation . . . 694
12.157.2.1 ImageToImageFilter() . . . 694
12.157.2.2 ~ImageToImageFilter() . . . 694
12.157.3 Member Function Documentation . . . 694
12.157.3.1 GetInput() . . . 694
12.157.3.2 GetOutput() . . . 695
12.158 gdcm::ImageWriter Class Reference . . . 695
12.158.1 Detailed Description . . . 698
12.158.2 Constructor & Destructor Documentation . . . 698
12.158.2.1 ImageWriter() . . . 698
12.158.2.2 ~ImageWriter() . . . 698
12.158.3 Member Function Documentation . . . 698
12.158.3.1 ComputeTargetMediaStorage() . . . 698
12.158.3.2 GetImage() [1/2] . . . 699
12.158.3.3 GetImage() [2/2] . . . 699
12.158.3.4 Write() . . . 699
12.159 gdcm::network::ImplementationClassUIDSub Class Reference . . . 699
12.159.1 Detailed Description . . . 700
12.159.2 Constructor & Destructor Documentation . . . 700
12.159.2.1 ImplementationClassUIDSub() . . . 700
12.159.3 Member Function Documentation . . . 700
12.159.3.1 Print() . . . 700
12.159.3.2 Read() . . . 700
12.159.3.3 Size() . . . 700
12.159.3.4 Write() . . . 700
12.160 gdcm::network::ImplementationUIDSub Class Reference . . . 701
12.160.1 Detailed Description . . . 701
12.160.2 Constructor & Destructor Documentation . . . 701
12.160.2.1 ImplementationUIDSub() . . . 701
12.160.3 Member Function Documentation . . . 701
12.160.3.1 Write() . . . 701
12.161 gdcm::network::ImplementationVersionNameSub Class Reference . . . 701
12.161.1 Detailed Description . . . 702
12.161.2 Constructor & Destructor Documentation . . . 702
12.161.2.1 ImplementationVersionNameSub() . . . 702
12.161.3 Member Function Documentation . . . 702
12.161.3.1 Print() . . . 702
12.161.3.2 Read() . . . 702
12.161.3.3 Size() . . . 702

12.161.3.4 Write() . . . 702
12.162 gdcm::ImplicitDataElement Class Reference . . . 703
12.162.1 Detailed Description . . . 705
12.162.2 Member Function Documentation . . . 706
12.162.2.1 GetLength() . . . 706
12.162.2.2 Read() . . . 706
12.162.2.3 ReadPreValue() . . . 706
12.162.2.4 ReadValue() . . . 706
12.162.2.5 ReadValueWithLength() . . . 706
12.162.2.6 ReadWithLength() . . . 706
12.162.2.7 Write() . . . 707
12.163 gdcm::InitializeEvent Class Reference . . . 707
12.164 gdcm::IOD Class Reference . . . 708
12.164.1 Detailed Description . . . 709
12.164.2 Member Typedef Documentation . . . 709
12.164.2.1 MapIODEntry . . . 709
12.164.2.2 SizeType . . . 709
12.164.3 Constructor & Destructor Documentation . . . 710
12.164.3.1 IOD() . . . 710
12.164.4 Member Function Documentation . . . 710
12.164.4.1 AddIODEntry() . . . 710
12.164.4.2 Clear() . . . 710
12.164.4.3 GetIODEntry() . . . 710
12.164.4.4 GetNumberOfIODs() . . . 710
12.164.4.5 GetTypeFromTag() . . . 710
12.164.5 Friends And Related Symbol Documentation . . . 711
12.164.5.1 operator<< . . . 711
12.165 gdcm::IODEntry Class Reference . . . 711
12.165.1 Detailed Description . . . 712
12.165.2 Constructor & Destructor Documentation . . . 712
12.165.2.1 IODEntry() . . . 712
12.165.3 Member Function Documentation . . . 712
12.165.3.1 GetIE() . . . 712
12.165.3.2 GetName() . . . 713
12.165.3.3 GetRef() . . . 713
12.165.3.4 GetUsage() . . . 713
12.165.3.5 GetUsageType() . . . 713
12.165.3.6 SetIE() . . . 713
12.165.3.7 SetName() . . . 713

12.165.3.8 SetRef() . . . 713
12.165.3.9 SetUsage() . . . 713
12.165.4 Friends And Related Symbol Documentation . . . 714
12.165.4.1 operator<< . . . 714
12.166 gdcm::IODs Class Reference . . . 714
12.166.1 Detailed Description . . . 715
12.166.2 Member Typedef Documentation . . . 715
12.166.2.1 IODMapType . . . 715
12.166.2.2 IODMapTypeConstIterator . . . 715
12.166.2.3 IODName . . . 715
12.166.3 Constructor & Destructor Documentation . . . 715
12.166.3.1 IODs() . . . 715
12.166.4 Member Function Documentation . . . 716
12.166.4.1 AddIOD() . . . 716
12.166.4.2 Begin() . . . 716
12.166.4.3 Clear() . . . 716
12.166.4.4 End() . . . 716
12.166.4.5 GetIOD() . . . 716
12.166.5 Friends And Related Symbol Documentation . . . 716
12.166.5.1 operator<< . . . 716
12.167 gdcm::IPPSorter Class Reference . . . 717
12.167.1 Detailed Description . . . 719
12.167.2 Constructor & Destructor Documentation . . . 719
12.167.2.1 IPPSorter() . . . 719
12.167.3 Member Function Documentation . . . 719
12.167.3.1 GetDirectionCosinesTolerance() . . . 719
12.167.3.2 GetZSpacing() . . . 720
12.167.3.3 GetZSpacingTolerance() . . . 720
12.167.3.4 SetComputeZSpacing() . . . 720
12.167.3.5 SetDirectionCosinesTolerance() . . . 721
12.167.3.6 SetDropDuplicatePositions() . . . 721
12.167.3.7 SetZSpacingTolerance() . . . 721
12.167.3.8 Sort() . . . 721
12.167.4 Member Data Documentation . . . 722
12.167.4.1 ComputeZSpacing . . . 722
12.167.4.2 DirCosTolerance . . . 722
12.167.4.3 DropDuplicatePositions . . . 722
12.167.4.4 ZSpacing . . . 722
12.167.4.5 ZTolerance . . . 722

12.168 gdcm::Item Class Reference . . . 723
12.168.1 Detailed Description . . . 726
12.168.2 Constructor & Destructor Documentation . . . 726
12.168.2.1 Item() [1/2] . . . 726
12.168.2.2 Item() [2/2] . . . 726
12.168.3 Member Function Documentation . . . 726
12.168.3.1 Clear() . . . 726
12.168.3.2 FindDataElement() . . . 727
12.168.3.3 GetDataElement() . . . 727
12.168.3.4 GetLength() . . . 727
12.168.3.5 GetNestedDataSet() [1/2] . . . 727
12.168.3.6 GetNestedDataSet() [2/2] . . . 727
12.168.3.7 InsertDataElement() . . . 727
12.168.3.8 Read() . . . 728
12.168.3.9 SetNestedDataSet() . . . 728
12.168.3.10 Write() . . . 728
12.168.4 Friends And Related Symbol Documentation . . . 728
12.168.4.1 operator<< . . . 728
12.169 gdcm::IterationEvent Class Reference . . . 729
12.170 gdcm::JPEG12Codec Class Reference . . . 730
12.170.1 Detailed Description . . . 733
12.170.2 Constructor & Destructor Documentation . . . 734
12.170.2.1 JPEG12Codec() . . . 734
12.170.2.2 ~JPEG12Codec() . . . 734
12.170.3 Member Function Documentation . . . 734
12.170.3.1 DecodeByStreams() . . . 734
12.170.3.2 EncodeBuffer() . . . 734
12.170.3.3 GetHeaderInfo() . . . 734
12.170.3.4 InternalCode() . . . 734
12.170.3.5 IsStateSuspension() . . . 735
12.171 gdcm::JPEG16Codec Class Reference . . . 735
12.171.1 Detailed Description . . . 738
12.171.2 Constructor & Destructor Documentation . . . 739
12.171.2.1 JPEG16Codec() . . . 739
12.171.2.2 ~JPEG16Codec() . . . 739
12.171.3 Member Function Documentation . . . 739
12.171.3.1 DecodeByStreams() . . . 739
12.171.3.2 EncodeBuffer() . . . 739
12.171.3.3 GetHeaderInfo() . . . 739

12.171.3.4 InternalCode() . . . 739
12.171.3.5 IsStateSuspension() . . . 740
12.172 gdcm::JPEG2000Codec Class Reference . . . 740
12.172.1 Detailed Description . . . 743
12.172.2 Constructor & Destructor Documentation . . . 743
12.172.2.1 JPEG2000Codec() . . . 743
12.172.2.2 ~JPEG2000Codec() . . . 743
12.172.3 Member Function Documentation . . . 743
12.172.3.1 AppendFrameEncode() . . . 743
12.172.3.2 AppendRowEncode() . . . 744
12.172.3.3 CanCode() . . . 744
12.172.3.4 CanDecode() . . . 744
12.172.3.5 Clone() . . . 744
12.172.3.6 Code() . . . 744
12.172.3.7 Decode() . . . 745
12.172.3.8 DecodeByStreams() . . . 745
12.172.3.9 DecodeExtent() . . . 745
12.172.3.10 GetHeaderInfo() . . . 745
12.172.3.11 GetQuality() . . . 745
12.172.3.12 GetRate() . . . 746
12.172.3.13 IsFrameEncoder() . . . 746
12.172.3.14 IsRowEncoder() . . . 746
12.172.3.15 SetMCT() . . . 746
12.172.3.16 SetNumberOfResolutions() . . . 746
12.172.3.17 SetNumberOfThreadsForDecompression() . . . 746
12.172.3.18 SetQuality() . . . 746
12.172.3.19 SetRate() . . . 747
12.172.3.20 SetReversible() . . . 747
12.172.3.21 SetTileSize() . . . 747
12.172.3.22 StartEncode() . . . 747
12.172.3.23 StopEncode() . . . 747
12.172.4 Friends And Related Symbol Documentation . . . 747
12.172.4.1 Bitmap . . . 747
12.172.4.2 ImageRegionReader . . . 748
12.173 gdcm::JPEG8Codec Class Reference . . . 748
12.173.1 Detailed Description . . . 751
12.173.2 Constructor & Destructor Documentation . . . 752
12.173.2.1 JPEG8Codec() . . . 752
12.173.2.2 ~JPEG8Codec() . . . 752

12.173.3 Member Function Documentation . . . 752
12.173.3.1 DecodeByStreams() . . . 752
12.173.3.2 EncodeBuffer() . . . 752
12.173.3.3 GetHeaderInfo() . . . 752
12.173.3.4 InternalCode() . . . 752
12.173.3.5 IsStateSuspension() . . . 753
12.174 gdcm::JPEGCodec Class Reference . . . 753
12.174.1 Detailed Description . . . 756
12.174.2 Constructor & Destructor Documentation . . . 757
12.174.2.1 JPEGCodec() . . . 757
12.174.2.2 ∼JPEGCodec() . . . 757
12.174.3 Member Function Documentation . . . 757
12.174.3.1 AppendFrameEncode() . . . 757
12.174.3.2 AppendRowEncode() . . . 757
12.174.3.3 CanCode() . . . 757
12.174.3.4 CanDecode() . . . 758
12.174.3.5 Clone() . . . 758
12.174.3.6 Code() . . . 758
12.174.3.7 ComputeOffsetTable() . . . 758
12.174.3.8 Decode() . . . 758
12.174.3.9 DecodeByStreams() . . . 759
12.174.3.10 DecodeExtent() . . . 759
12.174.3.11 EncodeBuffer() . . . 759
12.174.3.12 GetHeaderInfo() . . . 759
12.174.3.13 GetLossless() . . . 760
12.174.3.14 GetQuality() . . . 760
12.174.3.15 IsFrameEncoder() . . . 760
12.174.3.16 IsRowEncoder() . . . 760
12.174.3.17 IsStateSuspension() . . . 760
12.174.3.18 IsValid() . . . 760
12.174.3.19 SetBitSample() . . . 760
12.174.3.20 SetLossless() . . . 761
12.174.3.21 SetPixelFormat() . . . 761
12.174.3.22 SetQuality() . . . 761
12.174.3.23 StartEncode() . . . 761
12.174.3.24 StopEncode() . . . 761
12.174.4 Friends And Related Symbol Documentation . . . 762
12.174.4.1 ImageRegionReader . . . 762
12.174.5 Member Data Documentation . . . 762

12.174.5.1 BitSample . . . 762
12.174.5.2 Quality . . . 762
12.175 gdcm::JPEGLSCodec Class Reference . . . 762
12.175.1 Detailed Description . . . 765
12.175.2 Constructor & Destructor Documentation . . . 765
12.175.2.1 JPEGLSCodec() . . . 765
12.175.2.2 ~JPEGLSCodec() . . . 766
12.175.3 Member Function Documentation . . . 766
12.175.3.1 AppendFrameEncode() . . . 766
12.175.3.2 AppendRowEncode() . . . 766
12.175.3.3 CanCode() . . . 766
12.175.3.4 CanDecode() . . . 766
12.175.3.5 Clone() . . . 767
12.175.3.6 Code() . . . 767
12.175.3.7 Decode() [1/2] . . . 767
12.175.3.8 Decode() [2/2] . . . 767
12.175.3.9 DecodeExtent() . . . 767
12.175.3.10 GetBufferLength() . . . 768
12.175.3.11 GetHeaderInfo() . . . 768
12.175.3.12 GetLossless() . . . 768
12.175.3.13 IsFrameEncoder() . . . 768
12.175.3.14 IsRowEncoder() . . . 768
12.175.3.15 SetBufferLength() . . . 768
12.175.3.16 SetLossless() . . . 768
12.175.3.17 SetLossyError() . . . 768
12.175.3.18 StartEncode() . . . 769
12.175.3.19 StopEncode() . . . 769
12.175.4 Friends And Related Symbol Documentation . . . 769
12.175.4.1 ImageRegionReader . . . 769
12.176 gdcm::JPEGTurboCodec Class Reference . . . 769
12.176.1 Detailed Description . . . 773
12.176.2 Constructor & Destructor Documentation . . . 773
12.176.2.1 JPEGTurboCodec() . . . 773
12.176.2.2 ~JPEGTurboCodec() . . . 773
12.176.3 Member Function Documentation . . . 773
12.176.3.1 DecodeByStreams() . . . 773
12.176.3.2 EncodeBuffer() . . . 774
12.176.3.3 GetHeaderInfo() . . . 774
12.176.3.4 InternalCode() . . . 774

12.176.3.5 IsStateSuspension() . . . 774
12.177 gdcm::JSON Class Reference . . . 774
12.177.1 Detailed Description . . . 775
12.177.2 Constructor & Destructor Documentation . . . 775
12.177.2.1 JSON() . . . 775
12.177.2.2 ~JSON() . . . 775
12.177.3 Member Function Documentation . . . 775
12.177.3.1 Code() . . . 775
12.177.3.2 Decode() . . . 776
12.177.3.3 GetPrettyPrint() . . . 776
12.177.3.4 PrettyPrintOff() . . . 776
12.177.3.5 PrettyPrintOn() . . . 776
12.177.3.6 SetPrettyPrint() . . . 776
12.178 gdcm::KAKADUCodec Class Reference . . . 777
12.178.1 Detailed Description . . . 779
12.178.2 Constructor & Destructor Documentation . . . 779
12.178.2.1 KAKADUCodec() . . . 779
12.178.2.2 ~KAKADUCodec() . . . 780
12.178.3 Member Function Documentation . . . 780
12.178.3.1 CanCode() . . . 780
12.178.3.2 CanDecode() . . . 780
12.178.3.3 Clone() . . . 780
12.178.3.4 Code() . . . 780
12.178.3.5 Decode() . . . 781
12.179 gdcm::LO Class Reference . . . 781
12.179.1 Detailed Description . . . 782
12.179.2 Member Typedef Documentation . . . 782
12.179.2.1 const_iterator . . . 782
12.179.2.2 const_reference . . . 782
12.179.2.3 const_reverse_iterator . . . 782
12.179.2.4 difference_type . . . 783
12.179.2.5 iterator . . . 783
12.179.2.6 pointer . . . 783
12.179.2.7 reference . . . 783
12.179.2.8 reverse_iterator . . . 783
12.179.2.9 size_type . . . 783
12.179.2.10 Superclass . . . 783
12.179.2.11 value_type . . . 783
12.179.3 Constructor & Destructor Documentation . . . 783

12.179.3.1 LO() [1/4] . . . 783
12.179.3.2 LO() [2/4] . . . 784
12.179.3.3 LO() [3/4] . . . 784
12.179.3.4 LO() [4/4] . . . 784
12.179.4 Member Function Documentation . . . 784
12.179.4.1 IsValid() . . . 784
12.180 gdcm::LookupTable Class Reference . . . 784
12.180.1 Detailed Description . . . 787
12.180.2 Member Enumeration Documentation . . . 787
12.180.2.1 LookupTableType . . . 787
12.180.3 Constructor & Destructor Documentation . . . 787
12.180.3.1 LookupTable() [1/2] . . . 787
12.180.3.2 ~LookupTable() . . . 788
12.180.3.3 LookupTable() [2/2] . . . 788
12.180.4 Member Function Documentation . . . 788
12.180.4.1 Allocate() . . . 788
12.180.4.2 Clear() . . . 788
12.180.4.3 Decode() [1/2] . . . 788
12.180.4.4 Decode() [2/2] . . . 788
12.180.4.5 Decode8() . . . 789
12.180.4.6 GetBitSample() . . . 789
12.180.4.7 GetBufferAsRGBA() . . . 789
12.180.4.8 GetLUT() . . . 789
12.180.4.9 GetLUTDescriptor() . . . 789
12.180.4.10 GetLUTLength() . . . 789
12.180.4.11 GetPointer() . . . 790
12.180.4.12 InitializeBlueLUT() . . . 790
12.180.4.13 Initialized() . . . 790
12.180.4.14 InitializeGreenLUT() . . . 790
12.180.4.15 InitializeLUT() . . . 790
12.180.4.16 InitializeRedLUT() . . . 790
12.180.4.17 IsRGB8() . . . 791
12.180.4.18 Print() . . . 791
12.180.4.19 SetBlueLUT() . . . 791
12.180.4.20 SetGreenLUT() . . . 791
12.180.4.21 SetLUT() . . . 791
12.180.4.22 SetRedLUT() . . . 791
12.180.4.23 WriteBufferAsRGBA() . . . 792
12.180.5 Member Data Documentation . . . 792

12.180.5.1 BitSample . . . 792
12.180.5.2 IncompleteLUT . . . 792
12.180.5.3 Internal . . . 792
12.181 gdcm::Scanner2::Itstr Struct Reference . . . 792
12.181.1 Member Function Documentation . . . 793
12.181.1.1 operator()() . . . 793
12.182 gdcm::Scanner::Itstr Struct Reference . . . 793
12.182.1 Member Function Documentation . . . 793
12.182.1.1 operator()() . . . 793
12.183 gdcm::StrictScanner2::Itstr Struct Reference . . . 793
12.183.1 Member Function Documentation . . . 794
12.183.1.1 operator()() . . . 794
12.184 gdcm::StrictScanner::Itstr Struct Reference . . . 794
12.184.1 Member Function Documentation . . . 794
12.184.1.1 operator()() . . . 794
12.185 gdcm::Macro Class Reference . . . 795
12.185.1 Detailed Description . . . 795
12.185.2 Member Typedef Documentation . . . 795
12.185.2.1 ArrayIncludeMacrosType . . . 795
12.185.2.2 MapModuleEntry . . . 796
12.185.3 Constructor & Destructor Documentation . . . 796
12.185.3.1 Macro() . . . 796
12.185.4 Member Function Documentation . . . 796
12.185.4.1 AddMacroEntry() . . . 796
12.185.4.2 Clear() . . . 796
12.185.4.3 FindMacroEntry() . . . 796
12.185.4.4 GetMacroEntry() . . . 796
12.185.4.5 GetName() . . . 796
12.185.4.6 SetName() . . . 797
12.185.4.7 Verify() . . . 797
12.185.5 Friends And Related Symbol Documentation . . . 797
12.185.5.1 operator<< . . . 797
12.186 gdcm::Macros Class Reference . . . 797
12.186.1 Detailed Description . . . 798
12.186.2 Member Typedef Documentation . . . 798
12.186.2.1 ModuleMapType . . . 798
12.186.3 Constructor & Destructor Documentation . . . 798
12.186.3.1 Macros() . . . 798
12.186.4 Member Function Documentation . . . 798

12.186.4.1 AddMacro() . . . 798
12.186.4.2 Clear() . . . 799
12.186.4.3 GetMacro() . . . 799
12.186.4.4 IsEmpty() . . . 799
12.186.5 Friends And Related Symbol Documentation . . . 799
12.186.5.1 operator<< . . . 799
12.187 gdcm::network::MaximumLengthSub Class Reference . . . 799
12.187.1 Detailed Description . . . 800
12.187.2 Constructor & Destructor Documentation . . . 800
12.187.2.1 MaximumLengthSub() . . . 800
12.187.3 Member Function Documentation . . . 800
12.187.3.1 GetMaximumLength() . . . 800
12.187.3.2 Print() . . . 800
12.187.3.3 Read() . . . 800
12.187.3.4 SetMaximumLength() . . . 800
12.187.3.5 Size() . . . 800
12.187.3.6 Write() . . . 801
12.188 gdcm::MD5 Class Reference . . . 801
12.188.1 Detailed Description . . . 801
12.188.2 Member Function Documentation . . . 801
12.188.2.1 Compute() . . . 801
12.188.2.2 ComputeFile() . . . 802
12.189 gdcm::MEC_MR3 Class Reference . . . 802
12.189.1 Detailed Description . . . 802
12.189.2 Member Function Documentation . . . 802
12.189.2.1 GetCanonMECMR3Tag() . . . 802
12.189.2.2 GetPMTFInformationDataTag() . . . 802
12.189.2.3 GetToshibaMECMR3Tag() . . . 803
12.189.2.4 Print() . . . 803
12.190 gdcm::MediaStorage Class Reference . . . 803
12.190.1 Detailed Description . . . 806
12.190.2 Member Enumeration Documentation . . . 807
12.190.2.1 MSType . . . 807
12.190.2.2 ObjectType . . . 809
12.190.3 Constructor & Destructor Documentation . . . 810
12.190.3.1 MediaStorage() . . . 810
12.190.4 Member Function Documentation . . . 810
12.190.4.1 GetModality() . . . 810
12.190.4.2 GetModalityDimension() . . . 810

12.190.4.3 GetMSString() . . . 810
12.190.4.4 GetMSType() . . . 811
12.190.4.5 GetNumberOfModality() . . . 811
12.190.4.6 GetNumberOfMSString() . . . 811
12.190.4.7 GetNumberOfMSType() . . . 811
12.190.4.8 GetString() . . . 811
12.190.4.9 GuessFromModality() . . . 811
12.190.4.10 IsImage() . . . 812
12.190.4.11 IsUndefined() . . . 812
12.190.4.12 operator MSType() . . . 812
12.190.4.13 SetFromDataSet() . . . 812
12.190.4.14 SetFromFile() . . . 812
12.190.4.15 SetFromHeader() . . . 813
12.190.4.16 SetFromModality() . . . 813
12.190.4.17 SetFromSourceImageSequence() . . . 813
12.190.5 Friends And Related Symbol Documentation . . . 813
12.190.5.1 operator<< . . . 813
12.191 gdcm::MemberCommand< T > Class Template Reference . . . 813
12.191.1 Detailed Description . . . 817
12.191.2 Member Typedef Documentation . . . 817
12.191.2.1 Self . . . 817
12.191.2.2 TConstMemberFunctionPointer . . . 817
12.191.2.3 TMemberFunctionPointer . . . 817
12.191.3 Constructor & Destructor Documentation . . . 817
12.191.3.1 MemberCommand() [1/2] . . . 817
12.191.3.2 MemberCommand() [2/2] . . . 817
12.191.3.3 ~MemberCommand() . . . 818
12.191.4 Member Function Documentation . . . 818
12.191.4.1 Execute() [1/2] . . . 818
12.191.4.2 Execute() [2/2] . . . 818
12.191.4.3 New() . . . 818
12.191.4.4 operator=() . . . 818
12.191.4.5 SetCallbackFunction() [1/2] . . . 819
12.191.4.6 SetCallbackFunction() [2/2] . . . 819
12.191.5 Member Data Documentation . . . 819
12.191.5.1 m_ConstMemberFunction . . . 819
12.191.5.2 m_MemberFunction . . . 819
12.191.5.3 m_This . . . 819
12.192 gdcm::MeshPrimitive Class Reference . . . 820

12.192.1 Detailed Description . . . 822
12.192.2 Member Typedef Documentation . . . 822
12.192.2.1 PrimitivesData . . . 822
12.192.3 Member Enumeration Documentation . . . 822
12.192.3.1 MPType . . . 822
12.192.4 Constructor & Destructor Documentation . . . 823
12.192.4.1 MeshPrimitive() . . . 823
12.192.4.2 ~MeshPrimitive() . . . 823
12.192.5 Member Function Documentation . . . 823
12.192.5.1 AddPrimitiveData() . . . 823
12.192.5.2 GetMPType() . . . 823
12.192.5.3 GetMPTypeString() . . . 823
12.192.5.4 GetNumberOfPrimitivesData() . . . 824
12.192.5.5 GetPrimitiveData() [1/4] . . . 824
12.192.5.6 GetPrimitiveData() [2/4] . . . 824
12.192.5.7 GetPrimitiveData() [3/4] . . . 824
12.192.5.8 GetPrimitiveData() [4/4] . . . 824
12.192.5.9 GetPrimitivesData() [1/2] . . . 824
12.192.5.10 GetPrimitivesData() [2/2] . . . 824
12.192.5.11 GetPrimitiveType() . . . 824
12.192.5.12 SetPrimitiveData() [1/2] . . . 824
12.192.5.13 SetPrimitiveData() [2/2] . . . 825
12.192.5.14 SetPrimitivesData() . . . 825
12.192.5.15 SetPrimitiveType() . . . 825
12.192.6 Member Data Documentation . . . 825
12.192.6.1 PrimitiveData . . . 825
12.192.6.2 PrimitiveType . . . 825
12.193 gdcm::ModalityPerformedProcedureStepCreateQuery Class Reference . . . 825
12.193.1 Detailed Description . . . 828
12.193.2 Constructor & Destructor Documentation . . . 828
12.193.2.1 ModalityPerformedProcedureStepCreateQuery() . . . 828
12.193.3 Member Function Documentation . . . 828
12.193.3.1 GetAbstractSyntaxUID() . . . 828
12.193.3.2 GetRequiredDataSet() . . . 828
12.193.3.3 ValidateQuery() . . . 828
12.193.4 Friends And Related Symbol Documentation . . . 829
12.193.4.1 QueryFactory . . . 829
12.194 gdcm::ModalityPerformedProcedureStepSetQuery Class Reference . . . 829
12.194.1 Detailed Description . . . 831

12.194.2 Constructor & Destructor Documentation . . . 831
12.194.2.1 ModalityPerformedProcedureStepSetQuery() . . . 831
12.194.3 Member Function Documentation . . . 832
12.194.3.1 GetAbstractSyntaxUID() . . . 832
12.194.3.2 GetRequiredDataSet() . . . 832
12.194.3.3 ValidateQuery() . . . 832
12.194.4 Friends And Related Symbol Documentation . . . 832
12.194.4.1 QueryFactory . . . 832
12.195 gdcm::ModifiedEvent Class Reference . . . 833
12.196 gdcm::Module Class Reference . . . 834
12.196.1 Detailed Description . . . 835
12.196.2 Member Typedef Documentation . . . 835
12.196.2.1 ArrayIncludeMacrosType . . . 835
12.196.2.2 MapModuleEntry . . . 835
12.196.3 Constructor & Destructor Documentation . . . 835
12.196.3.1 Module() . . . 835
12.196.4 Member Function Documentation . . . 835
12.196.4.1 AddMacro() . . . 835
12.196.4.2 AddModuleEntry() . . . 836
12.196.4.3 Clear() . . . 836
12.196.4.4 FindModuleEntryInMacros() . . . 836
12.196.4.5 GetModuleEntryInMacros() . . . 836
12.196.4.6 GetName() . . . 836
12.196.4.7 SetName() . . . 836
12.196.4.8 Verify() . . . 836
12.196.5 Friends And Related Symbol Documentation . . . 837
12.196.5.1 operator<< . . . 837
12.197 gdcm::ModuleEntry Class Reference . . . 837
12.197.1 Detailed Description . . . 839
12.197.2 Member Typedef Documentation . . . 839
12.197.2.1 Description . . . 839
12.197.3 Constructor & Destructor Documentation . . . 839
12.197.3.1 ModuleEntry() . . . 839
12.197.3.2 ~ModuleEntry() . . . 839
12.197.4 Member Function Documentation . . . 840
12.197.4.1 GetDescription() . . . 840
12.197.4.2 GetName() . . . 840
12.197.4.3 GetType() . . . 840
12.197.4.4 SetDescription() . . . 840

12.197.4.5 SetName() . . . 840
12.197.4.6 SetType() . . . 840
12.197.5 Friends And Related Symbol Documentation . . . 841
12.197.5.1 operator<< . . . 841
12.197.6 Member Data Documentation . . . 841
12.197.6.1 DataElementType . . . 841
12.197.6.2 DescriptionField . . . 841
12.197.6.3 Name . . . 841
12.198 gdcm::Modules Class Reference . . . 841
12.198.1 Detailed Description . . . 842
12.198.2 Member Typedef Documentation . . . 842
12.198.2.1 ModuleMapType . . . 842
12.198.3 Constructor & Destructor Documentation . . . 842
12.198.3.1 Modules() . . . 842
12.198.4 Member Function Documentation . . . 843
12.198.4.1 AddModule() . . . 843
12.198.4.2 Clear() . . . 843
12.198.4.3 GetModule() . . . 843
12.198.4.4 IsEmpty() . . . 843
12.198.5 Friends And Related Symbol Documentation . . . 843
12.198.5.1 operator<< . . . 843
12.199 gdcm::MovePatientRootQuery Class Reference . . . 844
12.199.1 Detailed Description . . . 846
12.199.2 Constructor & Destructor Documentation . . . 846
12.199.2.1 MovePatientRootQuery() . . . 846
12.199.3 Member Function Documentation . . . 846
12.199.3.1 GetAbstractSyntaxUID() . . . 846
12.199.3.2 GetTagListByLevel() . . . 847
12.199.3.3 InitializeDataSet() . . . 847
12.199.3.4 ValidateQuery() . . . 847
12.199.4 Friends And Related Symbol Documentation . . . 847
12.199.4.1 QueryFactory . . . 847
12.200 gdcm::MoveStudyRootQuery Class Reference . . . 848
12.200.1 Detailed Description . . . 850
12.200.2 Constructor & Destructor Documentation . . . 850
12.200.2.1 MoveStudyRootQuery() . . . 850
12.200.3 Member Function Documentation . . . 850
12.200.3.1 GetAbstractSyntaxUID() . . . 850
12.200.3.2 GetTagListByLevel() . . . 851

12.200.3.3 InitializeDataSet() . . . 851
12.200.3.4 ValidateQuery() . . . 851
12.200.4 Friends And Related Symbol Documentation . . . 851
12.200.4.1 QueryFactory . . . 851
12.201 gdcm::MrProtocol Class Reference . . . 852
12.201.1 Detailed Description . . . 852
12.201.2 Constructor & Destructor Documentation . . . 852
12.201.2.1 MrProtocol() . . . 852
12.201.2.2 ~MrProtocol() . . . 853
12.201.3 Member Function Documentation . . . 853
12.201.3.1 FindMrProtocolByName() . . . 853
12.201.3.2 GetMrProtocolByName() . . . 853
12.201.3.3 GetSliceArray() . . . 853
12.201.3.4 GetVersion() . . . 853
12.201.3.5 Load() . . . 853
12.201.3.6 Print() . . . 853
12.201.4 Friends And Related Symbol Documentation . . . 854
12.201.4.1 operator<< . . . 854
12.202 gdcm::network::NActionRQ Class Reference . . . 854
12.202.1 Detailed Description . . . 855
12.202.2 Member Function Documentation . . . 855
12.202.2.1 ConstructPDV() . . . 855
12.203 gdcm::network::NActionRSP Class Reference . . . 855
12.203.1 Detailed Description . . . 856
12.203.2 Member Function Documentation . . . 856
12.203.2.1 ConstructPDVByDataSet() . . . 856
12.204 gdcm::network::NCreateRQ Class Reference . . . 857
12.204.1 Detailed Description . . . 858
12.204.2 Member Function Documentation . . . 858
12.204.2.1 ConstructPDV() . . . 858
12.205 gdcm::network::NCreateRSP Class Reference . . . 858
12.205.1 Detailed Description . . . 859
12.205.2 Member Function Documentation . . . 859
12.205.2.1 ConstructPDVByDataSet() . . . 859
12.206 gdcm::network::NDeleteRQ Class Reference . . . 860
12.206.1 Detailed Description . . . 861
12.206.2 Member Function Documentation . . . 861
12.206.2.1 ConstructPDV() . . . 861
12.207 gdcm::network::NDeleteRSP Class Reference . . . 861

12.207.1 Detailed Description . . . 862
12.207.2 Member Function Documentation . . . 862
12.207.2.1 ConstructPDVByDataSet() . . . 862
12.208 gdcm::NestedModuleEntries Class Reference . . . 863
12.208.1 Detailed Description . . . 865
12.208.2 Member Typedef Documentation . . . 865
12.208.2.1 SizeType . . . 865
12.208.3 Constructor & Destructor Documentation . . . 865
12.208.3.1 NestedModuleEntries() . . . 865
12.208.4 Member Function Documentation . . . 865
12.208.4.1 AddModuleEntry() . . . 865
12.208.4.2 GetModuleEntry() [1/2] . . . 865
12.208.4.3 GetModuleEntry() [2/2] . . . 866
12.208.4.4 GetNumberOfModuleEntries() . . . 866
12.208.5 Friends And Related Symbol Documentation . . . 866
12.208.5.1 operator<< . . . 866
12.209 gdcm::network::NEventReportRQ Class Reference . . . 866
12.209.1 Detailed Description . . . 867
12.209.2 Member Function Documentation . . . 867
12.209.2.1 ConstructPDV() . . . 867
12.210 gdcm::network::NEventReportRSP Class Reference . . . 868
12.210.1 Detailed Description . . . 869
12.210.2 Member Function Documentation . . . 869
12.210.2.1 ConstructPDVByDataSet() . . . 869
12.211 gdcm::network::NGetRQ Class Reference . . . 869
12.211.1 Detailed Description . . . 870
12.211.2 Member Function Documentation . . . 870
12.211.2.1 ConstructPDV() . . . 870
12.212 gdcm::network::NGetRSP Class Reference . . . 871
12.212.1 Detailed Description . . . 872
12.212.2 Member Function Documentation . . . 872
12.212.2.1 ConstructPDVByDataSet() . . . 872
12.213 gdcm::NoEvent Class Reference . . . 872
12.213.1 Detailed Description . . . 873
12.214 gdcm::network::NormalizedMessageFactory Class Reference . . . 873
12.214.1 Member Function Documentation . . . 873
12.214.1.1 ConstructNAction() . . . 873
12.214.1.2 ConstructNCreate() . . . 874
12.214.1.3 ConstructNDelete() . . . 874

12.214.1.4 ConstructNEventReport() . . . 874
12.214.1.5 ConstructNGet() . . . 874
12.214.1.6 ConstructNSet() . . . 874
12.215 gdcm::NormalizedNetworkFunctions Class Reference . . . 874
12.215.1 Detailed Description . . . 875
12.215.2 Member Function Documentation . . . 875
12.215.2.1 ConstructQuery() . . . 875
12.215.2.2 NAction() . . . 876
12.215.2.3 NCreate() . . . 876
12.215.2.4 NDelete() . . . 876
12.215.2.5 NEventReport() . . . 876
12.215.2.6 NGet() . . . 876
12.215.2.7 NSet() . . . 877
12.216 gdcm::network::NSetRQ Class Reference . . . 877
12.216.1 Detailed Description . . . 878
12.216.2 Member Function Documentation . . . 878
12.216.2.1 ConstructPDV() . . . 878
12.217 gdcm::network::NSetRSP Class Reference . . . 878
12.217.1 Detailed Description . . . 879
12.217.2 Member Function Documentation . . . 879
12.217.2.1 ConstructPDVByDataSet() . . . 879
12.218 gdcm::Object Class Reference . . . 880
12.218.1 Detailed Description . . . 881
12.218.2 Constructor & Destructor Documentation . . . 881
12.218.2.1 Object() [1/2] . . . 881
12.218.2.2 ~Object() . . . 881
12.218.2.3 Object() [2/2] . . . 881
12.218.3 Member Function Documentation . . . 882
12.218.3.1 operator=() . . . 882
12.218.3.2 Print() . . . 882
12.218.3.3 Register() . . . 882
12.218.3.4 UnRegister() . . . 882
12.218.4 Friends And Related Symbol Documentation . . . 882
12.218.4.1 operator<< . . . 882
12.218.4.2 SmartPointer . . . 883
12.219 gdcm::OpenSSLCryptoFactory Class Reference . . . 883
12.219.1 Constructor & Destructor Documentation . . . 884
12.219.1.1 OpenSSLCryptoFactory() . . . 884
12.219.2 Member Function Documentation . . . 885

12.219.2.1 CreateCMSProvider() . . . 885
12.219.2.2 InitOpenSSL() . . . 885
12.220 gdcm::OpenSSLCryptographicMessageSyntax Class Reference . . . 885
12.220.1 Constructor & Destructor Documentation . . . 887
12.220.1.1 OpenSSLCryptographicMessageSyntax() . . . 887
12.220.1.2 ~OpenSSLCryptographicMessageSyntax() . . . 887
12.220.2 Member Function Documentation . . . 887
12.220.2.1 Decrypt() . . . 887
12.220.2.2 Encrypt() . . . 887
12.220.2.3 GetCipherType() . . . 887
12.220.2.4 ParseCertificateFile() . . . 888
12.220.2.5 ParseKeyFile() . . . 888
12.220.2.6 SetCipherType() . . . 888
12.220.2.7 SetPassword() . . . 888
12.221 gdcm::OpenSSLP7CryptoFactory Class Reference . . . 889
12.221.1 Constructor & Destructor Documentation . . . 890
12.221.1.1 OpenSSLP7CryptoFactory() . . . 890
12.221.2 Member Function Documentation . . . 890
12.221.2.1 CreateCMSProvider() . . . 890
12.222 gdcm::OpenSSLP7CryptographicMessageSyntax Class Reference . . . 891
12.222.1 Detailed Description . . . 892
12.222.2 Constructor & Destructor Documentation . . . 892
12.222.2.1 OpenSSLP7CryptographicMessageSyntax() . . . 892
12.222.2.2 ~OpenSSLP7CryptographicMessageSyntax() . . . 892
12.222.3 Member Function Documentation . . . 892
12.222.3.1 Decrypt() . . . 892
12.222.3.2 Encrypt() . . . 893
12.222.3.3 GetCipherType() . . . 893
12.222.3.4 ParseCertificateFile() . . . 893
12.222.3.5 ParseKeyFile() . . . 893
12.222.3.6 SetCipherType() . . . 893
12.222.3.7 SetPassword() . . . 894
12.223 gdcm::Orientation Class Reference . . . 894
12.223.1 Detailed Description . . . 895
12.223.2 Member Enumeration Documentation . . . 895
12.223.2.1 OrientationType . . . 895
12.223.3 Constructor & Destructor Documentation . . . 895
12.223.3.1 Orientation() . . . 895
12.223.3.2 ~Orientation() . . . 895

12.223.4 Member Function Documentation . . . 896
12.223.4.1 GetLabel() . . . 896
12.223.4.2 GetMajorAxisFromPatientRelativeDirectionCosine() . . . 896
12.223.4.3 GetObliquityThresholdCosineValue() . . . 896
12.223.4.4 GetType() . . . 896
12.223.4.5 Print() . . . 896
12.223.4.6 SetObliquityThresholdCosineValue() . . . 897
12.223.5 Friends And Related Symbol Documentation . . . 897
12.223.5.1 operator<< . . . 897
12.224 gdcm::Overlay Class Reference . . . 897
12.224.1 Detailed Description . . . 900
12.224.2 Member Enumeration Documentation . . . 900
12.224.2.1 OverlayType . . . 900
12.224.3 Constructor & Destructor Documentation . . . 900
12.224.3.1 Overlay() [1/2] . . . 900
12.224.3.2 ~Overlay() . . . 901
12.224.3.3 Overlay() [2/2] . . . 901
12.224.4 Member Function Documentation . . . 901
12.224.4.1 Decompress() . . . 901
12.224.4.2 GetBitPosition() . . . 901
12.224.4.3 GetBitsAllocated() . . . 901
12.224.4.4 GetColumns() . . . 901
12.224.4.5 GetDescription() . . . 901
12.224.4.6 GetGroup() . . . 902
12.224.4.7 GetOrigin() . . . 902
12.224.4.8 GetOverlayData() . . . 902
12.224.4.9 GetOverlayTypeAsString() . . . 902
12.224.4.10 GetOverlayTypeFromString() . . . 902
12.224.4.11 GetRows() . . . 902
12.224.4.12 GetType() . . . 902
12.224.4.13 GetTypeAsEnum() . . . 903
12.224.4.14 GetUnpackBuffer() . . . 903
12.224.4.15 GetUnpackBufferLength() . . . 903
12.224.4.16 GrabOverlayFromPixelData() . . . 903
12.224.4.17 IsEmpty() . . . 903
12.224.4.18 IsInPixelData() [1/2] . . . 903
12.224.4.19 IsInPixelData() [2/2] . . . 904
12.224.4.20 IsZero() . . . 904
12.224.4.21 operator=() . . . 904

12.224.4.22 Print() . . . 904
12.224.4.23 SetBitPosition() . . . 904
12.224.4.24 SetBitsAllocated() . . . 904
12.224.4.25 SetColumns() . . . 905
12.224.4.26 SetDescription() . . . 905
12.224.4.27 SetFrameOrigin() . . . 905
12.224.4.28 SetGroup() . . . 905
12.224.4.29 SetNumberOfFrames() . . . 905
12.224.4.30 SetOrigin() . . . 905
12.224.4.31 SetOverlay() . . . 906
12.224.4.32 SetRows() . . . 906
12.224.4.33 SetType() . . . 906
12.224.4.34 Update() . . . 906
12.225 gdcm::ParseException Class Reference . . . 907
12.225.1 Detailed Description . . . 908
12.225.2 Constructor & Destructor Documentation . . . 908
12.225.2.1 ParseException() [1/2] . . . 908
12.225.2.2 ~ParseException() . . . 908
12.225.2.3 ParseException() [2/2] . . . 908
12.225.3 Member Function Documentation . . . 909
12.225.3.1 GetLastElement() . . . 909
12.225.3.2 operator=() . . . 909
12.225.3.3 SetLastElement() . . . 909
12.226 gdcm::Parser Class Reference . . . 909
12.226.1 Detailed Description . . . 910
12.226.2 Member Typedef Documentation . . . 910
12.226.2.1 EndElementHandler . . . 910
12.226.2.2 StartElementHandler . . . 910
12.226.3 Member Enumeration Documentation . . . 911
12.226.3.1 ErrorType . . . 911
12.226.4 Constructor & Destructor Documentation . . . 911
12.226.4.1 Parser() . . . 911
12.226.4.2 ~Parser() . . . 911
12.226.5 Member Function Documentation . . . 911
12.226.5.1 GetBuffer() . . . 911
12.226.5.2 GetCurrentByteIndex() . . . 911
12.226.5.3 GetErrorCode() . . . 912
12.226.5.4 GetErrorString() . . . 912
12.226.5.5 GetUserData() . . . 912

12.226.5.6 Parse() . . . 912
12.226.5.7 ParseBuffer() . . . 912
12.226.5.8 Process() . . . 912
12.226.5.9 SetElementHandler() . . . 912
12.226.5.10 SetUserData() . . . 912
12.227 gdcm::Patient Class Reference . . . 913
12.227.1 Detailed Description . . . 913
12.227.2 Constructor & Destructor Documentation . . . 913
12.227.2.1 Patient() . . . 913
12.228 gdcm::network::PDataTFPDU Class Reference . . . 913
12.228.1 Detailed Description . . . 914
12.228.2 Member Typedef Documentation . . . 915
12.228.2.1 SizeType . . . 915
12.228.3 Constructor & Destructor Documentation . . . 915
12.228.3.1 PDataTFPDU() . . . 915
12.228.4 Member Function Documentation . . . 915
12.228.4.1 AddPresentationDataValue() . . . 915
12.228.4.2 GetNumberOfPresentationDataValues() . . . 915
12.228.4.3 GetPresentationDataValue() . . . 915
12.228.4.4 IsLastFragment() . . . 915
12.228.4.5 Print() . . . 916
12.228.4.6 Read() . . . 916
12.228.4.7 ReadInto() . . . 916
12.228.4.8 Size() . . . 916
12.228.4.9 Write() . . . 916
12.229 gdcm::PDBElement Class Reference . . . 917
12.229.1 Detailed Description . . . 918
12.229.2 Constructor & Destructor Documentation . . . 918
12.229.2.1 PDBElement() . . . 918
12.229.3 Member Function Documentation . . . 918
12.229.3.1 GetName() . . . 918
12.229.3.2 GetValue() . . . 918
12.229.3.3 operator==() . . . 918
12.229.3.4 SetName() . . . 919
12.229.3.5 SetValue() . . . 919
12.229.4 Friends And Related Symbol Documentation . . . 919
12.229.4.1 operator<< . . . 919
12.229.5 Member Data Documentation . . . 919
12.229.5.1 NameField . . . 919

12.229.5.2 ValueField . . . 919
12.230 gdcm::PDBHeader Class Reference . . . 920
12.230.1 Detailed Description . . . 920
12.230.2 Constructor & Destructor Documentation . . . 921
12.230.2.1 PDBHeader() . . . 921
12.230.2.2 ∼PDBHeader() . . . 921
12.230.3 Member Function Documentation . . . 921
12.230.3.1 FindPDBElementByName() . . . 921
12.230.3.2 GetPDBEEnd() . . . 921
12.230.3.3 GetPDBElementByName() . . . 921
12.230.3.4 GetPDBInfoTag() . . . 921
12.230.3.5 LoadFromDataElement() . . . 922
12.230.3.6 Print() . . . 922
12.230.4 Friends And Related Symbol Documentation . . . 922
12.230.4.1 operator<< . . . 922
12.231 gdcm::PDFCodec Class Reference . . . 922
12.231.1 Detailed Description . . . 924
12.231.2 Constructor & Destructor Documentation . . . 924
12.231.2.1 PDFCodec() . . . 924
12.231.2.2 ∼PDFCodec() . . . 924
12.231.3 Member Function Documentation . . . 924
12.231.3.1 CanCode() . . . 924
12.231.3.2 CanDecode() . . . 925
12.231.3.3 Decode() . . . 925
12.232 gdcm::network::PDUFactory Class Reference . . . 925
12.232.1 Detailed Description . . . 926
12.232.2 Member Function Documentation . . . 926
12.232.2.1 ConstructAbortPDU() . . . 926
12.232.2.2 ConstructPDU() . . . 926
12.232.2.3 ConstructReleasePDU() . . . 926
12.232.2.4 CreateCEchoPDU() . . . 926
12.232.2.5 CreateCFindPDU() . . . 926
12.232.2.6 CreateCMovePDU() . . . 926
12.232.2.7 CreateCStoreRQPDU() . . . 927
12.232.2.8 CreateCStoreRSPPDU() . . . 927
12.232.2.9 CreateNActionPDU() . . . 927
12.232.2.10 CreateNCreatePDU() . . . 927
12.232.2.11 CreateNDeletePDU() . . . 927
12.232.2.12 CreateNEventReportPDU() . . . 927

12.232.2.13 CreateNGetPDU() . . . 927
12.232.2.14 CreateNSetPDU() . . . 928
12.232.2.15 DetermineEventByPDU() . . . 928
12.232.2.16 GetPDVs() . . . 928
12.233 gdcm::PersonName Class Reference . . . 928
12.233.1 Detailed Description . . . 929
12.233.2 Member Function Documentation . . . 929
12.233.2.1 GetMaxLength() . . . 929
12.233.2.2 GetNumberOfComponents() . . . 929
12.233.2.3 Print() . . . 929
12.233.2.4 SetBlob() . . . 929
12.233.2.5 SetComponents() [1/2] . . . 930
12.233.2.6 SetComponents() [2/2] . . . 930
12.233.3 Member Data Documentation . . . 930
12.233.3.1 Component . . . 930
12.233.3.2 MaxLength . . . 930
12.233.3.3 MaxNumberOfComponents . . . 930
12.233.3.4 Padding . . . 930
12.233.3.5 Separator . . . 931
12.234 gdcm::PGXCodec Class Reference . . . 931
12.234.1 Detailed Description . . . 934
12.234.2 Constructor & Destructor Documentation . . . 934
12.234.2.1 PGXCodec() . . . 934
12.234.2.2 ~PGXCodec() . . . 934
12.234.3 Member Function Documentation . . . 934
12.234.3.1 CanCode() . . . 934
12.234.3.2 CanDecode() . . . 934
12.234.3.3 Clone() . . . 934
12.234.3.4 GetHeaderInfo() . . . 935
12.234.3.5 Read() . . . 935
12.234.3.6 Write() . . . 935
12.235 gdcm::PhotometricInterpretation Class Reference . . . 935
12.235.1 Detailed Description . . . 936
12.235.2 Member Enumeration Documentation . . . 936
12.235.2.1 PIType . . . 936
12.235.3 Constructor & Destructor Documentation . . . 937
12.235.3.1 PhotometricInterpretation() . . . 937
12.235.4 Member Function Documentation . . . 937
12.235.4.1 GetPIString() . . . 937

12.235.4.2 GetPIType() . . . 937
12.235.4.3 GetSamplesPerPixel() . . . 938
12.235.4.4 GetString() . . . 938
12.235.4.5 GetType() . . . 938
12.235.4.6 IsLossless() . . . 938
12.235.4.7 IsLossy() . . . 938
12.235.4.8 IsRetired() . . . 938
12.235.4.9 IsSameColorSpace() . . . 938
12.235.4.10 operator PIType() . . . 938
12.235.5 Friends And Related Symbol Documentation . . . 939
12.235.5.1 operator<< . . . 939
12.236 gdcm::PixelFormat Class Reference . . . 939
12.236.1 Detailed Description . . . 941
12.236.2 Member Enumeration Documentation . . . 941
12.236.2.1 ScalarType . . . 941
12.236.3 Constructor & Destructor Documentation . . . 942
12.236.3.1 PixelFormat() [1/3] . . . 942
12.236.3.2 PixelFormat() [2/3] . . . 942
12.236.3.3 PixelFormat() [3/3] . . . 942
12.236.4 Member Function Documentation . . . 942
12.236.4.1 GetBitsAllocated() . . . 942
12.236.4.2 GetBitsStored() . . . 943
12.236.4.3 GetHighBit() . . . 943
12.236.4.4 GetMax() . . . 943
12.236.4.5 GetMin() . . . 943
12.236.4.6 GetPixelRepresentation() . . . 943
12.236.4.7 GetPixelSize() . . . 944
12.236.4.8 GetSamplesPerPixel() . . . 944
12.236.4.9 GetScalarType() . . . 944
12.236.4.10 GetScalarTypeAsString() . . . 944
12.236.4.11 IsCompatible() . . . 945
12.236.4.12 IsValid() . . . 945
12.236.4.13 operator ScalarType() . . . 945
12.236.4.14 operator"!=() [1/2] . . . 945
12.236.4.15 operator"!=() [2/2] . . . 945
12.236.4.16 operator==() [1/2] . . . 945
12.236.4.17 operator==() [2/2] . . . 945
12.236.4.18 Print() . . . 946
12.236.4.19 SetBitsAllocated() . . . 946

12.236.4.20 SetBitsStored() . . . 946
12.236.4.21 SetHighBit() . . . 946
12.236.4.22 SetPixelRepresentation() . . . 946
12.236.4.23 SetSamplesPerPixel() . . . 946
12.236.4.24 SetScalarType() . . . 947
12.236.4.25 Validate() . . . 947
12.236.5 Friends And Related Symbol Documentation . . . 947
12.236.5.1 Bitmap . . . 947
12.236.5.2 operator<< . . . 947
12.237 gdcm::Pixmap Class Reference . . . 948
12.237.1 Detailed Description . . . 951
12.237.2 Constructor & Destructor Documentation . . . 952
12.237.2.1 Pixmap() . . . 952
12.237.2.2 ~Pixmap() . . . 952
12.237.3 Member Function Documentation . . . 952
12.237.3.1 AreOverlaysInPixelData() . . . 952
12.237.3.2 GetCurve() [1/2] . . . 952
12.237.3.3 GetCurve() [2/2] . . . 952
12.237.3.4 GetIconImage() [1/2] . . . 952
12.237.3.5 GetIconImage() [2/2] . . . 953
12.237.3.6 GetNumberOfCurves() . . . 953
12.237.3.7 GetNumberOfOverlays() . . . 953
12.237.3.8 GetOverlay() [1/2] . . . 953
12.237.3.9 GetOverlay() [2/2] . . . 953
12.237.3.10 Print() . . . 953
12.237.3.11 RemoveOverlay() . . . 954
12.237.3.12 SetIconImage() . . . 954
12.237.3.13 SetNumberOfCurves() . . . 954
12.237.3.14 SetNumberOfOverlays() . . . 954
12.237.3.15 UnusedBitsPresentInPixelData() . . . 954
12.237.4 Member Data Documentation . . . 954
12.237.4.1 Curves . . . 954
12.237.4.2 Icon . . . 955
12.237.4.3 Overlays . . . 955
12.238 gdcm::PixmapReader Class Reference . . . 955
12.238.1 Detailed Description . . . 957
12.238.2 Constructor & Destructor Documentation . . . 958
12.238.2.1 PixmapReader() . . . 958
12.238.2.2 ~PixmapReader() . . . 958

12.238.3 Member Function Documentation . . . 958
12.238.3.1 GetPixmap() [1/2] . . . 958
12.238.3.2 GetPixmap() [2/2] . . . 958
12.238.3.3 Read() . . . 958
12.238.3.4 ReadACRNEMAImage() . . . 959
12.238.3.5 ReadImage() . . . 959
12.238.3.6 ReadImageInternal() . . . 959
12.238.4 Member Data Documentation . . . 959
12.238.4.1 PixelData . . . 959
12.239 gdcm::PixmapToPixmapFilter Class Reference . . . 959
12.239.1 Detailed Description . . . 961
12.239.2 Constructor & Destructor Documentation . . . 961
12.239.2.1 PixmapToPixmapFilter() . . . 961
12.239.2.2 ~PixmapToPixmapFilter() . . . 961
12.239.3 Member Function Documentation . . . 961
12.239.3.1 GetInput() . . . 961
12.239.3.2 GetOutput() . . . 961
12.239.3.3 GetOutputAsPixmap() . . . 962
12.240 gdcm::PixmapWriter Class Reference . . . 962
12.240.1 Detailed Description . . . 964
12.240.2 Constructor & Destructor Documentation . . . 965
12.240.2.1 PixmapWriter() . . . 965
12.240.2.2 ~PixmapWriter() . . . 965
12.240.3 Member Function Documentation . . . 965
12.240.3.1 DoIconImage() . . . 965
12.240.3.2 GetImage() [1/2] . . . 965
12.240.3.3 GetImage() [2/2] . . . 965
12.240.3.4 GetPixmap() [1/2] . . . 965
12.240.3.5 GetPixmap() [2/2] . . . 966
12.240.3.6 PrepareWrite() . . . 966
12.240.3.7 SetImage() . . . 966
12.240.3.8 SetPixmap() . . . 966
12.240.3.9 Write() . . . 966
12.240.4 Member Data Documentation . . . 967
12.240.4.1 PixelData . . . 967
12.241 gdcm::PNMCodec Class Reference . . . 967
12.241.1 Detailed Description . . . 970
12.241.2 Constructor & Destructor Documentation . . . 970
12.241.2.1 PNMCodec() . . . 970

12.241.2.2 ~PNMCodec() . . . 970
12.241.3 Member Function Documentation . . . 970
12.241.3.1 CanCode() . . . 970
12.241.3.2 CanDecode() . . . 971
12.241.3.3 Clone() . . . 971
12.241.3.4 GetBufferLength() . . . 971
12.241.3.5 GetHeaderInfo() . . . 971
12.241.3.6 Read() . . . 971
12.241.3.7 SetBufferLength() . . . 971
12.241.3.8 Write() . . . 972
12.242 gdcm::Preamble Class Reference . . . 972
12.242.1 Detailed Description . . . 973
12.242.2 Constructor & Destructor Documentation . . . 973
12.242.2.1 Preamble() [1/2] . . . 973
12.242.2.2 ~Preamble() . . . 973
12.242.2.3 Preamble() [2/2] . . . 973
12.242.3 Member Function Documentation . . . 973
12.242.3.1 Clear() . . . 973
12.242.3.2 Create() . . . 974
12.242.3.3 GetInternal() . . . 974
12.242.3.4 GetLength() . . . 974
12.242.3.5 IsEmpty() . . . 974
12.242.3.6 IsValid() . . . 974
12.242.3.7 operator=() . . . 974
12.242.3.8 Print() . . . 974
12.242.3.9 Read() . . . 975
12.242.3.10 Remove() . . . 975
12.242.3.11 Valid() . . . 975
12.242.3.12 Write() . . . 975
12.242.4 Friends And Related Symbol Documentation . . . 975
12.242.4.1 operator<< . . . 975
12.243 gdcm::PresentationContext Class Reference . . . 976
12.243.1 Detailed Description . . . 977
12.243.2 Member Typedef Documentation . . . 977
12.243.2.1 SizeType . . . 977
12.243.2.2 TransferSyntaxArrayType . . . 977
12.243.3 Constructor & Destructor Documentation . . . 977
12.243.3.1 PresentationContext() [1/2] . . . 977
12.243.3.2 PresentationContext() [2/2] . . . 977

12.243.4 Member Function Documentation . . . 978
12.243.4.1 AddTransferSyntax() . . . 978
12.243.4.2 GetAbstractSyntax() . . . 978
12.243.4.3 GetNumberOfTransferSyntaxes() . . . 978
12.243.4.4 GetPresentationContextID() . . . 978
12.243.4.5 GetTransferSyntax() . . . 978
12.243.4.6 operator==() . . . 978
12.243.4.7 Print() . . . 978
12.243.4.8 SetAbstractSyntax() . . . 979
12.243.4.9 SetPresentationContextID() . . . 979
12.243.5 Member Data Documentation . . . 979
12.243.5.1 AbstractSyntax . . . 979
12.243.5.2 ID . . . 979
12.243.5.3 TransferSyntaxes . . . 979
12.244 gdcm::network::PresentationContextAC Class Reference . . . 979
12.244.1 Detailed Description . . . 980
12.244.2 Constructor & Destructor Documentation . . . 980
12.244.2.1 PresentationContextAC() . . . 980
12.244.3 Member Function Documentation . . . 980
12.244.3.1 GetPresentationContextID() . . . 980
12.244.3.2 GetReason() . . . 980
12.244.3.3 GetTransferSyntax() . . . 980
12.244.3.4 Print() . . . 981
12.244.3.5 Read() . . . 981
12.244.3.6 SetPresentationContextID() . . . 981
12.244.3.7 SetReason() . . . 981
12.244.3.8 SetTransferSyntax() . . . 981
12.244.3.9 Size() . . . 981
12.244.3.10 Write() . . . 981
12.245 gdcm::PresentationContextGenerator Class Reference . . . 982
12.245.1 Detailed Description . . . 982
12.245.2 Member Typedef Documentation . . . 983
12.245.2.1 PresentationContextArrayType . . . 983
12.245.2.2 SizeType . . . 983
12.245.3 Constructor & Destructor Documentation . . . 983
12.245.3.1 PresentationContextGenerator() . . . 983
12.245.4 Member Function Documentation . . . 983
12.245.4.1 AddFromFile() . . . 983
12.245.4.2 AddPresentationContext() . . . 983

12.245.4.3 GenerateFromFilenames() . . . 983
12.245.4.4 GenerateFromUID() . . . 984
12.245.4.5 GetDefaultTransferSyntax() . . . 984
12.245.4.6 GetPresentationContexts() . . . 984
12.245.4.7 SetDefaultTransferSyntax() . . . 984
12.245.4.8 SetMergeModeToAbstractSyntax() . . . 984
12.245.4.9 SetMergeModeToTransferSyntax() . . . 984
12.246 gdcm::network::PresentationContextRQ Class Reference . . . 985
12.246.1 Detailed Description . . . 985
12.246.2 Member Typedef Documentation . . . 985
12.246.2.1 SizeType . . . 985
12.246.3 Constructor & Destructor Documentation . . . 986
12.246.3.1 PresentationContextRQ() [1/3] . . . 986
12.246.3.2 PresentationContextRQ() [2/3] . . . 986
12.246.3.3 PresentationContextRQ() [3/3] . . . 986
12.246.4 Member Function Documentation . . . 986
12.246.4.1 AddTransferSyntax() . . . 986
12.246.4.2 GetAbstractSyntax() [1/2] . . . 986
12.246.4.3 GetAbstractSyntax() [2/2] . . . 986
12.246.4.4 GetNumberOfTransferSyntaxes() . . . 986
12.246.4.5 GetPresentationContextID() . . . 987
12.246.4.6 GetTransferSyntax() [1/2] . . . 987
12.246.4.7 GetTransferSyntax() [2/2] . . . 987
12.246.4.8 GetTransferSyntaxes() . . . 987
12.246.4.9 operator==() . . . 987
12.246.4.10 Print() . . . 987
12.246.4.11 Read() . . . 987
12.246.4.12 SetAbstractSyntax() . . . 987
12.246.4.13 SetPresentationContextID() . . . 988
12.246.4.14 Size() . . . 988
12.246.4.15 Write() . . . 988
12.247 gdcm::network::PresentationDataValue Class Reference . . . 988
12.247.1 Detailed Description . . . 989
12.247.2 Constructor & Destructor Documentation . . . 989
12.247.2.1 PresentationDataValue() . . . 989
12.247.3 Member Function Documentation . . . 989
12.247.3.1 ConcatenatePDVBlobs() . . . 989
12.247.3.2 ConcatenatePDVBlobsAsExplicit() . . . 989
12.247.3.3 GetBlob() . . . 989

12.247.3.4 GetIsCommand() . . . 989
12.247.3.5 GetIsLastFragment() . . . 990
12.247.3.6 GetMessageHeader() . . . 990
12.247.3.7 GetPresentationContextID() . . . 990
12.247.3.8 Print() . . . 990
12.247.3.9 Read() . . . 990
12.247.3.10 ReadInto() . . . 990
12.247.3.11 SetBlob() . . . 990
12.247.3.12 SetCommand() . . . 990
12.247.3.13 SetDataSet() . . . 991
12.247.3.14 SetLastFragment() . . . 991
12.247.3.15 SetMessageHeader() . . . 991
12.247.3.16 SetPresentationContextID() . . . 991
12.247.3.17 Size() . . . 991
12.247.3.18 Write() . . . 991
12.248 gdcm::Printer Class Reference . . . 992
12.248.1 Detailed Description . . . 993
12.248.2 Member Enumeration Documentation . . . 994
12.248.2.1 PrintStyles . . . 994
12.248.3 Constructor & Destructor Documentation . . . 994
12.248.3.1 Printer() . . . 994
12.248.3.2 ∼Printer() . . . 994
12.248.4 Member Function Documentation . . . 994
12.248.4.1 GetPrintStyle() . . . 994
12.248.4.2 Print() . . . 994
12.248.4.3 PrintDataElement() . . . 995
12.248.4.4 PrintDataSet() . . . 995
12.248.4.5 PrintSQ() . . . 995
12.248.4.6 SetColor() . . . 995
12.248.4.7 SetFile() . . . 995
12.248.4.8 SetStyle() . . . 996
12.248.5 Member Data Documentation . . . 996
12.248.5.1 F . . . 996
12.248.5.2 MaxPrintLength . . . 996
12.248.5.3 PrintStyle . . . 996
12.249 gdcm::PrivateDict Class Reference . . . 996
12.249.1 Detailed Description . . . 997
12.249.2 Constructor & Destructor Documentation . . . 997
12.249.2.1 PrivateDict() . . . 997

12.249.2.2 ~PrivateDict() . . . 997
12.249.3 Member Function Documentation . . . 997
12.249.3.1 AddDictEntry() . . . 997
12.249.3.2 FindDictEntry() . . . 997
12.249.3.3 GetDictEntry() . . . 998
12.249.3.4 IsEmpty() . . . 998
12.249.3.5 LoadDefault() . . . 998
12.249.3.6 PrintXML() . . . 998
12.249.3.7 RemoveDictEntry() . . . 998
12.249.4 Friends And Related Symbol Documentation . . . 998
12.249.4.1 Dicts . . . 998
12.249.4.2 operator<< . . . 999
12.250 gdcm::PrivateTag Class Reference . . . 999
12.250.1 Detailed Description . . . 1001
12.250.2 Constructor & Destructor Documentation . . . 1002
12.250.2.1 PrivateTag() [1/2] . . . 1002
12.250.2.2 PrivateTag() [2/2] . . . 1002
12.250.3 Member Function Documentation . . . 1002
12.250.3.1 GetAsDataElement() . . . 1002
12.250.3.2 GetOwner() . . . 1002
12.250.3.3 operator"!=() [1/2] . . . 1002
12.250.3.4 operator"!=() [2/2] . . . 1003
12.250.3.5 operator<() . . . 1003
12.250.3.6 operator=() . . . 1003
12.250.3.7 operator==() [1/2] . . . 1003
12.250.3.8 operator==() [2/2] . . . 1003
12.250.3.9 ReadFromCommaSeparatedString() . . . 1003
12.250.3.10 SetOwner() . . . 1004
12.250.4 Friends And Related Symbol Documentation . . . 1004
12.250.4.1 operator<< . . . 1004
12.251 gdcm::ProgressEvent Class Reference . . . 1004
12.251.1 Detailed Description . . . 1006
12.251.2 Member Typedef Documentation . . . 1006
12.251.2.1 Self . . . 1006
12.251.2.2 Superclass . . . 1006
12.251.3 Constructor & Destructor Documentation . . . 1006
12.251.3.1 ProgressEvent() [1/2] . . . 1006
12.251.3.2 ~ProgressEvent() . . . 1006
12.251.3.3 ProgressEvent() [2/2] . . . 1006

12.251.4 Member Function Documentation . . . 1007
12.251.4.1 CheckEvent() . . . 1007
12.251.4.2 GetEventName() . . . 1007
12.251.4.3 GetProgress() . . . 1007
12.251.4.4 MakeObject() . . . 1007
12.251.4.5 operator=() . . . 1007
12.251.4.6 SetProgress() . . . 1008
12.252 gdcm::PVRGCodec Class Reference . . . 1008
12.252.1 Detailed Description . . . 1011
12.252.2 Constructor & Destructor Documentation . . . 1011
12.252.2.1 PVRGCodec() . . . 1011
12.252.2.2 ~PVRGCodec() . . . 1011
12.252.3 Member Function Documentation . . . 1011
12.252.3.1 CanCode() . . . 1011
12.252.3.2 CanDecode() . . . 1011
12.252.3.3 Clone() . . . 1012
12.252.3.4 Code() . . . 1012
12.252.3.5 Decode() . . . 1012
12.252.3.6 SetLossyFlag() . . . 1012
12.253 gdcm::PythonFilter Class Reference . . . 1012
12.253.1 Detailed Description . . . 1013
12.253.2 Constructor & Destructor Documentation . . . 1013
12.253.2.1 PythonFilter() . . . 1013
12.253.2.2 ~PythonFilter() . . . 1013
12.253.3 Member Function Documentation . . . 1013
12.253.3.1 GetFile() [1/2] . . . 1013
12.253.3.2 GetFile() [2/2] . . . 1013
12.253.3.3 SetDicts() . . . 1013
12.253.3.4 SetFile() . . . 1014
12.253.3.5 ToPyObject() . . . 1014
12.253.3.6 UseDictAlways() . . . 1014
12.254 gdcm::QueryBase Class Reference . . . 1014
12.254.1 Detailed Description . . . 1015
12.254.2 Constructor & Destructor Documentation . . . 1015
12.254.2.1 ~QueryBase() . . . 1015
12.254.3 Member Function Documentation . . . 1015
12.254.3.1 GetAllRequiredTags() . . . 1015
12.254.3.2 GetAllTags() . . . 1015
12.254.3.3 GetHierachicalSearchTags() . . . 1016

12.254.3.4 GetName() . . . 1016
12.254.3.5 GetOptionalTags() . . . 1016
12.254.3.6 GetQueryLevel() . . . 1016
12.254.3.7 GetRequiredTags() . . . 1016
12.254.3.8 GetUniqueTags() . . . 1016
12.255 gdcm::QueryFactory Class Reference . . . 1017
12.255.1 Detailed Description . . . 1017
12.255.2 Member Function Documentation . . . 1017
12.255.2.1 GetCharacterFromCurrentLocale() . . . 1017
12.255.2.2 ListCharSets() . . . 1017
12.255.2.3 ProduceCharacterSetDataElement() . . . 1018
12.255.2.4 ProduceQuery() [1/2] . . . 1018
12.255.2.5 ProduceQuery() [2/2] . . . 1018
12.256 gdcm::QueryImage Class Reference . . . 1018
12.256.1 Detailed Description . . . 1019
12.256.2 Member Function Documentation . . . 1019
12.256.2.1 GetHierachicalSearchTags() . . . 1019
12.256.2.2 GetName() . . . 1020
12.256.2.3 GetOptionalTags() . . . 1020
12.256.2.4 GetQueryLevel() . . . 1020
12.256.2.5 GetRequiredTags() . . . 1020
12.256.2.6 GetUniqueTags() . . . 1020
12.257 gdcm::QueryPatient Class Reference . . . 1021
12.257.1 Detailed Description . . . 1022
12.257.2 Member Function Documentation . . . 1022
12.257.2.1 GetHierachicalSearchTags() . . . 1022
12.257.2.2 GetName() . . . 1022
12.257.2.3 GetOptionalTags() . . . 1022
12.257.2.4 GetQueryLevel() . . . 1022
12.257.2.5 GetRequiredTags() . . . 1023
12.257.2.6 GetUniqueTags() . . . 1023
12.258 gdcm::QuerySeries Class Reference . . . 1023
12.258.1 Detailed Description . . . 1024
12.258.2 Member Function Documentation . . . 1024
12.258.2.1 GetHierachicalSearchTags() . . . 1024
12.258.2.2 GetName() . . . 1025
12.258.2.3 GetOptionalTags() . . . 1025
12.258.2.4 GetQueryLevel() . . . 1025
12.258.2.5 GetRequiredTags() . . . 1025

12.258.2.6 GetUniqueTags() . . . 1025
12.259 gdcm::QueryStudy Class Reference . . . 1026
12.259.1 Detailed Description . . . 1027
12.259.2 Member Function Documentation . . . 1027
12.259.2.1 GetHierachicalSearchTags() . . . 1027
12.259.2.2 GetName() . . . 1027
12.259.2.3 GetOptionalTags() . . . 1027
12.259.2.4 GetQueryLevel() . . . 1027
12.259.2.5 GetRequiredTags() . . . 1028
12.259.2.6 GetUniqueTags() . . . 1028
12.260 gdcm::RAWCodec Class Reference . . . 1028
12.260.1 Detailed Description . . . 1031
12.260.2 Constructor & Destructor Documentation . . . 1031
12.260.2.1 RAWCodec() . . . 1031
12.260.2.2 ~RAWCodec() . . . 1031
12.260.3 Member Function Documentation . . . 1031
12.260.3.1 CanCode() . . . 1031
12.260.3.2 CanDecode() . . . 1031
12.260.3.3 Clone() . . . 1032
12.260.3.4 Code() . . . 1032
12.260.3.5 Decode() . . . 1032
12.260.3.6 DecodeByStreams() . . . 1032
12.260.3.7 DecodeBytes() . . . 1032
12.260.3.8 GetHeaderInfo() . . . 1033
12.261 gdcm::Reader Class Reference . . . 1033
12.261.1 Detailed Description . . . 1035
12.261.2 Constructor & Destructor Documentation . . . 1036
12.261.2.1 Reader() . . . 1036
12.261.2.2 ~Reader() . . . 1036
12.261.3 Member Function Documentation . . . 1036
12.261.3.1 CanRead() . . . 1036
12.261.3.2 GetFile() [1/2] . . . 1036
12.261.3.3 GetFile() [2/2] . . . 1036
12.261.3.4 GetStreamCurrentPosition() . . . 1037
12.261.3.5 GetStreamPtr() . . . 1037
12.261.3.6 Read() . . . 1037
12.261.3.7 ReadDataSet() . . . 1037
12.261.3.8 ReadMetaInformation() . . . 1037
12.261.3.9 ReadPreamble() . . . 1038

12.261.3.10 ReadSelectedPrivateTags() . . . 1038
12.261.3.11 ReadSelectedTags() . . . 1038
12.261.3.12 ReadUpToTag() . . . 1038
12.261.3.13 SetFile() . . . 1038
12.261.3.14 SetFileName() . . . 1039
12.261.3.15 SetStream() . . . 1039
12.261.4 Friends And Related Symbol Documentation . . . 1039
12.261.4.1 StreamImageReader . . . 1039
12.261.5 Member Data Documentation . . . 1040
12.261.5.1 F . . . 1040
12.262 gdcm::RealWorldValueMappingContent Struct Reference . . . 1040
12.262.1 Member Data Documentation . . . 1041
12.262.1.1 CodeMeaning . . . 1041
12.262.1.2 CodeValue . . . 1041
12.262.1.3 RealWorldValueIntercept . . . 1041
12.262.1.4 RealWorldValueSlope . . . 1041
12.263 gdcm::Region Class Reference . . . 1041
12.263.1 Detailed Description . . . 1042
12.263.2 Constructor & Destructor Documentation . . . 1042
12.263.2.1 Region() . . . 1042
12.263.2.2 ∼Region() . . . 1042
12.263.3 Member Function Documentation . . . 1042
12.263.3.1 Area() . . . 1042
12.263.3.2 Clone() . . . 1043
12.263.3.3 ComputeBoundingBox() . . . 1043
12.263.3.4 Empty() . . . 1043
12.263.3.5 IsValid() . . . 1043
12.263.3.6 Print() . . . 1043
12.264 gdcm::Rescaler Class Reference . . . 1044
12.264.1 Detailed Description . . . 1044
12.264.2 Constructor & Destructor Documentation . . . 1045
12.264.2.1 Rescaler() . . . 1045
12.264.2.2 ∼Rescaler() . . . 1045
12.264.3 Member Function Documentation . . . 1045
12.264.3.1 ComputeInterceptSlopePixelType() . . . 1045
12.264.3.2 ComputePixelTypeFromMinMax() . . . 1046
12.264.3.3 GetIntercept() . . . 1046
12.264.3.4 GetSlope() . . . 1046
12.264.3.5 InverseRescale() . . . 1046

12.264.3.6 InverseRescaleFunctionIntoBestFit() . . . 1046
12.264.3.7 Rescale() . . . 1046
12.264.3.8 RescaleFunctionIntoBestFit() . . . 1047
12.264.3.9 SetIntercept() . . . 1047
12.264.3.10 SetMinMaxForPixelType() . . . 1047
12.264.3.11 SetPixelFormat() . . . 1047
12.264.3.12 SetSlope() . . . 1047
12.264.3.13 SetTargetPixelType() . . . 1048
12.264.3.14 SetUseTargetPixelType() . . . 1048
12.265 gdcm::RLECodec Class Reference . . . 1048
12.265.1 Detailed Description . . . 1051
12.265.2 Constructor & Destructor Documentation . . . 1051
12.265.2.1 RLECodec() . . . 1051
12.265.2.2 ∼RLECodec() . . . 1051
12.265.3 Member Function Documentation . . . 1052
12.265.3.1 AppendFrameEncode() . . . 1052
12.265.3.2 AppendRowEncode() . . . 1052
12.265.3.3 CanCode() . . . 1052
12.265.3.4 CanDecode() . . . 1052
12.265.3.5 Clone() . . . 1052
12.265.3.6 Code() . . . 1053
12.265.3.7 Decode() . . . 1053
12.265.3.8 DecodeByStreams() . . . 1053
12.265.3.9 DecodeExtent() . . . 1053
12.265.3.10 GetBufferLength() . . . 1053
12.265.3.11 GetHeaderInfo() . . . 1054
12.265.3.12 IsFrameEncoder() . . . 1054
12.265.3.13 IsRowEncoder() . . . 1054
12.265.3.14 SetBufferLength() . . . 1054
12.265.3.15 SetLength() . . . 1054
12.265.3.16 StartEncode() . . . 1054
12.265.3.17 StopEncode() . . . 1054
12.265.4 Friends And Related Symbol Documentation . . . 1055
12.265.4.1 ImageRegionReader . . . 1055
12.266 gdcm::network::RoleSelectionSub Class Reference . . . 1055
12.266.1 Detailed Description . . . 1055
12.266.2 Constructor & Destructor Documentation . . . 1055
12.266.2.1 RoleSelectionSub() . . . 1055
12.266.3 Member Function Documentation . . . 1056

12.266.3.1 Print() . . . 1056
12.266.3.2 Read() . . . 1056
12.266.3.3 SetTuple() . . . 1056
12.266.3.4 Size() . . . 1056
12.266.3.5 Write() . . . 1056
12.267 gdcm::Scanner Class Reference . . . 1057
12.267.1 Detailed Description . . . 1060
12.267.2 Member Typedef Documentation . . . 1060
12.267.2.1 ConstIterator . . . 1060
12.267.2.2 MappingType . . . 1060
12.267.2.3 TagToValue . . . 1060
12.267.2.4 TagToValueValueType . . . 1061
12.267.2.5 ValuesType . . . 1061
12.267.3 Constructor & Destructor Documentation . . . 1061
12.267.3.1 Scanner() . . . 1061
12.267.3.2 ∼Scanner() . . . 1061
12.267.4 Member Function Documentation . . . 1061
12.267.4.1 AddPrivateTag() . . . 1061
12.267.4.2 AddSkipTag() . . . 1061
12.267.4.3 AddTag() . . . 1062
12.267.4.4 Begin() . . . 1062
12.267.4.5 ClearSkipTags() . . . 1062
12.267.4.6 ClearTags() . . . 1062
12.267.4.7 End() . . . 1062
12.267.4.8 GetAllFilenamesFromTagToValue() . . . 1062
12.267.4.9 GetFilenameFromTagToValue() . . . 1062
12.267.4.10 GetFilenames() . . . 1063
12.267.4.11 GetKeys() . . . 1063
12.267.4.12 GetMapping() . . . 1063
12.267.4.13 GetMappingFromTagToValue() . . . 1063
12.267.4.14 GetMappings() . . . 1063
12.267.4.15 GetOrderedValues() . . . 1063
12.267.4.16 GetValue() . . . 1064
12.267.4.17 GetValues() [1/2] . . . 1064
12.267.4.18 GetValues() [2/2] . . . 1064
12.267.4.19 IsKey() . . . 1064
12.267.4.20 New() . . . 1065
12.267.4.21 Print() . . . 1065
12.267.4.22 PrintTable() . . . 1065

12.267.4.23 ProcessPublicTag() . . . 1065
12.267.4.24 Scan() . . . 1065
12.267.5 Friends And Related Symbol Documentation . . . 1066
12.267.5.1 operator<< . . . 1066
12.268 gdcm::Scanner2 Class Reference . . . 1066
12.268.1 Detailed Description . . . 1069
12.268.2 Member Typedef Documentation . . . 1070
12.268.2.1 PrivateConstIterator . . . 1070
12.268.2.2 PrivateMappingType . . . 1070
12.268.2.3 PrivateTagToValue . . . 1070
12.268.2.4 PrivateTagToValueValueType . . . 1070
12.268.2.5 PublicConstIterator . . . 1070
12.268.2.6 PublicMappingType . . . 1070
12.268.2.7 PublicTagToValue . . . 1070
12.268.2.8 PublicTagToValueValueType . . . 1070
12.268.2.9 ValuesType . . . 1071
12.268.3 Constructor & Destructor Documentation . . . 1071
12.268.3.1 Scanner2() . . . 1071
12.268.3.2 ~Scanner2() . . . 1071
12.268.4 Member Function Documentation . . . 1071
12.268.4.1 AddPrivateTag() . . . 1071
12.268.4.2 AddPublicTag() . . . 1071
12.268.4.3 AddSkipTag() . . . 1071
12.268.4.4 Begin() . . . 1071
12.268.4.5 ClearPrivateTags() . . . 1072
12.268.4.6 ClearPublicTags() . . . 1072
12.268.4.7 ClearSkipTags() . . . 1072
12.268.4.8 End() . . . 1072
12.268.4.9 GetAllFilenamesFromPrivateTagToValue() . . . 1072
12.268.4.10 GetAllFilenamesFromPublicTagToValue() . . . 1072
12.268.4.11 GetFilenameFromPrivateTagToValue() . . . 1072
12.268.4.12 GetFilenameFromPublicTagToValue() . . . 1072
12.268.4.13 GetFilenames() . . . 1073
12.268.4.14 GetKeys() . . . 1073
12.268.4.15 GetMappingFromPrivateTagToValue() . . . 1073
12.268.4.16 GetMappingFromPublicTagToValue() . . . 1073
12.268.4.17 GetPrivateMapping() . . . 1073
12.268.4.18 GetPrivateMappings() . . . 1073
12.268.4.19 GetPrivateOrderedValues() . . . 1073

12.268.4.20 GetPrivateValue() . . . 1074
12.268.4.21 GetPrivateValues() . . . 1074
12.268.4.22 GetPublicMapping() . . . 1074
12.268.4.23 GetPublicMappings() . . . 1074
12.268.4.24 GetPublicOrderedValues() . . . 1074
12.268.4.25 GetPublicValue() . . . 1074
12.268.4.26 GetPublicValues() . . . 1075
12.268.4.27 GetValues() . . . 1075
12.268.4.28 IsKey() . . . 1075
12.268.4.29 New() . . . 1075
12.268.4.30 Print() . . . 1075
12.268.4.31 PrintTable() . . . 1075
12.268.4.32 PrivateBegin() . . . 1076
12.268.4.33 PrivateEnd() . . . 1076
12.268.4.34 ProcessPrivateTag() . . . 1076
12.268.4.35 ProcessPublicTag() . . . 1076
12.268.4.36 Scan() . . . 1076
12.268.5 Friends And Related Symbol Documentation . . . 1076
12.268.5.1 operator<< . . . 1076
12.269 gdcm::Segment Class Reference . . . 1077
12.269.1 Detailed Description . . . 1079
12.269.2 Member Typedef Documentation . . . 1079
12.269.2.1 BasicCodedEntryVector . . . 1079
12.269.2.2 SurfaceVector . . . 1079
12.269.3 Member Enumeration Documentation . . . 1080
12.269.3.1 ALGOType . . . 1080
12.269.4 Constructor & Destructor Documentation . . . 1080
12.269.4.1 Segment() . . . 1080
12.269.4.2 ~Segment() . . . 1080
12.269.5 Member Function Documentation . . . 1080
12.269.5.1 AddSurface() . . . 1080
12.269.5.2 GetALGOType() . . . 1080
12.269.5.3 GetALGOTypeString() . . . 1080
12.269.5.4 GetAnatomicRegion() [1/2] . . . 1081
12.269.5.5 GetAnatomicRegion() [2/2] . . . 1081
12.269.5.6 GetAnatomicRegionModifiers() [1/2] . . . 1081
12.269.5.7 GetAnatomicRegionModifiers() [2/2] . . . 1081
12.269.5.8 GetPropertyCategory() [1/2] . . . 1081
12.269.5.9 GetPropertyCategory() [2/2] . . . 1081

12.269.5.10 GetPropertyType() [1/2] . . . 1081
12.269.5.11 GetPropertyType() [2/2] . . . 1081
12.269.5.12 GetPropertyTypeModifiers() [1/2] . . . 1081
12.269.5.13 GetPropertyTypeModifiers() [2/2] . . . 1081
12.269.5.14 GetSegmentAlgorithmName() . . . 1082
12.269.5.15 GetSegmentAlgorithmType() . . . 1082
12.269.5.16 GetSegmentDescription() . . . 1082
12.269.5.17 GetSegmentLabel() . . . 1082
12.269.5.18 GetSegmentNumber() . . . 1082
12.269.5.19 GetSurface() . . . 1082
12.269.5.20 GetSurfaceCount() . . . 1082
12.269.5.21 GetSurfaces() [1/2] . . . 1082
12.269.5.22 GetSurfaces() [2/2] . . . 1082
12.269.5.23 SetAnatomicRegion() . . . 1083
12.269.5.24 SetAnatomicRegionModifiers() . . . 1083
12.269.5.25 SetPropertyCategory() . . . 1083
12.269.5.26 SetPropertyType() . . . 1083
12.269.5.27 SetPropertyTypeModifiers() . . . 1083
12.269.5.28 SetSegmentAlgorithmName() . . . 1083
12.269.5.29 SetSegmentAlgorithmType() [1/2] . . . 1083
12.269.5.30 SetSegmentAlgorithmType() [2/2] . . . 1083
12.269.5.31 SetSegmentDescription() . . . 1084
12.269.5.32 SetSegmentLabel() . . . 1084
12.269.5.33 SetSegmentNumber() . . . 1084
12.269.5.34 SetSurfaceCount() . . . 1084
12.269.6 Member Data Documentation . . . 1084
12.269.6.1 AnatomicRegion . . . 1084
12.269.6.2 AnatomicRegionModifiers . . . 1084
12.269.6.3 PropertyCategory . . . 1084
12.269.6.4 PropertyType . . . 1084
12.269.6.5 PropertyTypeModifiers . . . 1085
12.269.6.6 SegmentAlgorithmName . . . 1085
12.269.6.7 SegmentAlgorithmType . . . 1085
12.269.6.8 SegmentDescription . . . 1085
12.269.6.9 SegmentLabel . . . 1085
12.269.6.10 SegmentNumber . . . 1085
12.269.6.11 SurfaceCount . . . 1085
12.269.6.12 Surfaces . . . 1085
12.270 gdcm::SegmentedPaletteColorLookupTable Class Reference . . . 1086

12.270.1 Detailed Description . . . 1088
12.270.2 Constructor & Destructor Documentation . . . 1088
12.270.2.1 SegmentedPaletteColorLookupTable() . . . 1088
12.270.2.2 ~SegmentedPaletteColorLookupTable() . . . 1088
12.270.3 Member Function Documentation . . . 1089
12.270.3.1 Print() . . . 1089
12.270.3.2 SetLUT() . . . 1089
12.271 gdcm::SegmentReader Class Reference . . . 1089
12.271.1 Detailed Description . . . 1092
12.271.2 Member Typedef Documentation . . . 1092
12.271.2.1 SegmentMap . . . 1092
12.271.2.2 SegmentVector . . . 1092
12.271.3 Constructor & Destructor Documentation . . . 1092
12.271.3.1 SegmentReader() . . . 1092
12.271.3.2 ~SegmentReader() . . . 1092
12.271.4 Member Function Documentation . . . 1092
12.271.4.1 GetSegments() [1/2] . . . 1092
12.271.4.2 GetSegments() [2/2] . . . 1092
12.271.4.3 Read() . . . 1093
12.271.4.4 ReadSegment() . . . 1093
12.271.4.5 ReadSegments() . . . 1093
12.271.5 Member Data Documentation . . . 1093
12.271.5.1 Segments . . . 1093
12.272 gdcm::SegmentWriter Class Reference . . . 1093
12.272.1 Detailed Description . . . 1096
12.272.2 Member Typedef Documentation . . . 1097
12.272.2.1 SegmentVector . . . 1097
12.272.3 Constructor & Destructor Documentation . . . 1097
12.272.3.1 SegmentWriter() . . . 1097
12.272.3.2 ~SegmentWriter() . . . 1097
12.272.4 Member Function Documentation . . . 1097
12.272.4.1 AddSegment() . . . 1097
12.272.4.2 GetNumberOfSegments() . . . 1097
12.272.4.3 GetSegment() . . . 1097
12.272.4.4 GetSegments() [1/2] . . . 1097
12.272.4.5 GetSegments() [2/2] . . . 1097
12.272.4.6 PrepareWrite() . . . 1098
12.272.4.7 SetNumberOfSegments() . . . 1098
12.272.4.8 SetSegments() . . . 1098

12.272.4.9 Write() . . . 1098
12.272.5 Member Data Documentation . . . 1098
12.272.5.1 Segments . . . 1098
12.273 gdcm::SequenceOfFragments Class Reference . . . 1099
12.273.1 Detailed Description . . . 1101
12.273.2 Member Typedef Documentation . . . 1101
12.273.2.1 ConstIterator . . . 1101
12.273.2.2 FragmentVector . . . 1101
12.273.2.3 Iterator . . . 1101
12.273.2.4 SizeType . . . 1102
12.273.3 Constructor & Destructor Documentation . . . 1102
12.273.3.1 SequenceOfFragments() . . . 1102
12.273.4 Member Function Documentation . . . 1102
12.273.4.1 AddFragment() . . . 1102
12.273.4.2 Begin() [1/2] . . . 1102
12.273.4.3 Begin() [2/2] . . . 1102
12.273.4.4 Clear() . . . 1102
12.273.4.5 ComputeByteLength() . . . 1103
12.273.4.6 ComputeLength() . . . 1103
12.273.4.7 End() [1/2] . . . 1103
12.273.4.8 End() [2/2] . . . 1103
12.273.4.9 GetBuffer() . . . 1103
12.273.4.10 GetFragBuffer() . . . 1103
12.273.4.11 GetFragment() . . . 1103
12.273.4.12 GetLength() . . . 1104
12.273.4.13 GetNumberOfFragments() . . . 1104
12.273.4.14 GetTable() [1/2] . . . 1104
12.273.4.15 GetTable() [2/2] . . . 1104
12.273.4.16 New() . . . 1104
12.273.4.17 operator==() . . . 1104
12.273.4.18 Print() . . . 1105
12.273.4.19 Read() . . . 1105
12.273.4.20 ReadPreValue() . . . 1105
12.273.4.21 ReadValue() . . . 1105
12.273.4.22 SetLength() . . . 1105
12.273.4.23 Write() . . . 1106
12.273.4.24 WriteBuffer() . . . 1106
12.274 gdcm::SequenceOfItems Class Reference . . . 1106
12.274.1 Detailed Description . . . 1109

12.274.2 Member Typedef Documentation . . . 1109
12.274.2.1 ConstIterator . . . 1109
12.274.2.2 ItemVector . . . 1109
12.274.2.3 Iterator . . . 1110
12.274.2.4 SizeType . . . 1110
12.274.3 Constructor & Destructor Documentation . . . 1110
12.274.3.1 SequenceOfItems() . . . 1110
12.274.4 Member Function Documentation . . . 1110
12.274.4.1 AddItem() . . . 1110
12.274.4.2 AddNewUndefinedLengthItem() . . . 1110
12.274.4.3 Begin() [1/2] . . . 1111
12.274.4.4 Begin() [2/2] . . . 1111
12.274.4.5 Clear() . . . 1111
12.274.4.6 ComputeLength() . . . 1111
12.274.4.7 End() [1/2] . . . 1111
12.274.4.8 End() [2/2] . . . 1111
12.274.4.9 FindDataElement() . . . 1111
12.274.4.10 GetItem() [1/2] . . . 1112
12.274.4.11 GetItem() [2/2] . . . 1112
12.274.4.12 GetLength() . . . 1112
12.274.4.13 GetNumberOfItems() . . . 1112
12.274.4.14 IsEmpty() . . . 1112
12.274.4.15 IsUndefinedLength() . . . 1113
12.274.4.16 New() . . . 1113
12.274.4.17 operator=() . . . 1113
12.274.4.18 operator==() . . . 1113
12.274.4.19 Print() . . . 1113
12.274.4.20 Read() . . . 1114
12.274.4.21 RemoveItemByIndex() . . . 1114
12.274.4.22 SetLength() . . . 1114
12.274.4.23 SetLengthToUndefined() . . . 1114
12.274.4.24 SetNumberOfItems() . . . 1114
12.274.4.25 Write() . . . 1115
12.274.5 Member Data Documentation . . . 1115
12.274.5.1 Items . . . 1115
12.274.5.2 SequenceLengthField . . . 1115
12.275 gdcm::SerieHelper Class Reference . . . 1115
12.275.1 Detailed Description . . . 1117
12.275.2 Member Typedef Documentation . . . 1117

12.275.2.1 Rule . . . 1117
12.275.2.2 SerieRestrictions . . . 1117
12.275.2.3 SingleSerieUIDFileSetmap . . . 1117
12.275.3 Constructor & Destructor Documentation . . . 1118
12.275.3.1 SerieHelper() . . . 1118
12.275.3.2 ~SerieHelper() . . . 1118
12.275.4 Member Function Documentation . . . 1118
12.275.4.1 AddFile() . . . 1118
12.275.4.2 AddFileName() . . . 1118
12.275.4.3 AddRestriction() [1/3] . . . 1118
12.275.4.4 AddRestriction() [2/3] . . . 1118
12.275.4.5 AddRestriction() [3/3] . . . 1118
12.275.4.6 Clear() . . . 1119
12.275.4.7 CreateDefaultUniqueSeriesIdentifier() . . . 1119
12.275.4.8 CreateUniqueSeriesIdentifier() . . . 1119
12.275.4.9 FileNameOrdering() . . . 1119
12.275.4.10 GetFirstSingleSerieUIDFileSet() . . . 1119
12.275.4.11 GetNextSingleSerieUIDFileSet() . . . 1119
12.275.4.12 ImageNumberOrdering() . . . 1119
12.275.4.13 ImagePositionPatientOrdering() . . . 1119
12.275.4.14 OrderFileList() . . . 1119
12.275.4.15 SetDirectory() . . . 1120
12.275.4.16 SetLoadMode() . . . 1120
12.275.4.17 SetUseSeriesDetails() . . . 1120
12.275.4.18 UserOrdering() . . . 1120
12.275.5 Member Data Documentation . . . 1120
12.275.5.1 ItFileSetHt . . . 1120
12.275.5.2 SingleSerieUIDFileSetHT . . . 1120
12.276 gdcm::Series Class Reference . . . 1120
12.276.1 Detailed Description . . . 1121
12.276.2 Constructor & Destructor Documentation . . . 1121
12.276.2.1 Series() . . . 1121
12.277 gdcm::network::ServiceClassApplicationInformation Class Reference . . . 1121
12.277.1 Detailed Description . . . 1121
12.277.2 Constructor & Destructor Documentation . . . 1121
12.277.2.1 ServiceClassApplicationInformation() . . . 1121
12.277.3 Member Function Documentation . . . 1122
12.277.3.1 Print() . . . 1122
12.277.3.2 Read() . . . 1122

12.277.3.3 SetTuple() . . . 1122
12.277.3.4 Size() . . . 1122
12.277.3.5 Write() . . . 1122
12.278 gdcm::ServiceClassUser Class Reference . . . 1123
12.278.1 Detailed Description . . . 1125
12.278.2 Constructor & Destructor Documentation . . . 1126
12.278.2.1 ServiceClassUser() [1/2] . . . 1126
12.278.2.2 ~ServiceClassUser() . . . 1126
12.278.2.3 ServiceClassUser() [2/2] . . . 1126
12.278.3 Member Function Documentation . . . 1126
12.278.3.1 GetAETitle() . . . 1126
12.278.3.2 GetCalledAETitle() . . . 1126
12.278.3.3 GetTimeout() . . . 1126
12.278.3.4 InitializeConnection() . . . 1127
12.278.3.5 IsPresentationContextAccepted() . . . 1127
12.278.3.6 New() . . . 1127
12.278.3.7 operator=() . . . 1127
12.278.3.8 SendEcho() . . . 1127
12.278.3.9 SendFind() . . . 1127
12.278.3.10 SendMove() [1/3] . . . 1128
12.278.3.11 SendMove() [2/3] . . . 1128
12.278.3.12 SendMove() [3/3] . . . 1128
12.278.3.13 SendStore() [1/3] . . . 1128
12.278.3.14 SendStore() [2/3] . . . 1128
12.278.3.15 SendStore() [3/3] . . . 1129
12.278.3.16 SetAETitle() . . . 1129
12.278.3.17 SetCalledAETitle() . . . 1129
12.278.3.18 SetHostname() . . . 1129
12.278.3.19 SetPort() . . . 1129
12.278.3.20 SetPortSCP() . . . 1130
12.278.3.21 SetPresentationContexts() . . . 1130
12.278.3.22 SetTimeout() . . . 1130
12.278.3.23 StartAssociation() . . . 1130
12.278.3.24 StopAssociation() . . . 1131
12.279 gdcm::SHA1 Class Reference . . . 1131
12.279.1 Detailed Description . . . 1131
12.279.2 Constructor & Destructor Documentation . . . 1132
12.279.2.1 SHA1() [1/2] . . . 1132
12.279.2.2 ~SHA1() . . . 1132

12.279.2.3 SHA1() [2/2] . . . 1132
12.279.3 Member Function Documentation . . . 1132
12.279.3.1 Compute() . . . 1132
12.279.3.2 ComputeFile() . . . 1132
12.279.3.3 operator=() . . . 1132
12.280 gdcm::SimpleMemberCommand< T > Class Template Reference . . . 1133
12.280.1 Detailed Description . . . 1136
12.280.2 Member Typedef Documentation . . . 1136
12.280.2.1 Self . . . 1136
12.280.2.2 TMemberFunctionPointer . . . 1136
12.280.3 Constructor & Destructor Documentation . . . 1136
12.280.3.1 SimpleMemberCommand() [1/2] . . . 1136
12.280.3.2 SimpleMemberCommand() [2/2] . . . 1136
12.280.3.3 ~SimpleMemberCommand() . . . 1136
12.280.4 Member Function Documentation . . . 1137
12.280.4.1 Execute() [1/2] . . . 1137
12.280.4.2 Execute() [2/2] . . . 1137
12.280.4.3 New() . . . 1137
12.280.4.4 operator=() . . . 1137
12.280.4.5 SetCallbackFunction() . . . 1137
12.280.5 Member Data Documentation . . . 1138
12.280.5.1 m_MemberFunction . . . 1138
12.280.5.2 m_This . . . 1138
12.281 gdcm::SimpleSubjectWatcher Class Reference . . . 1138
12.281.1 Detailed Description . . . 1139
12.281.2 Constructor & Destructor Documentation . . . 1139
12.281.2.1 SimpleSubjectWatcher() [1/2] . . . 1139
12.281.2.2 ~SimpleSubjectWatcher() . . . 1139
12.281.2.3 SimpleSubjectWatcher() [2/2] . . . 1139
12.281.3 Member Function Documentation . . . 1139
12.281.3.1 EndFilter() . . . 1139
12.281.3.2 operator=() . . . 1139
12.281.3.3 ShowAbort() . . . 1140
12.281.3.4 ShowAnonymization() . . . 1140
12.281.3.5 ShowData() . . . 1140
12.281.3.6 ShowDataSet() . . . 1140
12.281.3.7 ShowFileName() . . . 1140
12.281.3.8 ShowIteration() . . . 1140
12.281.3.9 ShowProgress() . . . 1140

12.281.3.10 StartFilter() . . . 1141
12.281.3.11 TestAbortOff() . . . 1141
12.281.3.12 TestAbortOn() . . . 1141
12.282 gdcm::MrProtocol::Slice Struct Reference . . . 1141
12.282.1 Member Data Documentation . . . 1142
12.282.1.1 Normal . . . 1142
12.282.1.2 Position . . . 1142
12.283 gdcm::MrProtocol::SliceArray Struct Reference . . . 1142
12.283.1 Member Data Documentation . . . 1143
12.283.1.1 Slices . . . 1143
12.284 gdcm::SmartPointer< ObjectType > Class Template Reference . . . 1143
12.284.1 Detailed Description . . . 1144
12.284.2 Constructor & Destructor Documentation . . . 1145
12.284.2.1 SmartPointer() [1/4] . . . 1145
12.284.2.2 SmartPointer() [2/4] . . . 1145
12.284.2.3 SmartPointer() [3/4] . . . 1145
12.284.2.4 SmartPointer() [4/4] . . . 1145
12.284.2.5 ~SmartPointer() . . . 1145
12.284.3 Member Function Documentation . . . 1145
12.284.3.1 GetPointer() . . . 1145
12.284.3.2 operator ObjectType *() . . . 1146
12.284.3.3 operator*() . . . 1146
12.284.3.4 operator->() . . . 1146
12.284.3.5 operator=() [1/3] . . . 1146
12.284.3.6 operator=() [2/3] . . . 1146
12.284.3.7 operator=() [3/3] . . . 1146
12.285 gdcm::network::SOPClassExtendedNegociationSub Class Reference . . . 1147
12.285.1 Detailed Description . . . 1147
12.285.2 Constructor & Destructor Documentation . . . 1147
12.285.2.1 SOPClassExtendedNegociationSub() . . . 1147
12.285.3 Member Function Documentation . . . 1147
12.285.3.1 Print() . . . 1147
12.285.3.2 Read() . . . 1147
12.285.3.3 SetTuple() . . . 1148
12.285.3.4 Size() . . . 1148
12.285.3.5 Write() . . . 1148
12.286 gdcm::SOPClassUIDToIOD Class Reference . . . 1148
12.286.1 Detailed Description . . . 1149
12.286.2 Member Typedef Documentation . . . 1149

12.286.2.1 const . . . 1149
12.286.3 Member Function Documentation . . . 1149
12.286.3.1 GetIOD() . . . 1149
12.286.3.2 GetIODFromSOPClassUID() . . . 1149
12.286.3.3 GetNumberOfSOPClassToIOD() . . . 1149
12.286.3.4 GetSOPClassUIDFromIOD() . . . 1149
12.286.3.5 GetSOPClassUIDToIOD() . . . 1150
12.286.3.6 GetSOPClassUIDToIODs() . . . 1150
12.287 gdcm::Sorter Class Reference . . . 1150
12.287.1 Detailed Description . . . 1151
12.287.2 Member Typedef Documentation . . . 1152
12.287.2.1 SelectionMap . . . 1152
12.287.2.2 SortFunction . . . 1152
12.287.3 Constructor & Destructor Documentation . . . 1152
12.287.3.1 Sorter() . . . 1152
12.287.3.2 ∼Sorter() . . . 1152
12.287.4 Member Function Documentation . . . 1152
12.287.4.1 AddSelect() . . . 1152
12.287.4.2 GetFilenames() . . . 1152
12.287.4.3 Print() . . . 1153
12.287.4.4 SetSortFunction() . . . 1153
12.287.4.5 SetTagsToRead() . . . 1153
12.287.4.6 Sort() . . . 1153
12.287.4.7 StableSort() . . . 1154
12.287.5 Friends And Related Symbol Documentation . . . 1154
12.287.5.1 operator<< . . . 1154
12.287.6 Member Data Documentation . . . 1154
12.287.6.1 Filenames . . . 1154
12.287.6.2 Selection . . . 1154
12.287.6.3 SortFunc . . . 1154
12.287.6.4 TagsToRead . . . 1154
12.288 gdcm::Spacing Class Reference . . . 1155
12.288.1 Detailed Description . . . 1155
12.288.2 Member Enumeration Documentation . . . 1156
12.288.2.1 SpacingType . . . 1156
12.288.3 Constructor & Destructor Documentation . . . 1156
12.288.3.1 Spacing() . . . 1156
12.288.3.2 ∼Spacing() . . . 1157
12.288.4 Member Function Documentation . . . 1157

12.288.4.1 ComputePixelAspectRatioFromPixelSpacing() . . . 1157
12.289 gdcm::Spectroscopy Class Reference . . . 1157
12.289.1 Detailed Description . . . 1157
12.289.2 Constructor & Destructor Documentation . . . 1157
12.289.2.1 Spectroscopy() . . . 1157
12.290 gdcm::SplitGridFilter Class Reference . . . 1158
12.290.1 Detailed Description . . . 1158
12.290.2 Constructor & Destructor Documentation . . . 1159
12.290.2.1 SplitGridFilter() . . . 1159
12.290.2.2 ~SplitGridFilter() . . . 1159
12.290.3 Member Function Documentation . . . 1159
12.290.3.1 ComputeGRIDDimensions() . . . 1159
12.290.3.2 ComputeGRIDImagePositionPatient() . . . 1159
12.290.3.3 ComputeGRIDSliceNormal() . . . 1159
12.290.3.4 GetAcquisitionSize() . . . 1159
12.290.3.5 GetFile() [1/2] . . . 1160
12.290.3.6 GetFile() [2/2] . . . 1160
12.290.3.7 GetGRIDSlicePosition() . . . 1160
12.290.3.8 GetImage() [1/2] . . . 1160
12.290.3.9 GetImage() [2/2] . . . 1160
12.290.3.10 GetNumberOfImagesInGrid() . . . 1160
12.290.3.11 SetFile() . . . 1160
12.290.3.12 SetImage() . . . 1160
12.290.3.13 Split() . . . 1161
12.291 gdcm::SplitMosaicFilter Class Reference . . . 1161
12.291.1 Detailed Description . . . 1162
12.291.2 Constructor & Destructor Documentation . . . 1162
12.291.2.1 SplitMosaicFilter() . . . 1162
12.291.2.2 ~SplitMosaicFilter() . . . 1162
12.291.3 Member Function Documentation . . . 1162
12.291.3.1 ComputeCSAImageHeaderInfo() . . . 1162
12.291.3.2 ComputeCSASeriesHeaderInfo() . . . 1162
12.291.3.3 ComputeMOSAICDimensions() . . . 1163
12.291.3.4 ComputeMOSAICImagePositionPatient() . . . 1163
12.291.3.5 ComputeMOSAICSliceNormal() . . . 1163
12.291.3.6 ComputeMOSAICSlicePosition() . . . 1163
12.291.3.7 GetAcquisitionSize() . . . 1163
12.291.3.8 GetFile() [1/2] . . . 1164
12.291.3.9 GetFile() [2/2] . . . 1164

12.291.3.10 GetImage() [1/2] . . . 1164
12.291.3.11 GetImage() [2/2] . . . 1164
12.291.3.12 GetNumberOfImagesInMosaic() . . . 1164
12.291.3.13 SetFile() . . . 1164
12.291.3.14 SetImage() . . . 1164
12.291.3.15 Split() . . . 1164
12.292 gdcm::StartEvent Class Reference . . . 1165
12.293 gdcm::static_assert_test< x > Struct Template Reference . . . 1166
12.294 gdcm::STATIC_ASSERTION_FAILURE< x > Struct Template Reference . . . 1166
12.295 gdcm::STATIC_ASSERTION_FAILURE< true > Struct Reference . . . 1167
12.295.1 Member Enumeration Documentation . . . 1168
12.295.1.1 anonymous enum . . . 1168
12.296 gdcm::StreamImageReader Class Reference . . . 1168
12.296.1 Detailed Description . . . 1168
12.296.2 Constructor & Destructor Documentation . . . 1169
12.296.2.1 StreamImageReader() . . . 1169
12.296.2.2 ~StreamImageReader() . . . 1169
12.296.3 Member Function Documentation . . . 1169
12.296.3.1 CanReadImage() . . . 1169
12.296.3.2 DefinePixelExtent() . . . 1169
12.296.3.3 DefineProperBufferLength() . . . 1170
12.296.3.4 GetDimensionsValueForResolution() . . . 1170
12.296.3.5 GetFile() . . . 1170
12.296.3.6 Read() . . . 1170
12.296.3.7 ReadImageInformation() . . . 1171
12.296.3.8 SetFileName() . . . 1171
12.296.3.9 SetStream() . . . 1171
12.297 gdcm::StreamImageWriter Class Reference . . . 1171
12.297.1 Detailed Description . . . 1173
12.297.2 Constructor & Destructor Documentation . . . 1173
12.297.2.1 StreamImageWriter() . . . 1173
12.297.2.2 ~StreamImageWriter() . . . 1173
12.297.3 Member Function Documentation . . . 1174
12.297.3.1 CanWriteFile() . . . 1174
12.297.3.2 DefinePixelExtent() . . . 1174
12.297.3.3 DefineProperBufferLength() . . . 1174
12.297.3.4 SetFile() . . . 1175
12.297.3.5 SetFileName() . . . 1175
12.297.3.6 SetStream() . . . 1175

12.297.3.7 Write() . . . 1175
12.297.3.8 WriteImageInformation() . . . 1176
12.297.3.9 WriteImageSubregionRAW() . . . 1176
12.297.3.10 WriteRawHeader() . . . 1176
12.297.4 Member Data Documentation . . . 1176
12.297.4.1 mElementOffsets . . . 1176
12.297.4.2 mElementOffsets1 . . . 1176
12.297.4.3 mspFile . . . 1177
12.297.4.4 mWriter . . . 1177
12.297.4.5 mXMax . . . 1177
12.297.4.6 mXMin . . . 1177
12.297.4.7 mYMax . . . 1177
12.297.4.8 mYMin . . . 1177
12.297.4.9 mZMax . . . 1177
12.297.4.10 mZMin . . . 1177
12.298 gdcm::StrictScanner Class Reference . . . 1178
12.298.1 Detailed Description . . . 1181
12.298.2 Member Typedef Documentation . . . 1181
12.298.2.1 ConstIterator . . . 1181
12.298.2.2 MappingType . . . 1181
12.298.2.3 TagToValue . . . 1182
12.298.2.4 TagToValueValueType . . . 1182
12.298.2.5 ValuesType . . . 1182
12.298.3 Constructor & Destructor Documentation . . . 1182
12.298.3.1 StrictScanner() . . . 1182
12.298.3.2 ∼StrictScanner() . . . 1182
12.298.4 Member Function Documentation . . . 1182
12.298.4.1 AddPrivateTag() . . . 1182
12.298.4.2 AddSkipTag() . . . 1183
12.298.4.3 AddTag() . . . 1183
12.298.4.4 Begin() . . . 1183
12.298.4.5 ClearSkipTags() . . . 1183
12.298.4.6 ClearTags() . . . 1183
12.298.4.7 End() . . . 1183
12.298.4.8 GetAllFilenamesFromTagToValue() . . . 1183
12.298.4.9 GetFilenameFromTagToValue() . . . 1184
12.298.4.10 GetFilenames() . . . 1184
12.298.4.11 GetKeys() . . . 1184
12.298.4.12 GetMapping() . . . 1184

12.298.4.13 GetMappingFromTagToValue() . . . 1184
12.298.4.14 GetMappings() . . . 1184
12.298.4.15 GetOrderedValues() . . . 1185
12.298.4.16 GetValue() . . . 1185
12.298.4.17 GetValues() [1/2] . . . 1185
12.298.4.18 GetValues() [2/2] . . . 1185
12.298.4.19 IsKey() . . . 1185
12.298.4.20 New() . . . 1186
12.298.4.21 Print() . . . 1186
12.298.4.22 PrintTable() . . . 1186
12.298.4.23 ProcessPublicTag() . . . 1186
12.298.4.24 Scan() . . . 1186
12.298.5 Friends And Related Symbol Documentation . . . 1187
12.298.5.1 operator<< . . . 1187
12.299 gdcm::StrictScanner2 Class Reference . . . 1187
12.299.1 Detailed Description . . . 1190
12.299.2 Member Typedef Documentation . . . 1191
12.299.2.1 PrivateConstIterator . . . 1191
12.299.2.2 PrivateMappingType . . . 1191
12.299.2.3 PrivateTagToValue . . . 1191
12.299.2.4 PrivateTagToValueValueType . . . 1191
12.299.2.5 PublicConstIterator . . . 1191
12.299.2.6 PublicMappingType . . . 1191
12.299.2.7 PublicTagToValue . . . 1191
12.299.2.8 PublicTagToValueValueType . . . 1191
12.299.2.9 ValuesType . . . 1192
12.299.3 Constructor & Destructor Documentation . . . 1192
12.299.3.1 StrictScanner2() . . . 1192
12.299.3.2 ~StrictScanner2() . . . 1192
12.299.4 Member Function Documentation . . . 1192
12.299.4.1 AddPrivateTag() . . . 1192
12.299.4.2 AddPublicTag() . . . 1192
12.299.4.3 AddSkipTag() . . . 1192
12.299.4.4 Begin() . . . 1192
12.299.4.5 ClearPrivateTags() . . . 1193
12.299.4.6 ClearPublicTags() . . . 1193
12.299.4.7 ClearSkipTags() . . . 1193
12.299.4.8 End() . . . 1193
12.299.4.9 GetAllFilenamesFromPrivateTagToValue() . . . 1193

12.299.4.10 GetAllFilenamesFromPublicTagToValue() . . . 1193
12.299.4.11 GetFilenameFromPrivateTagToValue() . . . 1193
12.299.4.12 GetFilenameFromPublicTagToValue() . . . 1193
12.299.4.13 GetFilenames() . . . 1194
12.299.4.14 GetKeys() . . . 1194
12.299.4.15 GetMappingFromPrivateTagToValue() . . . 1194
12.299.4.16 GetMappingFromPublicTagToValue() . . . 1194
12.299.4.17 GetPrivateMapping() . . . 1194
12.299.4.18 GetPrivateMappings() . . . 1194
12.299.4.19 GetPrivateOrderedValues() . . . 1194
12.299.4.20 GetPrivateValue() . . . 1195
12.299.4.21 GetPrivateValues() . . . 1195
12.299.4.22 GetPublicMapping() . . . 1195
12.299.4.23 GetPublicMappings() . . . 1195
12.299.4.24 GetPublicOrderedValues() . . . 1195
12.299.4.25 GetPublicValue() . . . 1195
12.299.4.26 GetPublicValues() . . . 1196
12.299.4.27 GetValues() . . . 1196
12.299.4.28 IsKey() . . . 1196
12.299.4.29 New() . . . 1196
12.299.4.30 Print() . . . 1196
12.299.4.31 PrintTable() . . . 1196
12.299.4.32 PrivateBegin() . . . 1197
12.299.4.33 PrivateEnd() . . . 1197
12.299.4.34 ProcessPrivateTag() . . . 1197
12.299.4.35 ProcessPublicTag() . . . 1197
12.299.4.36 Scan() . . . 1197
12.299.5 Friends And Related Symbol Documentation . . . 1197
12.299.5.1 operator<< . . . 1197
12.300 gdcm::String< TDelimiter, TMaxLength, TPadChar > Class Template Reference . . . 1198
12.300.1 Detailed Description . . . 1199
12.300.2 Member Typedef Documentation . . . 1199
12.300.2.1 const_iterator . . . 1199
12.300.2.2 const_reference . . . 1200
12.300.2.3 const_reverse_iterator . . . 1200
12.300.2.4 difference_type . . . 1200
12.300.2.5 iterator . . . 1200
12.300.2.6 pointer . . . 1200
12.300.2.7 reference . . . 1200

12.300.2.8 reverse_iterator . . . 1200
12.300.2.9 size_type . . . 1200
12.300.2.10 value_type . . . 1201
12.300.3 Constructor & Destructor Documentation . . . 1201
12.300.3.1 String() [1/4] . . . 1201
12.300.3.2 String() [2/4] . . . 1201
12.300.3.3 String() [3/4] . . . 1201
12.300.3.4 String() [4/4] . . . 1201
12.300.4 Member Function Documentation . . . 1201
12.300.4.1 IsValid() . . . 1201
12.300.4.2 operator const char *() . . . 1202
12.300.4.3 Trim() [1/2] . . . 1202
12.300.4.4 Trim() [2/2] . . . 1202
12.300.4.5 Truncate() . . . 1202
12.301 gdcm::StringFilter Class Reference . . . 1202
12.301.1 Detailed Description . . . 1203
12.301.2 Constructor & Destructor Documentation . . . 1203
12.301.2.1 StringFilter() . . . 1203
12.301.2.2 ~StringFilter() . . . 1204
12.301.3 Member Function Documentation . . . 1204
12.301.3.1 ExecuteQuery() [1/2] . . . 1204
12.301.3.2 ExecuteQuery() [2/2] . . . 1204
12.301.3.3 FromString() . . . 1204
12.301.3.4 GetFile() [1/2] . . . 1204
12.301.3.5 GetFile() [2/2] . . . 1204
12.301.3.6 SetDicts() . . . 1204
12.301.3.7 SetFile() . . . 1205
12.301.3.8 ToString() [1/3] . . . 1205
12.301.3.9 ToString() [2/3] . . . 1205
12.301.3.10 ToString() [3/3] . . . 1205
12.301.3.11 ToStringPair() [1/3] . . . 1205
12.301.3.12 ToStringPair() [2/3] . . . 1206
12.301.3.13 ToStringPair() [3/3] . . . 1206
12.301.3.14 UseDictAlways() . . . 1206
12.302 gdcm::Study Class Reference . . . 1206
12.302.1 Detailed Description . . . 1206
12.302.2 Constructor & Destructor Documentation . . . 1206
12.302.2.1 Study() . . . 1206
12.303 gdcm::Subject Class Reference . . . 1207

12.303.1 Detailed Description . . . 1208
12.303.2 Constructor & Destructor Documentation . . . 1208
12.303.2.1 Subject() . . . 1208
12.303.2.2 ~Subject() . . . 1209
12.303.3 Member Function Documentation . . . 1209
12.303.3.1 AddObserver() [1/2] . . . 1209
12.303.3.2 AddObserver() [2/2] . . . 1209
12.303.3.3 GetCommand() . . . 1209
12.303.3.4 HasObserver() . . . 1209
12.303.3.5 InvokeEvent() [1/2] . . . 1209
12.303.3.6 InvokeEvent() [2/2] . . . 1210
12.303.3.7 RemoveAllObservers() . . . 1210
12.303.3.8 RemoveObserver() . . . 1210
12.304 gdcm::Surface Class Reference . . . 1210
12.304.1 Detailed Description . . . 1213
12.304.2 Member Enumeration Documentation . . . 1213
12.304.2.1 STATES . . . 1213
12.304.2.2 VIEWType . . . 1214
12.304.3 Constructor & Destructor Documentation . . . 1214
12.304.3.1 Surface() . . . 1214
12.304.3.2 ~Surface() . . . 1214
12.304.4 Member Function Documentation . . . 1214
12.304.4.1 GetAlgorithmFamily() [1/2] . . . 1214
12.304.4.2 GetAlgorithmFamily() [2/2] . . . 1214
12.304.4.3 GetAlgorithmName() . . . 1215
12.304.4.4 GetAlgorithmVersion() . . . 1215
12.304.4.5 GetAxisOfRotation() . . . 1215
12.304.4.6 GetCenterOfRotation() . . . 1215
12.304.4.7 GetFiniteVolume() . . . 1215
12.304.4.8 GetManifold() . . . 1215
12.304.4.9 GetMaximumPointDistance() . . . 1215
12.304.4.10 GetMeanPointDistance() . . . 1215
12.304.4.11 GetMeshPrimitive() [1/2] . . . 1216
12.304.4.12 GetMeshPrimitive() [2/2] . . . 1216
12.304.4.13 GetNumberOfSurfacePoints() . . . 1216
12.304.4.14 GetNumberOfVectors() . . . 1216
12.304.4.15 GetPointCoordinatesData() [1/2] . . . 1216
12.304.4.16 GetPointCoordinatesData() [2/2] . . . 1216
12.304.4.17 GetPointPositionAccuracy() . . . 1216

12.304.4.18 GetPointsBoundingBoxCoordinates() . . . 1216
12.304.4.19 GetProcessingAlgorithm() [1/2] . . . 1217
12.304.4.20 GetProcessingAlgorithm() [2/2] . . . 1217
12.304.4.21 GetRecommendedDisplayCIELabValue() [1/2] . . . 1217
12.304.4.22 GetRecommendedDisplayCIELabValue() [2/2] . . . 1217
12.304.4.23 GetRecommendedDisplayGrayscaleValue() . . . 1217
12.304.4.24 GetRecommendedPresentationOpacity() . . . 1217
12.304.4.25 GetRecommendedPresentationType() . . . 1217
12.304.4.26 GetSTATES() . . . 1217
12.304.4.27 GetSTATESString() . . . 1217
12.304.4.28 GetSurfaceComments() . . . 1218
12.304.4.29 GetSurfaceNumber() . . . 1218
12.304.4.30 GetSurfaceProcessing() . . . 1218
12.304.4.31 GetSurfaceProcessingDescription() . . . 1218
12.304.4.32 GetSurfaceProcessingRatio() . . . 1218
12.304.4.33 GetVectorAccuracy() . . . 1218
12.304.4.34 GetVectorCoordinateData() [1/2] . . . 1218
12.304.4.35 GetVectorCoordinateData() [2/2] . . . 1218
12.304.4.36 GetVectorDimensionality() . . . 1218
12.304.4.37 GetVIEWType() . . . 1219
12.304.4.38 GetVIEWTypeString() . . . 1219
12.304.4.39 SetAlgorithmFamily() . . . 1219
12.304.4.40 SetAlgorithmName() . . . 1219
12.304.4.41 SetAlgorithmVersion() . . . 1219
12.304.4.42 SetAxisOfRotation() . . . 1219
12.304.4.43 SetCenterOfRotation() . . . 1219
12.304.4.44 SetFiniteVolume() . . . 1219
12.304.4.45 SetManifold() . . . 1220
12.304.4.46 SetMaximumPointDistance() . . . 1220
12.304.4.47 SetMeanPointDistance() . . . 1220
12.304.4.48 SetMeshPrimitive() . . . 1220
12.304.4.49 SetNumberOfSurfacePoints() . . . 1220
12.304.4.50 SetNumberOfVectors() . . . 1220
12.304.4.51 SetPointCoordinatesData() . . . 1220
12.304.4.52 SetPointPositionAccuracy() . . . 1220
12.304.4.53 SetPointsBoundingBoxCoordinates() . . . 1221
12.304.4.54 SetProcessingAlgorithm() . . . 1221
12.304.4.55 SetRecommendedDisplayCIELabValue() [1/3] . . . 1221
12.304.4.56 SetRecommendedDisplayCIELabValue() [2/3] . . . 1221

12.304.4.57 SetRecommendedDisplayCIELabValue() [3/3] . . . 1221
12.304.4.58 SetRecommendedDisplayGrayscaleValue() . . . 1221
12.304.4.59 SetRecommendedPresentationOpacity() . . . 1221
12.304.4.60 SetRecommendedPresentationType() . . . 1221
12.304.4.61 SetSurfaceComments() . . . 1222
12.304.4.62 SetSurfaceNumber() . . . 1222
12.304.4.63 SetSurfaceProcessing() . . . 1222
12.304.4.64 SetSurfaceProcessingDescription() . . . 1222
12.304.4.65 SetSurfaceProcessingRatio() . . . 1222
12.304.4.66 SetVectorAccuracy() . . . 1222
12.304.4.67 SetVectorCoordinateData() . . . 1222
12.304.4.68 SetVectorDimensionality() . . . 1222
12.305 gdcm::SurfaceHelper Class Reference . . . 1223
12.305.1 Detailed Description . . . 1223
12.305.2 Member Typedef Documentation . . . 1223
12.305.2.1 ColorArray . . . 1223
12.305.3 Member Function Documentation . . . 1224
12.305.3.1 RecommendedDisplayCIELabToRGB() [1/2] . . . 1224
12.305.3.2 RecommendedDisplayCIELabToRGB() [2/2] . . . 1224
12.305.3.3 RGBToRecommendedDisplayCIELab() . . . 1225
12.305.3.4 RGBToRecommendedDisplayGrayscale() . . . 1225
12.306 gdcm::SurfaceReader Class Reference . . . 1226
12.306.1 Detailed Description . . . 1229
12.306.2 Constructor & Destructor Documentation . . . 1229
12.306.2.1 SurfaceReader() . . . 1229
12.306.2.2 ~SurfaceReader() . . . 1229
12.306.3 Member Function Documentation . . . 1229
12.306.3.1 GetNumberOfSurfaces() . . . 1229
12.306.3.2 Read() . . . 1230
12.306.3.3 ReadPointMacro() . . . 1230
12.306.3.4 ReadSurface() . . . 1230
12.306.3.5 ReadSurfaces() . . . 1230
12.307 gdcm::SurfaceWriter Class Reference . . . 1230
12.307.1 Detailed Description . . . 1234
12.307.2 Constructor & Destructor Documentation . . . 1234
12.307.2.1 SurfaceWriter() . . . 1234
12.307.2.2 ~SurfaceWriter() . . . 1234
12.307.3 Member Function Documentation . . . 1234
12.307.3.1 ComputeNumberOfSurfaces() . . . 1234

12.307.3.2 GetNumberOfSurfaces() . . . 1235
12.307.3.3 PrepareWrite() . . . 1235
12.307.3.4 PrepareWritePointMacro() . . . 1235
12.307.3.5 SetNumberOfSurfaces() . . . 1235
12.307.3.6 Write() . . . 1235
12.307.4 Member Data Documentation . . . 1235
12.307.4.1 NumberOfSurfaces . . . 1235
12.308 gdcm::SwapCode Class Reference . . . 1235
12.308.1 Detailed Description . . . 1236
12.308.2 Member Enumeration Documentation . . . 1237
12.308.2.1 SwapCodeType . . . 1237
12.308.3 Constructor & Destructor Documentation . . . 1237
12.308.3.1 SwapCode() . . . 1237
12.308.4 Member Function Documentation . . . 1237
12.308.4.1 GetIndex() . . . 1237
12.308.4.2 GetSwapCodeString() . . . 1237
12.308.4.3 operator SwapCode::SwapCodeType() . . . 1238
12.308.5 Friends And Related Symbol Documentation . . . 1238
12.308.5.1 operator<< . . . 1238
12.309 gdcm::SwapperDoOp Class Reference . . . 1238
12.309.1 Member Function Documentation . . . 1238
12.309.1.1 Swap() . . . 1238
12.309.1.2 SwapArray() . . . 1239
12.310 gdcm::SwapperNoOp Class Reference . . . 1239
12.310.1 Detailed Description . . . 1239
12.310.2 Member Function Documentation . . . 1239
12.310.2.1 Swap() . . . 1239
12.310.2.2 SwapArray() . . . 1240
12.311 gdcm::System Class Reference . . . 1240
12.311.1 Detailed Description . . . 1241
12.311.2 Member Function Documentation . . . 1241
12.311.2.1 ConvertToUNC() . . . 1241
12.311.2.2 DeleteDirectory() . . . 1242
12.311.2.3 EncodeBytes() . . . 1242
12.311.2.4 FileExists() . . . 1242
12.311.2.5 FileIsDirectory() . . . 1242
12.311.2.6 FileIsSymlink() . . . 1242
12.311.2.7 FileSize() . . . 1243
12.311.2.8 FileTime() . . . 1243

12.311.2.9 FormatDateTime() . . . 1243
12.311.2.10 GetCurrentDateTime() . . . 1243
12.311.2.11 GetCurrentModuleFileName() . . . 1244
12.311.2.12 GetCurrentProcessFileName() . . . 1244
12.311.2.13 GetCurrentResourcesDirectory() . . . 1244
12.311.2.14 GetCWD() . . . 1244
12.311.2.15 GetHostName() . . . 1244
12.311.2.16 GetLastSystemError() . . . 1244
12.311.2.17 GetLocaleCharset() . . . 1244
12.311.2.18 GetPermissions() . . . 1245
12.311.2.19 GetTimezoneOffsetFromUTC() . . . 1245
12.311.2.20 MakeDirectory() . . . 1245
12.311.2.21 ParseDateTime() [1/2] . . . 1245
12.311.2.22 ParseDateTime() [2/2] . . . 1245
12.311.2.23 RemoveFile() . . . 1246
12.311.2.24 SetPermissions() . . . 1246
12.311.2.25 StrCaseCmp() . . . 1246
12.311.2.26 StrNCaseCmp() . . . 1246
12.311.2.27 StrSep() . . . 1246
12.311.2.28 StrTokR() . . . 1247
12.312 gdcm::Table Class Reference . . . 1247
12.312.1 Detailed Description . . . 1248
12.312.2 Member Typedef Documentation . . . 1248
12.312.2.1 MapTableEntry . . . 1248
12.312.3 Constructor & Destructor Documentation . . . 1248
12.312.3.1 Table() [1/2] . . . 1248
12.312.3.2 ~Table() . . . 1248
12.312.3.3 Table() [2/2] . . . 1249
12.312.4 Member Function Documentation . . . 1249
12.312.4.1 GetTableEntry() . . . 1249
12.312.4.2 InsertEntry() . . . 1249
12.312.4.3 operator=() . . . 1249
12.312.5 Friends And Related Symbol Documentation . . . 1249
12.312.5.1 operator<< . . . 1249
12.312.6 Member Data Documentation . . . 1250
12.312.6.1 TableInternal . . . 1250
12.313 gdcm::TableEntry Class Reference . . . 1250
12.313.1 Detailed Description . . . 1250
12.313.2 Constructor & Destructor Documentation . . . 1250

12.313.2.1 TableEntry() . . . 1250
12.313.2.2 ~TableEntry() . . . 1250
12.314 gdcm::TableReader Class Reference . . . 1251
12.314.1 Detailed Description . . . 1251
12.314.2 Constructor & Destructor Documentation . . . 1252
12.314.2.1 TableReader() . . . 1252
12.314.2.2 ~TableReader() . . . 1252
12.314.3 Member Function Documentation . . . 1252
12.314.3.1 CharacterDataHandler() . . . 1252
12.314.3.2 EndElement() . . . 1252
12.314.3.3 GetDefs() . . . 1252
12.314.3.4 GetFilename() . . . 1252
12.314.3.5 HandleIOD() . . . 1252
12.314.3.6 HandleIODEntry() . . . 1253
12.314.3.7 HandleMacro() . . . 1253
12.314.3.8 HandleMacroEntry() . . . 1253
12.314.3.9 HandleMacroEntryDescription() . . . 1253
12.314.3.10 HandleModule() . . . 1253
12.314.3.11 HandleModuleEntry() . . . 1253
12.314.3.12 HandleModuleEntryDescription() . . . 1253
12.314.3.13 HandleModuleInclude() . . . 1253
12.314.3.14 Read() . . . 1254
12.314.3.15 SetFilename() . . . 1254
12.314.3.16 StartElement() . . . 1254
12.315 gdcm::network::TableRow Class Reference . . . 1254
12.315.1 Constructor & Destructor Documentation . . . 1255
12.315.1.1 TableRow() . . . 1255
12.315.1.2 ~TableRow() . . . 1255
12.315.2 Member Data Documentation . . . 1255
12.315.2.1 transitions . . . 1255
12.316 gdcm::Tag Class Reference . . . 1256
12.316.1 Detailed Description . . . 1257
12.316.2 Constructor & Destructor Documentation . . . 1258
12.316.2.1 Tag() [1/3] . . . 1258
12.316.2.2 Tag() [2/3] . . . 1258
12.316.2.3 Tag() [3/3] . . . 1258
12.316.3 Member Function Documentation . . . 1259
12.316.3.1 GetElement() . . . 1259
12.316.3.2 GetElementTag() . . . 1259

12.316.3.3 GetGroup() . . . 1259
12.316.3.4 GetLength() . . . 1259
12.316.3.5 GetPrivateCreator() . . . 1260
12.316.3.6 IsGroupLength() . . . 1260
12.316.3.7 IsGroupXX() . . . 1260
12.316.3.8 IsIllegal() . . . 1260
12.316.3.9 IsPrivate() . . . 1260
12.316.3.10 IsPrivateCreator() . . . 1261
12.316.3.11 IsPublic() . . . 1261
12.316.3.12 operator"!=() . . . 1261
12.316.3.13 operator<() . . . 1261
12.316.3.14 operator<=() . . . 1261
12.316.3.15 operator=() . . . 1262
12.316.3.16 operator==() . . . 1262
12.316.3.17 operator[]() [1/2] . . . 1262
12.316.3.18 operator[]() [2/2] . . . 1262
12.316.3.19 PrintAsContinuousString() . . . 1262
12.316.3.20 PrintAsContinuousUpperCaseString() . . . 1262
12.316.3.21 PrintAsPipeSeparatedString() . . . 1263
12.316.3.22 Read() . . . 1263
12.316.3.23 ReadFromCommaSeparatedString() . . . 1263
12.316.3.24 ReadFromContinuousString() . . . 1263
12.316.3.25 ReadFromPipeSeparatedString() . . . 1263
12.316.3.26 SetElement() . . . 1264
12.316.3.27 SetElementTag() [1/2] . . . 1264
12.316.3.28 SetElementTag() [2/2] . . . 1264
12.316.3.29 SetGroup() . . . 1264
12.316.3.30 SetPrivateCreator() . . . 1265
12.316.3.31 Write() . . . 1265
12.316.4 Friends And Related Symbol Documentation . . . 1265
12.316.4.1 operator<< . . . 1265
12.316.4.2 operator>> . . . 1265
12.316.5 Member Data Documentation . . . 1265
12.316.5.1 bytes . . . 1265
12.316.5.2 tag . . . 1266
12.316.5.3 tags . . . 1266
12.317 gdcm::TagPath Class Reference . . . 1266
12.317.1 Detailed Description . . . 1266
12.317.2 Constructor & Destructor Documentation . . . 1267

12.317.2.1 TagPath() . . . 1267
12.317.2.2 ~TagPath() . . . 1267
12.317.3 Member Function Documentation . . . 1267
12.317.3.1 ConstructFromString() . . . 1267
12.317.3.2 ConstructFromTagList() . . . 1267
12.317.3.3 IsValid() . . . 1267
12.317.3.4 Print() . . . 1267
12.317.3.5 Push() [1/2] . . . 1268
12.317.3.6 Push() [2/2] . . . 1268
12.318 gdcm::Testing Class Reference . . . 1268
12.318.1 Detailed Description . . . 1269
12.318.2 Member Typedef Documentation . . . 1270
12.318.2.1 MD5DataImagesType . . . 1270
12.318.2.2 MediaStorageDataFilesType . . . 1270
12.318.3 Constructor & Destructor Documentation . . . 1270
12.318.3.1 Testing() . . . 1270
12.318.3.2 ~Testing() . . . 1270
12.318.4 Member Function Documentation . . . 1270
12.318.4.1 ComputeFileMD5() . . . 1270
12.318.4.2 ComputeMD5() . . . 1270
12.318.4.3 GetDataExtraRoot() . . . 1271
12.318.4.4 GetDataRoot() . . . 1271
12.318.4.5 GetFileName() . . . 1271
12.318.4.6 GetFileNames() . . . 1271
12.318.4.7 GetLossyFlagFromFile() . . . 1271
12.318.4.8 GetMD5DataImage() . . . 1272
12.318.4.9 GetMD5DataImages() . . . 1272
12.318.4.10 GetMD5FromBrokenFile() . . . 1272
12.318.4.11 GetMD5FromFile() . . . 1272
12.318.4.12 GetMediaStorageDataFile() . . . 1272
12.318.4.13 GetMediaStorageDataFiles() . . . 1272
12.318.4.14 GetMediaStorageFromFile() . . . 1272
12.318.4.15 GetNumberOfFileNames() . . . 1273
12.318.4.16 GetNumberOfMD5DataImages() . . . 1273
12.318.4.17 GetNumberOfMediaStorageDataFiles() . . . 1273
12.318.4.18 GetPixelSpacingDataRoot() . . . 1273
12.318.4.19 GetSelectedPrivateGroupOffsetFromFile() . . . 1273
12.318.4.20 GetSelectedTagsOffsetFromFile() . . . 1273
12.318.4.21 GetSourceDirectory() . . . 1273

12.318.4.22 GetStreamOffsetFromFile() . . . 1274
12.318.4.23 GetTempDirectory() . . . 1274
12.318.4.24 GetTempDirectoryW() . . . 1274
12.318.4.25 GetTempFilename() . . . 1274
12.318.4.26 GetTempFilenameW() . . . 1274
12.318.4.27 Print() . . . 1275
12.319 gdcm::Trace Class Reference . . . 1275
12.319.1 Detailed Description . . . 1276
12.319.2 Constructor & Destructor Documentation . . . 1276
12.319.2.1 Trace() . . . 1276
12.319.2.2 ∼Trace() . . . 1276
12.319.3 Member Function Documentation . . . 1276
12.319.3.1 DebugOff() . . . 1276
12.319.3.2 DebugOn() . . . 1277
12.319.3.3 ErrorOff() . . . 1277
12.319.3.4 ErrorOn() . . . 1277
12.319.3.5 GetDebugFlag() . . . 1277
12.319.3.6 GetDebugStream() . . . 1277
12.319.3.7 GetErrorFlag() . . . 1277
12.319.3.8 GetErrorStream() . . . 1277
12.319.3.9 GetStream() . . . 1277
12.319.3.10 GetWarningFlag() . . . 1278
12.319.3.11 GetWarningStream() . . . 1278
12.319.3.12 SetDebug() . . . 1278
12.319.3.13 SetDebugStream() . . . 1278
12.319.3.14 SetError() . . . 1278
12.319.3.15 SetErrorStream() . . . 1278
12.319.3.16 SetStream() . . . 1279
12.319.3.17 SetStreamToFile() . . . 1279
12.319.3.18 SetWarning() . . . 1279
12.319.3.19 SetWarningStream() . . . 1279
12.319.3.20 WarningOff() . . . 1279
12.319.3.21 WarningOn() . . . 1280
12.320 gdcm::TransferSyntax Class Reference . . . 1280
12.320.1 Detailed Description . . . 1281
12.320.2 Member Enumeration Documentation . . . 1282
12.320.2.1 NegociatedType . . . 1282
12.320.2.2 TSType . . . 1282
12.320.3 Constructor & Destructor Documentation . . . 1283

12.320.3.1 TransferSyntax() . . . 1283
12.320.4 Member Function Documentation . . . 1284
12.320.4.1 CanStoreLossy() . . . 1284
12.320.4.2 GetNegociatedType() . . . 1284
12.320.4.3 GetString() . . . 1284
12.320.4.4 GetSwapCode() . . . 1284
12.320.4.5 GetTSString() . . . 1284
12.320.4.6 GetTSType() . . . 1284
12.320.4.7 IsEncapsulated() . . . 1285
12.320.4.8 IsEncoded() . . . 1285
12.320.4.9 IsExplicit() . . . 1285
12.320.4.10 IsImplicit() . . . 1285
12.320.4.11 IsLossless() . . . 1285
12.320.4.12 IsLossy() . . . 1285
12.320.4.13 IsValid() . . . 1285
12.320.4.14 operator TSType() . . . 1285
12.320.5 Friends And Related Symbol Documentation . . . 1286
12.320.5.1 operator<< . . . 1286
12.321 gdcm::network::TransferSyntaxSub Class Reference . . . 1286
12.321.1 Detailed Description . . . 1286
12.321.2 Constructor & Destructor Documentation . . . 1287
12.321.2.1 TransferSyntaxSub() . . . 1287
12.321.3 Member Function Documentation . . . 1287
12.321.3.1 GetName() . . . 1287
12.321.3.2 operator==() . . . 1287
12.321.3.3 Print() . . . 1287
12.321.3.4 Read() . . . 1287
12.321.3.5 SetName() . . . 1287
12.321.3.6 SetNameFromUID() . . . 1287
12.321.3.7 Size() . . . 1288
12.321.3.8 Write() . . . 1288
12.322 gdcm::network::Transition Struct Reference . . . 1288
12.322.1 Constructor & Destructor Documentation . . . 1289
12.322.1.1 Transition() [1/2] . . . 1289
12.322.1.2 ~Transition() . . . 1289
12.322.1.3 Transition() [2/2] . . . 1289
12.322.2 Member Function Documentation . . . 1289
12.322.2.1 MakeNew() . . . 1289
12.322.3 Member Data Documentation . . . 1289

12.322.3.1 mAction . . . 1289
12.322.3.2 mEnd . . . 1290
12.323 gdcm::Type Class Reference . . . 1290
12.323.1 Detailed Description . . . 1291
12.323.2 Member Enumeration Documentation . . . 1291
12.323.2.1 TypeType . . . 1291
12.323.3 Constructor & Destructor Documentation . . . 1291
12.323.3.1 Type() . . . 1291
12.323.4 Member Function Documentation . . . 1292
12.323.4.1 GetTypeString() . . . 1292
12.323.4.2 GetTypeType() . . . 1292
12.323.4.3 operator TypeType() . . . 1292
12.323.5 Friends And Related Symbol Documentation . . . 1292
12.323.5.1 operator<< . . . 1292
12.324 gdcm::UI Struct Reference . . . 1292
12.324.1 Friends And Related Symbol Documentation . . . 1293
12.324.1.1 operator<< . . . 1293
12.324.2 Member Data Documentation . . . 1293
12.324.2.1 Internal . . . 1293
12.325 gdcm::UIDGenerator Class Reference . . . 1293
12.325.1 Detailed Description . . . 1294
12.325.2 Constructor & Destructor Documentation . . . 1294
12.325.2.1 UIDGenerator() . . . 1294
12.325.3 Member Function Documentation . . . 1294
12.325.3.1 Generate() . . . 1294
12.325.3.2 GenerateUUID() . . . 1294
12.325.3.3 GetGDCMUID() . . . 1295
12.325.3.4 GetRoot() . . . 1295
12.325.3.5 IsValid() . . . 1295
12.325.3.6 SetRoot() . . . 1295
12.326 gdcm::UIDs Class Reference . . . 1296
12.326.1 Detailed Description . . . 1311
12.326.2 Member Typedef Documentation . . . 1312
12.326.2.1 TransferSyntaxStringsType . . . 1312
12.326.3 Member Enumeration Documentation . . . 1312
12.326.3.1 TSName . . . 1312
12.326.3.2 TSType . . . 1312
12.326.4 Constructor & Destructor Documentation . . . 1312
12.326.4.1 UIDs() . . . 1312

12.326.5 Member Function Documentation . . . 1312
12.326.5.1 GetName() . . . 1312
12.326.5.2 GetNumberOfTransferSyntaxStrings() . . . 1312
12.326.5.3 GetString() . . . 1313
12.326.5.4 GetTransferSyntaxString() . . . 1313
12.326.5.5 GetTransferSyntaxStrings() . . . 1313
12.326.5.6 GetUIDName() . . . 1313
12.326.5.7 GetUIDString() . . . 1313
12.326.5.8 operator TSType() . . . 1313
12.326.5.9 SetFromUID() . . . 1313
12.327 gdcm::network::ULAction Class Reference . . . 1314
12.327.1 Detailed Description . . . 1315
12.327.2 Constructor & Destructor Documentation . . . 1315
12.327.2.1 ULAction() [1/2] . . . 1315
12.327.2.2 ∼ULAction() . . . 1316
12.327.2.3 ULAction() [2/2] . . . 1316
12.327.3 Member Function Documentation . . . 1316
12.327.3.1 operator=() . . . 1316
12.327.3.2 PerformAction() . . . 1316
12.328 gdcm::network::ULActionAA1 Class Reference . . . 1317
12.328.1 Member Function Documentation . . . 1318
12.328.1.1 PerformAction() . . . 1318
12.329 gdcm::network::ULActionAA2 Class Reference . . . 1318
12.329.1 Member Function Documentation . . . 1319
12.329.1.1 PerformAction() . . . 1319
12.330 gdcm::network::ULActionAA3 Class Reference . . . 1319
12.330.1 Member Function Documentation . . . 1320
12.330.1.1 PerformAction() . . . 1320
12.331 gdcm::network::ULActionAA4 Class Reference . . . 1321
12.331.1 Member Function Documentation . . . 1322
12.331.1.1 PerformAction() . . . 1322
12.332 gdcm::network::ULActionAA5 Class Reference . . . 1322
12.332.1 Member Function Documentation . . . 1323
12.332.1.1 PerformAction() . . . 1323
12.333 gdcm::network::ULActionAA6 Class Reference . . . 1323
12.333.1 Member Function Documentation . . . 1324
12.333.1.1 PerformAction() . . . 1324
12.334 gdcm::network::ULActionAA7 Class Reference . . . 1325
12.334.1 Member Function Documentation . . . 1326

12.334.1.1 PerformAction() . . . 1326
12.335 gdcm::network::ULActionAA8 Class Reference . . . 1326
12.335.1 Member Function Documentation . . . 1327
12.335.1.1 PerformAction() . . . 1327
12.336 gdcm::network::ULActionAE1 Class Reference . . . 1327
12.336.1 Member Function Documentation . . . 1328
12.336.1.1 PerformAction() . . . 1328
12.337 gdcm::network::ULActionAE2 Class Reference . . . 1329
12.337.1 Member Function Documentation . . . 1330
12.337.1.1 PerformAction() . . . 1330
12.338 gdcm::network::ULActionAE3 Class Reference . . . 1330
12.338.1 Member Function Documentation . . . 1331
12.338.1.1 PerformAction() . . . 1331
12.339 gdcm::network::ULActionAE4 Class Reference . . . 1331
12.339.1 Member Function Documentation . . . 1332
12.339.1.1 PerformAction() . . . 1332
12.340 gdcm::network::ULActionAE5 Class Reference . . . 1333
12.340.1 Member Function Documentation . . . 1334
12.340.1.1 PerformAction() . . . 1334
12.341 gdcm::network::ULActionAE6 Class Reference . . . 1334
12.341.1 Member Function Documentation . . . 1335
12.341.1.1 PerformAction() . . . 1335
12.342 gdcm::network::ULActionAE7 Class Reference . . . 1335
12.342.1 Member Function Documentation . . . 1336
12.342.1.1 PerformAction() . . . 1336
12.343 gdcm::network::ULActionAE8 Class Reference . . . 1337
12.343.1 Member Function Documentation . . . 1338
12.343.1.1 PerformAction() . . . 1338
12.344 gdcm::network::ULActionAR1 Class Reference . . . 1338
12.344.1 Member Function Documentation . . . 1339
12.344.1.1 PerformAction() . . . 1339
12.345 gdcm::network::ULActionAR10 Class Reference . . . 1339
12.345.1 Member Function Documentation . . . 1340
12.345.1.1 PerformAction() . . . 1340
12.346 gdcm::network::ULActionAR2 Class Reference . . . 1341
12.346.1 Member Function Documentation . . . 1342
12.346.1.1 PerformAction() . . . 1342
12.347 gdcm::network::ULActionAR3 Class Reference . . . 1342
12.347.1 Member Function Documentation . . . 1343

12.347.1.1 PerformAction() . . . 1343
12.348 gdcm::network::ULActionAR4 Class Reference . . . 1343
12.348.1 Member Function Documentation . . . 1344
12.348.1.1 PerformAction() . . . 1344
12.349 gdcm::network::ULActionAR5 Class Reference . . . 1345
12.349.1 Member Function Documentation . . . 1346
12.349.1.1 PerformAction() . . . 1346
12.350 gdcm::network::ULActionAR6 Class Reference . . . 1346
12.350.1 Member Function Documentation . . . 1347
12.350.1.1 PerformAction() . . . 1347
12.351 gdcm::network::ULActionAR7 Class Reference . . . 1347
12.351.1 Member Function Documentation . . . 1348
12.351.1.1 PerformAction() . . . 1348
12.352 gdcm::network::ULActionAR8 Class Reference . . . 1349
12.352.1 Member Function Documentation . . . 1350
12.352.1.1 PerformAction() . . . 1350
12.353 gdcm::network::ULActionAR9 Class Reference . . . 1350
12.353.1 Member Function Documentation . . . 1351
12.353.1.1 PerformAction() . . . 1351
12.354 gdcm::network::ULActionDT1 Class Reference . . . 1351
12.354.1 Member Function Documentation . . . 1352
12.354.1.1 PerformAction() . . . 1352
12.355 gdcm::network::ULActionDT2 Class Reference . . . 1353
12.355.1 Member Function Documentation . . . 1354
12.355.1.1 PerformAction() . . . 1354
12.356 gdcm::network::ULBasicCallback Class Reference . . . 1354
12.356.1 Detailed Description . . . 1356
12.356.2 Constructor & Destructor Documentation . . . 1356
12.356.2.1 ULBasicCallback() . . . 1356
12.356.2.2 ~ULBasicCallback() . . . 1356
12.356.3 Member Function Documentation . . . 1356
12.356.3.1 GetDataSets() . . . 1356
12.356.3.2 GetResponses() . . . 1356
12.356.3.3 HandleDataSet() . . . 1356
12.356.3.4 HandleResponse() . . . 1356
12.357 gdcm::network::ULConnection Class Reference . . . 1357
12.357.1 Detailed Description . . . 1358
12.357.2 Constructor & Destructor Documentation . . . 1358
12.357.2.1 ULConnection() [1/2] . . . 1358

12.357.2.2 ~ULConnection() . . . 1358
12.357.2.3 ULConnection() [2/2] . . . 1358
12.357.3 Member Function Documentation . . . 1358
12.357.3.1 AddAcceptedPresentationContext() . . . 1358
12.357.3.2 FindContext() . . . 1359
12.357.3.3 GetAcceptedPresentationContexts() [1/2] . . . 1359
12.357.3.4 GetAcceptedPresentationContexts() [2/2] . . . 1359
12.357.3.5 GetConnectionInfo() . . . 1359
12.357.3.6 GetMaxPDUSize() . . . 1359
12.357.3.7 GetPresentationContextACByID() . . . 1359
12.357.3.8 GetPresentationContextIDFromPresentationContext() . . . 1359
12.357.3.9 GetPresentationContextRQByID() . . . 1359
12.357.3.10 GetPresentationContexts() . . . 1360
12.357.3.11 GetProtocol() . . . 1360
12.357.3.12 GetState() . . . 1360
12.357.3.13 GetTimer() . . . 1360
12.357.3.14 InitializeConnection() . . . 1360
12.357.3.15 InitializeIncomingConnection() . . . 1360
12.357.3.16 operator=() . . . 1360
12.357.3.17 SetMaxPDUSize() . . . 1360
12.357.3.18 SetPresentationContexts() [1/2] . . . 1361
12.357.3.19 SetPresentationContexts() [2/2] . . . 1361
12.357.3.20 SetState() . . . 1361
12.357.3.21 StopProtocol() . . . 1361
12.357.4 Friends And Related Symbol Documentation . . . 1361
12.357.4.1 ULActionAE6 . . . 1361
12.357.4.2 ULConnectionManager . . . 1361
12.358 gdcm::network::ULConnectionCallback Class Reference . . . 1362
12.358.1 Detailed Description . . . 1362
12.358.2 Constructor & Destructor Documentation . . . 1363
12.358.2.1 ULConnectionCallback() . . . 1363
12.358.2.2 ~ULConnectionCallback() . . . 1363
12.358.3 Member Function Documentation . . . 1363
12.358.3.1 DataSetHandled() . . . 1363
12.358.3.2 DataSetHandles() . . . 1363
12.358.3.3 HandleDataSet() . . . 1363
12.358.3.4 HandleResponse() . . . 1363
12.358.3.5 ResetHandledDataSet() . . . 1363
12.358.3.6 SetImplicitFlag() . . . 1364

12.358.4 Member Data Documentation . . . 1364
12.358.4.1 mImplicit . . . 1364
12.359 gdcm::network::ULConnectionInfo Class Reference . . . 1364
12.359.1 Detailed Description . . . 1364
12.359.2 Constructor & Destructor Documentation . . . 1365
12.359.2.1 ULConnectionInfo() . . . 1365
12.359.3 Member Function Documentation . . . 1365
12.359.3.1 GetCalledAETitle() . . . 1365
12.359.3.2 GetCalledComputerName() . . . 1365
12.359.3.3 GetCalledIPAddress() . . . 1365
12.359.3.4 GetCalledIPPort() . . . 1365
12.359.3.5 GetCallingAETitle() . . . 1365
12.359.3.6 GetMaxPDULength() . . . 1365
12.359.3.7 Initialize() . . . 1365
12.359.3.8 SetMaxPDULength() . . . 1366
12.360 gdcm::network::ULConnectionManager Class Reference . . . 1366
12.360.1 Detailed Description . . . 1369
12.360.2 Constructor & Destructor Documentation . . . 1369
12.360.2.1 ULConnectionManager() [1/2] . . . 1369
12.360.2.2 ULConnectionManager() [2/2] . . . 1369
12.360.2.3 ~ULConnectionManager() . . . 1369
12.360.3 Member Function Documentation . . . 1369
12.360.3.1 BreakConnection() . . . 1369
12.360.3.2 BreakConnectionNow() . . . 1369
12.360.3.3 EstablishConnection() . . . 1370
12.360.3.4 EstablishConnectionMove() . . . 1370
12.360.3.5 RunEventLoop() . . . 1370
12.360.3.6 RunMoveEventLoop() . . . 1370
12.360.3.7 SendEcho() . . . 1370
12.360.3.8 SendFind() [1/2] . . . 1371
12.360.3.9 SendFind() [2/2] . . . 1371
12.360.3.10 SendMove() [1/2] . . . 1371
12.360.3.11 SendMove() [2/2] . . . 1371
12.360.3.12 SendNAction() [1/2] . . . 1371
12.360.3.13 SendNAction() [2/2] . . . 1371
12.360.3.14 SendNCreate() [1/2] . . . 1371
12.360.3.15 SendNCreate() [2/2] . . . 1372
12.360.3.16 SendNDelete() [1/2] . . . 1372
12.360.3.17 SendNDelete() [2/2] . . . 1372

12.360.3.18 SendNEventReport() [1/2] . . . 1372
12.360.3.19 SendNEventReport() [2/2] . . . 1372
12.360.3.20 SendNGet() [1/2] . . . 1372
12.360.3.21 SendNGet() [2/2] . . . 1372
12.360.3.22 SendNSet() [1/2] . . . 1372
12.360.3.23 SendNSet() [2/2] . . . 1373
12.360.3.24 SendStore() [1/2] . . . 1373
12.360.3.25 SendStore() [2/2] . . . 1373
12.360.4 Member Data Documentation . . . 1373
12.360.4.1 mConnection . . . 1373
12.360.4.2 mSecondaryConnection . . . 1373
12.360.4.3 mTransitions . . . 1373
12.361 gdcm::network::ULEvent Class Reference . . . 1374
12.361.1 Detailed Description . . . 1374
12.361.2 Constructor & Destructor Documentation . . . 1374
12.361.2.1 ULEvent() [1/2] . . . 1374
12.361.2.2 ULEvent() [2/2] . . . 1374
12.361.2.3 ~ULEvent() . . . 1375
12.361.3 Member Function Documentation . . . 1375
12.361.3.1 GetDataSetPos() . . . 1375
12.361.3.2 GetEvent() . . . 1375
12.361.3.3 GetIStream() . . . 1375
12.361.3.4 GetPDUs() . . . 1375
12.361.3.5 SetEvent() . . . 1375
12.361.3.6 SetPDU() . . . 1375
12.362 gdcm::network::ULTransitionTable Class Reference . . . 1375
12.362.1 Detailed Description . . . 1376
12.362.2 Constructor & Destructor Documentation . . . 1376
12.362.2.1 ULTransitionTable() . . . 1376
12.362.3 Member Function Documentation . . . 1376
12.362.3.1 HandleEvent() . . . 1376
12.362.3.2 PrintTable() . . . 1376
12.363 gdcm::network::ULWritingCallback Class Reference . . . 1377
12.363.1 Constructor & Destructor Documentation . . . 1378
12.363.1.1 ULWritingCallback() . . . 1378
12.363.1.2 ~ULWritingCallback() . . . 1378
12.363.2 Member Function Documentation . . . 1378
12.363.2.1 HandleDataSet() . . . 1378
12.363.2.2 HandleResponse() . . . 1378

12.363.2.3 SetDirectory() . . . 1379
12.364 gdcm::UNExplicitDataElement Class Reference . . . 1379
12.364.1 Detailed Description . . . 1382
12.364.2 Member Function Documentation . . . 1382
12.364.2.1 GetLength() . . . 1382
12.364.2.2 Read() . . . 1382
12.364.2.3 ReadPreValue() . . . 1382
12.364.2.4 ReadValue() . . . 1382
12.364.2.5 ReadWithLength() . . . 1383
12.365 gdcm::UNExplicitImplicitDataElement Class Reference . . . 1383
12.365.1 Detailed Description . . . 1386
12.365.2 Member Function Documentation . . . 1386
12.365.2.1 GetLength() . . . 1386
12.365.2.2 Read() . . . 1386
12.365.2.3 ReadPreValue() . . . 1386
12.365.2.4 ReadValue() . . . 1386
12.366 gdcm::Unpacker12Bits Class Reference . . . 1387
12.366.1 Detailed Description . . . 1387
12.366.2 Member Function Documentation . . . 1387
12.366.2.1 Pack() . . . 1387
12.366.2.2 Unpack() . . . 1388
12.367 gdcm::Usage Class Reference . . . 1388
12.367.1 Detailed Description . . . 1389
12.367.2 Member Enumeration Documentation . . . 1389
12.367.2.1 UsageType . . . 1389
12.367.3 Constructor & Destructor Documentation . . . 1389
12.367.3.1 Usage() . . . 1389
12.367.4 Member Function Documentation . . . 1390
12.367.4.1 GetUsageString() . . . 1390
12.367.4.2 GetUsageType() . . . 1390
12.367.4.3 operator UsageType() . . . 1390
12.367.5 Friends And Related Symbol Documentation . . . 1390
12.367.5.1 operator<< . . . 1390
12.368 gdcm::UserEvent Class Reference . . . 1391
12.369 gdcm::network::UserInformation Class Reference . . . 1392
12.369.1 Detailed Description . . . 1392
12.369.2 Constructor & Destructor Documentation . . . 1393
12.369.2.1 UserInformation() [1/2] . . . 1393
12.369.2.2 ~UserInformation() . . . 1393

12.369.2.3 UserInformation() [2/2] . . . 1393
12.369.3 Member Function Documentation . . . 1393
12.369.3.1 AddRoleSelectionSub() . . . 1393
12.369.3.2 AddSOPClassExtendedNegociationSub() . . . 1393
12.369.3.3 GetMaximumLengthSub() [1/2] . . . 1393
12.369.3.4 GetMaximumLengthSub() [2/2] . . . 1393
12.369.3.5 operator=() . . . 1394
12.369.3.6 Print() . . . 1394
12.369.3.7 Read() . . . 1394
12.369.3.8 Size() . . . 1394
12.369.3.9 Write() . . . 1394
12.370 gdcm::UUIDGenerator Class Reference . . . 1394
12.370.1 Detailed Description . . . 1395
12.370.2 Member Function Documentation . . . 1395
12.370.2.1 Generate() . . . 1395
12.370.2.2 IsValid() . . . 1395
12.371 gdcm::Validate Class Reference . . . 1395
12.371.1 Detailed Description . . . 1396
12.371.2 Constructor & Destructor Documentation . . . 1396
12.371.2.1 Validate() . . . 1396
12.371.2.2 ∼Validate() . . . 1397
12.371.3 Member Function Documentation . . . 1397
12.371.3.1 GetValidatedFile() . . . 1397
12.371.3.2 SetFile() . . . 1397
12.371.3.3 Validation() . . . 1397
12.371.4 Member Data Documentation . . . 1397
12.371.4.1 F . . . 1397
12.371.4.2 V . . . 1397
12.372 gdcm::Value Class Reference . . . 1398
12.372.1 Detailed Description . . . 1399
12.372.2 Constructor & Destructor Documentation . . . 1399
12.372.2.1 Value() . . . 1399
12.372.2.2 ∼Value() . . . 1399
12.372.3 Member Function Documentation . . . 1400
12.372.3.1 Clear() . . . 1400
12.372.3.2 GetLength() . . . 1400
12.372.3.3 operator==() . . . 1400
12.372.3.4 SetLength() . . . 1400
12.372.3.5 SetLengthOnly() . . . 1400

12.372.4 Friends And Related Symbol Documentation . . . 1401
12.372.4.1 DataElement . . . 1401
12.373 gdcm::ValueIO< TDE, TSwap, TType > Class Template Reference . . . 1401
12.373.1 Detailed Description . . . 1401
12.373.2 Member Function Documentation . . . 1401
12.373.2.1 Read() . . . 1401
12.373.2.2 Write() . . . 1402
12.374 gdcm::MrProtocol::Vector3 Struct Reference . . . 1402
12.374.1 Member Data Documentation . . . 1402
12.374.1.1 dCor . . . 1402
12.374.1.2 dSag . . . 1402
12.374.1.3 dTra . . . 1402
12.375 gdcm::Version Class Reference . . . 1403
12.375.1 Detailed Description . . . 1403
12.375.2 Constructor & Destructor Documentation . . . 1403
12.375.2.1 Version() . . . 1403
12.375.2.2 ~Version() . . . 1403
12.375.3 Member Function Documentation . . . 1404
12.375.3.1 GetBuildVersion() . . . 1404
12.375.3.2 GetMajorVersion() . . . 1404
12.375.3.3 GetMinorVersion() . . . 1404
12.375.3.4 GetVersion() . . . 1404
12.375.3.5 Print() . . . 1404
12.375.4 Friends And Related Symbol Documentation . . . 1404
12.375.4.1 operator<< . . . 1404
12.376 gdcm::VL Class Reference . . . 1405
12.376.1 Detailed Description . . . 1406
12.376.2 Member Typedef Documentation . . . 1406
12.376.2.1 Type . . . 1406
12.376.3 Constructor & Destructor Documentation . . . 1406
12.376.3.1 VL() . . . 1406
12.376.4 Member Function Documentation . . . 1406
12.376.4.1 GetLength() . . . 1406
12.376.4.2 GetVL16Max() . . . 1407
12.376.4.3 GetVL32Max() . . . 1407
12.376.4.4 IsOdd() . . . 1407
12.376.4.5 IsUndefined() . . . 1407
12.376.4.6 operator uint32_t() . . . 1407
12.376.4.7 operator++() [1/2] . . . 1407

12.376.4.8 operator++() [2/2] . . . 1407
12.376.4.9 operator+=() . . . 1408
12.376.4.10 Read() . . . 1408
12.376.4.11 Read16() . . . 1408
12.376.4.12 SetToUndefined() . . . 1408
12.376.4.13 Write() . . . 1408
12.376.4.14 Write16() . . . 1408
12.376.5 Friends And Related Symbol Documentation . . . 1409
12.376.5.1 operator<< . . . 1409
12.377 gdcm::VM Class Reference . . . 1409
12.377.1 Detailed Description . . . 1410
12.377.2 Member Enumeration Documentation . . . 1411
12.377.2.1 VMType . . . 1411
12.377.3 Constructor & Destructor Documentation . . . 1412
12.377.3.1 VM() . . . 1412
12.377.4 Member Function Documentation . . . 1412
12.377.4.1 Compatible() . . . 1412
12.377.4.2 GetIndex() . . . 1412
12.377.4.3 GetLength() . . . 1413
12.377.4.4 GetNumberOfElementsFromArray() . . . 1413
12.377.4.5 GetVMString() . . . 1413
12.377.4.6 GetVMType() . . . 1413
12.377.4.7 GetVMTypeFromLength() . . . 1413
12.377.4.8 IsValid() . . . 1413
12.377.4.9 operator VMType() . . . 1413
12.377.5 Friends And Related Symbol Documentation . . . 1414
12.377.5.1 operator<< . . . 1414
12.378 gdcm::VMToLength< T > Struct Template Reference . . . 1414
12.379 gdcm::VR Class Reference . . . 1414
12.379.1 Detailed Description . . . 1416
12.379.2 Member Enumeration Documentation . . . 1416
12.379.2.1 VRType . . . 1416
12.379.3 Constructor & Destructor Documentation . . . 1418
12.379.3.1 VR() . . . 1418
12.379.4 Member Function Documentation . . . 1418
12.379.4.1 CanDisplay() . . . 1418
12.379.4.2 Compatible() . . . 1418
12.379.4.3 GetLength() [1/2] . . . 1418
12.379.4.4 GetLength() [2/2] . . . 1419

12.379.4.5 GetSize() . . . 1419
12.379.4.6 GetSizeof() . . . 1419
12.379.4.7 GetVRString() . . . 1419
12.379.4.8 GetVRStringFromFile() . . . 1419
12.379.4.9 GetVRType() . . . 1419
12.379.4.10 GetVRTypeFromFile() . . . 1419
12.379.4.11 IsASCII() . . . 1420
12.379.4.12 IsASCII2() . . . 1420
12.379.4.13 IsBinary() . . . 1420
12.379.4.14 IsBinary2() . . . 1420
12.379.4.15 IsDual() . . . 1420
12.379.4.16 IsSwap() . . . 1420
12.379.4.17 IsValid() [1/2] . . . 1420
12.379.4.18 IsValid() [2/2] . . . 1420
12.379.4.19 IsVRFile() . . . 1421
12.379.4.20 operator VRType() . . . 1421
12.379.4.21 Read() . . . 1421
12.379.4.22 Write() . . . 1421
12.379.5 Friends And Related Symbol Documentation . . . 1421
12.379.5.1 operator<< . . . 1421
12.380 gdcm::VR16ExplicitDataElement Class Reference . . . 1422
12.380.1 Detailed Description . . . 1424
12.380.2 Member Function Documentation . . . 1424
12.380.2.1 GetLength() . . . 1424
12.380.2.2 Read() . . . 1425
12.380.2.3 ReadPreValue() . . . 1425
12.380.2.4 ReadValue() . . . 1425
12.380.2.5 ReadWithLength() . . . 1425
12.381 gdcm::VRToEncoding< T > Struct Template Reference . . . 1425
12.382 gdcm::VRToType< T > Struct Template Reference . . . 1426
12.382.1 Detailed Description . . . 1426
12.383 gdcm::VRVLSize< T > Class Template Reference . . . 1426
12.384 gdcm::VRVLSize< 0 > Class Reference . . . 1427
12.384.1 Member Function Documentation . . . 1427
12.384.1.1 Read() . . . 1427
12.384.1.2 Write() . . . 1428
12.385 gdcm::VRVLSize< 1 > Class Reference . . . 1428
12.385.1 Member Function Documentation . . . 1429
12.385.1.1 Read() . . . 1429

12.385.1.2 Write() . . . 1429
12.386 vtkGDCMImageReader Class Reference . . . 1429
12.386.1 Detailed Description . . . 1432
12.386.2 Constructor & Destructor Documentation . . . 1432
12.386.2.1 vtkGDCMImageReader() . . . 1432
12.386.2.2 ~vtkGDCMImageReader() . . . 1432
12.386.3 Member Function Documentation . . . 1432
12.386.3.1 CanReadFile() . . . 1432
12.386.3.2 ExecuteData() . . . 1433
12.386.3.3 ExecuteInformation() . . . 1433
12.386.3.4 FillMedicalImageInformation() . . . 1433
12.386.3.5 GetDescriptiveName() . . . 1433
12.386.3.6 GetFileExtensions() . . . 1433
12.386.3.7 GetIconImage() . . . 1433
12.386.3.8 GetOverlay() . . . 1433
12.386.3.9 LoadSingleFile() . . . 1433
12.386.3.10 New() . . . 1434
12.386.3.11 PrintSelf() . . . 1434
12.386.3.12 RequestDataCompat() . . . 1434
12.386.3.13 RequestInformationCompat() . . . 1434
12.386.3.14 SetCurve() . . . 1434
12.386.3.15 SetFileNames() . . . 1435
12.386.3.16 SetFilePattern() . . . 1435
12.386.3.17 SetFilePrefix() . . . 1435
12.386.3.18 SetMedicalImageProperties() . . . 1435
12.386.3.19 vtkBooleanMacro() [1/5] . . . 1435
12.386.3.20 vtkBooleanMacro() [2/5] . . . 1435
12.386.3.21 vtkBooleanMacro() [3/5] . . . 1436
12.386.3.22 vtkBooleanMacro() [4/5] . . . 1436
12.386.3.23 vtkBooleanMacro() [5/5] . . . 1436
12.386.3.24 vtkGetMacro() [1/11] . . . 1436
12.386.3.25 vtkGetMacro() [2/11] . . . 1436
12.386.3.26 vtkGetMacro() [3/11] . . . 1437
12.386.3.27 vtkGetMacro() [4/11] . . . 1437
12.386.3.28 vtkGetMacro() [5/11] . . . 1437
12.386.3.29 vtkGetMacro() [6/11] . . . 1437
12.386.3.30 vtkGetMacro() [7/11] . . . 1437
12.386.3.31 vtkGetMacro() [8/11] . . . 1438
12.386.3.32 vtkGetMacro() [9/11] . . . 1438

12.386.3.33 vtkGetMacro() [10/11] . . . 1438
12.386.3.34 vtkGetMacro() [11/11] . . . 1438
12.386.3.35 vtkGetObjectMacro() [1/4] . . . 1438
12.386.3.36 vtkGetObjectMacro() [2/4] . . . 1438
12.386.3.37 vtkGetObjectMacro() [3/4] . . . 1439
12.386.3.38 vtkGetObjectMacro() [4/4] . . . 1439
12.386.3.39 vtkGetStringMacro() [1/2] . . . 1439
12.386.3.40 vtkGetStringMacro() [2/2] . . . 1439
12.386.3.41 vtkGetVector3Macro() . . . 1439
12.386.3.42 vtkGetVector6Macro() . . . 1439
12.386.3.43 vtkSetMacro() [1/4] . . . 1440
12.386.3.44 vtkSetMacro() [2/4] . . . 1440
12.386.3.45 vtkSetMacro() [3/4] . . . 1440
12.386.3.46 vtkSetMacro() [4/4] . . . 1440
12.386.3.47 vtkSetVector6Macro() . . . 1440
12.386.3.48 vtkTypeMacro() . . . 1441
12.386.4 Member Data Documentation . . . 1441
12.386.4.1 ApplyInverseVideo . . . 1441
12.386.4.2 ApplyLookupTable . . . 1441
12.386.4.3 ApplyPlanarConfiguration . . . 1441
12.386.4.4 ApplyShiftScale . . . 1441
12.386.4.5 ApplyYBRToRGB . . . 1441
12.386.4.6 Curve . . . 1441
12.386.4.7 DirectionCosines . . . 1442
12.386.4.8 FileNames . . . 1442
12.386.4.9 ForceRescale . . . 1442
12.386.4.10 IconDataScalarType . . . 1442
12.386.4.11 IconImageDataExtent . . . 1442
12.386.4.12 IconNumberOfScalarComponents . . . 1442
12.386.4.13 ImageFormat . . . 1442
12.386.4.14 ImageOrientationPatient . . . 1442
12.386.4.15 ImagePositionPatient . . . 1443
12.386.4.16 LoadIconImage . . . 1443
12.386.4.17 LoadOverlays . . . 1443
12.386.4.18 LossyFlag . . . 1443
12.386.4.19 MedicalImageProperties . . . 1443
12.386.4.20 NumberOfIconImages . . . 1443
12.386.4.21 NumberOfOverlays . . . 1443
12.386.4.22 PlanarConfiguration . . . 1444

12.386.4.23 Scale . . . 1444
12.386.4.24 Shift . . . 1444
12.387 vtkGDCMImageReader2 Class Reference . . . 1444
12.387.1 Detailed Description . . . 1447
12.387.2 Constructor & Destructor Documentation . . . 1447
12.387.2.1 vtkGDCMImageReader2() . . . 1447
12.387.2.2 ~vtkGDCMImageReader2() . . . 1447
12.387.3 Member Function Documentation . . . 1447
12.387.3.1 CanReadFile() . . . 1447
12.387.3.2 FillMedicalImageInformation() . . . 1447
12.387.3.3 GetDescriptiveName() . . . 1447
12.387.3.4 GetFileExtensions() . . . 1448
12.387.3.5 GetIconImage() . . . 1448
12.387.3.6 GetIconImagePort() . . . 1448
12.387.3.7 GetOverlay() . . . 1448
12.387.3.8 GetOverlayPort() . . . 1448
12.387.3.9 LoadSingleFile() . . . 1448
12.387.3.10 New() . . . 1448
12.387.3.11 PrintSelf() . . . 1449
12.387.3.12 ProcessRequest() . . . 1449
12.387.3.13 RequestData() . . . 1449
12.387.3.14 RequestDataCompat() . . . 1449
12.387.3.15 RequestInformation() . . . 1449
12.387.3.16 RequestInformationCompat() . . . 1450
12.387.3.17 SetCurve() . . . 1450
12.387.3.18 SetFilePattern() . . . 1450
12.387.3.19 SetFilePrefix() . . . 1450
12.387.3.20 SetMedicalImageProperties() . . . 1450
12.387.3.21 vtkBooleanMacro() [1/5] . . . 1450
12.387.3.22 vtkBooleanMacro() [2/5] . . . 1451
12.387.3.23 vtkBooleanMacro() [3/5] . . . 1451
12.387.3.24 vtkBooleanMacro() [4/5] . . . 1451
12.387.3.25 vtkBooleanMacro() [5/5] . . . 1451
12.387.3.26 vtkGetMacro() [1/11] . . . 1451
12.387.3.27 vtkGetMacro() [2/11] . . . 1452
12.387.3.28 vtkGetMacro() [3/11] . . . 1452
12.387.3.29 vtkGetMacro() [4/11] . . . 1452
12.387.3.30 vtkGetMacro() [5/11] . . . 1452
12.387.3.31 vtkGetMacro() [6/11] . . . 1452

12.387.3.32 vtkGetMacro() [7/11] . . . 1453
12.387.3.33 vtkGetMacro() [8/11] . . . 1453
12.387.3.34 vtkGetMacro() [9/11] . . . 1453
12.387.3.35 vtkGetMacro() [10/11] . . . 1453
12.387.3.36 vtkGetMacro() [11/11] . . . 1453
12.387.3.37 vtkGetObjectMacro() [1/2] . . . 1453
12.387.3.38 vtkGetObjectMacro() [2/2] . . . 1454
12.387.3.39 vtkGetStringMacro() [1/2] . . . 1454
12.387.3.40 vtkGetStringMacro() [2/2] . . . 1454
12.387.3.41 vtkGetVector3Macro() . . . 1454
12.387.3.42 vtkGetVector6Macro() . . . 1454
12.387.3.43 vtkSetMacro() [1/4] . . . 1455
12.387.3.44 vtkSetMacro() [2/4] . . . 1455
12.387.3.45 vtkSetMacro() [3/4] . . . 1455
12.387.3.46 vtkSetMacro() [4/4] . . . 1455
12.387.3.47 vtkSetVector6Macro() . . . 1455
12.387.3.48 vtkTypeMacro() . . . 1456
12.387.4 Member Data Documentation . . . 1456
12.387.4.1 ApplyInverseVideo . . . 1456
12.387.4.2 ApplyLookupTable . . . 1456
12.387.4.3 ApplyPlanarConfiguration . . . 1456
12.387.4.4 ApplyShiftScale . . . 1456
12.387.4.5 ApplyYBRToRGB . . . 1456
12.387.4.6 Curve . . . 1456
12.387.4.7 DirectionCosines . . . 1457
12.387.4.8 ForceRescale . . . 1457
12.387.4.9 IconDataScalarType . . . 1457
12.387.4.10 IconImageDataExtent . . . 1457
12.387.4.11 IconNumberOfScalarComponents . . . 1457
12.387.4.12 ImageFormat . . . 1457
12.387.4.13 ImageOrientationPatient . . . 1457
12.387.4.14 ImagePositionPatient . . . 1457
12.387.4.15 LoadIconImage . . . 1458
12.387.4.16 LoadOverlays . . . 1458
12.387.4.17 LossyFlag . . . 1458
12.387.4.18 NumberOfIconImages . . . 1458
12.387.4.19 NumberOfOverlays . . . 1458
12.387.4.20 PlanarConfiguration . . . 1458
12.387.4.21 Scale . . . 1458

12.387.4.22 Shift . . . 1459
12.388 vtkGDCMImageWriter Class Reference . . . 1459
12.388.1 Detailed Description . . . 1461
12.388.2 Member Enumeration Documentation . . . 1461
12.388.2.1 CompressionTypes . . . 1461
12.388.3 Constructor & Destructor Documentation . . . 1461
12.388.3.1 vtkGDCMImageWriter() . . . 1461
12.388.3.2 ~vtkGDCMImageWriter() . . . 1461
12.388.4 Member Function Documentation . . . 1462
12.388.4.1 GetDescriptiveName() . . . 1462
12.388.4.2 GetFileExtensions() . . . 1462
12.388.4.3 GetFileName() . . . 1462
12.388.4.4 New() . . . 1462
12.388.4.5 PrintSelf() . . . 1462
12.388.4.6 SetDirectionCosines() . . . 1462
12.388.4.7 SetDirectionCosinesFromImageOrientationPatient() . . . 1463
12.388.4.8 SetFileNames() . . . 1463
12.388.4.9 SetMedicalImageProperties() . . . 1463
12.388.4.10 vtkBooleanMacro() [1/2] . . . 1463
12.388.4.11 vtkBooleanMacro() [2/2] . . . 1463
12.388.4.12 vtkGetMacro() [1/7] . . . 1463
12.388.4.13 vtkGetMacro() [2/7] . . . 1464
12.388.4.14 vtkGetMacro() [3/7] . . . 1464
12.388.4.15 vtkGetMacro() [4/7] . . . 1464
12.388.4.16 vtkGetMacro() [5/7] . . . 1464
12.388.4.17 vtkGetMacro() [6/7] . . . 1464
12.388.4.18 vtkGetMacro() [7/7] . . . 1464
12.388.4.19 vtkGetObjectMacro() [1/3] . . . 1464
12.388.4.20 vtkGetObjectMacro() [2/3] . . . 1465
12.388.4.21 vtkGetObjectMacro() [3/3] . . . 1465
12.388.4.22 vtkGetStringMacro() [1/2] . . . 1465
12.388.4.23 vtkGetStringMacro() [2/2] . . . 1465
12.388.4.24 vtkSetMacro() [1/7] . . . 1465
12.388.4.25 vtkSetMacro() [2/7] . . . 1465
12.388.4.26 vtkSetMacro() [3/7] . . . 1465
12.388.4.27 vtkSetMacro() [4/7] . . . 1466
12.388.4.28 vtkSetMacro() [5/7] . . . 1466
12.388.4.29 vtkSetMacro() [6/7] . . . 1466
12.388.4.30 vtkSetMacro() [7/7] . . . 1466

12.388.4.31 vtkSetStringMacro() [1/2] . . . 1466
12.388.4.32 vtkSetStringMacro() [2/2] . . . 1466
12.388.4.33 vtkTypeMacro() . . . 1466
12.388.4.34 Write() . . . 1467
12.388.4.35 WriteGDCMData() . . . 1467
12.388.4.36 WriteSlice() . . . 1467
12.389 vtkGDCMMedicalImageProperties Class Reference . . . 1467
12.389.1 Constructor & Destructor Documentation . . . 1468
12.389.1.1 vtkGDCMMedicalImageProperties() . . . 1468
12.389.1.2 ∼vtkGDCMMedicalImageProperties() . . . 1469
12.389.2 Member Function Documentation . . . 1469
12.389.2.1 Clear() . . . 1469
12.389.2.2 GetFile() . . . 1469
12.389.2.3 New() . . . 1469
12.389.2.4 PrintSelf() . . . 1469
12.389.2.5 PushBackFile() . . . 1469
12.389.2.6 vtkTypeMacro() . . . 1469
12.389.3 Friends And Related Symbol Documentation . . . 1470
12.389.3.1 vtkGDCMImageReader . . . 1470
12.389.3.2 vtkGDCMImageReader2 . . . 1470
12.389.3.3 vtkGDCMImageWriter . . . 1470
12.390 vtkGDCMPolyDataReader Class Reference . . . 1470
12.390.1 Detailed Description . . . 1472
12.390.2 Constructor & Destructor Documentation . . . 1472
12.390.2.1 vtkGDCMPolyDataReader() . . . 1472
12.390.2.2 ∼vtkGDCMPolyDataReader() . . . 1472
12.390.3 Member Function Documentation . . . 1472
12.390.3.1 FillMedicalImageInformation() . . . 1472
12.390.3.2 New() . . . 1472
12.390.3.3 PrintSelf() . . . 1473
12.390.3.4 RequestData() . . . 1473
12.390.3.5 RequestData_HemodynamicWaveformStorage() . . . 1473
12.390.3.6 RequestData_RTStructureSetStorage() . . . 1473
12.390.3.7 RequestInformation() . . . 1473
12.390.3.8 RequestInformation_HemodynamicWaveformStorage() . . . 1473
12.390.3.9 RequestInformation_RTStructureSetStorage() . . . 1473
12.390.3.10 vtkGetObjectMacro() [1/2] . . . 1474
12.390.3.11 vtkGetObjectMacro() [2/2] . . . 1474
12.390.3.12 vtkGetStringMacro() . . . 1474

12.390.3.13 vtkSetStringMacro() . . . 1474
12.390.3.14 vtkTypeMacro() . . . 1474
12.390.4 Member Data Documentation . . . 1474
12.390.4.1 FileName . . . 1474
12.390.4.2 MedicalImageProperties . . . 1475
12.390.4.3 RTStructSetProperties . . . 1475
12.391 vtkGDCMPolyDataWriter Class Reference . . . 1475
12.391.1 Detailed Description . . . 1477
12.391.2 Constructor & Destructor Documentation . . . 1477
12.391.2.1 vtkGDCMPolyDataWriter() . . . 1477
12.391.2.2 ∼vtkGDCMPolyDataWriter() . . . 1477
12.391.3 Member Function Documentation . . . 1477
12.391.3.1 InitializeRTStructSet() . . . 1477
12.391.3.2 New() . . . 1477
12.391.3.3 PrintSelf() . . . 1478
12.391.3.4 SetMedicalImageProperties() . . . 1478
12.391.3.5 SetNumberOfInputPorts() . . . 1478
12.391.3.6 SetRTStructSetProperties() . . . 1478
12.391.3.7 vtkTypeMacro() . . . 1478
12.391.3.8 WriteData() . . . 1479
12.391.3.9 WriteRTSTRUCTData() . . . 1479
12.391.3.10 WriteRTSTRUCTInfo() . . . 1479
12.391.4 Member Data Documentation . . . 1479
12.391.4.1 MedicalImageProperties . . . 1479
12.391.4.2 RTStructSetProperties . . . 1479
12.392 vtkGDCMTesting Class Reference . . . 1480
12.392.1 Detailed Description . . . 1481
12.392.2 Member Typedef Documentation . . . 1481
12.392.2.1 MD5MetaImagesType . . . 1481
12.392.3 Constructor & Destructor Documentation . . . 1481
12.392.3.1 vtkGDCMTesting() . . . 1481
12.392.3.2 ∼vtkGDCMTesting() . . . 1481
12.392.4 Member Function Documentation . . . 1482
12.392.4.1 GetGDCMDataRoot() . . . 1482
12.392.4.2 GetMD5MetaImage() . . . 1482
12.392.4.3 GetMHDMD5FromFile() . . . 1482
12.392.4.4 GetNumberOfMD5MetaImages() . . . 1482
12.392.4.5 GetRAWMD5FromFile() . . . 1482
12.392.4.6 GetVTKDataRoot() . . . 1482

12.392.4.7 New() . . . 1483
12.392.4.8 PrintSelf() . . . 1483
12.392.4.9 vtkTypeMacro() . . . 1483
12.393 vtkGDCMThreadedImageReader Class Reference . . . 1483
12.393.1 Constructor & Destructor Documentation . . . 1486
12.393.1.1 vtkGDCMThreadedImageReader() . . . 1486
12.393.1.2 ~vtkGDCMThreadedImageReader() . . . 1486
12.393.2 Member Function Documentation . . . 1486
12.393.2.1 ExecuteData() . . . 1486
12.393.2.2 ExecuteInformation() . . . 1487
12.393.2.3 New() . . . 1487
12.393.2.4 PrintSelf() . . . 1487
12.393.2.5 ReadFiles() . . . 1487
12.393.2.6 RequestDataCompat() . . . 1487
12.393.2.7 vtkBooleanMacro() . . . 1487
12.393.2.8 vtkGetMacro() . . . 1487
12.393.2.9 vtkSetMacro() [1/3] . . . 1488
12.393.2.10 vtkSetMacro() [2/3] . . . 1488
12.393.2.11 vtkSetMacro() [3/3] . . . 1488
12.393.2.12 vtkTypeMacro() . . . 1488
12.394 vtkGDCMThreadedImageReader2 Class Reference . . . 1489
12.394.1 Constructor & Destructor Documentation . . . 1490
12.394.1.1 vtkGDCMThreadedImageReader2() . . . 1490
12.394.1.2 ~vtkGDCMThreadedImageReader2() . . . 1490
12.394.2 Member Function Documentation . . . 1491
12.394.2.1 GetFileName() . . . 1491
12.394.2.2 New() . . . 1491
12.394.2.3 PrintSelf() . . . 1491
12.394.2.4 RequestInformation() . . . 1491
12.394.2.5 SetFileName() . . . 1491
12.394.2.6 SetFileNames() . . . 1491
12.394.2.7 SplitExtent() . . . 1491
12.394.2.8 ThreadedRequestData() . . . 1492
12.394.2.9 vtkBooleanMacro() [1/3] . . . 1492
12.394.2.10 vtkBooleanMacro() [2/3] . . . 1492
12.394.2.11 vtkBooleanMacro() [3/3] . . . 1492
12.394.2.12 vtkGetMacro() [1/8] . . . 1492
12.394.2.13 vtkGetMacro() [2/8] . . . 1492
12.394.2.14 vtkGetMacro() [3/8] . . . 1493

12.394.2.15 vtkGetMacro() [4/8] . . . 1493
12.394.2.16 vtkGetMacro() [5/8] . . . 1493
12.394.2.17 vtkGetMacro() [6/8] . . . 1493
12.394.2.18 vtkGetMacro() [7/8] . . . 1493
12.394.2.19 vtkGetMacro() [8/8] . . . 1493
12.394.2.20 vtkGetObjectMacro() . . . 1493
12.394.2.21 vtkGetVector3Macro() [1/2] . . . 1494
12.394.2.22 vtkGetVector3Macro() [2/2] . . . 1494
12.394.2.23 vtkGetVector6Macro() . . . 1494
12.394.2.24 vtkSetMacro() [1/7] . . . 1494
12.394.2.25 vtkSetMacro() [2/7] . . . 1494
12.394.2.26 vtkSetMacro() [3/7] . . . 1494
12.394.2.27 vtkSetMacro() [4/7] . . . 1494
12.394.2.28 vtkSetMacro() [5/7] . . . 1495
12.394.2.29 vtkSetMacro() [6/7] . . . 1495
12.394.2.30 vtkSetMacro() [7/7] . . . 1495
12.394.2.31 vtkSetVector3Macro() [1/2] . . . 1495
12.394.2.32 vtkSetVector3Macro() [2/2] . . . 1495
12.394.2.33 vtkSetVector6Macro() . . . 1495
12.394.2.34 vtkTypeMacro() . . . 1495
12.395 vtkImageColorViewer Class Reference . . . 1496
12.395.1 Detailed Description . . . 1498
12.395.2 Member Enumeration Documentation . . . 1498
12.395.2.1 anonymous enum . . . 1498
12.395.3 Constructor & Destructor Documentation . . . 1499
12.395.3.1 vtkImageColorViewer() . . . 1499
12.395.3.2 ~vtkImageColorViewer() . . . 1499
12.395.4 Member Function Documentation . . . 1499
12.395.4.1 AddInput() . . . 1499
12.395.4.2 AddInputConnection() . . . 1499
12.395.4.3 GetColorLevel() . . . 1499
12.395.4.4 GetColorWindow() . . . 1499
12.395.4.5 GetInput() . . . 1499
12.395.4.6 GetOffScreenRendering() . . . 1500
12.395.4.7 GetOverlayVisibility() . . . 1500
12.395.4.8 GetPosition() . . . 1500
12.395.4.9 GetSize() . . . 1500
12.395.4.10 GetSliceMax() . . . 1500
12.395.4.11 GetSliceMin() . . . 1500

12.395.4.12 GetSliceRange() [1/3] . . . 1500
12.395.4.13 GetSliceRange() [2/3] . . . 1500
12.395.4.14 GetSliceRange() [3/3] . . . 1500
12.395.4.15 GetWindowName() . . . 1501
12.395.4.16 InstallPipeline() . . . 1501
12.395.4.17 New() . . . 1501
12.395.4.18 PrintSelf() . . . 1501
12.395.4.19 Render() . . . 1501
12.395.4.20 SetColorLevel() . . . 1501
12.395.4.21 SetColorWindow() . . . 1501
12.395.4.22 SetDisplayId() . . . 1502
12.395.4.23 SetInput() . . . 1502
12.395.4.24 SetInputConnection() . . . 1502
12.395.4.25 SetOffScreenRendering() . . . 1502
12.395.4.26 SetOverlayVisibility() . . . 1502
12.395.4.27 SetParentId() . . . 1502
12.395.4.28 SetPosition() [1/2] . . . 1502
12.395.4.29 SetPosition() [2/2] . . . 1503
12.395.4.30 SetRenderer() . . . 1503
12.395.4.31 SetRenderWindow() . . . 1503
12.395.4.32 SetSize() [1/2] . . . 1503
12.395.4.33 SetSize() [2/2] . . . 1503
12.395.4.34 SetSlice() . . . 1503
12.395.4.35 SetSliceOrientation() . . . 1504
12.395.4.36 SetSliceOrientationToXY() . . . 1504
12.395.4.37 SetSliceOrientationToXZ() . . . 1504
12.395.4.38 SetSliceOrientationToYZ() . . . 1504
12.395.4.39 SetupInteractor() . . . 1504
12.395.4.40 SetWindowId() . . . 1504
12.395.4.41 UnInstallPipeline() . . . 1504
12.395.4.42 UpdateDisplayExtent() . . . 1505
12.395.4.43 UpdateOrientation() . . . 1505
12.395.4.44 vtkBooleanMacro() . . . 1505
12.395.4.45 vtkGetMacro() [1/2] . . . 1505
12.395.4.46 vtkGetMacro() [2/2] . . . 1505
12.395.4.47 vtkGetObjectMacro() [1/5] . . . 1505
12.395.4.48 vtkGetObjectMacro() [2/5] . . . 1505
12.395.4.49 vtkGetObjectMacro() [3/5] . . . 1506
12.395.4.50 vtkGetObjectMacro() [4/5] . . . 1506

12.395.4.51 vtkGetObjectMacro() [5/5] . . . 1506
12.395.4.52 vtkTypeMacro() . . . 1506
12.395.5 Friends And Related Symbol Documentation . . . 1506
12.395.5.1 vtkImageColorViewerCallback . . . 1506
12.395.6 Member Data Documentation . . . 1507
12.395.6.1 FirstRender . . . 1507
12.395.6.2 ImageActor . . . 1507
12.395.6.3 Interactor . . . 1507
12.395.6.4 InteractorStyle . . . 1507
12.395.6.5 OverlayImageActor . . . 1507
12.395.6.6 Renderer . . . 1507
12.395.6.7 RenderWindow . . . 1507
12.395.6.8 Slice . . . 1508
12.395.6.9 SliceOrientation . . . 1508
12.395.6.10 WindowLevel . . . 1508
12.396 vtkImageMapToColors16 Class Reference . . . 1508
12.396.1 Constructor & Destructor Documentation . . . 1510
12.396.1.1 vtkImageMapToColors16() . . . 1510
12.396.1.2 ~vtkImageMapToColors16() . . . 1510
12.396.2 Member Function Documentation . . . 1510
12.396.2.1 GetMTime() . . . 1510
12.396.2.2 New() . . . 1510
12.396.2.3 PrintSelf() . . . 1510
12.396.2.4 RequestData() . . . 1511
12.396.2.5 RequestInformation() . . . 1511
12.396.2.6 SetLookupTable() . . . 1511
12.396.2.7 SetOutputFormatToLuminance() . . . 1511
12.396.2.8 SetOutputFormatToLuminanceAlpha() . . . 1511
12.396.2.9 SetOutputFormatToRGB() . . . 1511
12.396.2.10 SetOutputFormatToRGBA() . . . 1511
12.396.2.11 ThreadedRequestData() . . . 1512
12.396.2.12 vtkBooleanMacro() . . . 1512
12.396.2.13 vtkGetMacro() [1/3] . . . 1512
12.396.2.14 vtkGetMacro() [2/3] . . . 1512
12.396.2.15 vtkGetMacro() [3/3] . . . 1512
12.396.2.16 vtkGetObjectMacro() . . . 1513
12.396.2.17 vtkSetMacro() [1/3] . . . 1513
12.396.2.18 vtkSetMacro() [2/3] . . . 1513
12.396.2.19 vtkSetMacro() [3/3] . . . 1513

12.396.2.20 vtkTypeMacro() . . . 1513
12.396.3 Member Data Documentation . . . 1513
12.396.3.1 ActiveComponent . . . 1513
12.396.3.2 DataWasPassed . . . 1514
12.396.3.3 LookupTable . . . 1514
12.396.3.4 OutputFormat . . . 1514
12.396.3.5 PassAlphaToOutput . . . 1514
12.397 vtkImageMapToWindowLevelColors2 Class Reference . . . 1514
12.397.1 Constructor & Destructor Documentation . . . 1516
12.397.1.1 vtkImageMapToWindowLevelColors2() . . . 1516
12.397.1.2 ~vtkImageMapToWindowLevelColors2() . . . 1516
12.397.2 Member Function Documentation . . . 1516
12.397.2.1 New() . . . 1516
12.397.2.2 PrintSelf() . . . 1516
12.397.2.3 RequestData() . . . 1516
12.397.2.4 RequestInformation() . . . 1516
12.397.2.5 ThreadedRequestData() . . . 1517
12.397.2.6 vtkGetMacro() [1/2] . . . 1517
12.397.2.7 vtkGetMacro() [2/2] . . . 1517
12.397.2.8 vtkSetMacro() [1/2] . . . 1517
12.397.2.9 vtkSetMacro() [2/2] . . . 1517
12.397.2.10 vtkTypeMacro() . . . 1518
12.397.3 Member Data Documentation . . . 1518
12.397.3.1 Level . . . 1518
12.397.3.2 Window . . . 1518
12.398 vtkImagePlanarComponentsToComponents Class Reference . . . 1518
12.398.1 Constructor & Destructor Documentation . . . 1519
12.398.1.1 vtkImagePlanarComponentsToComponents() . . . 1519
12.398.1.2 ~vtkImagePlanarComponentsToComponents() . . . 1519
12.398.2 Member Function Documentation . . . 1520
12.398.2.1 New() . . . 1520
12.398.2.2 PrintSelf() . . . 1520
12.398.2.3 RequestData() . . . 1520
12.398.2.4 vtkTypeMacro() . . . 1520
12.399 vtkImageRGBToYBR Class Reference . . . 1521
12.399.1 Constructor & Destructor Documentation . . . 1522
12.399.1.1 vtkImageRGBToYBR() . . . 1522
12.399.1.2 ~vtkImageRGBToYBR() . . . 1522
12.399.2 Member Function Documentation . . . 1522

12.399.2.1 New() . . . 1522
12.399.2.2 PrintSelf() . . . 1522
12.399.2.3 ThreadedExecute() . . . 1522
12.399.2.4 vtkTypeMacro() . . . 1523
12.400 vtkImageYBRToRGB Class Reference . . . 1523
12.400.1 Constructor & Destructor Documentation . . . 1524
12.400.1.1 vtkImageYBRToRGB() . . . 1524
12.400.1.2 ∼vtkImageYBRToRGB() . . . 1524
12.400.2 Member Function Documentation . . . 1524
12.400.2.1 New() . . . 1524
12.400.2.2 PrintSelf() . . . 1524
12.400.2.3 ThreadedExecute() . . . 1525
12.400.2.4 vtkTypeMacro() . . . 1525
12.401 vtkLookupTable16 Class Reference . . . 1525
12.401.1 Constructor & Destructor Documentation . . . 1526
12.401.1.1 vtkLookupTable16() . . . 1526
12.401.1.2 ∼vtkLookupTable16() . . . 1527
12.401.2 Member Function Documentation . . . 1527
12.401.2.1 Build() . . . 1527
12.401.2.2 GetPointer() . . . 1527
12.401.2.3 MapScalarsThroughTable2() . . . 1527
12.401.2.4 New() . . . 1527
12.401.2.5 PrintSelf() . . . 1527
12.401.2.6 SetNumberOfTableValues() . . . 1528
12.401.2.7 vtkTypeMacro() . . . 1528
12.401.2.8 WritePointer() . . . 1528
12.401.3 Member Data Documentation . . . 1528
12.401.3.1 Table16 . . . 1528
12.402 vtkRTStructSetProperties Class Reference . . . 1529
12.402.1 Detailed Description . . . 1531
12.402.2 Constructor & Destructor Documentation . . . 1531
12.402.2.1 vtkRTStructSetProperties() . . . 1531
12.402.2.2 ∼vtkRTStructSetProperties() . . . 1531
12.402.3 Member Function Documentation . . . 1531
12.402.3.1 AddContourReferencedFrameOfReference() . . . 1531
12.402.3.2 AddReferencedFrameOfReference() . . . 1531
12.402.3.3 AddStructureSetROI() . . . 1532
12.402.3.4 AddStructureSetROIObservation() . . . 1532
12.402.3.5 Clear() . . . 1532

12.402.3.6 DeepCopy() . . . 1532
12.402.3.7 GetContourReferencedFrameOfReferenceClassUID() . . . 1532
12.402.3.8 GetContourReferencedFrameOfReferenceInstanceUID() . . . 1532
12.402.3.9 GetNumberOfContourReferencedFrameOfReferences() [1/2] . . . 1532
12.402.3.10 GetNumberOfContourReferencedFrameOfReferences() [2/2] . . . 1533
12.402.3.11 GetNumberOfReferencedFrameOfReferences() . . . 1533
12.402.3.12 GetNumberOfStructureSetROIs() . . . 1533
12.402.3.13 GetReferencedFrameOfReferenceClassUID() . . . 1533
12.402.3.14 GetReferencedFrameOfReferenceInstanceUID() . . . 1533
12.402.3.15 GetStructureSetObservationNumber() . . . 1533
12.402.3.16 GetStructureSetROIDescription() . . . 1533
12.402.3.17 GetStructureSetROIGenerationAlgorithm() . . . 1533
12.402.3.18 GetStructureSetROIName() . . . 1534
12.402.3.19 GetStructureSetROINumber() . . . 1534
12.402.3.20 GetStructureSetROIObservationLabel() . . . 1534
12.402.3.21 GetStructureSetROIRefFrameRefUID() . . . 1534
12.402.3.22 GetStructureSetRTROIInterpretedType() . . . 1534
12.402.3.23 New() . . . 1534
12.402.3.24 PrintSelf() . . . 1534
12.402.3.25 vtkGetStringMacro() [1/9] . . . 1535
12.402.3.26 vtkGetStringMacro() [2/9] . . . 1535
12.402.3.27 vtkGetStringMacro() [3/9] . . . 1535
12.402.3.28 vtkGetStringMacro() [4/9] . . . 1535
12.402.3.29 vtkGetStringMacro() [5/9] . . . 1535
12.402.3.30 vtkGetStringMacro() [6/9] . . . 1535
12.402.3.31 vtkGetStringMacro() [7/9] . . . 1536
12.402.3.32 vtkGetStringMacro() [8/9] . . . 1536
12.402.3.33 vtkGetStringMacro() [9/9] . . . 1536
12.402.3.34 vtkSetStringMacro() [1/9] . . . 1536
12.402.3.35 vtkSetStringMacro() [2/9] . . . 1536
12.402.3.36 vtkSetStringMacro() [3/9] . . . 1536
12.402.3.37 vtkSetStringMacro() [4/9] . . . 1537
12.402.3.38 vtkSetStringMacro() [5/9] . . . 1537
12.402.3.39 vtkSetStringMacro() [6/9] . . . 1537
12.402.3.40 vtkSetStringMacro() [7/9] . . . 1537
12.402.3.41 vtkSetStringMacro() [8/9] . . . 1537
12.402.3.42 vtkSetStringMacro() [9/9] . . . 1537
12.402.3.43 vtkTypeMacro() . . . 1538
12.402.4 Member Data Documentation . . . 1538

12.402.4.1 Internals . . . 1538
12.402.4.2 ReferenceFrameOfReferenceUID . . . 1538
12.402.4.3 ReferenceSeriesInstanceUID . . . 1538
12.402.4.4 SeriesInstanceUID . . . 1538
12.402.4.5 SOPInstanceUID . . . 1538
12.402.4.6 StructureSetDate . . . 1538
12.402.4.7 StructureSetLabel . . . 1539
12.402.4.8 StructureSetName . . . 1539
12.402.4.9 StructureSetTime . . . 1539
12.402.4.10 StudyInstanceUID . . . 1539
12.403 gdcm::Waveform Class Reference . . . 1539
12.403.1 Detailed Description . . . 1539
12.403.2 Constructor & Destructor Documentation . . . 1540
12.403.2.1 Waveform() . . . 1540
12.404 gdcm::WLMFindQuery Class Reference . . . 1540
12.404.1 Detailed Description . . . 1543
12.404.2 Constructor & Destructor Documentation . . . 1543
12.404.2.1 WLMFindQuery() . . . 1543
12.404.3 Member Function Documentation . . . 1543
12.404.3.1 GetAbstractSyntaxUID() . . . 1543
12.404.3.2 GetTagListByLevel() . . . 1543
12.404.3.3 GetValidDataSet() . . . 1543
12.404.3.4 InitializeDataSet() . . . 1543
12.404.3.5 ValidateQuery() . . . 1544
12.404.4 Friends And Related Symbol Documentation . . . 1544
12.404.4.1 QueryFactory . . . 1544
12.405 gdcm::Writer Class Reference . . . 1544
12.405.1 Detailed Description . . . 1546
12.405.2 Constructor & Destructor Documentation . . . 1547
12.405.2.1 Writer() . . . 1547
12.405.2.2 ~Writer() . . . 1547
12.405.3 Member Function Documentation . . . 1547
12.405.3.1 CheckFileMetaInformationOff() . . . 1547
12.405.3.2 CheckFileMetaInformationOn() . . . 1547
12.405.3.3 GetCheckFileMetaInformation() . . . 1547
12.405.3.4 GetFile() . . . 1547
12.405.3.5 GetStreamPtr() . . . 1548
12.405.3.6 SetCheckFileMetaInformation() . . . 1548
12.405.3.7 SetFile() . . . 1548

12.405.3.8 SetFileName() . . . 1548
12.405.3.9 SetStream() . . . 1549
12.405.3.10 SetWriteDataSetOnly() . . . 1549
12.405.3.11 Write() . . . 1549
12.405.4 Friends And Related Symbol Documentation . . . 1549
12.405.4.1 StreamImageWriter . . . 1549
12.405.5 Member Data Documentation . . . 1549
12.405.5.1 Ofstream . . . 1549
12.405.5.2 Stream . . . 1550
12.406 gdcm::XMLDictReader Class Reference . . . 1550
12.406.1 Detailed Description . . . 1551
12.406.2 Constructor & Destructor Documentation . . . 1551
12.406.2.1 XMLDictReader() . . . 1551
12.406.2.2 ∼XMLDictReader() . . . 1552
12.406.3 Member Function Documentation . . . 1552
12.406.3.1 CharacterDataHandler() . . . 1552
12.406.3.2 EndElement() . . . 1552
12.406.3.3 GetDict() . . . 1552
12.406.3.4 HandleDescription() . . . 1552
12.406.3.5 HandleEntry() . . . 1552
12.406.3.6 StartElement() . . . 1552
12.407 gdcm::XMLPrinter Class Reference . . . 1553
12.407.1 Member Enumeration Documentation . . . 1554
12.407.1.1 PrintStyles . . . 1554
12.407.2 Constructor & Destructor Documentation . . . 1554
12.407.2.1 XMLPrinter() . . . 1554
12.407.2.2 ∼XMLPrinter() . . . 1554
12.407.3 Member Function Documentation . . . 1554
12.407.3.1 GetPrintStyle() . . . 1554
12.407.3.2 HandleBulkData() . . . 1554
12.407.3.3 Print() . . . 1555
12.407.3.4 PrintDataElement() . . . 1555
12.407.3.5 PrintDataSet() . . . 1555
12.407.3.6 PrintSQ() . . . 1555
12.407.3.7 SetFile() . . . 1555
12.407.3.8 SetStyle() . . . 1555
12.407.4 Member Data Documentation . . . 1556
12.407.4.1 F . . . 1556
12.407.4.2 PrintStyle . . . 1556

12.408 gdcm::XMLPrivateDictReader Class Reference . . . 1556
12.408.1 Detailed Description . . . 1558
12.408.2 Constructor & Destructor Documentation . . . 1558
12.408.2.1 XMLPrivateDictReader() . . . 1558
12.408.2.2 ~XMLPrivateDictReader() . . . 1558
12.408.3 Member Function Documentation . . . 1558
12.408.3.1 CharacterDataHandler() . . . 1558
12.408.3.2 EndElement() . . . 1558
12.408.3.3 GetPrivateDict() . . . 1558
12.408.3.4 HandleDescription() . . . 1559
12.408.3.5 HandleEntry() . . . 1559
12.408.3.6 StartElement() . . . 1559

13 File Documentation **1561**

13.1 README.txt File Reference . . . 1561
13.2 TestsList.txt File Reference . . . 1561
13.3 gdcmASN1.h File Reference . . . 1561
13.4 gdcmASN1.h . . . 1562
13.5 gdcmBase64.h File Reference . . . 1563
13.6 gdcmBase64.h . . . 1563
13.7 gdcmBoxRegion.h File Reference . . . 1564
13.8 gdcmBoxRegion.h . . . 1565
13.9 gdcmByteSwap.h File Reference . . . 1565
13.10 gdcmByteSwap.h . . . 1566
13.11 gdcmCAPICryptoFactory.h File Reference . . . 1567
13.12 gdcmCAPICryptoFactory.h . . . 1568
13.13 gdcmCAPICryptographicMessageSyntax.h File Reference . . . 1568
13.14 gdcmCAPICryptographicMessageSyntax.h . . . 1569
13.15 gdcmCommand.h File Reference . . . 1571
13.16 gdcmCommand.h . . . 1572
13.17 gdcmCryptoFactory.h File Reference . . . 1574
13.18 gdcmCryptoFactory.h . . . 1575
13.19 gdcmCryptographicMessageSyntax.h File Reference . . . 1576
13.20 gdcmCryptographicMessageSyntax.h . . . 1577
13.21 gdcmDataEvent.h File Reference . . . 1578
13.22 gdcmDataEvent.h . . . 1579
13.23 gdcmDeflateStream.h File Reference . . . 1580
13.24 gdcmDeflateStream.h . . . 1580
13.25 gdcmDirectory.h File Reference . . . 1580

13.26 gdcmDirectory.h . . . 1581
13.27 gdcmDummyValueGenerator.h File Reference . . . 1583
13.28 gdcmDummyValueGenerator.h . . . 1583
13.29 gdcmEvent.h File Reference . . . 1584
13.29.1 Macro Definition Documentation . . . 1585
13.29.1.1 gdcmEventMacro . . . 1585
13.30 gdcmEvent.h . . . 1586
13.31 gdcmException.h File Reference . . . 1587
13.31.1 Macro Definition Documentation . . . 1588
13.31.1.1 gdcm_assert . . . 1588
13.31.1.2 gdcm_debug_assert . . . 1589
13.31.1.3 gdcm_forced_assert . . . 1589
13.32 gdcmException.h . . . 1589
13.33 gdcmFilename.h File Reference . . . 1591
13.34 gdcmFilename.h . . . 1591
13.35 gdcmFileNameEvent.h File Reference . . . 1592
13.36 gdcmFileNameEvent.h . . . 1593
13.37 gdcmFilenameGenerator.h File Reference . . . 1594
13.38 gdcmFilenameGenerator.h . . . 1595
13.39 gdcmLegacyMacro.h File Reference . . . 1595
13.39.1 Macro Definition Documentation . . . 1596
13.39.1.1 GDCM_LEGACY . . . 1596
13.39.1.2 GDCM_LEGACY_BODY . . . 1596
13.39.1.3 GDCM_LEGACY_REPLACED_BODY . . . 1597
13.39.1.4 GDCM_NOOP_STATEMENT . . . 1597
13.40 gdcmLegacyMacro.h . . . 1597
13.41 gdcmMD5.h File Reference . . . 1598
13.42 gdcmMD5.h . . . 1599
13.43 gdcmObject.h File Reference . . . 1599
13.44 gdcmObject.h . . . 1600
13.45 gdcmOpenSSLCryptoFactory.h File Reference . . . 1602
13.46 gdcmOpenSSLCryptoFactory.h . . . 1603
13.47 gdcmOpenSSLCryptographicMessageSyntax.h File Reference . . . 1603
13.48 gdcmOpenSSLCryptographicMessageSyntax.h . . . 1605
13.49 gdcmOpenSSLP7CryptoFactory.h File Reference . . . 1605
13.50 gdcmOpenSSLP7CryptoFactory.h . . . 1606
13.51 gdcmOpenSSLP7CryptographicMessageSyntax.h File Reference . . . 1607
13.52 gdcmOpenSSLP7CryptographicMessageSyntax.h . . . 1608
13.53 gdcmProgressEvent.h File Reference . . . 1609

13.54 gdcmProgressEvent.h . . . 1610
13.55 gdcmRegion.h File Reference . . . 1610
13.56 gdcmRegion.h . . . 1612
13.57 gdcmSHA1.h File Reference . . . 1613
13.58 gdcmSHA1.h . . . 1613
13.59 gdcmSmartPointer.h File Reference . . . 1614
13.60 gdcmSmartPointer.h . . . 1615
13.61 gdcmStaticAssert.h File Reference . . . 1616
13.61.1 Macro Definition Documentation . . . 1617
13.61.1.1 GDCM_DO_JOIN . . . 1617
13.61.1.2 GDCM_DO_JOIN2 . . . 1617
13.61.1.3 GDCM_JOIN . . . 1617
13.61.1.4 GDCM_STATIC_ASSERT . . . 1617
13.62 gdcmStaticAssert.h . . . 1618
13.63 gdcmString.h File Reference . . . 1618
13.64 gdcmString.h . . . 1620
13.65 gdcmSubject.h File Reference . . . 1622
13.66 gdcmSubject.h . . . 1622
13.67 gdcmSwapCode.h File Reference . . . 1623
13.68 gdcmSwapCode.h . . . 1624
13.69 gdcmSwapper.h File Reference . . . 1625
13.70 gdcmSwapper.h . . . 1626
13.71 gdcmSystem.h File Reference . . . 1628
13.72 gdcmSystem.h . . . 1628
13.73 gdcmTerminal.h File Reference . . . 1630
13.74 gdcmTerminal.h . . . 1631
13.75 gdcmTestDriver.h File Reference . . . 1632
13.76 gdcmTestDriver.h . . . 1632
13.77 gdcmTesting.h File Reference . . . 1633
13.78 gdcmTesting.h . . . 1633
13.79 gdcmTrace.h File Reference . . . 1635
13.79.1 Macro Definition Documentation . . . 1636
13.79.1.1 GDCM_FUNCTION . . . 1636
13.79.1.2 gdcmAssertAlwaysMacro . . . 1636
13.79.1.3 gdcmAssertMacro . . . 1637
13.79.1.4 gdcmDebugMacro . . . 1637
13.79.1.5 gdcmErrorMacro . . . 1638
13.79.1.6 gdcmWarningMacro . . . 1638
13.80 gdcmTrace.h . . . 1639

13.81 gdcmTypes.h File Reference . . . 1641
13.82 gdcmTypes.h . . . 1641
13.83 gdcmUnpacker12Bits.h File Reference . . . 1642
13.84 gdcmUnpacker12Bits.h . . . 1643
13.85 gdcmVersion.h File Reference . . . 1643
13.86 gdcmVersion.h . . . 1644
13.87 gdcmWin32.h File Reference . . . 1644
13.87.1 Macro Definition Documentation . . . 1645
13.87.1.1 GDCM_EXPORT . . . 1645
13.88 gdcmWin32.h . . . 1645
13.89 gdcmCSAHeaderDict.h File Reference . . . 1646
13.90 gdcmCSAHeaderDict.h . . . 1647
13.91 gdcmCSAHeaderDictEntry.h File Reference . . . 1649
13.92 gdcmCSAHeaderDictEntry.h . . . 1650
13.93 gdcmDict.h File Reference . . . 1652
13.94 gdcmDict.h . . . 1653
13.95 gdcmDictConverter.h File Reference . . . 1657
13.96 gdcmDictConverter.h . . . 1658
13.97 gdcmDictEntry.h File Reference . . . 1659
13.98 gdcmDictEntry.h . . . 1660
13.99 gdcmDicts.h File Reference . . . 1662
13.100 gdcmDicts.h . . . 1663
13.101 gdcmGlobal.h File Reference . . . 1664
13.102 gdcmGlobal.h . . . 1665
13.103 gdcmGroupDict.h File Reference . . . 1666
13.104 gdcmGroupDict.h . . . 1667
13.105 gdcmSOPClassUIDToIOD.h File Reference . . . 1668
13.106 gdcmSOPClassUIDToIOD.h . . . 1668
13.107 gdcmUIDs.h File Reference . . . 1669
13.108 gdcmUIDs.h . . . 1670
13.109 gdcmAttribute.h File Reference . . . 1683
13.110 gdcmAttribute.h . . . 1684
13.111 gdcmBasicOffsetTable.h File Reference . . . 1697
13.112 gdcmBasicOffsetTable.h . . . 1698
13.113 gdcmByteBuffer.h File Reference . . . 1700
13.114 gdcmByteBuffer.h . . . 1701
13.115 gdcmByteSwapFilter.h File Reference . . . 1703
13.116 gdcmByteSwapFilter.h . . . 1703
13.117 gdcmByteValue.h File Reference . . . 1704

13.118 gdcmByteValue.h . . . 1705
13.119 gdcmCodeString.h File Reference . . . 1708
13.120 gdcmCodeString.h . . . 1709
13.121 gdcmCP246ExplicitDataElement.h File Reference . . . 1710
13.122 gdcmCP246ExplicitDataElement.h . . . 1711
13.123 gdcmCSAElement.h File Reference . . . 1711
13.124 gdcmCSAElement.h . . . 1713
13.125 gdcmCSAHeader.h File Reference . . . 1715
13.126 gdcmCSAHeader.h . . . 1715
13.127 gdcmDataElement.h File Reference . . . 1717
13.128 gdcmDataElement.h . . . 1718
13.129 gdcmDataSet.h File Reference . . . 1721
13.130 gdcmDataSet.h . . . 1722
13.131 gdcmDataSetEvent.h File Reference . . . 1725
13.132 gdcmDataSetEvent.h . . . 1726
13.133 gdcmElement.h File Reference . . . 1727
13.134 gdcmElement.h . . . 1728
13.135 gdcmExplicitDataElement.h File Reference . . . 1739
13.136 gdcmExplicitDataElement.h . . . 1740
13.137 gdcmExplicitImplicitDataElement.h File Reference . . . 1741
13.138 gdcmExplicitImplicitDataElement.h . . . 1742
13.139 gdcmFile.h File Reference . . . 1743
13.140 gdcmFile.h . . . 1744
13.141 gdcmFileMetaInformation.h File Reference . . . 1744
13.142 gdcmFileMetaInformation.h . . . 1746
13.143 gdcmFileSet.h File Reference . . . 1747
13.144 gdcmFileSet.h . . . 1749
13.145 gdcmFragment.h File Reference . . . 1749
13.146 gdcmFragment.h . . . 1751
13.147 gdcmImplicitDataElement.h File Reference . . . 1754
13.148 gdcmImplicitDataElement.h . . . 1754
13.149 gdcmItem.h File Reference . . . 1755
13.150 gdcmItem.h . . . 1756
13.151 gdcmLO.h File Reference . . . 1761
13.152 gdcmLO.h . . . 1761
13.153 gdcmMediaStorage.h File Reference . . . 1762
13.154 gdcmMediaStorage.h . . . 1763
13.155 gdcmMrProtocol.h File Reference . . . 1766
13.156 gdcmMrProtocol.h . . . 1767

13.157 gdcmParseException.h File Reference . . . 1768
13.158 gdcmParseException.h . . . 1769
13.159 gdcmParser.h File Reference . . . 1770
13.160 gdcmParser.h . . . 1771
13.161 gdcmPDBElement.h File Reference . . . 1773
13.162 gdcmPDBElement.h . . . 1774
13.163 gdcmPDBHeader.h File Reference . . . 1775
13.164 gdcmPDBHeader.h . . . 1776
13.165 gdcmPreamble.h File Reference . . . 1777
13.166 gdcmPreamble.h . . . 1778
13.167 gdcmPrivateTag.h File Reference . . . 1779
13.168 gdcmPrivateTag.h . . . 1780
13.169 gdcmReader.h File Reference . . . 1781
13.170 gdcmReader.h . . . 1782
13.171 gdcmSequenceOfFragments.h File Reference . . . 1783
13.172 gdcmSequenceOfFragments.h . . . 1784
13.173 gdcmSequenceOfItems.h File Reference . . . 1788
13.174 gdcmSequenceOfItems.h . . . 1789
13.175 gdcmTag.h File Reference . . . 1792
13.176 gdcmTag.h . . . 1794
13.177 gdcmTagToVR.h File Reference . . . 1797
13.178 gdcmTagToVR.h . . . 1797
13.179 gdcmTransferSyntax.h File Reference . . . 1798
13.180 gdcmTransferSyntax.h . . . 1799
13.181 gdcmUNExplicitDataElement.h File Reference . . . 1800
13.182 gdcmUNExplicitDataElement.h . . . 1801
13.183 gdcmUNExplicitImplicitDataElement.h File Reference . . . 1802
13.184 gdcmUNExplicitImplicitDataElement.h . . . 1803
13.185 gdcmValue.h File Reference . . . 1803
13.186 gdcmValue.h . . . 1804
13.187 gdcmValueIO.h File Reference . . . 1805
13.188 gdcmValueIO.h . . . 1806
13.189 gdcmVL.h File Reference . . . 1806
13.190 gdcmVL.h . . . 1807
13.191 gdcmVM.h File Reference . . . 1809
13.191.1 Macro Definition Documentation . . . 1810
13.191.1.1 TYPETOLENGTH . . . 1810
13.192 gdcmVM.h . . . 1811
13.193 gdcmVR.h File Reference . . . 1812

13.193.1 Macro Definition Documentation . . . 1814
13.193.1.1 TYPETOENCODING . . . 1814
13.193.1.2 VRTypeTemplateCase . . . 1814
13.194 gdcmVR.h . . . 1815
13.195 gdcmVR16ExplicitDataElement.h File Reference . . . 1819
13.196 gdcmVR16ExplicitDataElement.h . . . 1820
13.197 gdcmWriter.h File Reference . . . 1821
13.198 gdcmWriter.h . . . 1822
13.199 gdcmDefinedTerms.h File Reference . . . 1823
13.200 gdcmDefinedTerms.h . . . 1824
13.201 gdcmDefs.h File Reference . . . 1824
13.202 gdcmDefs.h . . . 1826
13.203 gdcmEnumeratedValues.h File Reference . . . 1827
13.204 gdcmEnumeratedValues.h . . . 1827
13.205 gdcmIOD.h File Reference . . . 1828
13.206 gdcmIOD.h . . . 1829
13.207 gdcmIODEntry.h File Reference . . . 1831
13.208 gdcmIODEntry.h . . . 1833
13.209 gdcmIODs.h File Reference . . . 1833
13.210 gdcmIODs.h . . . 1835
13.211 gdcmMacro.h File Reference . . . 1836
13.212 gdcmMacro.h . . . 1837
13.213 gdcmMacroEntry.h File Reference . . . 1839
13.213.1 Macro Definition Documentation . . . 1840
13.213.1.1 GDCMMACROENTRY_H . . . 1840
13.214 gdcmMacroEntry.h . . . 1841
13.215 gdcmMacros.h File Reference . . . 1842
13.216 gdcmMacros.h . . . 1843
13.217 gdcmModule.h File Reference . . . 1844
13.218 gdcmModule.h . . . 1846
13.219 gdcmModuleEntry.h File Reference . . . 1847
13.220 gdcmModuleEntry.h . . . 1849
13.221 gdcmModules.h File Reference . . . 1850
13.222 gdcmModules.h . . . 1851
13.223 gdcmNestedModuleEntries.h File Reference . . . 1852
13.224 gdcmNestedModuleEntries.h . . . 1854
13.225 gdcmPatient.h File Reference . . . 1854
13.226 gdcmPatient.h . . . 1855
13.227 gdcmSeries.h File Reference . . . 1856

13.228 gdcmSeries.h . . . 1857
13.229 gdcmStudy.h File Reference . . . 1857
13.230 gdcmStudy.h . . . 1859
13.231 gdcmTable.h File Reference . . . 1859
13.232 gdcmTable.h . . . 1860
13.233 gdcmTableEntry.h File Reference . . . 1861
13.234 gdcmTableEntry.h . . . 1863
13.235 gdcmTableReader.h File Reference . . . 1863
13.236 gdcmTableReader.h . . . 1865
13.237 gdcmType.h File Reference . . . 1866
13.238 gdcmType.h . . . 1867
13.239 gdcmUsage.h File Reference . . . 1868
13.240 gdcmUsage.h . . . 1871
13.241 gdcmXMLDictReader.h File Reference . . . 1871
13.242 gdcmXMLDictReader.h . . . 1872
13.243 gdcmXMLPrivateDictReader.h File Reference . . . 1873
13.244 gdcmXMLPrivateDictReader.h . . . 1873
13.245 gdcmAnonymizeEvent.h File Reference . . . 1874
13.246 gdcmAnonymizeEvent.h . . . 1876
13.247 gdcmAnonymizer.h File Reference . . . 1876
13.248 gdcmAnonymizer.h . . . 1877
13.249 gdcmApplicationEntity.h File Reference . . . 1879
13.250 gdcmApplicationEntity.h . . . 1879
13.251 gdcmAudioCodec.h File Reference . . . 1880
13.252 gdcmAudioCodec.h . . . 1881
13.253 gdcmBitmap.h File Reference . . . 1881
13.254 gdcmBitmap.h . . . 1882
13.255 gdcmBitmapToBitmapFilter.h File Reference . . . 1885
13.256 gdcmBitmapToBitmapFilter.h . . . 1885
13.257 gdcmCleaner.h File Reference . . . 1886
13.258 gdcmCleaner.h . . . 1887
13.259 gdcmCodec.h File Reference . . . 1888
13.260 gdcmCodec.h . . . 1889
13.261 gdcmCoder.h File Reference . . . 1889
13.262 gdcmCoder.h . . . 1890
13.263 gdcmConstCharWrapper.h File Reference . . . 1891
13.264 gdcmConstCharWrapper.h . . . 1891
13.265 gdcmCurve.h File Reference . . . 1892
13.266 gdcmCurve.h . . . 1893

13.267 gdcmDataSetHelper.h File Reference . . . 1894
13.268 gdcmDataSetHelper.h . . . 1895
13.269 gdcmDecoder.h File Reference . . . 1895
13.270 gdcmDecoder.h . . . 1896
13.271 gdcmDeltaEncodingCodec.h File Reference . . . 1897
13.272 gdcmDeltaEncodingCodec.h . . . 1898
13.273 gdcmDICOMDIR.h File Reference . . . 1898
13.274 gdcmDICOMDIR.h . . . 1899
13.275 gdcmDICOMDIRGenerator.h File Reference . . . 1900
13.276 gdcmDICOMDIRGenerator.h . . . 1901
13.277 gdcmDictPrinter.h File Reference . . . 1902
13.278 gdcmDictPrinter.h . . . 1902
13.279 gdcmDirectionCosines.h File Reference . . . 1903
13.280 gdcmDirectionCosines.h . . . 1904
13.281 gdcmDirectoryHelper.h File Reference . . . 1904
13.282 gdcmDirectoryHelper.h . . . 1905
13.283 gdcmDPath.h File Reference . . . 1906
13.284 gdcmDPath.h . . . 1907
13.285 gdcmDumper.h File Reference . . . 1908
13.286 gdcmDumper.h . . . 1909
13.287 gdcmEmptyMaskGenerator.h File Reference . . . 1910
13.288 gdcmEmptyMaskGenerator.h . . . 1910
13.289 gdcmEncapsulatedDocument.h File Reference . . . 1911
13.290 gdcmEncapsulatedDocument.h . . . 1912
13.291 gdcmEquipmentManufacturer.h File Reference . . . 1912
13.292 gdcmEquipmentManufacturer.h . . . 1913
13.293 gdcmFiducials.h File Reference . . . 1914
13.294 gdcmFiducials.h . . . 1914
13.295 gdcmFileAnonymizer.h File Reference . . . 1915
13.296 gdcmFileAnonymizer.h . . . 1916
13.297 gdcmFileChangeTransferSyntax.h File Reference . . . 1916
13.298 gdcmFileChangeTransferSyntax.h . . . 1917
13.299 gdcmFileDecompressLookupTable.h File Reference . . . 1918
13.300 gdcmFileDecompressLookupTable.h . . . 1919
13.301 gdcmFileDerivation.h File Reference . . . 1920
13.302 gdcmFileDerivation.h . . . 1920
13.303 gdcmFileExplicitFilter.h File Reference . . . 1921
13.304 gdcmFileExplicitFilter.h . . . 1922
13.305 gdcmFileStreamer.h File Reference . . . 1923

13.306 gdcmFileStreamer.h . . . 1923
13.307 gdcmIconImage.h File Reference . . . 1924
13.308 gdcmIconImage.h . . . 1925
13.309 gdcmIconImageFilter.h File Reference . . . 1926
13.310 gdcmIconImageFilter.h . . . 1927
13.311 gdcmIconImageGenerator.h File Reference . . . 1928
13.312 gdcmIconImageGenerator.h . . . 1929
13.313 gdcmImage.h File Reference . . . 1929
13.314 gdcmImage.h . . . 1930
13.315 gdcmImageApplyLookupTable.h File Reference . . . 1932
13.316 gdcmImageApplyLookupTable.h . . . 1932
13.317 gdcmImageChangePhotometricInterpretation.h File Reference . . . 1933
13.318 gdcmImageChangePhotometricInterpretation.h . . . 1934
13.319 gdcmImageChangePlanarConfiguration.h File Reference . . . 1936
13.320 gdcmImageChangePlanarConfiguration.h . . . 1936
13.321 gdcmImageChangeTransferSyntax.h File Reference . . . 1937
13.322 gdcmImageChangeTransferSyntax.h . . . 1938
13.323 gdcmImageCodec.h File Reference . . . 1939
13.324 gdcmImageCodec.h . . . 1940
13.325 gdcmImageConverter.h File Reference . . . 1942
13.326 gdcmImageConverter.h . . . 1943
13.327 gdcmImageFragmentSplitter.h File Reference . . . 1944
13.328 gdcmImageFragmentSplitter.h . . . 1944
13.329 gdcmImageHelper.h File Reference . . . 1945
13.330 gdcmImageHelper.h . . . 1946
13.331 gdcmImageReader.h File Reference . . . 1947
13.332 gdcmImageReader.h . . . 1948
13.333 gdcmImageRegionReader.h File Reference . . . 1949
13.334 gdcmImageRegionReader.h . . . 1950
13.335 gdcmImageToImageFilter.h File Reference . . . 1951
13.336 gdcmImageToImageFilter.h . . . 1951
13.337 gdcmImageWriter.h File Reference . . . 1952
13.338 gdcmImageWriter.h . . . 1953
13.339 gdcmIPPSorter.h File Reference . . . 1953
13.340 gdcmIPPSorter.h . . . 1954
13.341 gdcmJPEG12Codec.h File Reference . . . 1955
13.342 gdcmJPEG12Codec.h . . . 1956
13.343 gdcmJPEG16Codec.h File Reference . . . 1957
13.344 gdcmJPEG16Codec.h . . . 1957

13.345 gdcmJPEG2000Codec.h File Reference . . . 1958
13.346 gdcmJPEG2000Codec.h . . . 1959
13.347 gdcmJPEG8Codec.h File Reference . . . 1960
13.348 gdcmJPEG8Codec.h . . . 1961
13.349 gdcmJPEGCodec.h File Reference . . . 1962
13.350 gdcmJPEGCodec.h . . . 1963
13.351 gdcmJPEGLSCodec.h File Reference . . . 1964
13.352 gdcmJPEGLSCodec.h . . . 1965
13.353 gdcmJPEGTurboCodec.h File Reference . . . 1966
13.354 gdcmJPEGTurboCodec.h . . . 1967
13.355 gdcmJSON.h File Reference . . . 1967
13.356 gdcmJSON.h . . . 1968
13.357 gdcmKAKADUCodec.h File Reference . . . 1969
13.358 gdcmKAKADUCodec.h . . . 1970
13.359 gdcmLookupTable.h File Reference . . . 1970
13.360 gdcmLookupTable.h . . . 1971
13.361 gdcmMEC_MR3.h File Reference . . . 1973
13.362 gdcmMEC_MR3.h . . . 1973
13.363 gdcmMeshPrimitive.h File Reference . . . 1974
13.364 gdcmMeshPrimitive.h . . . 1975
13.365 gdcmOrientation.h File Reference . . . 1977
13.366 gdcmOrientation.h . . . 1977
13.367 gdcmOverlay.h File Reference . . . 1978
13.368 gdcmOverlay.h . . . 1979
13.369 gdcmPDFCodec.h File Reference . . . 1981
13.370 gdcmPDFCodec.h . . . 1981
13.371 gdcmPersonName.h File Reference . . . 1982
13.372 gdcmPersonName.h . . . 1983
13.373 gdcmPGXCodec.h File Reference . . . 1984
13.374 gdcmPGXCodec.h . . . 1985
13.375 gdcmPhotometricInterpretation.h File Reference . . . 1985
13.376 gdcmPhotometricInterpretation.h . . . 1986
13.377 gdcmPixelFormat.h File Reference . . . 1987
13.378 gdcmPixelFormat.h . . . 1989
13.379 gdcmPixmap.h File Reference . . . 1991
13.380 gdcmPixmap.h . . . 1992
13.381 gdcmPixmapReader.h File Reference . . . 1993
13.382 gdcmPixmapReader.h . . . 1995
13.383 gdcmPixmapToPixmapFilter.h File Reference . . . 1996

13.384 gdcmPixmapToPixmapFilter.h . . . 1996
13.385 gdcmPixmapWriter.h File Reference . . . 1997
13.386 gdcmPixmapWriter.h . . . 1998
13.387 gdcmPNMCodec.h File Reference . . . 1999
13.388 gdcmPNMCodec.h . . . 2000
13.389 gdcmPrinter.h File Reference . . . 2000
13.390 gdcmPrinter.h . . . 2002
13.391 gdcmPVRGCodec.h File Reference . . . 2003
13.392 gdcmPVRGCodec.h . . . 2004
13.393 gdcmRAWCodec.h File Reference . . . 2005
13.394 gdcmRAWCodec.h . . . 2005
13.395 gdcmRescaler.h File Reference . . . 2006
13.396 gdcmRescaler.h . . . 2007
13.397 gdcmRLECodec.h File Reference . . . 2008
13.398 gdcmRLECodec.h . . . 2008
13.399 gdcmScanner.h File Reference . . . 2009
13.400 gdcmScanner.h . . . 2010
13.401 gdcmScanner2.h File Reference . . . 2012
13.402 gdcmScanner2.h . . . 2013
13.403 gdcmSegment.h File Reference . . . 2015
13.404 gdcmSegment.h . . . 2017
13.405 gdcmSegmentedPaletteColorLookupTable.h File Reference . . . 2019
13.406 gdcmSegmentedPaletteColorLookupTable.h . . . 2019
13.407 gdcmSegmentHelper.h File Reference . . . 2020
13.408 gdcmSegmentHelper.h . . . 2021
13.409 gdcmSegmentReader.h File Reference . . . 2022
13.410 gdcmSegmentReader.h . . . 2024
13.411 gdcmSegmentWriter.h File Reference . . . 2024
13.412 gdcmSegmentWriter.h . . . 2026
13.413 gdcmSerieHelper.h File Reference . . . 2026
13.414 gdcmSerieHelper.h . . . 2028
13.415 gdcmSimpleSubjectWatcher.h File Reference . . . 2029
13.416 gdcmSimpleSubjectWatcher.h . . . 2030
13.417 gdcmSorter.h File Reference . . . 2031
13.418 gdcmSorter.h . . . 2033
13.419 gdcmSpacing.h File Reference . . . 2034
13.420 gdcmSpacing.h . . . 2034
13.421 gdcmSpectroscopy.h File Reference . . . 2035
13.422 gdcmSpectroscopy.h . . . 2036

13.423 gdcmSplitGridFilter.h File Reference . . . 2036
13.424 gdcmSplitGridFilter.h . . . 2037
13.425 gdcmSplitMosaicFilter.h File Reference . . . 2038
13.426 gdcmSplitMosaicFilter.h . . . 2039
13.427 gdcmStreamImageReader.h File Reference . . . 2040
13.428 gdcmStreamImageReader.h . . . 2040
13.429 gdcmStreamImageWriter.h File Reference . . . 2041
13.430 gdcmStreamImageWriter.h . . . 2042
13.431 gdcmStrictScanner.h File Reference . . . 2043
13.432 gdcmStrictScanner.h . . . 2044
13.433 gdcmStrictScanner2.h File Reference . . . 2046
13.434 gdcmStrictScanner2.h . . . 2047
13.435 gdcmStringFilter.h File Reference . . . 2049
13.436 gdcmStringFilter.h . . . 2050
13.437 gdcmSurface.h File Reference . . . 2050
13.438 gdcmSurface.h . . . 2052
13.439 gdcmSurfaceHelper.h File Reference . . . 2055
13.440 gdcmSurfaceHelper.h . . . 2055
13.441 gdcmSurfaceReader.h File Reference . . . 2057
13.442 gdcmSurfaceReader.h . . . 2058
13.443 gdcmSurfaceWriter.h File Reference . . . 2059
13.444 gdcmSurfaceWriter.h . . . 2060
13.445 gdcmTagPath.h File Reference . . . 2060
13.446 gdcmTagPath.h . . . 2061
13.447 gdcmUIDGenerator.h File Reference . . . 2062
13.448 gdcmUIDGenerator.h . . . 2063
13.449 gdcmUUIDGenerator.h File Reference . . . 2064
13.450 gdcmUUIDGenerator.h . . . 2064
13.451 gdcmValidate.h File Reference . . . 2065
13.452 gdcmValidate.h . . . 2066
13.453 gdcmWaveform.h File Reference . . . 2066
13.454 gdcmWaveform.h . . . 2067
13.455 gdcmXMLPrinter.h File Reference . . . 2067
13.456 gdcmXMLPrinter.h . . . 2068
13.457 gdcmAAbortPDU.h File Reference . . . 2070
13.458 gdcmAAbortPDU.h . . . 2071
13.459 gdcmAAssociateACPDU.h File Reference . . . 2071
13.460 gdcmAAssociateACPDU.h . . . 2072
13.461 gdcmAAssociateRJPDU.h File Reference . . . 2074

13.462 gdcmAAssociateRJPDU.h . . . 2074
13.463 gdcmAAssociateRQPDU.h File Reference . . . 2075
13.464 gdcmAAssociateRQPDU.h . . . 2076
13.465 gdcmAbstractSyntax.h File Reference . . . 2078
13.466 gdcmAbstractSyntax.h . . . 2079
13.467 gdcmApplicationContext.h File Reference . . . 2080
13.468 gdcmApplicationContext.h . . . 2081
13.469 gdcmAReleaseRPPDU.h File Reference . . . 2081
13.470 gdcmAReleaseRPPDU.h . . . 2082
13.471 gdcmAReleaseRQPDU.h File Reference . . . 2083
13.472 gdcmAReleaseRQPDU.h . . . 2084
13.473 gdcmARTIMTimer.h File Reference . . . 2084
13.474 gdcmARTIMTimer.h . . . 2085
13.475 gdcmAsynchronousOperationsWindowSub.h File Reference . . . 2086
13.476 gdcmAsynchronousOperationsWindowSub.h . . . 2086
13.477 gdcmBaseCompositeMessage.h File Reference . . . 2087
13.478 gdcmBaseCompositeMessage.h . . . 2088
13.479 gdcmBaseNormalizedMessage.h File Reference . . . 2089
13.480 gdcmBaseNormalizedMessage.h . . . 2090
13.481 gdcmBasePDU.h File Reference . . . 2090
13.482 gdcmBasePDU.h . . . 2091
13.483 gdcmBaseQuery.h File Reference . . . 2092
13.484 gdcmBaseQuery.h . . . 2093
13.485 gdcmBaseRootQuery.h File Reference . . . 2094
13.486 gdcmBaseRootQuery.h . . . 2095
13.487 gdcmCEchoMessages.h File Reference . . . 2096
13.488 gdcmCEchoMessages.h . . . 2097
13.489 gdcmCFindMessages.h File Reference . . . 2097
13.490 gdcmCFindMessages.h . . . 2098
13.491 gdcmCMoveMessages.h File Reference . . . 2099
13.492 gdcmCMoveMessages.h . . . 2100
13.493 gdcmCommandDataSet.h File Reference . . . 2100
13.494 gdcmCommandDataSet.h . . . 2101
13.495 gdcmCompositeMessageFactory.h File Reference . . . 2102
13.496 gdcmCompositeMessageFactory.h . . . 2103
13.497 gdcmCompositeNetworkFunctions.h File Reference . . . 2103
13.498 gdcmCompositeNetworkFunctions.h . . . 2104
13.499 gdcmCStoreMessages.h File Reference . . . 2105
13.500 gdcmCStoreMessages.h . . . 2106

13.501 gdcmDIMSE.h File Reference . . . 2107
13.502 gdcmDIMSE.h . . . 2107
13.503 gdcmFindPatientRootQuery.h File Reference . . . 2109
13.504 gdcmFindPatientRootQuery.h . . . 2110
13.505 gdcmFindStudyRootQuery.h File Reference . . . 2111
13.506 gdcmFindStudyRootQuery.h . . . 2111
13.507 gdcmImplementationClassUIDSub.h File Reference . . . 2112
13.508 gdcmImplementationClassUIDSub.h . . . 2113
13.509 gdcmImplementationUIDSub.h File Reference . . . 2114
13.510 gdcmImplementationUIDSub.h . . . 2114
13.511 gdcmImplementationVersionNameSub.h File Reference . . . 2115
13.512 gdcmImplementationVersionNameSub.h . . . 2116
13.513 gdcmMaximumLengthSub.h File Reference . . . 2117
13.514 gdcmMaximumLengthSub.h . . . 2118
13.515 gdcmModalityPerformedProcedureStepCreateQuery.h File Reference . . . 2119
13.516 gdcmModalityPerformedProcedureStepCreateQuery.h . . . 2119
13.517 gdcmModalityPerformedProcedureStepSetQuery.h File Reference . . . 2120
13.518 gdcmModalityPerformedProcedureStepSetQuery.h . . . 2121
13.519 gdcmMovePatientRootQuery.h File Reference . . . 2121
13.520 gdcmMovePatientRootQuery.h . . . 2122
13.521 gdcmMoveStudyRootQuery.h File Reference . . . 2123
13.522 gdcmMoveStudyRootQuery.h . . . 2123
13.523 gdcmNActionMessages.h File Reference . . . 2124
13.524 gdcmNActionMessages.h . . . 2125
13.525 gdcmNCreateMessages.h File Reference . . . 2125
13.526 gdcmNCreateMessages.h . . . 2126
13.527 gdcmNDeleteMessages.h File Reference . . . 2127
13.528 gdcmNDeleteMessages.h . . . 2127
13.529 gdcmNetworkEvents.h File Reference . . . 2128
13.530 gdcmNetworkEvents.h . . . 2129
13.531 gdcmNetworkStateID.h File Reference . . . 2130
13.532 gdcmNetworkStateID.h . . . 2131
13.533 gdcmNEventReportMessages.h File Reference . . . 2132
13.534 gdcmNEventReportMessages.h . . . 2133
13.535 gdcmNGetMessages.h File Reference . . . 2133
13.536 gdcmNGetMessages.h . . . 2134
13.537 gdcmNormalizedMessageFactory.h File Reference . . . 2134
13.538 gdcmNormalizedMessageFactory.h . . . 2135
13.539 gdcmNormalizedNetworkFunctions.h File Reference . . . 2136

13.540 gdcmNormalizedNetworkFunctions.h . . . 2137
13.541 gdcmNSetMessages.h File Reference . . . 2138
13.542 gdcmNSetMessages.h . . . 2138
13.543 gdcmPDataTFPDU.h File Reference . . . 2139
13.544 gdcmPDataTFPDU.h . . . 2140
13.545 gdcmPDUFactory.h File Reference . . . 2141
13.546 gdcmPDUFactory.h . . . 2141
13.547 gdcmPresentationContext.h File Reference . . . 2142
13.548 gdcmPresentationContext.h . . . 2144
13.549 gdcmPresentationContextAC.h File Reference . . . 2144
13.550 gdcmPresentationContextAC.h . . . 2146
13.551 gdcmPresentationContextGenerator.h File Reference . . . 2146
13.552 gdcmPresentationContextGenerator.h . . . 2147
13.553 gdcmPresentationContextRQ.h File Reference . . . 2148
13.554 gdcmPresentationContextRQ.h . . . 2149
13.555 gdcmPresentationDataValue.h File Reference . . . 2150
13.556 gdcmPresentationDataValue.h . . . 2151
13.557 gdcmQueryBase.h File Reference . . . 2152
13.558 gdcmQueryBase.h . . . 2154
13.559 gdcmQueryFactory.h File Reference . . . 2155
13.560 gdcmQueryFactory.h . . . 2156
13.561 gdcmQueryImage.h File Reference . . . 2156
13.562 gdcmQueryImage.h . . . 2157
13.563 gdcmQueryPatient.h File Reference . . . 2158
13.564 gdcmQueryPatient.h . . . 2159
13.565 gdcmQuerySeries.h File Reference . . . 2160
13.566 gdcmQuerySeries.h . . . 2161
13.567 gdcmQueryStudy.h File Reference . . . 2162
13.568 gdcmQueryStudy.h . . . 2163
13.569 gdcmRoleSelectionSub.h File Reference . . . 2163
13.570 gdcmRoleSelectionSub.h . . . 2164
13.571 gdcmServiceClassApplicationInformation.h File Reference . . . 2165
13.572 gdcmServiceClassApplicationInformation.h . . . 2166
13.573 gdcmServiceClassUser.h File Reference . . . 2166
13.574 gdcmServiceClassUser.h . . . 2167
13.575 gdcmSOPClassExtendedNegociationSub.h File Reference . . . 2169
13.576 gdcmSOPClassExtendedNegociationSub.h . . . 2169
13.577 gdcmTransferSyntaxSub.h File Reference . . . 2170
13.578 gdcmTransferSyntaxSub.h . . . 2172

13.579 gdcmULAction.h File Reference . . . 2172
13.580 gdcmULAction.h . . . 2173
13.581 gdcmULActionAA.h File Reference . . . 2174
13.582 gdcmULActionAA.h . . . 2175
13.583 gdcmULActionAE.h File Reference . . . 2176
13.584 gdcmULActionAE.h . . . 2177
13.585 gdcmULActionAR.h File Reference . . . 2178
13.586 gdcmULActionAR.h . . . 2179
13.587 gdcmULActionDT.h File Reference . . . 2181
13.588 gdcmULActionDT.h . . . 2181
13.589 gdcmULBasicCallback.h File Reference . . . 2182
13.590 gdcmULBasicCallback.h . . . 2183
13.591 gdcmULConnection.h File Reference . . . 2183
13.592 gdcmULConnection.h . . . 2184
13.593 gdcmULConnectionCallback.h File Reference . . . 2186
13.594 gdcmULConnectionCallback.h . . . 2187
13.595 gdcmULConnectionInfo.h File Reference . . . 2187
13.596 gdcmULConnectionInfo.h . . . 2189
13.597 gdcmULConnectionManager.h File Reference . . . 2189
13.598 gdcmULConnectionManager.h . . . 2190
13.599 gdcmULEvent.h File Reference . . . 2192
13.600 gdcmULEvent.h . . . 2193
13.601 gdcmULTransitionTable.h File Reference . . . 2194
13.602 gdcmULTransitionTable.h . . . 2195
13.603 gdcmULWritingCallback.h File Reference . . . 2197
13.604 gdcmULWritingCallback.h . . . 2197
13.605 gdcmUserInformation.h File Reference . . . 2198
13.606 gdcmUserInformation.h . . . 2199
13.607 gdcmWLMFindQuery.h File Reference . . . 2200
13.608 gdcmWLMFindQuery.h . . . 2201
13.609 vtkGDCMImageReader.h File Reference . . . 2201
13.609.1 Macro Definition Documentation . . . 2203
13.609.1.1 VTK_CMYK . . . 2203
13.609.1.2 VTK_INVERSE_LUMINANCE . . . 2203
13.609.1.3 VTK_LOOKUP_TABLE . . . 2203
13.609.1.4 VTK_YBR . . . 2203
13.610 vtkGDCMImageReader.h . . . 2203
13.611 vtkGDCMImageReader2.h File Reference . . . 2207
13.611.1 Macro Definition Documentation . . . 2208

13.611.1.1 VTK_CMYK . . . 2208
13.611.1.2 VTK_INVERSE_LUMINANCE . . . 2208
13.611.1.3 VTK_LOOKUP_TABLE . . . 2208
13.611.1.4 VTK_YBR . . . 2208
13.612 vtkGDCMImageReader2.h . . . 2209
13.613 vtkGDCMImageWriter.h File Reference . . . 2212
13.614 vtkGDCMImageWriter.h . . . 2213
13.615 vtkGDCMMedicalImageProperties.h File Reference . . . 2215
13.616 vtkGDCMMedicalImageProperties.h . . . 2216
13.617 vtkGDCMPolyDataReader.h File Reference . . . 2221
13.618 vtkGDCMPolyDataReader.h . . . 2221
13.619 vtkGDCMPolyDataWriter.h File Reference . . . 2222
13.620 vtkGDCMPolyDataWriter.h . . . 2223
13.621 vtkGDCMTesting.h File Reference . . . 2224
13.622 vtkGDCMTesting.h . . . 2225
13.623 vtkGDCMThreadedImageReader.h File Reference . . . 2226
13.624 vtkGDCMThreadedImageReader.h . . . 2226
13.625 vtkGDCMThreadedImageReader2.h File Reference . . . 2228
13.626 vtkGDCMThreadedImageReader2.h . . . 2228
13.627 vtkImageColorViewer.h File Reference . . . 2230
13.628 vtkImageColorViewer.h . . . 2231
13.629 vtkImageMapToColors16.h File Reference . . . 2234
13.630 vtkImageMapToColors16.h . . . 2234
13.631 vtkImageMapToWindowLevelColors2.h File Reference . . . 2236
13.632 vtkImageMapToWindowLevelColors2.h . . . 2236
13.633 vtkImagePlanarComponentsToComponents.h File Reference . . . 2238
13.634 vtkImagePlanarComponentsToComponents.h . . . 2238
13.635 vtkImageRGBToYBR.h File Reference . . . 2239
13.636 vtkImageRGBToYBR.h . . . 2240
13.637 vtkImageYBRToRGB.h File Reference . . . 2241
13.638 vtkImageYBRToRGB.h . . . 2241
13.639 vtkLookupTable16.h File Reference . . . 2242
13.640 vtkLookupTable16.h . . . 2243
13.641 vtkRTStructSetProperties.h File Reference . . . 2244
13.642 vtkRTStructSetProperties.h . . . 2245
13.643 gdcmPythonFilter.h File Reference . . . 2246
13.644 gdcmPythonFilter.h . . . 2247

14 Examples **2249**

14.1 TestByteSwap.cxx . . . 2249
14.2 PatchFile.cxx . . . 2251
14.3 SimplePrint.cs . . . 2252
14.4 TestReader.cxx . . . 2254
14.5 TestReader.py . . . 2255
14.6 DecompressJPEGFile.cs . . . 2255
14.7 ManipulateFile.cs . . . 2256
14.8 ClinicalTrialIdentificationWorkflow.cs . . . 2257
14.9 GenerateDICOMDIR.cs . . . 2260
14.10 GenFakeImage.cxx . . . 2261
14.11 ReformatFile.cs . . . 2263
14.12 DecompressImage.cs . . . 2264
14.13 StandardizeFiles.cs . . . 2265
14.14 ScanDirectory.cs . . . 2267
14.15 BasicAnonymizer.cs . . . 2268
14.16 BasicImageAnonymizer.cs . . . 2270
14.17 Cleaner.cs . . . 2271
14.18 CompressLossyJPEG.cs . . . 2272
14.19 DecompressImageMultiframe.cs . . . 2273
14.20 DumpCSA.cs . . . 2275
14.21 ExplicitLittleEndian.cs . . . 2276
14.22 ExtractEncapsulatedFile.cs . . . 2278
14.23 ExtractImageRegion.cs . . . 2279
14.24 ExtractImageRegionWithLUT.cs . . . 2280
14.25 ExtractOneFrame.cs . . . 2282
14.26 FileAnonymize.cs . . . 2283
14.27 FileChangeTS.cs . . . 2283
14.28 FileChangeTSLossy.cs . . . 2286
14.29 FileStreaming.cs . . . 2288
14.30 GetArray.cs . . . 2289
14.31 MpegVideoInfo.cs . . . 2290
14.32 NewSequence.cs . . . 2295
14.33 RescaleImage.cs . . . 2296
14.34 SendFileSCU.cs . . . 2297
14.35 SimplePrintPatientName.cs . . . 2297
14.36 SortImage2.cs . . . 2298
14.37 CStoreQtProgress.cxx . . . 2299
14.38 ChangePrivateTags.cxx . . . 2301
14.39 ChangeSequenceUltrasound.cxx . . . 2302

14.40 CheckBigEndianBug.cxx . . . 2303
14.41 ClinicalTrialAnnotate.cxx . . . 2305
14.42 CompressImage.cxx . . . 2306
14.43 ConvertToQImage.cxx . . . 2307
14.44 CreateARGBImage.cxx . . . 2309
14.45 CreateCMYKImage.cxx . . . 2310
14.46 CreateJPIPDataSet.cxx . . . 2311
14.47 DeriveSeries.cxx . . . 2312
14.48 DiffFile.cxx . . . 2313
14.49 DiscriminateVolume.cxx . . . 2314
14.50 DumpADAC.cxx . . . 2318
14.51 DumpExamCard.cxx . . . 2322
14.52 DumpGEMSMovieGroup.cxx . . . 2331
14.53 DumpImageHeaderInfo.cxx . . . 2337
14.54 DumpPhilipsECHO.cxx . . . 2339
14.55 DumpSiemensBase64.cxx . . . 2345
14.56 DumpToSQLITE3.cxx . . . 2346
14.57 DumpToshibaDTI.cxx . . . 2348
14.58 DumpToshibaDTI2.cxx . . . 2349
14.59 DumpVisusChange.cxx . . . 2351
14.60 DuplicatePCDE.cxx . . . 2353
14.61 ELSCINT1WaveToText.cxx . . . 2355
14.62 EmptyMask.cxx . . . 2357
14.63 EncapsulateFileInRawData.cxx . . . 2358
14.64 ExtractEncryptedContent.cxx . . . 2359
14.65 ExtractIconFromFile.cxx . . . 2360
14.66 Extracting_All_Resolution.cxx . . . 2361
14.67 Fake_Image_Using_Stream_Image_Writer.cxx . . . 2367
14.68 FixBrokenJ2K.cxx . . . 2370
14.69 FixJAIBugJPEGLS.cxx . . . 2372
14.70 FixOrientation.cxx . . . 2375
14.71 GenAllVR.cxx . . . 2376
14.72 GenFakeIdentifyFile.cxx . . . 2378
14.73 GenLongSeqs.cxx . . . 2380
14.74 GenSeqs.cxx . . . 2382
14.75 GenerateStandardSOPClasses.cxx . . . 2383
14.76 GetJPEGSamplePrecision.cxx . . . 2384
14.77 GetSequenceUltrasound.cxx . . . 2386
14.78 GetSubSequenceData.cxx . . . 2387

14.79 HelloVizWorld.cxx . . . 2390
14.80 HelloWorld.cxx . . . 2391
14.81 LargeVRDSExplicit.cxx . . . 2392
14.82 MakeTemplate.cxx . . . 2395
14.83 MergeTwoFiles.cxx . . . 2396
14.84 MrProtocol.cxx . . . 2397
14.85 PrintLUT.cxx . . . 2404
14.86 PublicDict.cxx . . . 2404
14.87 QIDO-RS.cxx . . . 2405
14.88 ReadAndDumpDICOMDIR.cxx . . . 2406
14.89 ReadAndDumpDICOMDIR2.cxx . . . 2409
14.90 ReadAndPrintAttributes.cxx . . . 2414
14.91 ReadExplicitLengthSQIVR.cxx . . . 2415
14.92 ReadGEMSSDO.cxx . . . 2416
14.93 ReadMultiTimesException.cxx . . . 2418
14.94 ReadUTF8QtDir.cxx . . . 2419
14.95 SimpleScanner.cxx . . . 2420
14.96 SortImage.cxx . . . 2422
14.97 StreamImageReaderTest.cxx . . . 2424
14.98 TemplateEmptyImage.cxx . . . 2427
14.99 TraverseModules.cxx . . . 2429
14.100 VolumeSorter.cxx . . . 2430
14.101 csa2img.cxx . . . 2432
14.102 iU22tomultisc.cxx . . . 2434
14.103 pmsct_rgb1.cxx . . . 2436
14.104 rle2img.cxx . . . 2439
14.105 uid_unique.cxx . . . 2442
14.106 DecompressImage.java . . . 2443
14.107 DecompressPixmap.java . . . 2443
14.108 ExtractImageRegion.java . . . 2444
14.109 FileAnonymize.java . . . 2445
14.110 HelloSimple.java . . . 2446
14.111 ReadFiles.java . . . 2447
14.112 ScanDirectory.java . . . 2448
14.113 SimplePrint.java . . . 2452
14.114 AddPrivateAttribute.py . . . 2453
14.115 ConvertMPL.py . . . 2453
14.116 ConvertNumpy.py . . . 2454
14.117 ConvertPIL.py . . . 2455

14.118 CreateRAWStorage.py . . . 2456
14.119 DecompressImage.py . . . 2458
14.120 DumbAnonymizer.py . . . 2459
14.121 ExtractImageRegion.py . . . 2461
14.122 FindAllPatientName.py . . . 2462
14.123 FixCommaBug.py . . . 2462
14.124 GetPortionCSAHeader.py . . . 2463
14.125 HelloWorld.py . . . 2464
14.126 ManipulateFile.py . . . 2465
14.127 ManipulateSequence.py . . . 2466
14.128 MergeFile.py . . . 2467
14.129 NewSequence.py . . . 2467
14.130 PhilipsPrivateRescaleInterceptSlope.py . . . 2468
14.131 PlaySound.py . . . 2469
14.132 PrivateDict.py . . . 2470
14.133 ReWriteSCAsMR.py . . . 2470
14.134 ReadAndDumpDICOMDIR.py . . . 2471
14.135 RemovePrivateTags.py . . . 2474
14.136 ScanDirectory.py . . . 2474
14.137 SortImage.py . . . 2475
14.138 WriteBuffer.py . . . 2476
14.139 HelloActiviz.cs . . . 2477
14.140 HelloActiviz2.cs . . . 2478
14.141 HelloActiviz3.cs . . . 2479
14.142 HelloActiviz4.cs . . . 2480
14.143 HelloActiviz5.cs . . . 2481
14.144 HelloVTKWorld.cs . . . 2482
14.145 HelloVTKWorld2.cs . . . 2483
14.146 MetaImageMD5Activiz.cs . . . 2483
14.147 RefCounting.cs . . . 2485
14.148 Compute3DSpacing.cxx . . . 2486
14.149 Convert16BitsTo8Bits.cxx . . . 2487
14.150 ConvertMultiFrameToSingleFrame.cxx . . . 2488
14.151 ConvertRGBToLuminance.cxx . . . 2489
14.152 ConvertSingleBitTo8Bits.cxx . . . 2490
14.153 CreateFakePET.cxx . . . 2491
14.154 CreateFakeRTDOSE.cxx . . . 2493
14.155 GenerateRTSTRUCT.cxx . . . 2494
14.156 MagnifyFile.cxx . . . 2497

14.157 gdcmorthoplanes.cxx . . . 2498
14.158 gdcmreslice.cxx . . . 2504
14.159 gdcmrtionplan.cxx . . . 2506
14.160 gdcmrtplan.cxx . . . 2511
14.161 gdcmscene.cxx . . . 2514
14.162 gdcmtexture.cxx . . . 2516
14.163 gdcmvolume.cxx . . . 2518
14.164 offscreenimage.cxx . . . 2519
14.165 reslicesphere.cxx . . . 2520
14.166 rtstructapp.cxx . . . 2528
14.167 threadgdcm.cxx . . . 2530
14.168 AWTMedical3.java . . . 2534
14.169 HelloVTKWorld.java . . . 2538
14.170 MIPViewer.java . . . 2539
14.171 MPRViewer.java . . . 2541
14.172 MPRViewer2.java . . . 2543
14.173 ReadSeriesIntoVTK.java . . . 2548
14.174 CastConvertPhilips.py . . . 2549
14.175 headsq2dcm.py . . . 2551

Index **2553**

Chapter 1

GDCM Documentation

This is the developers documentation.

A PDF version of this doxygen documentation can be found here:

`http://gdcm.sourceforge.net/3.2/gdcm-3.2.10.pdf`

A tarball version of this HTML doxygen documentation can be found here:

`http://gdcm.sourceforge.net/3.2/gdcm-3.2.10-doc.tar.gz`

Author

Mathieu Malaterre

Chapter 2

Todo List

Class gdcm::CSAHeader

MrEvaProtocol in 29,1020 contains ^M that would be nice to get rid of on UNIX system...

Class gdcm::network::ApplicationContext

Looks like Application Context can only be 64 bytes at max (see Figure 9-1 / PS 3.8 - 2009)

Class gdcm::Overlay

Is there actually any way to recognize an overlay ? On images with multiple overlay I do not see any way to differentiate them (other than the group tag).

Class gdcm::SequenceOfFragments

I do not enforce that Sequence of Fragments ends with a SQ end del

Class gdcm::TransferSyntax

: The implementation is completely retarded -> see gdcm::UIDs for a replacement We need: IsSupported We need preprocess of raw/xml file We need GetFullName()

Member gdcm::UIDGenerator::IsValid (const char *uid)

: Move that in DataStructureAndEncoding (see FileMetaInformation::CheckFileMetaInformation)

Chapter 3

Deprecated List

Member gdcm::CompositeNetworkFunctions::ConstructQuery (ERootType inRootType, EQueryLevel inQueryLevel, const KeyValuePairArrayType &keys, EQueryType queryType=eFind)

Member gdcm::FileSet::AddFile (File const &)

. Does nothing

Member gdcm::TransferSyntax::GetSwapCode () const

Return the SwapCode associated with the Transfer Syntax. Be careful with the special GE private syntax the DataSet is written in little endian but the Pixel Data is in Big Endian.

Chapter 4

Bug List

Class gdcm::DICOMDIRGenerator

: There is a current limitation of not handling Referenced SOP Class UID / Referenced SOP Instance UID simply because the Scanner does not allow us See PS 3.11 / Table D.3-2 STD-GEN Additional DICOMDIR Keys

Member gdcm::FileStreamer::StartGroupDataElement (const PrivateTag &pt, size_t maxsizede=0, uint8_t startoffset=0)

maxsizede should be a value lower than the actual total size of the buffer to be copied

Class gdcm::IPPSorter

There are currently a couple of bugs in this implementation:

Chapter 5

Directory Hierarchy

5.1 Directories

Common 57
gdcmASN1.h 1561
gdcmBase64.h 1563
gdcmBoxRegion.h 1564
gdcmByteSwap.h 1565
gdcmCAPICryptoFactory.h 1567
gdcmCAPICryptographicMessageSyntax.h 1568
gdcmCommand.h 1571
gdcmCryptoFactory.h 1574
gdcmCryptographicMessageSyntax.h 1576
gdcmDataEvent.h 1578
gdcmDeflateStream.h 1580
gdcmDirectory.h 1580
gdcmDummyValueGenerator.h 1583
gdcmEvent.h 1584
gdcmException.h 1587
gdcmFilename.h 1591
gdcmFileNameEvent.h 1592
gdcmFilenameGenerator.h 1594
gdcmLegacyMacro.h 1595
gdcmMD5.h 1598
gdcmObject.h 1599
gdcmOpenSSLCryptoFactory.h 1602
gdcmOpenSSLCryptographicMessageSyntax.h 1603
gdcmOpenSSLP7CryptoFactory.h 1605
gdcmOpenSSLP7CryptographicMessageSyntax.h 1607
gdcmProgressEvent.h 1609
gdcmRegion.h 1610
gdcmSHA1.h 1613
gdcmSmartPointer.h 1614
gdcmStaticAssert.h 1616
gdcmString.h 1618
gdcmSubject.h 1622
gdcmSwapCode.h 1623

gdcmSwapper.h . . . 1625
gdcmSystem.h . . . 1628
gdcmTerminal.h . . . 1630
gdcmTestDriver.h . . . 1632
gdcmTesting.h . . . 1633
gdcmTrace.h . . . 1635
gdcmTypes.h . . . 1641
gdcmUnpacker12Bits.h . . . 1642
gdcmVersion.h . . . 1643
gdcmWin32.h . . . 1644
DataDictionary . . . 59
gdcmCSAHeaderDict.h . . . 1646
gdcmCSAHeaderDictEntry.h . . . 1649
gdcmDict.h . . . 1652
gdcmDictConverter.h . . . 1657
gdcmDictEntry.h . . . 1659
gdcmDicts.h . . . 1662
gdcmGlobal.h . . . 1664
gdcmGroupDict.h . . . 1666
gdcmSOPClassUIDToIOD.h . . . 1668
gdcmUIDs.h . . . 1669
DataStructureAndEncodingDefinition . . . 60
gdcmAttribute.h . . . 1683
gdcmBasicOffsetTable.h . . . 1697
gdcmByteBuffer.h . . . 1700
gdcmByteSwapFilter.h . . . 1703
gdcmByteValue.h . . . 1704
gdcmCodeString.h . . . 1708
gdcmCP246ExplicitDataElement.h . . . 1710
gdcmCSAElement.h . . . 1711
gdcmCSAHeader.h . . . 1715
gdcmDataElement.h . . . 1717
gdcmDataSet.h . . . 1721
gdcmDataSetEvent.h . . . 1725
gdcmElement.h . . . 1727
gdcmExplicitDataElement.h . . . 1739
gdcmExplicitImplicitDataElement.h . . . 1741
gdcmFile.h . . . 1743
gdcmFileMetaInformation.h . . . 1744
gdcmFileSet.h . . . 1747
gdcmFragment.h . . . 1749
gdcmImplicitDataElement.h . . . 1754
gdcmItem.h . . . 1755
gdcmLO.h . . . 1761
gdcmMediaStorage.h . . . 1762
gdcmMrProtocol.h . . . 1766
gdcmParseException.h . . . 1768
gdcmParser.h . . . 1770
gdcmPDBElement.h . . . 1773
gdcmPDBHeader.h . . . 1775
gdcmPreamble.h . . . 1777
gdcmPrivateTag.h . . . 1779
gdcmReader.h . . . 1781
gdcmSequenceOfFragments.h . . . 1783

gdcmSequenceOfItems.h . . . 1788
gdcmTag.h . . . 1792
gdcmTagToVR.h . . . 1797
gdcmTransferSyntax.h . . . 1798
gdcmUNExplicitDataElement.h . . . 1800
gdcmUNExplicitImplicitDataElement.h . . . 1802
gdcmValue.h . . . 1803
gdcmValueIO.h . . . 1805
gdcmVL.h . . . 1806
gdcmVM.h . . . 1809
gdcmVR.h . . . 1812
gdcmVR16ExplicitDataElement.h . . . 1819
gdcmWriter.h . . . 1821
InformationObjectDefinition . . . 61
gdcmDefinedTerms.h . . . 1823
gdcmDefs.h . . . 1824
gdcmEnumeratedValues.h . . . 1827
gdcmIOD.h . . . 1828
gdcmIODEntry.h . . . 1831
gdcmIODs.h . . . 1833
gdcmMacro.h . . . 1836
gdcmMacroEntry.h . . . 1839
gdcmMacros.h . . . 1842
gdcmModule.h . . . 1844
gdcmModuleEntry.h . . . 1847
gdcmModules.h . . . 1850
gdcmNestedModuleEntries.h . . . 1852
gdcmPatient.h . . . 1854
gdcmSeries.h . . . 1856
gdcmStudy.h . . . 1857
gdcmTable.h . . . 1859
gdcmTableEntry.h . . . 1861
gdcmTableReader.h . . . 1863
gdcmType.h . . . 1866
gdcmUsage.h . . . 1868
gdcmXMLDictReader.h . . . 1871
gdcmXMLPrivateDictReader.h . . . 1873
MediaStorageAndFileFormat . . . 62
gdcmAnonymizeEvent.h . . . 1874
gdcmAnonymizer.h . . . 1876
gdcmApplicationEntity.h . . . 1879
gdcmAudioCodec.h . . . 1880
gdcmBitmap.h . . . 1881
gdcmBitmapToBitmapFilter.h . . . 1885
gdcmCleaner.h . . . 1886
gdcmCodec.h . . . 1888
gdcmCoder.h . . . 1889
gdcmConstCharWrapper.h . . . 1891
gdcmCurve.h . . . 1892
gdcmDataSetHelper.h . . . 1894
gdcmDecoder.h . . . 1895
gdcmDeltaEncodingCodec.h . . . 1897
gdcmDICOMDIR.h . . . 1898
gdcmDICOMDIRGenerator.h . . . 1900

gdcmDictPrinter.h . . . 1902
gdcmDirectionCosines.h . . . 1903
gdcmDirectoryHelper.h . . . 1904
gdcmDPath.h . . . 1906
gdcmDumper.h . . . 1908
gdcmEmptyMaskGenerator.h . . . 1910
gdcmEncapsulatedDocument.h . . . 1911
gdcmEquipmentManufacturer.h . . . 1912
gdcmFiducials.h . . . 1914
gdcmFileAnonymizer.h . . . 1915
gdcmFileChangeTransferSyntax.h . . . 1916
gdcmFileDecompressLookupTable.h . . . 1918
gdcmFileDerivation.h . . . 1920
gdcmFileExplicitFilter.h . . . 1921
gdcmFileStreamer.h . . . 1923
gdcmIconImage.h . . . 1924
gdcmIconImageFilter.h . . . 1926
gdcmIconImageGenerator.h . . . 1928
gdcmImage.h . . . 1929
gdcmImageApplyLookupTable.h . . . 1932
gdcmImageChangePhotometricInterpretation.h . . . 1933
gdcmImageChangePlanarConfiguration.h . . . 1936
gdcmImageChangeTransferSyntax.h . . . 1937
gdcmImageCodec.h . . . 1939
gdcmImageConverter.h . . . 1942
gdcmImageFragmentSplitter.h . . . 1944
gdcmImageHelper.h . . . 1945
gdcmImageReader.h . . . 1947
gdcmImageRegionReader.h . . . 1949
gdcmImageToImageFilter.h . . . 1951
gdcmImageWriter.h . . . 1952
gdcmIPPSorter.h . . . 1953
gdcmJPEG12Codec.h . . . 1955
gdcmJPEG16Codec.h . . . 1957
gdcmJPEG2000Codec.h . . . 1958
gdcmJPEG8Codec.h . . . 1960
gdcmJPEGCodec.h . . . 1962
gdcmJPEGLSCodec.h . . . 1964
gdcmJPEGTurboCodec.h . . . 1966
gdcmJSON.h . . . 1967
gdcmKAKADUCodec.h . . . 1969
gdcmLookupTable.h . . . 1970
gdcmMEC_MR3.h . . . 1973
gdcmMeshPrimitive.h . . . 1974
gdcmOrientation.h . . . 1977
gdcmOverlay.h . . . 1978
gdcmPDFCodec.h . . . 1981
gdcmPersonName.h . . . 1982
gdcmPGXCodec.h . . . 1984
gdcmPhotometricInterpretation.h . . . 1985
gdcmPixelFormat.h . . . 1987
gdcmPixmap.h . . . 1991
gdcmPixmapReader.h . . . 1993
gdcmPixmapToPixmapFilter.h . . . 1996

gdcmPixmapWriter.h . . . 1997
gdcmPNMCodec.h . . . 1999
gdcmPrinter.h . . . 2000
gdcmPVRGCodec.h . . . 2003
gdcmRAWCodec.h . . . 2005
gdcmRescaler.h . . . 2006
gdcmRLECodec.h . . . 2008
gdcmScanner.h . . . 2009
gdcmScanner2.h . . . 2012
gdcmSegment.h . . . 2015
gdcmSegmentedPaletteColorLookupTable.h . . . 2019
gdcmSegmentHelper.h . . . 2020
gdcmSegmentReader.h . . . 2022
gdcmSegmentWriter.h . . . 2024
gdcmSerieHelper.h . . . 2026
gdcmSimpleSubjectWatcher.h . . . 2029
gdcmSorter.h . . . 2031
gdcmSpacing.h . . . 2034
gdcmSpectroscopy.h . . . 2035
gdcmSplitGridFilter.h . . . 2036
gdcmSplitMosaicFilter.h . . . 2038
gdcmStreamImageReader.h . . . 2040
gdcmStreamImageWriter.h . . . 2041
gdcmStrictScanner.h . . . 2043
gdcmStrictScanner2.h . . . 2046
gdcmStringFilter.h . . . 2049
gdcmSurface.h . . . 2050
gdcmSurfaceHelper.h . . . 2055
gdcmSurfaceReader.h . . . 2057
gdcmSurfaceWriter.h . . . 2059
gdcmTagPath.h . . . 2060
gdcmUIDGenerator.h . . . 2062
gdcmUUIDGenerator.h . . . 2064
gdcmValidate.h . . . 2065
gdcmWaveform.h . . . 2066
gdcmXMLPrinter.h . . . 2067

MessageExchangeDefinition . . . 65

gdcmAAbortPDU.h . . . 2070
gdcmAAssociateACPDU.h . . . 2071
gdcmAAssociateRJPDU.h . . . 2074
gdcmAAssociateRQPDU.h . . . 2075
gdcmAbstractSyntax.h . . . 2078
gdcmApplicationContext.h . . . 2080
gdcmAReleaseRPPDU.h . . . 2081
gdcmAReleaseRQPDU.h . . . 2083
gdcmARTIMTimer.h . . . 2084
gdcmAsynchronousOperationsWindowSub.h . . . 2086
gdcmBaseCompositeMessage.h . . . 2087
gdcmBaseNormalizedMessage.h . . . 2089
gdcmBasePDU.h . . . 2090
gdcmBaseQuery.h . . . 2092
gdcmBaseRootQuery.h . . . 2094
gdcmCEchoMessages.h . . . 2096
gdcmCFindMessages.h . . . 2097

gdcmCMoveMessages.h . . . 2099
gdcmCommandDataSet.h . . . 2100
gdcmCompositeMessageFactory.h . . . 2102
gdcmCompositeNetworkFunctions.h . . . 2103
gdcmCStoreMessages.h . . . 2105
gdcmDIMSE.h . . . 2107
gdcmFindPatientRootQuery.h . . . 2109
gdcmFindStudyRootQuery.h . . . 2111
gdcmImplementationClassUIDSub.h . . . 2112
gdcmImplementationUIDSub.h . . . 2114
gdcmImplementationVersionNameSub.h . . . 2115
gdcmMaximumLengthSub.h . . . 2117
gdcmModalityPerformedProcedureStepCreateQuery.h . . . 2119
gdcmModalityPerformedProcedureStepSetQuery.h . . . 2120
gdcmMovePatientRootQuery.h . . . 2121
gdcmMoveStudyRootQuery.h . . . 2123
gdcmNActionMessages.h . . . 2124
gdcmNCreateMessages.h . . . 2125
gdcmNDeleteMessages.h . . . 2127
gdcmNetworkEvents.h . . . 2128
gdcmNetworkStateID.h . . . 2130
gdcmNEventReportMessages.h . . . 2132
gdcmNGetMessages.h . . . 2133
gdcmNormalizedMessageFactory.h . . . 2134
gdcmNormalizedNetworkFunctions.h . . . 2136
gdcmNSetMessages.h . . . 2138
gdcmPDataTFPDU.h . . . 2139
gdcmPDUFactory.h . . . 2141
gdcmPresentationContext.h . . . 2142
gdcmPresentationContextAC.h . . . 2144
gdcmPresentationContextGenerator.h . . . 2146
gdcmPresentationContextRQ.h . . . 2148
gdcmPresentationDataValue.h . . . 2150
gdcmQueryBase.h . . . 2152
gdcmQueryFactory.h . . . 2155
gdcmQueryImage.h . . . 2156
gdcmQueryPatient.h . . . 2158
gdcmQuerySeries.h . . . 2160
gdcmQueryStudy.h . . . 2162
gdcmRoleSelectionSub.h . . . 2163
gdcmServiceClassApplicationInformation.h . . . 2165
gdcmServiceClassUser.h . . . 2166
gdcmSOPClassExtendedNegociationSub.h . . . 2169
gdcmTransferSyntaxSub.h . . . 2170
gdcmULAction.h . . . 2172
gdcmULActionAA.h . . . 2174
gdcmULActionAE.h . . . 2176
gdcmULActionAR.h . . . 2178
gdcmULActionDT.h . . . 2181
gdcmULBasicCallback.h . . . 2182
gdcmULConnection.h . . . 2183
gdcmULConnectionCallback.h . . . 2186
gdcmULConnectionInfo.h . . . 2187
gdcmULConnectionManager.h . . . 2189

gdcmULEvent.h . . . 2192
gdcmULTransitionTable.h . . . 2194
gdcmULWritingCallback.h . . . 2197
gdcmUserInformation.h . . . 2198
gdcmWLMFindQuery.h . . . 2200
Python . . . 67
gdcmPythonFilter.h . . . 2246
Source . . . 67
Common . . . 57
gdcmASN1.h . . . 1561
gdcmBase64.h . . . 1563
gdcmBoxRegion.h . . . 1564
gdcmByteSwap.h . . . 1565
gdcmCAPICryptoFactory.h . . . 1567
gdcmCAPICryptographicMessageSyntax.h . . . 1568
gdcmCommand.h . . . 1571
gdcmCryptoFactory.h . . . 1574
gdcmCryptographicMessageSyntax.h . . . 1576
gdcmDataEvent.h . . . 1578
gdcmDeflateStream.h . . . 1580
gdcmDirectory.h . . . 1580
gdcmDummyValueGenerator.h . . . 1583
gdcmEvent.h . . . 1584
gdcmException.h . . . 1587
gdcmFilename.h . . . 1591
gdcmFileNameEvent.h . . . 1592
gdcmFilenameGenerator.h . . . 1594
gdcmLegacyMacro.h . . . 1595
gdcmMD5.h . . . 1598
gdcmObject.h . . . 1599
gdcmOpenSSLCryptoFactory.h . . . 1602
gdcmOpenSSLCryptographicMessageSyntax.h . . . 1603
gdcmOpenSSLP7CryptoFactory.h . . . 1605
gdcmOpenSSLP7CryptographicMessageSyntax.h . . . 1607
gdcmProgressEvent.h . . . 1609
gdcmRegion.h . . . 1610
gdcmSHA1.h . . . 1613
gdcmSmartPointer.h . . . 1614
gdcmStaticAssert.h . . . 1616
gdcmString.h . . . 1618
gdcmSubject.h . . . 1622
gdcmSwapCode.h . . . 1623
gdcmSwapper.h . . . 1625
gdcmSystem.h . . . 1628
gdcmTerminal.h . . . 1630
gdcmTestDriver.h . . . 1632
gdcmTesting.h . . . 1633
gdcmTrace.h . . . 1635
gdcmTypes.h . . . 1641
gdcmUnpacker12Bits.h . . . 1642
gdcmVersion.h . . . 1643
gdcmWin32.h . . . 1644
DataDictionary . . . 59

gdcmCSAHeaderDict.h . . . 1646
gdcmCSAHeaderDictEntry.h . . . 1649
gdcmDict.h . . . 1652
gdcmDictConverter.h . . . 1657
gdcmDictEntry.h . . . 1659
gdcmDicts.h . . . 1662
gdcmGlobal.h . . . 1664
gdcmGroupDict.h . . . 1666
gdcmSOPClassUIDToIOD.h . . . 1668
gdcmUIDs.h . . . 1669
DataStructureAndEncodingDefinition . . . 60
gdcmAttribute.h . . . 1683
gdcmBasicOffsetTable.h . . . 1697
gdcmByteBuffer.h . . . 1700
gdcmByteSwapFilter.h . . . 1703
gdcmByteValue.h . . . 1704
gdcmCodeString.h . . . 1708
gdcmCP246ExplicitDataElement.h . . . 1710
gdcmCSAElement.h . . . 1711
gdcmCSAHeader.h . . . 1715
gdcmDataElement.h . . . 1717
gdcmDataSet.h . . . 1721
gdcmDataSetEvent.h . . . 1725
gdcmElement.h . . . 1727
gdcmExplicitDataElement.h . . . 1739
gdcmExplicitImplicitDataElement.h . . . 1741
gdcmFile.h . . . 1743
gdcmFileMetaInformation.h . . . 1744
gdcmFileSet.h . . . 1747
gdcmFragment.h . . . 1749
gdcmImplicitDataElement.h . . . 1754
gdcmItem.h . . . 1755
gdcmLO.h . . . 1761
gdcmMediaStorage.h . . . 1762
gdcmMrProtocol.h . . . 1766
gdcmParseException.h . . . 1768
gdcmParser.h . . . 1770
gdcmPDBElement.h . . . 1773
gdcmPDBHeader.h . . . 1775
gdcmPreamble.h . . . 1777
gdcmPrivateTag.h . . . 1779
gdcmReader.h . . . 1781
gdcmSequenceOfFragments.h . . . 1783
gdcmSequenceOfItems.h . . . 1788
gdcmTag.h . . . 1792
gdcmTagToVR.h . . . 1797
gdcmTransferSyntax.h . . . 1798
gdcmUNExplicitDataElement.h . . . 1800
gdcmUNExplicitImplicitDataElement.h . . . 1802
gdcmValue.h . . . 1803
gdcmValueIO.h . . . 1805
gdcmVL.h . . . 1806
gdcmVM.h . . . 1809
gdcmVR.h . . . 1812

gdcmVR16ExplicitDataElement.h . . . 1819
gdcmWriter.h . . . 1821
InformationObjectDefinition . . . 61
gdcmDefinedTerms.h . . . 1823
gdcmDefs.h . . . 1824
gdcmEnumeratedValues.h . . . 1827
gdcmIOD.h . . . 1828
gdcmIODEntry.h . . . 1831
gdcmIODs.h . . . 1833
gdcmMacro.h . . . 1836
gdcmMacroEntry.h . . . 1839
gdcmMacros.h . . . 1842
gdcmModule.h . . . 1844
gdcmModuleEntry.h . . . 1847
gdcmModules.h . . . 1850
gdcmNestedModuleEntries.h . . . 1852
gdcmPatient.h . . . 1854
gdcmSeries.h . . . 1856
gdcmStudy.h . . . 1857
gdcmTable.h . . . 1859
gdcmTableEntry.h . . . 1861
gdcmTableReader.h . . . 1863
gdcmType.h . . . 1866
gdcmUsage.h . . . 1868
gdcmXMLDictReader.h . . . 1871
gdcmXMLPrivateDictReader.h . . . 1873
MediaStorageAndFileFormat . . . 62
gdcmAnonymizeEvent.h . . . 1874
gdcmAnonymizer.h . . . 1876
gdcmApplicationEntity.h . . . 1879
gdcmAudioCodec.h . . . 1880
gdcmBitmap.h . . . 1881
gdcmBitmapToBitmapFilter.h . . . 1885
gdcmCleaner.h . . . 1886
gdcmCodec.h . . . 1888
gdcmCoder.h . . . 1889
gdcmConstCharWrapper.h . . . 1891
gdcmCurve.h . . . 1892
gdcmDataSetHelper.h . . . 1894
gdcmDecoder.h . . . 1895
gdcmDeltaEncodingCodec.h . . . 1897
gdcmDICOMDIR.h . . . 1898
gdcmDICOMDIRGenerator.h . . . 1900
gdcmDictPrinter.h . . . 1902
gdcmDirectionCosines.h . . . 1903
gdcmDirectoryHelper.h . . . 1904
gdcmDPath.h . . . 1906
gdcmDumper.h . . . 1908
gdcmEmptyMaskGenerator.h . . . 1910
gdcmEncapsulatedDocument.h . . . 1911
gdcmEquipmentManufacturer.h . . . 1912
gdcmFiducials.h . . . 1914
gdcmFileAnonymizer.h . . . 1915
gdcmFileChangeTransferSyntax.h . . . 1916

gdcmFileDecompressLookupTable.h . . . 1918
gdcmFileDerivation.h . . . 1920
gdcmFileExplicitFilter.h . . . 1921
gdcmFileStreamer.h . . . 1923
gdcmIconImage.h . . . 1924
gdcmIconImageFilter.h . . . 1926
gdcmIconImageGenerator.h . . . 1928
gdcmImage.h . . . 1929
gdcmImageApplyLookupTable.h . . . 1932
gdcmImageChangePhotometricInterpretation.h . . . 1933
gdcmImageChangePlanarConfiguration.h . . . 1936
gdcmImageChangeTransferSyntax.h . . . 1937
gdcmImageCodec.h . . . 1939
gdcmImageConverter.h . . . 1942
gdcmImageFragmentSplitter.h . . . 1944
gdcmImageHelper.h . . . 1945
gdcmImageReader.h . . . 1947
gdcmImageRegionReader.h . . . 1949
gdcmImageToImageFilter.h . . . 1951
gdcmImageWriter.h . . . 1952
gdcmIPPSorter.h . . . 1953
gdcmJPEG12Codec.h . . . 1955
gdcmJPEG16Codec.h . . . 1957
gdcmJPEG2000Codec.h . . . 1958
gdcmJPEG8Codec.h . . . 1960
gdcmJPEGCodec.h . . . 1962
gdcmJPEGLSCodec.h . . . 1964
gdcmJPEGTurboCodec.h . . . 1966
gdcmJSON.h . . . 1967
gdcmKAKADUCodec.h . . . 1969
gdcmLookupTable.h . . . 1970
gdcmMEC_MR3.h . . . 1973
gdcmMeshPrimitive.h . . . 1974
gdcmOrientation.h . . . 1977
gdcmOverlay.h . . . 1978
gdcmPDFCodec.h . . . 1981
gdcmPersonName.h . . . 1982
gdcmPGXCodec.h . . . 1984
gdcmPhotometricInterpretation.h . . . 1985
gdcmPixelFormat.h . . . 1987
gdcmPixmap.h . . . 1991
gdcmPixmapReader.h . . . 1993
gdcmPixmapToPixmapFilter.h . . . 1996
gdcmPixmapWriter.h . . . 1997
gdcmPNMCodec.h . . . 1999
gdcmPrinter.h . . . 2000
gdcmPVRGCodec.h . . . 2003
gdcmRAWCodec.h . . . 2005
gdcmRescaler.h . . . 2006
gdcmRLECodec.h . . . 2008
gdcmScanner.h . . . 2009
gdcmScanner2.h . . . 2012
gdcmSegment.h . . . 2015
gdcmSegmentedPaletteColorLookupTable.h . . . 2019

gdcmSegmentHelper.h . . . 2020
gdcmSegmentReader.h . . . 2022
gdcmSegmentWriter.h . . . 2024
gdcmSerieHelper.h . . . 2026
gdcmSimpleSubjectWatcher.h . . . 2029
gdcmSorter.h . . . 2031
gdcmSpacing.h . . . 2034
gdcmSpectroscopy.h . . . 2035
gdcmSplitGridFilter.h . . . 2036
gdcmSplitMosaicFilter.h . . . 2038
gdcmStreamImageReader.h . . . 2040
gdcmStreamImageWriter.h . . . 2041
gdcmStrictScanner.h . . . 2043
gdcmStrictScanner2.h . . . 2046
gdcmStringFilter.h . . . 2049
gdcmSurface.h . . . 2050
gdcmSurfaceHelper.h . . . 2055
gdcmSurfaceReader.h . . . 2057
gdcmSurfaceWriter.h . . . 2059
gdcmTagPath.h . . . 2060
gdcmUIDGenerator.h . . . 2062
gdcmUUIDGenerator.h . . . 2064
gdcmValidate.h . . . 2065
gdcmWaveform.h . . . 2066
gdcmXMLPrinter.h . . . 2067
MessageExchangeDefinition . . . 65
gdcmAAbortPDU.h . . . 2070
gdcmAAssociateACPDU.h . . . 2071
gdcmAAssociateRJPDU.h . . . 2074
gdcmAAssociateRQPDU.h . . . 2075
gdcmAbstractSyntax.h . . . 2078
gdcmApplicationContext.h . . . 2080
gdcmAReleaseRPPDU.h . . . 2081
gdcmAReleaseRQPDU.h . . . 2083
gdcmARTIMTimer.h . . . 2084
gdcmAsynchronousOperationsWindowSub.h . . . 2086
gdcmBaseCompositeMessage.h . . . 2087
gdcmBaseNormalizedMessage.h . . . 2089
gdcmBasePDU.h . . . 2090
gdcmBaseQuery.h . . . 2092
gdcmBaseRootQuery.h . . . 2094
gdcmCEchoMessages.h . . . 2096
gdcmCFindMessages.h . . . 2097
gdcmCMoveMessages.h . . . 2099
gdcmCommandDataSet.h . . . 2100
gdcmCompositeMessageFactory.h . . . 2102
gdcmCompositeNetworkFunctions.h . . . 2103
gdcmCStoreMessages.h . . . 2105
gdcmDIMSE.h . . . 2107
gdcmFindPatientRootQuery.h . . . 2109
gdcmFindStudyRootQuery.h . . . 2111
gdcmImplementationClassUIDSub.h . . . 2112
gdcmImplementationUIDSub.h . . . 2114
gdcmImplementationVersionNameSub.h . . . 2115

gdcmMaximumLengthSub.h . . . 2117
gdcmModalityPerformedProcedureStepCreateQuery.h . . . 2119
gdcmModalityPerformedProcedureStepSetQuery.h . . . 2120
gdcmMovePatientRootQuery.h . . . 2121
gdcmMoveStudyRootQuery.h . . . 2123
gdcmNActionMessages.h . . . 2124
gdcmNCreateMessages.h . . . 2125
gdcmNDeleteMessages.h . . . 2127
gdcmNetworkEvents.h . . . 2128
gdcmNetworkStateID.h . . . 2130
gdcmNEventReportMessages.h . . . 2132
gdcmNGetMessages.h . . . 2133
gdcmNormalizedMessageFactory.h . . . 2134
gdcmNormalizedNetworkFunctions.h . . . 2136
gdcmNSetMessages.h . . . 2138
gdcmPDataTFPDU.h . . . 2139
gdcmPDUFactory.h . . . 2141
gdcmPresentationContext.h . . . 2142
gdcmPresentationContextAC.h . . . 2144
gdcmPresentationContextGenerator.h . . . 2146
gdcmPresentationContextRQ.h . . . 2148
gdcmPresentationDataValue.h . . . 2150
gdcmQueryBase.h . . . 2152
gdcmQueryFactory.h . . . 2155
gdcmQueryImage.h . . . 2156
gdcmQueryPatient.h . . . 2158
gdcmQuerySeries.h . . . 2160
gdcmQueryStudy.h . . . 2162
gdcmRoleSelectionSub.h . . . 2163
gdcmServiceClassApplicationInformation.h . . . 2165
gdcmServiceClassUser.h . . . 2166
gdcmSOPClassExtendedNegociationSub.h . . . 2169
gdcmTransferSyntaxSub.h . . . 2170
gdcmULAction.h . . . 2172
gdcmULActionAA.h . . . 2174
gdcmULActionAE.h . . . 2176
gdcmULActionAR.h . . . 2178
gdcmULActionDT.h . . . 2181
gdcmULBasicCallback.h . . . 2182
gdcmULConnection.h . . . 2183
gdcmULConnectionCallback.h . . . 2186
gdcmULConnectionInfo.h . . . 2187
gdcmULConnectionManager.h . . . 2189
gdcmULEvent.h . . . 2192
gdcmULTransitionTable.h . . . 2194
gdcmULWritingCallback.h . . . 2197
gdcmUserInformation.h . . . 2198
gdcmWLMFindQuery.h . . . 2200
Utilities . . . 68
VTK . . . 68
vtkGDCMImageReader.h . . . 2201
vtkGDCMImageReader2.h . . . 2207
vtkGDCMImageWriter.h . . . 2212
vtkGDCMMedicalImageProperties.h . . . 2215

vtkGDCMPolyDataReader.h . . . 2221
vtkGDCMPolyDataWriter.h . . . 2222
vtkGDCMTesting.h . . . 2224
vtkGDCMThreadedImageReader.h . . . 2226
vtkGDCMThreadedImageReader2.h . . . 2228
vtkImageColorViewer.h . . . 2230
vtkImageMapToColors16.h . . . 2234
vtkImageMapToWindowLevelColors2.h . . . 2236
vtkImagePlanarComponentsToComponents.h . . . 2238
vtkImageRGBToYBR.h . . . 2239
vtkImageYBRToRGB.h . . . 2241
vtkLookupTable16.h . . . 2242
vtkRTStructSetProperties.h . . . 2244
VTK . . . 68
vtkGDCMImageReader.h . . . 2201
vtkGDCMImageReader2.h . . . 2207
vtkGDCMImageWriter.h . . . 2212
vtkGDCMMedicalImageProperties.h . . . 2215
vtkGDCMPolyDataReader.h . . . 2221
vtkGDCMPolyDataWriter.h . . . 2222
vtkGDCMTesting.h . . . 2224
vtkGDCMThreadedImageReader.h . . . 2226
vtkGDCMThreadedImageReader2.h . . . 2228
vtkImageColorViewer.h . . . 2230
vtkImageMapToColors16.h . . . 2234
vtkImageMapToWindowLevelColors2.h . . . 2236
vtkImagePlanarComponentsToComponents.h . . . 2238
vtkImageRGBToYBR.h . . . 2239
vtkImageYBRToRGB.h . . . 2241
vtkLookupTable16.h . . . 2242
vtkRTStructSetProperties.h . . . 2244
Wrapping . . . 69
Python . . . 67
gdcmPythonFilter.h . . . 2246

Chapter 6

Namespace Index

6.1 Namespace List

Here is a list of all namespaces with brief descriptions:

gdcm 71
gdcm::network 102
gdcm::SegmentHelper 109
gdcm::terminal
Class for Terminal 109

Chapter 7

Hierarchical Index

7.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

gdcm::network::AbstractSyntax . . . 129
gdcm::network::ApplicationContext . . . 145
gdcm::ApplicationEntity . . . 147
gdcm::network::ARTIMTimer . . . 154
gdcm::ASN1 . . . 155
gdcm::network::AsynchronousOperationsWindowSub . . . 157
gdcm::Attribute< Group, Element, TVR, TVM > . . . 158
gdcm::Attribute< Group, Element, TVR, VM::VM1 > . . . 168
gdcm::Attribute< Group, Element, TVR, VM::VM1_n > . . . 187
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 > . . . 176
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 > . . . 181
gdcm::Attribute< Group, Element, TVR, VM::VM2_n > . . . 202
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n > . . . 195
gdcm::Attribute< Group, Element, TVR, VM::VM3_n > . . . 214
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n > . . . 207
gdcm::Base64 . . . 222
gdcm::network::BaseCompositeMessage . . . 225
gdcm::network::CEchoRQ . . . 290
gdcm::network::CEchoRSP . . . 292
gdcm::network::CFindCancelRQ . . . 294
gdcm::network::CFindRQ . . . 295
gdcm::network::CFindRSP . . . 297
gdcm::network::CMoveCancelRq . . . 305
gdcm::network::CMoveRQ . . . 307
gdcm::network::CMoveRSP . . . 308
gdcm::network::CStoreRQ . . . 362
gdcm::network::CStoreRSP . . . 364
gdcm::network::BaseNormalizedMessage . . . 227
gdcm::network::NActionRQ . . . 854
gdcm::network::NActionRSP . . . 855

gdcm::network::NCreateRQ . . . 857
gdcm::network::NCreateRSP . . . 858
gdcm::network::NDeleteRQ . . . 860
gdcm::network::NDeleteRSP . . . 861
gdcm::network::NEventReportRQ . . . 866
gdcm::network::NEventReportRSP . . . 868
gdcm::network::NGetRQ . . . 869
gdcm::network::NGetRSP . . . 871
gdcm::network::NSetRQ . . . 877
gdcm::network::NSetRSP . . . 878
gdcm::network::BasePDU . . . 230
gdcm::network::AAbortPDU . . . 113
gdcm::network::AAssociateACPDU . . . 116
gdcm::network::AAssociateRJPDU . . . 120
gdcm::network::AAssociateRQPDU . . . 122
gdcm::network::AReleaseRPPDU . . . 149
gdcm::network::AReleaseRQPDU . . . 151
gdcm::network::PDataTFPDU . . . 913
std::basic_string< Char >
std::string
gdcm::String<'\', 16 > . . . 1198
gdcm::String<'\', 64 > . . . 1198
gdcm::String<'\', 4294967294 > . . . 1198
gdcm::String<'\', 64, 0 > . . . 1198
gdcm::String< TDelimiter, TMaxLength, TPadChar > . . . 1198
gdcm::SegmentHelper::BasicCodedEntry . . . 242
gdcm::BitmapToBitmapFilter . . . 264
gdcm::PixmapToPixmapFilter . . . 959
gdcm::ImageToImageFilter . . . 692
gdcm::ImageApplyLookupTable . . . 639
gdcm::ImageChangePhotometricInterpretation . . . 642
gdcm::ImageChangePlanarConfiguration . . . 647
gdcm::ImageChangeTransferSyntax . . . 651
gdcm::ImageFragmentSplitter . . . 672
gdcm::ByteBuffer . . . 272
gdcm::ByteSwap< T > . . . 273
gdcm::ByteSwapFilter . . . 275
gdcm::network::CFind . . . 293
gdcm::Coder . . . 311
gdcm::Codec . . . 310
gdcm::AudioCodec . . . 220
gdcm::ImageCodec . . . 658
gdcm::DeltaEncodingCodec . . . 413
gdcm::JPEG2000Codec . . . 740
gdcm::JPEGCodec . . . 753
gdcm::JPEG12Codec . . . 730
gdcm::JPEG16Codec . . . 735
gdcm::JPEG8Codec . . . 748
gdcm::JPEGTurboCodec . . . 769
gdcm::JPEGLSCodec . . . 762
gdcm::KAKADUCodec . . . 777
gdcm::PGXCodec . . . 931
gdcm::PNMCodec . . . 967

gdcm::PVRGCodec . . . 1008
gdcm::RAWCodec . . . 1028
gdcm::RLECodec . . . 1048
gdcm::PDFCodec . . . 922
gdcm::CodeString . . . 313
gdcm::network::CompositeMessageFactory . . . 325
gdcm::CompositeNetworkFunctions . . . 326
gdcm::ConstCharWrapper . . . 331
gdcm::CryptoFactory . . . 336
gdcm::CAPICryptoFactory . . . 285
gdcm::OpenSSLCryptoFactory . . . 883
gdcm::OpenSSLP7CryptoFactory . . . 889
gdcm::CryptographicMessageSyntax . . . 338
gdcm::CAPICryptographicMessageSyntax . . . 287
gdcm::OpenSSLCryptographicMessageSyntax . . . 885
gdcm::OpenSSLP7CryptographicMessageSyntax . . . 891
gdcm::CSAElement . . . 342
gdcm::CSAHeader . . . 350
gdcm::CSAHeaderDict . . . 355
gdcm::CSAHeaderDictEntry . . . 358
gdcm::DataElement . . . 371
gdcm::CP246ExplicitDataElement . . . 332
gdcm::ExplicitDataElement . . . 540
gdcm::ExplicitImplicitDataElement . . . 544
gdcm::Fragment . . . 612
gdcm::BasicOffsetTable . . . 246
gdcm::ImplicitDataElement . . . 703
gdcm::Item . . . 723
gdcm::UNExplicitDataElement . . . 1379
gdcm::UNExplicitImplicitDataElement . . . 1383
gdcm::VR16ExplicitDataElement . . . 1422
gdcm::DataSet . . . 389
gdcm::CommandDataSet . . . 321
gdcm::FileMetaInformation . . . 572
gdcm::DataSetHelper . . . 405
gdcm::Decoder . . . 406
gdcm::Codec . . . 310
gdcm::DefinedTerms . . . 408
gdcm::Defs . . . 409
gdcm::DICOMDIR . . . 416
gdcm::DICOMDIRGenerator . . . 417
gdcm::Dict . . . 421
gdcm::DictConverter . . . 425
gdcm::DictEntry . . . 429
gdcm::Dicts . . . 437
gdcm::network::DIMSE . . . 441
gdcm::DirectionCosines . . . 442
gdcm::Directory . . . 446
gdcm::DirectoryHelper . . . 450
gdcm::DPath . . . 452
gdcm::DummyValueGenerator . . . 455
gdcm::Element< TVR, TVM > . . . 458

gdcm::Element< TVR, VM::VM1_n > . . . 469
gdcm::Element< TVR, VM::VM1_2 > . . . 464
gdcm::Element< TVR, VM::VM2_n > . . . 482
gdcm::Element< TVR, VM::VM2_2n > . . . 476
gdcm::Element< TVR, VM::VM3_4 > . . . 494
gdcm::Element< TVR, VM::VM3_n > . . . 499
gdcm::Element< TVR, VM::VM3_3n > . . . 487
gdcm::Element< VR::AS, VM::VM5 > . . . 505
gdcm::Element< VR::OB, VM::VM1_n > . . . 458
gdcm::Element< VR::OB, VM::VM1 > . . . 509
gdcm::Element< VR::OW, VM::VM1_n > . . . 458
gdcm::Element< VR::OW, VM::VM1 > . . . 514
gdcm::ElementDisableCombinations< TVR, TVM > . . . 519
gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n > . . . 520
gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n > . . . 521
gdcm::EmptyMaskGenerator . . . 522
gdcm::EncapsulatedDocument . . . 524
gdcm::EncodingImplementation< T > . . . 525
gdcm::EncodingImplementation< VR::VRASCII > . . . 526
gdcm::EncodingImplementation< VR::VRBINARY > . . . 528
gdcm::EnumeratedValues . . . 531
gdcm::EquipmentManufacturer . . . 532
gdcm::Event . . . 534
gdcm::AnyEvent . . . 144
gdcm::AbortEvent . . . 128
gdcm::AnonymizeEvent . . . 131
gdcm::DataEvent . . . 385
gdcm::DataSetEvent . . . 402
gdcm::EndEvent . . . 530
gdcm::ExitEvent . . . 539
gdcm::FileNameEvent . . . 585
gdcm::InitializeEvent . . . 707
gdcm::IterationEvent . . . 729
gdcm::ModifiedEvent . . . 833
gdcm::ProgressEvent . . . 1004
gdcm::StartEvent . . . 1165
gdcm::UserEvent . . . 1391
gdcm::NoEvent . . . 872
std::exception
gdcm::CSAHeaderDictException . . . 362
gdcm::DataElementException . . . 385
gdcm::Exception . . . 537
gdcm::ParseException . . . 907
gdcm::Fiducials . . . 548
gdcm::FileDerivation . . . 565
gdcm::FileExplicitFilter . . . 569
gdcm::Filename . . . 582
gdcm::FilenameGenerator . . . 589
gdcm::FileSet . . . 592
gdcm::Global . . . 617
gdcm::GroupDict . . . 620
gdcm::IconImageFilter . . . 623
gdcm::IconImageGenerator . . . 626

gdcm::ignore_char . . . 629
gdcm::ImageConverter . . . 670
gdcm::ImageHelper . . . 675
gdcm::network::ImplementationClassUIDSub . . . 699
gdcm::network::ImplementationUIDSub . . . 701
gdcm::network::ImplementationVersionNameSub . . . 701
gdcm::IOD . . . 708
gdcm::IODEntry . . . 711
gdcm::IODs . . . 714
gdcm::JSON . . . 774
gdcm::Scanner2::ltstr . . . 792
gdcm::Scanner::ltstr . . . 793
gdcm::StrictScanner2::ltstr . . . 793
gdcm::StrictScanner::ltstr . . . 794
gdcm::Macro . . . 795
gdcm::Macros . . . 797
gdcm::network::MaximumLengthSub . . . 799
gdcm::MD5 . . . 801
gdcm::MEC_MR3 . . . 802
gdcm::MediaStorage . . . 803
gdcm::Module . . . 834
gdcm::ModuleEntry . . . 837
  gdcm::NestedModuleEntries . . . 863
gdcm::Modules . . . 841
gdcm::MrProtocol . . . 852
gdcm::network::NormalizedMessageFactory . . . 873
gdcm::NormalizedNetworkFunctions . . . 874
gdcm::Object . . . 880
  gdcm::BaseQuery . . . 232
    gdcm::BaseRootQuery . . . 237
      gdcm::FindPatientRootQuery . . . 603
      gdcm::FindStudyRootQuery . . . 608
      gdcm::MovePatientRootQuery . . . 844
      gdcm::MoveStudyRootQuery . . . 848
      gdcm::WLMFindQuery . . . 1540
    gdcm::ModalityPerformedProcedureStepCreateQuery . . . 825
    gdcm::ModalityPerformedProcedureStepSetQuery . . . 829
  gdcm::Bitmap . . . 250
    gdcm::Pixmap . . . 948
      gdcm::Image . . . 630
  gdcm::Curve . . . 365
  gdcm::File . . . 549
    gdcm::FileWithName . . . 601
  gdcm::LookupTable . . . 784
    gdcm::SegmentedPaletteColorLookupTable . . . 1086
  gdcm::MeshPrimitive . . . 820
  gdcm::Overlay . . . 897
  gdcm::Segment . . . 1077
  gdcm::Subject . . . 1207
    gdcm::Anonymizer . . . 135
    gdcm::Cleaner . . . 298
    gdcm::Command . . . 317
      gdcm::MemberCommand< SimpleSubjectWatcher > . . . 813

gdcm::SimpleMemberCommand< SimpleSubjectWatcher > . . . 1133
gdcm::MemberCommand< T > . . . 813
gdcm::SimpleMemberCommand< T > . . . 1133
gdcm::FileAnonymizer . . . 554
gdcm::FileChangeTransferSyntax . . . 558
gdcm::FileDecompressLookupTable . . . 562
gdcm::FileStreamer . . . 595
gdcm::Scanner . . . 1057
gdcm::Scanner2 . . . 1066
gdcm::ServiceClassUser . . . 1123
gdcm::StrictScanner . . . 1178
gdcm::StrictScanner2 . . . 1187
gdcm::network::ULConnectionManager . . . 1366
gdcm::Surface . . . 1210
gdcm::Value . . . 1398
gdcm::ByteValue . . . 277
gdcm::SequenceOfFragments . . . 1099
gdcm::SequenceOfItems . . . 1106
gdcm::Orientation . . . 894
gdcm::Parser . . . 909
gdcm::Patient . . . 913
gdcm::PDBElement . . . 917
gdcm::PDBHeader . . . 920
gdcm::network::PDUFactory . . . 925
gdcm::PersonName . . . 928
gdcm::PhotometricInterpretation . . . 935
gdcm::PixelFormat . . . 939
gdcm::Preamble . . . 972
gdcm::PresentationContext . . . 976
gdcm::network::PresentationContextAC . . . 979
gdcm::PresentationContextGenerator . . . 982
gdcm::network::PresentationContextRQ . . . 985
gdcm::network::PresentationDataValue . . . 988
gdcm::Printer . . . 992
gdcm::DictPrinter . . . 434
gdcm::Dumper . . . 456
gdcm::PrivateDict . . . 996
gdcm::PythonFilter . . . 1012
gdcm::QueryBase . . . 1014
gdcm::QueryImage . . . 1018
gdcm::QueryPatient . . . 1021
gdcm::QuerySeries . . . 1023
gdcm::QueryStudy . . . 1026
gdcm::QueryFactory . . . 1017
gdcm::Reader . . . 1033
gdcm::PixmapReader . . . 955
gdcm::ImageReader . . . 682
gdcm::ImageRegionReader . . . 687
gdcm::SegmentReader . . . 1089
gdcm::SurfaceReader . . . 1226
gdcm::RealWorldValueMappingContent . . . 1040
gdcm::Region . . . 1041
gdcm::BoxRegion . . . 267

gdcm::Rescaler . . . 1044
gdcm::network::RoleSelectionSub . . . 1055
gdcm::SerieHelper . . . 1115
gdcm::Series . . . 1120
gdcm::network::ServiceClassApplicationInformation . . . 1121
gdcm::SHA1 . . . 1131
gdcm::SimpleSubjectWatcher . . . 1138
gdcm::MrProtocol::Slice . . . 1141
gdcm::MrProtocol::SliceArray . . . 1142
gdcm::SmartPointer< ObjectType > . . . 1143
gdcm::network::SOPClassExtendedNegociationSub . . . 1147
gdcm::SOPClassUIDToIOD . . . 1148
gdcm::Sorter . . . 1150
  gdcm::IPPSorter . . . 717
gdcm::Spacing . . . 1155
gdcm::Spectroscopy . . . 1157
gdcm::SplitGridFilter . . . 1158
gdcm::SplitMosaicFilter . . . 1161
gdcm::static_assert_test< x > . . . 1166
gdcm::STATIC_ASSERTION_FAILURE< x > . . . 1166
gdcm::STATIC_ASSERTION_FAILURE< true > . . . 1167
gdcm::StreamImageReader . . . 1168
gdcm::StreamImageWriter . . . 1171
String<'\', 64 >
  gdcm::LO . . . 781
gdcm::StringFilter . . . 1202
gdcm::Study . . . 1206
gdcm::SurfaceHelper . . . 1223
gdcm::SwapCode . . . 1235
gdcm::SwapperDoOp . . . 1238
gdcm::SwapperNoOp . . . 1239
gdcm::System . . . 1240
gdcm::Table . . . 1247
gdcm::TableEntry . . . 1250
gdcm::TableReader . . . 1251
  gdcm::XMLDictReader . . . 1550
  gdcm::XMLPrivateDictReader . . . 1556
gdcm::network::TableRow . . . 1254
gdcm::Tag . . . 1256
  gdcm::PrivateTag . . . 999
gdcm::TagPath . . . 1266
gdcm::Testing . . . 1268
gdcm::Trace . . . 1275
gdcm::TransferSyntax . . . 1280
gdcm::network::TransferSyntaxSub . . . 1286
gdcm::network::Transition . . . 1288
gdcm::Type . . . 1290
gdcm::UI . . . 1292
gdcm::UIDGenerator . . . 1293
gdcm::UIDs . . . 1296
gdcm::network::ULAction . . . 1314
  gdcm::network::ULActionAA1 . . . 1317
  gdcm::network::ULActionAA2 . . . 1318

gdcm::network::ULActionAA3 . . . 1319
gdcm::network::ULActionAA4 . . . 1321
gdcm::network::ULActionAA5 . . . 1322
gdcm::network::ULActionAA6 . . . 1323
gdcm::network::ULActionAA7 . . . 1325
gdcm::network::ULActionAA8 . . . 1326
gdcm::network::ULActionAE1 . . . 1327
gdcm::network::ULActionAE2 . . . 1329
gdcm::network::ULActionAE3 . . . 1330
gdcm::network::ULActionAE4 . . . 1331
gdcm::network::ULActionAE5 . . . 1333
gdcm::network::ULActionAE6 . . . 1334
gdcm::network::ULActionAE7 . . . 1335
gdcm::network::ULActionAE8 . . . 1337
gdcm::network::ULActionAR1 . . . 1338
gdcm::network::ULActionAR10 . . . 1339
gdcm::network::ULActionAR2 . . . 1341
gdcm::network::ULActionAR3 . . . 1342
gdcm::network::ULActionAR4 . . . 1343
gdcm::network::ULActionAR5 . . . 1345
gdcm::network::ULActionAR6 . . . 1346
gdcm::network::ULActionAR7 . . . 1347
gdcm::network::ULActionAR8 . . . 1349
gdcm::network::ULActionAR9 . . . 1350
gdcm::network::ULActionDT1 . . . 1351
gdcm::network::ULActionDT2 . . . 1353
gdcm::network::ULConnection . . . 1357
gdcm::network::ULConnectionCallback . . . 1362
gdcm::network::ULBasicCallback . . . 1354
gdcm::network::ULWritingCallback . . . 1377
gdcm::network::ULConnectionInfo . . . 1364
gdcm::network::ULEvent . . . 1374
gdcm::network::ULTransitionTable . . . 1375
gdcm::Unpacker12Bits . . . 1387
gdcm::Usage . . . 1388
gdcm::network::UserInformation . . . 1392
gdcm::UUIDGenerator . . . 1394
gdcm::Validate . . . 1395
gdcm::ValueIO< TDE, TSwap, TType > . . . 1401
gdcm::MrProtocol::Vector3 . . . 1402
gdcm::Version . . . 1403
gdcm::VL . . . 1405
gdcm::VM . . . 1409
gdcm::VMToLength< T > . . . 1414
gdcm::VR . . . 1414
gdcm::VRToEncoding< T > . . . 1425
gdcm::VRToType< T > . . . 1426
gdcm::VRVLSize< T > . . . 1426
gdcm::VRVLSize< 0 > . . . 1427
gdcm::VRVLSize< 1 > . . . 1428
vtkImageAlgorithm
vtkImagePlanarComponentsToComponents . . . 1518
vtkImageMapToColors
vtkImageMapToWindowLevelColors2 . . . 1514

vtkImageWriter
vtkGDCMImageWriter 1459
vtkLookupTable
vtkLookupTable16 1525
vtkMedicalImageProperties
vtkGDCMMedicalImageProperties 1467
vtkMedicalImageReader2
vtkGDCMImageReader 1429
vtkGDCMThreadedImageReader 1483
vtkGDCMImageReader2 1444
vtkObject
vtkGDCMTesting 1480
vtkImageColorViewer 1496
vtkRTStructSetProperties 1529
vtkPolyDataAlgorithm
vtkGDCMPolyDataReader 1470
vtkPolyDataWriter
vtkGDCMPolyDataWriter 1475
vtkThreadedImageAlgorithm
vtkGDCMThreadedImageReader2 1489
vtkImageMapToColors16 1508
vtkImageRGBToYBR 1521
vtkImageYBRToRGB 1523
gdcm::Waveform 1539
gdcm::Writer 1544
gdcm::PixmapWriter 962
gdcm::ImageWriter 695
gdcm::SegmentWriter 1093
gdcm::SurfaceWriter 1230
gdcm::XMLPrinter 1553

Chapter 8

Class Index

8.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

gdcm::network::AAbortPDU
AAbortPDU . . . 113
gdcm::network::AAssociateACPDU
AAssociateACPDU . . . 116
gdcm::network::AAssociateRJPDU
AAssociateRJPDU . . . 120
gdcm::network::AAssociateRQPDU
AAssociateRQPDU . . . 122
gdcm::AbortEvent . . . 128
gdcm::network::AbstractSyntax
AbstractSyntax . . . 129
gdcm::AnonymizeEvent
AnonymizeEvent . . . 131
gdcm::Anonymizer
Anonymizer . . . 135
gdcm::AnyEvent . . . 144
gdcm::network::ApplicationContext
ApplicationContext . . . 145
gdcm::ApplicationEntity
ApplicationEntity . . . 147
gdcm::network::AReleaseRPPDU
AReleaseRPPDU . . . 149
gdcm::network::AReleaseRQPDU
AReleaseRQPDU . . . 151
gdcm::network::ARTIMTimer
ARTIMTimer . . . 154
gdcm::ASN1
Class for ASN1 . . . 155
gdcm::network::AsynchronousOperationsWindowSub
AsynchronousOperationsWindowSub . . . 157

gdcm::Attribute< Group, Element, TVR, TVM >
Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary . . . 158
gdcm::Attribute< Group, Element, TVR, VM::VM1 > . . . 168
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 > . . . 176
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 > . . . 181
gdcm::Attribute< Group, Element, TVR, VM::VM1_n > . . . 187
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n > . . . 195
gdcm::Attribute< Group, Element, TVR, VM::VM2_n > . . . 202
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n > . . . 207
gdcm::Attribute< Group, Element, TVR, VM::VM3_n > . . . 214
gdcm::AudioCodec
AudioCodec . . . 220
gdcm::Base64
Class for Base64 . . . 222
gdcm::network::BaseCompositeMessage
BaseCompositeMessage . . . 225
gdcm::network::BaseNormalizedMessage
BaseNormalizedMessage . . . 227
gdcm::network::BasePDU
BasePDU . . . 230
gdcm::BaseQuery
BaseQuery . . . 232
gdcm::BaseRootQuery
BaseRootQuery . . . 237
gdcm::SegmentHelper::BasicCodedEntry
This structure defines a basic coded entry with all of its attributes . . . 242
gdcm::BasicOffsetTable
Class to represent a BasicOffsetTable . . . 246
gdcm::Bitmap
Bitmap class . . . 250
gdcm::BitmapToBitmapFilter
BitmapToBitmapFilter class . . . 264
gdcm::BoxRegion
Class for manipulation box region . . . 267
gdcm::ByteBuffer
ByteBuffer . . . 272
gdcm::ByteSwap< T >
ByteSwap . . . 273
gdcm::ByteSwapFilter
ByteSwapFilter . . . 275
gdcm::ByteValue
Class to represent binary value (array of bytes) . . . 277
gdcm::CAPICryptoFactory . . . 285
gdcm::CAPICryptographicMessageSyntax . . . 287
gdcm::network::CEchoRQ
CEchoRQ . . . 290
gdcm::network::CEchoRSP
CEchoRSP this file defines the messages for the cecho action . . . 292
gdcm::network::CFind . . . 293
gdcm::network::CFindCancelRQ
CFindCancelRQ this file defines the messages for the cfind action . . . 294
gdcm::network::CFindRQ
CFindRQ . . . 295

gdcm::network::CFindRSP
CFindRSP this file defines the messages for the cfind action . . . 297
gdcm::Cleaner
Cleaner . . . 298
gdcm::network::CMoveCancelRq . . . 305
gdcm::network::CMoveRQ
CMoveRQ . . . 307
gdcm::network::CMoveRSP
CMoveRSP this file defines the messages for the cmove action . . . 308
gdcm::Codec
Codec class . . . 310
gdcm::Coder
Coder . . . 311
gdcm::CodeString
CodeString . . . 313
gdcm::Command
Command superclass for callback/observer methods . . . 317
gdcm::CommandDataSet
Class to represent a Command DataSet . . . 321
gdcm::network::CompositeMessageFactory
CompositeMessageFactory . . . 325
gdcm::CompositeNetworkFunctions
Composite Network Functions . . . 326
gdcm::ConstCharWrapper
Do not use me . . . 331
gdcm::CP246ExplicitDataElement
Class to read/write a DataElement as CP246Explicit Data Element . . . 332
gdcm::CryptoFactory
Class to do handle the crypto factory . . . 336
gdcm::CryptographicMessageSyntax . . . 338
gdcm::CSAElement
Class to represent a CSA Element . . . 342
gdcm::CSAHeader
Class for CSAHeader . . . 350
gdcm::CSAHeaderDict
Class to represent a map of CSAHeaderDictEntry . . . 355
gdcm::CSAHeaderDictEntry
Class to represent an Entry in the Dict . . . 358
gdcm::CSAHeaderDictException . . . 362
gdcm::network::CStoreRQ
CStoreRQ . . . 362
gdcm::network::CStoreRSP
CStoreRSP this file defines the messages for the cecho action . . . 364
gdcm::Curve
Curve class to handle element 50xx,3000 Curve Data . . . 365
gdcm::DataElement
Class to represent a Data Element either Implicit or Explicit . . . 371
gdcm::DataElementException . . . 385
gdcm::DataEvent
DataEvent . . . 385
gdcm::DataSet
Class to represent a Data Set (which contains Data Elements) . . . 389
gdcm::DataSetEvent
DataSetEvent . . . 402

gdcm::DataSetHelper
DataSetHelper (internal class, not intended for user level) . . . 405
gdcm::Decoder
Decoder . . . 406
gdcm::DefinedTerms
Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor . . . 408
gdcm::Defs
FIXME I do not like the name 'Defs' . . . 409
gdcm::DeltaEncodingCodec
DeltaEncodingCodec compression used by some private vendor . . . 413
gdcm::DICOMDIR
DICOMDIR class . . . 416
gdcm::DICOMDIRGenerator
DICOMDIRGenerator class . . . 417
gdcm::Dict
Class to represent a map of DictEntry . . . 421
gdcm::DictConverter
Class to convert a .dic file into something else: . . . 425
gdcm::DictEntry
Class to represent an Entry in the Dict . . . 429
gdcm::DictPrinter
DictPrinter class . . . 434
gdcm::Dicts
Class to manipulate the sum of knowledge (all the dict user load) . . . 437
gdcm::network::DIMSE
DIMSE . . . 441
gdcm::DirectionCosines
Class to handle DirectionCosines . . . 442
gdcm::Directory
Class for manipulation directories . . . 446
gdcm::DirectoryHelper
DirectoryHelper . . . 450
gdcm::DPath
Class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation https://groups.↩ google.com/g/comp.protocols.dicom/c/IyIH0IOBMPA . . . 452
gdcm::DummyValueGenerator
Class for generating dummy value . . . 455
gdcm::Dumper
Codec class . . . 456
gdcm::Element< TVR, TVM >
Element class . . . 458
gdcm::Element< TVR, VM::VM1_2 > . . . 464
gdcm::Element< TVR, VM::VM1_n > . . . 469
gdcm::Element< TVR, VM::VM2_2n > . . . 476
gdcm::Element< TVR, VM::VM2_n > . . . 482

gdcm::Element< TVR, VM::VM3_3n > . . . 487
gdcm::Element< TVR, VM::VM3_4 > . . . 494
gdcm::Element< TVR, VM::VM3_n > . . . 499
gdcm::Element< VR::AS, VM::VM5 > . . . 505
gdcm::Element< VR::OB, VM::VM1 > . . . 509
gdcm::Element< VR::OW, VM::VM1 > . . . 514
gdcm::ElementDisableCombinations< TVR, TVM >
A class which is used to produce compile errors for an invalid combination of template parameters . 519
gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n > . . . 520
gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n > . . . 521
gdcm::EmptyMaskGenerator
EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory . . . 522
gdcm::EncapsulatedDocument
EncapsulatedDocument . . . 524
gdcm::EncodingImplementation< T >
EncodingImplementation . . . 525
gdcm::EncodingImplementation< VR::VRASCII > . . . 526
gdcm::EncodingImplementation< VR::VRBINARY > . . . 528
gdcm::EndEvent . . . 530
gdcm::EnumeratedValues
Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note: . . . 531
gdcm::EquipmentManufacturer . . . 532
gdcm::Event
Superclass for callback/observer methods . . . 534
gdcm::Exception
Exception . . . 537
gdcm::ExitEvent . . . 539
gdcm::ExplicitDataElement
Class to read/write a DataElement as Explicit Data Element . . . 540
gdcm::ExplicitImplicitDataElement
Class to read/write a DataElement as ExplicitImplicit Data Element . . . 544
gdcm::Fiducials
Fiducials . . . 548
gdcm::File
DICOM File . . . 549
gdcm::FileAnonymizer
FileAnonymizer . . . 554
gdcm::FileChangeTransferSyntax
FileChangeTransferSyntax . . . 558
gdcm::FileDecompressLookupTable
FileDecompressLookupTable class . . . 562
gdcm::FileDerivation
FileDerivation class . . . 565
gdcm::FileExplicitFilter
FileExplicitFilter class . . . 569
gdcm::FileMetaInformation
Class to represent a File Meta Information . . . 572
gdcm::Filename
Class to manipulate file name's . . . 582

gdcm::FileNameEvent
FileNameEvent . . . 585
gdcm::FilenameGenerator
FilenameGenerator . . . 589
gdcm::FileSet . . . 592
gdcm::FileStreamer
FileStreamer . . . 595
gdcm::FileWithName
FileWithName . . . 601
gdcm::FindPatientRootQuery
PatientRootQuery . . . 603
gdcm::FindStudyRootQuery
FindStudyRootQuery . . . 608
gdcm::Fragment
Class to represent a Fragment . . . 612
gdcm::Global
Global . . . 617
gdcm::GroupDict
Class to represent the mapping from group number to its abbreviation and name . . . 620
gdcm::IconImageFilter
IconImageFilter . . . 623
gdcm::IconImageGenerator
IconImageGenerator . . . 626
gdcm::ignore_char . . . 629
gdcm::Image
Image . . . 630
gdcm::ImageApplyLookupTable
ImageApplyLookupTable class . . . 639
gdcm::ImageChangePhotometricInterpretation
ImageChangePhotometricInterpretation class . . . 642
gdcm::ImageChangePlanarConfiguration
ImageChangePlanarConfiguration class . . . 647
gdcm::ImageChangeTransferSyntax
ImageChangeTransferSyntax class . . . 651
gdcm::ImageCodec
ImageCodec . . . 658
gdcm::ImageConverter
Image Converter . . . 670
gdcm::ImageFragmentSplitter
ImageFragmentSplitter class . . . 672
gdcm::ImageHelper
ImageHelper (internal class, not intended for user level) . . . 675
gdcm::ImageReader
ImageReader . . . 682
gdcm::ImageRegionReader
ImageRegionReader . . . 687
gdcm::ImageToImageFilter
ImageToImageFilter class . . . 692
gdcm::ImageWriter
ImageWriter . . . 695
gdcm::network::ImplementationClassUIDSub
ImplementationClassUIDSub . . . 699
gdcm::network::ImplementationUIDSub
ImplementationUIDSub . . . 701

gdcm::network::ImplementationVersionNameSub
ImplementationVersionNameSub . . . 701
gdcm::ImplicitDataElement
Class to represent an *Implicit VR* Data Element . . . 703
gdcm::InitializeEvent . . . 707
gdcm::IOD
Class for representing a IOD . . . 708
gdcm::IODEntry
Class for representing a IODEntry . . . 711
gdcm::IODs
Class for representing a IODs . . . 714
gdcm::IPPSorter
IPPSorter . . . 717
gdcm::Item
Class to represent an Item . . . 723
gdcm::IterationEvent . . . 729
gdcm::JPEG12Codec
Class to do JPEG 12bits (lossy & lossless) . . . 730
gdcm::JPEG16Codec
Class to do JPEG 16bits (lossless) . . . 735
gdcm::JPEG2000Codec
Class to do JPEG 2000 . . . 740
gdcm::JPEG8Codec
Class to do JPEG 8bits (lossy & lossless) . . . 748
gdcm::JPEGCodec
JPEG codec . . . 753
gdcm::JPEGLSCodec
JPEG-LS . . . 762
gdcm::JPEGTurboCodec
Class to do JPEG using libjpeg-turbo (8/12/16 bits, lossy & lossless) . . . 769
gdcm::JSON . . . 774
gdcm::KAKADUCodec
KAKADUCodec . . . 777
gdcm::LO
LO . . . 781
gdcm::LookupTable
LookupTable class . . . 784
gdcm::Scanner2::ltstr . . . 792
gdcm::Scanner::ltstr . . . 793
gdcm::StrictScanner2::ltstr . . . 793
gdcm::StrictScanner::ltstr . . . 794
gdcm::Macro
Class for representing a Macro . . . 795
gdcm::Macros
Class for representing a Modules . . . 797
gdcm::network::MaximumLengthSub
MaximumLengthSub . . . 799
gdcm::MD5
Class for MD5 . . . 801
gdcm::MEC_MR3
Class for MEC_MR3 . . . 802
gdcm::MediaStorage
MediaStorage . . . 803

gdcm::MemberCommand< T >
Command subclass that calls a pointer to a member function . . . 813
gdcm::MeshPrimitive
This class defines surface mesh primitives . . . 820
gdcm::ModalityPerformedProcedureStepCreateQuery
ModalityPerformedProcedureStepCreateQuery . . . 825
gdcm::ModalityPerformedProcedureStepSetQuery
ModalityPerformedProcedureStepSetQuery . . . 829
gdcm::ModifiedEvent . . . 833
gdcm::Module
Class for representing a Module . . . 834
gdcm::ModuleEntry
Class for representing a ModuleEntry . . . 837
gdcm::Modules
Class for representing a Modules . . . 841
gdcm::MovePatientRootQuery
MovePatientRootQuery . . . 844
gdcm::MoveStudyRootQuery
MoveStudyRootQuery . . . 848
gdcm::MrProtocol
Class for MrProtocol . . . 852
gdcm::network::NActionRQ
NActionRQ . . . 854
gdcm::network::NActionRSP
NActionRSP this file defines the messages for the NAction action . . . 855
gdcm::network::NCreateRQ
NCreateRQ . . . 857
gdcm::network::NCreateRSP
NCreateRSP this file defines the messages for the ncreate action . . . 858
gdcm::network::NDeleteRQ
NDeleteRQ . . . 860
gdcm::network::NDeleteRSP
NDeleteRSP this file defines the messages for the ndelete action . . . 861
gdcm::NestedModuleEntries
Class for representing a NestedModuleEntries . . . 863
gdcm::network::NEventReportRQ
NEventReportRQ . . . 866
gdcm::network::NEventReportRSP
NEventReportRSP this file defines the messages for the neventreport action . . . 868
gdcm::network::NGetRQ
NGetRQ . . . 869
gdcm::network::NGetRSP
NGetRSP this file defines the messages for the nget action . . . 871
gdcm::NoEvent . . . 872
gdcm::network::NormalizedMessageFactory . . . 873
gdcm::NormalizedNetworkFunctions
Normalized Network Functions . . . 874
gdcm::network::NSetRQ
NSetRQ . . . 877
gdcm::network::NSetRSP
NSetRSP this file defines the messages for the nset action . . . 878
gdcm::Object
Object . . . 880
gdcm::OpenSSLCryptoFactory . . . 883

gdcm::OpenSSLCryptographicMessageSyntax . . . 885
gdcm::OpenSSLP7CryptoFactory . . . 889
gdcm::OpenSSLP7CryptographicMessageSyntax . . . 891
gdcm::Orientation
Class to handle Orientation . . . 894
gdcm::Overlay
Overlay class . . . 897
gdcm::ParseException
ParseException Standard exception handling object . . . 907
gdcm::Parser
Parser ala XML_Parser from expat (SAX) . . . 909
gdcm::Patient
See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54 . . . 913
gdcm::network::PDataTFPDU
PDataTFPDU . . . 913
gdcm::PDBElement
Class to represent a PDB Element . . . 917
gdcm::PDBHeader
Class for PDBHeader . . . 920
gdcm::PDFCodec
PDFCodec class . . . 922
gdcm::network::PDUFactory
PDUFactory basically, given an initial byte, construct the . . . 925
gdcm::PersonName
PersonName class . . . 928
gdcm::PGXCodec
Class to do PGX . . . 931
gdcm::PhotometricInterpretation
Class to represent an PhotometricInterpretation . . . 935
gdcm::PixelFormat
PixelFormat . . . 939
gdcm::Pixmap
Pixmap class . . . 948
gdcm::PixmapReader
PixmapReader . . . 955
gdcm::PixmapToPixmapFilter
PixmapToPixmapFilter class . . . 959
gdcm::PixmapWriter
PixmapWriter . . . 962
gdcm::PNMCodec
Class to do PNM . . . 967
gdcm::Preamble
DICOM Preamble (Part 10) . . . 972
gdcm::PresentationContext
PresentationContext . . . 976
gdcm::network::PresentationContextAC
PresentationContextAC . . . 979
gdcm::PresentationContextGenerator
PresentationContextGenerator . . . 982
gdcm::network::PresentationContextRQ
PresentationContextRQ . . . 985
gdcm::network::PresentationDataValue
PresentationDataValue . . . 988

gdcm::Printer
Printer class . . . 992
gdcm::PrivateDict
Private Dict . . . 996
gdcm::PrivateTag
Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner) . . . 999
gdcm::ProgressEvent
ProgressEvent . . . 1004
gdcm::PVRGCodec
PVRGCodec . . . 1008
gdcm::PythonFilter
PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language . . . 1012
gdcm::QueryBase
QueryBase . . . 1014
gdcm::QueryFactory
QueryFactory.h . . . 1017
gdcm::QueryImage
QueryImage . . . 1018
gdcm::QueryPatient
QueryPatient . . . 1021
gdcm::QuerySeries
QuerySeries . . . 1023
gdcm::QueryStudy
QueryStudy.h . . . 1026
gdcm::RAWCodec
RAWCodec class . . . 1028
gdcm::Reader
Reader ala DOM (Document Object Model) . . . 1033
gdcm::RealWorldValueMappingContent . . . 1040
gdcm::Region
Class for manipulation region . . . 1041
gdcm::Rescaler
Rescale class . . . 1044
gdcm::RLECodec
Class to do RLE . . . 1048
gdcm::network::RoleSelectionSub
RoleSelectionSub . . . 1055
gdcm::Scanner
Scanner . . . 1057
gdcm::Scanner2
Scanner2 . . . 1066
gdcm::Segment
This class defines a segment . . . 1077
gdcm::SegmentedPaletteColorLookupTable
SegmentedPaletteColorLookupTable class . . . 1086
gdcm::SegmentReader
This class defines a segment reader . . . 1089
gdcm::SegmentWriter
This class defines a segment writer . . . 1093
gdcm::SequenceOfFragments
Class to represent a Sequence Of Fragments . . . 1099

gdcm::SequenceOfItems
Class to represent a Sequence Of Items . . . 1106
gdcm::SerieHelper
SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned . . . 1115
gdcm::Series
Series . . . 1120
gdcm::network::ServiceClassApplicationInformation . . . 1121
gdcm::ServiceClassUser
ServiceClassUser . . . 1123
gdcm::SHA1
Class for SHA1 . . . 1131
gdcm::SimpleMemberCommand< T >
Command subclass that calls a pointer to a member function . . . 1133
gdcm::SimpleSubjectWatcher
SimpleSubjectWatcher . . . 1138
gdcm::MrProtocol::Slice . . . 1141
gdcm::MrProtocol::SliceArray . . . 1142
gdcm::SmartPointer< ObjectType >
Class for Smart Pointer . . . 1143
gdcm::network::SOPClassExtendedNegociationSub
SOPClassExtendedNegociationSub . . . 1147
gdcm::SOPClassUIDToIOD
Class convert a class SOP Class UID into IOD . . . 1148
gdcm::Sorter
Sorter . . . 1150
gdcm::Spacing
Class for Spacing . . . 1155
gdcm::Spectroscopy
Spectroscopy class . . . 1157
gdcm::SplitGridFilter
SplitGridFilter class . . . 1158
gdcm::SplitMosaicFilter
SplitMosaicFilter class . . . 1161
gdcm::StartEvent . . . 1165
gdcm::static_assert_test< x > . . . 1166
gdcm::STATIC_ASSERTION_FAILURE< x > . . . 1166
gdcm::STATIC_ASSERTION_FAILURE< true > . . . 1167
gdcm::StreamImageReader
StreamImageReader . . . 1168
gdcm::StreamImageWriter
StreamImageReader . . . 1171
gdcm::StrictScanner
StrictScanner . . . 1178
gdcm::StrictScanner2
StrictScanner2 . . . 1187
gdcm::String< TDelimiter, TMaxLength, TPadChar >
String . . . 1198
gdcm::StringFilter
StringFilter . . . 1202
gdcm::Study
Study . . . 1206
gdcm::Subject
Subject . . . 1207

gdcm::Surface
This class defines a SURFACE IE . . . 1210
gdcm::SurfaceHelper
SurfaceHelper . . . 1223
gdcm::SurfaceReader
This class defines a SURFACE IE reader . . . 1226
gdcm::SurfaceWriter
This class defines a SURFACE IE writer . . . 1230
gdcm::SwapCode
SwapCode representation . . . 1235
gdcm::SwapperDoOp . . . 1238
gdcm::SwapperNoOp . . . 1239
gdcm::System
Class to do system operation . . . 1240
gdcm::Table
Table . . . 1247
gdcm::TableEntry
TableEntry . . . 1250
gdcm::TableReader
Class for representing a TableReader . . . 1251
gdcm::network::TableRow . . . 1254
gdcm::Tag
Class to represent a DICOM Data Element (Attribute) Tag (Group, Element) . . . 1256
gdcm::TagPath
Class to handle a path of tag . . . 1266
gdcm::Testing
Class for testing . . . 1268
gdcm::Trace
Trace . . . 1275
gdcm::TransferSyntax
Class to manipulate Transfer Syntax . . . 1280
gdcm::network::TransferSyntaxSub
TransferSyntaxSub . . . 1286
gdcm::network::Transition . . . 1288
gdcm::Type
Type . . . 1290
gdcm::UI . . . 1292
gdcm::UIDGenerator
Class for generating unique UID . . . 1293
gdcm::UIDs
All known uids . . . 1296
gdcm::network::ULAction
ULAction . . . 1314
gdcm::network::ULActionAA1 . . . 1317
gdcm::network::ULActionAA2 . . . 1318
gdcm::network::ULActionAA3 . . . 1319
gdcm::network::ULActionAA4 . . . 1321
gdcm::network::ULActionAA5 . . . 1322
gdcm::network::ULActionAA6 . . . 1323
gdcm::network::ULActionAA7 . . . 1325
gdcm::network::ULActionAA8 . . . 1326
gdcm::network::ULActionAE1 . . . 1327
gdcm::network::ULActionAE2 . . . 1329
gdcm::network::ULActionAE3 . . . 1330

gdcm::network::ULActionAE4 . . . 1331
gdcm::network::ULActionAE5 . . . 1333
gdcm::network::ULActionAE6 . . . 1334
gdcm::network::ULActionAE7 . . . 1335
gdcm::network::ULActionAE8 . . . 1337
gdcm::network::ULActionAR1 . . . 1338
gdcm::network::ULActionAR10 . . . 1339
gdcm::network::ULActionAR2 . . . 1341
gdcm::network::ULActionAR3 . . . 1342
gdcm::network::ULActionAR4 . . . 1343
gdcm::network::ULActionAR5 . . . 1345
gdcm::network::ULActionAR6 . . . 1346
gdcm::network::ULActionAR7 . . . 1347
gdcm::network::ULActionAR8 . . . 1349
gdcm::network::ULActionAR9 . . . 1350
gdcm::network::ULActionDT1 . . . 1351
gdcm::network::ULActionDT2 . . . 1353
gdcm::network::ULBasicCallback
ULBasicCallback . . . 1354
gdcm::network::ULConnection
ULConnection . . . 1357
gdcm::network::ULConnectionCallback . . . 1362
gdcm::network::ULConnectionInfo
ULConnectionInfo . . . 1364
gdcm::network::ULConnectionManager
ULConnectionManager . . . 1366
gdcm::network::ULEvent
ULEvent . . . 1374
gdcm::network::ULTransitionTable
ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates . . . 1375
gdcm::network::ULWritingCallback . . . 1377
gdcm::UNExplicitDataElement
Class to read/write a DataElement as UNExplicit Data Element . . . 1379
gdcm::UNExplicitImplicitDataElement
Class to read/write a DataElement as ExplicitImplicit Data Element . . . 1383
gdcm::Unpacker12Bits
Pack/Unpack 12 bits pixel into 16bits . . . 1387
gdcm::Usage
Usage . . . 1388
gdcm::UserEvent . . . 1391
gdcm::network::UserInformation
UserInformation . . . 1392
gdcm::UUIDGenerator
Class for generating unique UUID . . . 1394
gdcm::Validate
Validate class . . . 1395
gdcm::Value
Class to represent the value of a Data Element . . . 1398
gdcm::ValueIO< TDE, TSwap, TType >
Class to dispatch template calls . . . 1401
gdcm::MrProtocol::Vector3 . . . 1402
gdcm::Version
Major/minor and build version . . . 1403

gdcm::VL
Value Length . . . 1405
gdcm::VM
Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n . . . 1409
gdcm::VMToLength< T > . . . 1414
gdcm::VR
VR class . . . 1414
gdcm::VR16ExplicitDataElement
Class to read/write a DataElement as Explicit Data Element . . . 1422
gdcm::VRToEncoding< T > . . . 1425
gdcm::VRToType< T > . . . 1426
gdcm::VRVLSize< T > . . . 1426
gdcm::VRVLSize< 0 > . . . 1427
gdcm::VRVLSize< 1 > . . . 1428
vtkGDCMImageReader . . . 1429
vtkGDCMImageReader2 . . . 1444
vtkGDCMImageWriter . . . 1459
vtkGDCMMedicalImageProperties . . . 1467
vtkGDCMPolyDataReader . . . 1470
vtkGDCMPolyDataWriter . . . 1475
vtkGDCMTesting . . . 1480
vtkGDCMThreadedImageReader . . . 1483
vtkGDCMThreadedImageReader2 . . . 1489
vtkImageColorViewer . . . 1496
vtkImageMapToColors16 . . . 1508
vtkImageMapToWindowLevelColors2 . . . 1514
vtkImagePlanarComponentsToComponents . . . 1518
vtkImageRGBToYBR . . . 1521
vtkImageYBRToRGB . . . 1523
vtkLookupTable16 . . . 1525
vtkRTStructSetProperties . . . 1529
gdcm::Waveform
Waveform class . . . 1539
gdcm::WLMFindQuery
PatientRootQuery . . . 1540
gdcm::Writer
Writer ala DOM (Document Object Model) . . . 1544
gdcm::XMLDictReader
Class for representing a XMLDictReader . . . 1550
gdcm::XMLPrinter . . . 1553
gdcm::XMLPrivateDictReader
Class for representing a XMLPrivateDictReader . . . 1556

Chapter 9

File Index

9.1 File List

Here is a list of all files with brief descriptions:

gdcmASN1.h . . . 1561
gdcmBase64.h . . . 1563
gdcmBoxRegion.h . . . 1564
gdcmByteSwap.h . . . 1565
gdcmCAPICryptoFactory.h . . . 1567
gdcmCAPICryptographicMessageSyntax.h . . . 1568
gdcmCommand.h . . . 1571
gdcmCryptoFactory.h . . . 1574
gdcmCryptographicMessageSyntax.h . . . 1576
gdcmDataEvent.h . . . 1578
gdcmDeflateStream.h . . . 1580
gdcmDirectory.h . . . 1580
gdcmDummyValueGenerator.h . . . 1583
gdcmEvent.h . . . 1584
gdcmException.h . . . 1587
gdcmFilename.h . . . 1591
gdcmFileNameEvent.h . . . 1592
gdcmFilenameGenerator.h . . . 1594
gdcmLegacyMacro.h . . . 1595
gdcmMD5.h . . . 1598
gdcmObject.h . . . 1599
gdcmOpenSSLCryptoFactory.h . . . 1602
gdcmOpenSSLCryptographicMessageSyntax.h . . . 1603
gdcmOpenSSLP7CryptoFactory.h . . . 1605
gdcmOpenSSLP7CryptographicMessageSyntax.h . . . 1607
gdcmProgressEvent.h . . . 1609
gdcmRegion.h . . . 1610
gdcmSHA1.h . . . 1613
gdcmSmartPointer.h . . . 1614
gdcmStaticAssert.h . . . 1616
gdcmString.h . . . 1618

gdcmSubject.h . . . 1622
gdcmSwapCode.h . . . 1623
gdcmSwapper.h . . . 1625
gdcmSystem.h . . . 1628
gdcmTerminal.h . . . 1630
gdcmTestDriver.h . . . 1632
gdcmTesting.h . . . 1633
gdcmTrace.h . . . 1635
gdcmTypes.h . . . 1641
gdcmUnpacker12Bits.h . . . 1642
gdcmVersion.h . . . 1643
gdcmWin32.h . . . 1644
gdcmCSAHeaderDict.h . . . 1646
gdcmCSAHeaderDictEntry.h . . . 1649
gdcmDict.h . . . 1652
gdcmDictConverter.h . . . 1657
gdcmDictEntry.h . . . 1659
gdcmDicts.h . . . 1662
gdcmGlobal.h . . . 1664
gdcmGroupDict.h . . . 1666
gdcmSOPClassUIDToIOD.h . . . 1668
gdcmUIDs.h . . . 1669
gdcmAttribute.h . . . 1683
gdcmBasicOffsetTable.h . . . 1697
gdcmByteBuffer.h . . . 1700
gdcmByteSwapFilter.h . . . 1703
gdcmByteValue.h . . . 1704
gdcmCodeString.h . . . 1708
gdcmCP246ExplicitDataElement.h . . . 1710
gdcmCSAElement.h . . . 1711
gdcmCSAHeader.h . . . 1715
gdcmDataElement.h . . . 1717
gdcmDataSet.h . . . 1721
gdcmDataSetEvent.h . . . 1725
gdcmElement.h . . . 1727
gdcmExplicitDataElement.h . . . 1739
gdcmExplicitImplicitDataElement.h . . . 1741
gdcmFile.h . . . 1743
gdcmFileMetaInformation.h . . . 1744
gdcmFileSet.h . . . 1747
gdcmFragment.h . . . 1749
gdcmImplicitDataElement.h . . . 1754
gdcmItem.h . . . 1755
gdcmLO.h . . . 1761
gdcmMediaStorage.h . . . 1762
gdcmMrProtocol.h . . . 1766
gdcmParseException.h . . . 1768
gdcmParser.h . . . 1770
gdcmPDBElement.h . . . 1773
gdcmPDBHeader.h . . . 1775
gdcmPreamble.h . . . 1777
gdcmPrivateTag.h . . . 1779
gdcmReader.h . . . 1781
gdcmSequenceOfFragments.h . . . 1783

gdcmSequenceOfItems.h . . . 1788
gdcmTag.h . . . 1792
gdcmTagToVR.h . . . 1797
gdcmTransferSyntax.h . . . 1798
gdcmUNExplicitDataElement.h . . . 1800
gdcmUNExplicitImplicitDataElement.h . . . 1802
gdcmValue.h . . . 1803
gdcmValueIO.h . . . 1805
gdcmVL.h . . . 1806
gdcmVM.h . . . 1809
gdcmVR.h . . . 1812
gdcmVR16ExplicitDataElement.h . . . 1819
gdcmWriter.h . . . 1821
gdcmDefinedTerms.h . . . 1823
gdcmDefs.h . . . 1824
gdcmEnumeratedValues.h . . . 1827
gdcmIOD.h . . . 1828
gdcmIODEntry.h . . . 1831
gdcmIODs.h . . . 1833
gdcmMacro.h . . . 1836
gdcmMacroEntry.h . . . 1839
gdcmMacros.h . . . 1842
gdcmModule.h . . . 1844
gdcmModuleEntry.h . . . 1847
gdcmModules.h . . . 1850
gdcmNestedModuleEntries.h . . . 1852
gdcmPatient.h . . . 1854
gdcmSeries.h . . . 1856
gdcmStudy.h . . . 1857
gdcmTable.h . . . 1859
gdcmTableEntry.h . . . 1861
gdcmTableReader.h . . . 1863
gdcmType.h . . . 1866
gdcmUsage.h . . . 1868
gdcmXMLDictReader.h . . . 1871
gdcmXMLPrivateDictReader.h . . . 1873
gdcmAnonymizeEvent.h . . . 1874
gdcmAnonymizer.h . . . 1876
gdcmApplicationEntity.h . . . 1879
gdcmAudioCodec.h . . . 1880
gdcmBitmap.h . . . 1881
gdcmBitmapToBitmapFilter.h . . . 1885
gdcmCleaner.h . . . 1886
gdcmCodec.h . . . 1888
gdcmCoder.h . . . 1889
gdcmConstCharWrapper.h . . . 1891
gdcmCurve.h . . . 1892
gdcmDataSetHelper.h . . . 1894
gdcmDecoder.h . . . 1895
gdcmDeltaEncodingCodec.h . . . 1897
gdcmDICOMDIR.h . . . 1898
gdcmDICOMDIRGenerator.h . . . 1900
gdcmDictPrinter.h . . . 1902
gdcmDirectionCosines.h . . . 1903

gdcmDirectoryHelper.h . . . 1904
gdcmDPath.h . . . 1906
gdcmDumper.h . . . 1908
gdcmEmptyMaskGenerator.h . . . 1910
gdcmEncapsulatedDocument.h . . . 1911
gdcmEquipmentManufacturer.h . . . 1912
gdcmFiducials.h . . . 1914
gdcmFileAnonymizer.h . . . 1915
gdcmFileChangeTransferSyntax.h . . . 1916
gdcmFileDecompressLookupTable.h . . . 1918
gdcmFileDerivation.h . . . 1920
gdcmFileExplicitFilter.h . . . 1921
gdcmFileStreamer.h . . . 1923
gdcmIconImage.h . . . 1924
gdcmIconImageFilter.h . . . 1926
gdcmIconImageGenerator.h . . . 1928
gdcmImage.h . . . 1929
gdcmImageApplyLookupTable.h . . . 1932
gdcmImageChangePhotometricInterpretation.h . . . 1933
gdcmImageChangePlanarConfiguration.h . . . 1936
gdcmImageChangeTransferSyntax.h . . . 1937
gdcmImageCodec.h . . . 1939
gdcmImageConverter.h . . . 1942
gdcmImageFragmentSplitter.h . . . 1944
gdcmImageHelper.h . . . 1945
gdcmImageReader.h . . . 1947
gdcmImageRegionReader.h . . . 1949
gdcmImageToImageFilter.h . . . 1951
gdcmImageWriter.h . . . 1952
gdcmIPPSorter.h . . . 1953
gdcmJPEG12Codec.h . . . 1955
gdcmJPEG16Codec.h . . . 1957
gdcmJPEG2000Codec.h . . . 1958
gdcmJPEG8Codec.h . . . 1960
gdcmJPEGCodec.h . . . 1962
gdcmJPEGLSCodec.h . . . 1964
gdcmJPEGTurboCodec.h . . . 1966
gdcmJSON.h . . . 1967
gdcmKAKADUCodec.h . . . 1969
gdcmLookupTable.h . . . 1970
gdcmMEC_MR3.h . . . 1973
gdcmMeshPrimitive.h . . . 1974
gdcmOrientation.h . . . 1977
gdcmOverlay.h . . . 1978
gdcmPDFCodec.h . . . 1981
gdcmPersonName.h . . . 1982
gdcmPGXCodec.h . . . 1984
gdcmPhotometricInterpretation.h . . . 1985
gdcmPixelFormat.h . . . 1987
gdcmPixmap.h . . . 1991
gdcmPixmapReader.h . . . 1993
gdcmPixmapToPixmapFilter.h . . . 1996
gdcmPixmapWriter.h . . . 1997
gdcmPNMCodec.h . . . 1999

gdcmPrinter.h . . . 2000
gdcmPVRGCodec.h . . . 2003
gdcmRAWCodec.h . . . 2005
gdcmRescaler.h . . . 2006
gdcmRLECodec.h . . . 2008
gdcmScanner.h . . . 2009
gdcmScanner2.h . . . 2012
gdcmSegment.h . . . 2015
gdcmSegmentedPaletteColorLookupTable.h . . . 2019
gdcmSegmentHelper.h . . . 2020
gdcmSegmentReader.h . . . 2022
gdcmSegmentWriter.h . . . 2024
gdcmSerieHelper.h . . . 2026
gdcmSimpleSubjectWatcher.h . . . 2029
gdcmSorter.h . . . 2031
gdcmSpacing.h . . . 2034
gdcmSpectroscopy.h . . . 2035
gdcmSplitGridFilter.h . . . 2036
gdcmSplitMosaicFilter.h . . . 2038
gdcmStreamImageReader.h . . . 2040
gdcmStreamImageWriter.h . . . 2041
gdcmStrictScanner.h . . . 2043
gdcmStrictScanner2.h . . . 2046
gdcmStringFilter.h . . . 2049
gdcmSurface.h . . . 2050
gdcmSurfaceHelper.h . . . 2055
gdcmSurfaceReader.h . . . 2057
gdcmSurfaceWriter.h . . . 2059
gdcmTagPath.h . . . 2060
gdcmUIDGenerator.h . . . 2062
gdcmUUIDGenerator.h . . . 2064
gdcmValidate.h . . . 2065
gdcmWaveform.h . . . 2066
gdcmXMLPrinter.h . . . 2067
gdcmAAbortPDU.h . . . 2070
gdcmAAssociateACPDU.h . . . 2071
gdcmAAssociateRJPDU.h . . . 2074
gdcmAAssociateRQPDU.h . . . 2075
gdcmAbstractSyntax.h . . . 2078
gdcmApplicationContext.h . . . 2080
gdcmAReleaseRPPDU.h . . . 2081
gdcmAReleaseRQPDU.h . . . 2083
gdcmARTIMTimer.h . . . 2084
gdcmAsynchronousOperationsWindowSub.h . . . 2086
gdcmBaseCompositeMessage.h . . . 2087
gdcmBaseNormalizedMessage.h . . . 2089
gdcmBasePDU.h . . . 2090
gdcmBaseQuery.h . . . 2092
gdcmBaseRootQuery.h . . . 2094
gdcmCEchoMessages.h . . . 2096
gdcmCFindMessages.h . . . 2097
gdcmCMoveMessages.h . . . 2099
gdcmCommandDataSet.h . . . 2100
gdcmCompositeMessageFactory.h . . . 2102

gdcmCompositeNetworkFunctions.h . . . 2103
gdcmCStoreMessages.h . . . 2105
gdcmDIMSE.h . . . 2107
gdcmFindPatientRootQuery.h . . . 2109
gdcmFindStudyRootQuery.h . . . 2111
gdcmImplementationClassUIDSub.h . . . 2112
gdcmImplementationUIDSub.h . . . 2114
gdcmImplementationVersionNameSub.h . . . 2115
gdcmMaximumLengthSub.h . . . 2117
gdcmModalityPerformedProcedureStepCreateQuery.h . . . 2119
gdcmModalityPerformedProcedureStepSetQuery.h . . . 2120
gdcmMovePatientRootQuery.h . . . 2121
gdcmMoveStudyRootQuery.h . . . 2123
gdcmNActionMessages.h . . . 2124
gdcmNCreateMessages.h . . . 2125
gdcmNDeleteMessages.h . . . 2127
gdcmNetworkEvents.h . . . 2128
gdcmNetworkStateID.h . . . 2130
gdcmNEventReportMessages.h . . . 2132
gdcmNGetMessages.h . . . 2133
gdcmNormalizedMessageFactory.h . . . 2134
gdcmNormalizedNetworkFunctions.h . . . 2136
gdcmNSetMessages.h . . . 2138
gdcmPDataTFPDU.h . . . 2139
gdcmPDUFactory.h . . . 2141
gdcmPresentationContext.h . . . 2142
gdcmPresentationContextAC.h . . . 2144
gdcmPresentationContextGenerator.h . . . 2146
gdcmPresentationContextRQ.h . . . 2148
gdcmPresentationDataValue.h . . . 2150
gdcmQueryBase.h . . . 2152
gdcmQueryFactory.h . . . 2155
gdcmQueryImage.h . . . 2156
gdcmQueryPatient.h . . . 2158
gdcmQuerySeries.h . . . 2160
gdcmQueryStudy.h . . . 2162
gdcmRoleSelectionSub.h . . . 2163
gdcmServiceClassApplicationInformation.h . . . 2165
gdcmServiceClassUser.h . . . 2166
gdcmSOPClassExtendedNegociationSub.h . . . 2169
gdcmTransferSyntaxSub.h . . . 2170
gdcmULAction.h . . . 2172
gdcmULActionAA.h . . . 2174
gdcmULActionAE.h . . . 2176
gdcmULActionAR.h . . . 2178
gdcmULActionDT.h . . . 2181
gdcmULBasicCallback.h . . . 2182
gdcmULConnection.h . . . 2183
gdcmULConnectionCallback.h . . . 2186
gdcmULConnectionInfo.h . . . 2187
gdcmULConnectionManager.h . . . 2189
gdcmULEvent.h . . . 2192
gdcmULTransitionTable.h . . . 2194
gdcmULWritingCallback.h . . . 2197

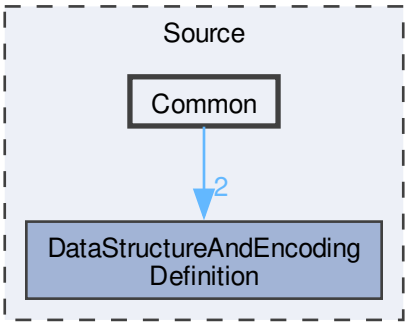
gdcmUserInformation.h . . . 2198
gdcmWLMFindQuery.h . . . 2200
vtkGDCMImageReader.h . . . 2201
vtkGDCMImageReader2.h . . . 2207
vtkGDCMImageWriter.h . . . 2212
vtkGDCMMedicalImageProperties.h . . . 2215
vtkGDCMPolyDataReader.h . . . 2221
vtkGDCMPolyDataWriter.h . . . 2222
vtkGDCMTesting.h . . . 2224
vtkGDCMThreadedImageReader.h . . . 2226
vtkGDCMThreadedImageReader2.h . . . 2228
vtkImageColorViewer.h . . . 2230
vtkImageMapToColors16.h . . . 2234
vtkImageMapToWindowLevelColors2.h . . . 2236
vtkImagePlanarComponentsToComponents.h . . . 2238
vtkImageRGBToYBR.h . . . 2239
vtkImageYBRToRGB.h . . . 2241
vtkLookupTable16.h . . . 2242
vtkRTStructSetProperties.h . . . 2244
gdcmPythonFilter.h . . . 2246

Chapter 10

Directory Documentation

10.1 Common Directory Reference

Directory dependency graph for Common:



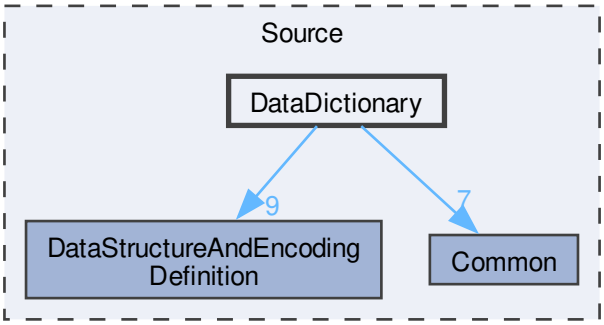
Files

- file gdcmASN1.h
- file gdcmBase64.h
- file gdcmBoxRegion.h
- file gdcmByteSwap.h
- file gdcmCAPICryptoFactory.h
- file gdcmCAPICryptographicMessageSyntax.h
- file gdcmCommand.h
- file gdcmCryptoFactory.h

- file gdcmCryptographicMessageSyntax.h
- file gdcmDataEvent.h
- file gdcmDeflateStream.h
- file gdcmDirectory.h
- file gdcmDummyValueGenerator.h
- file gdcmEvent.h
- file gdcmException.h
- file gdcmFilename.h
- file gdcmFileNameEvent.h
- file gdcmFilenameGenerator.h
- file gdcmLegacyMacro.h
- file gdcmMD5.h
- file gdcmObject.h
- file gdcmOpenSSLCryptoFactory.h
- file gdcmOpenSSLCryptographicMessageSyntax.h
- file gdcmOpenSSLP7CryptoFactory.h
- file gdcmOpenSSLP7CryptographicMessageSyntax.h
- file gdcmProgressEvent.h
- file gdcmRegion.h
- file gdcmSHA1.h
- file gdcmSmartPointer.h
- file gdcmStaticAssert.h
- file gdcmString.h
- file gdcmSubject.h
- file gdcmSwapCode.h
- file gdcmSwapper.h
- file gdcmSystem.h
- file gdcmTerminal.h
- file gdcmTestDriver.h
- file gdcmTesting.h
- file gdcmTrace.h
- file gdcmTypes.h
- file gdcmUnpacker12Bits.h
- file gdcmVersion.h
- file gdcmWin32.h

10.2 DataDictionary Directory Reference

Directory dependency graph for DataDictionary:

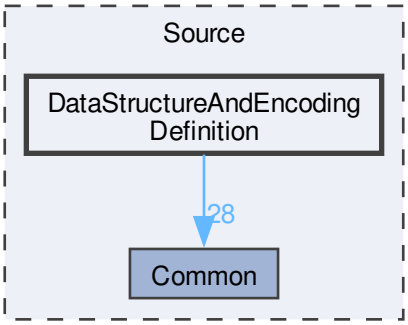


Files

- file gdcmCSAHeaderDict.h
- file gdcmCSAHeaderDictEntry.h
- file gdcmDict.h
- file gdcmDictConverter.h
- file gdcmDictEntry.h
- file gdcmDicts.h
- file gdcmGlobal.h
- file gdcmGroupDict.h
- file gdcmSOPClassUIDToIOD.h
- file gdcmUIDs.h

10.3 DataStructureAndEncodingDefinition Directory Reference

Directory dependency graph for DataStructureAndEncodingDefinition:



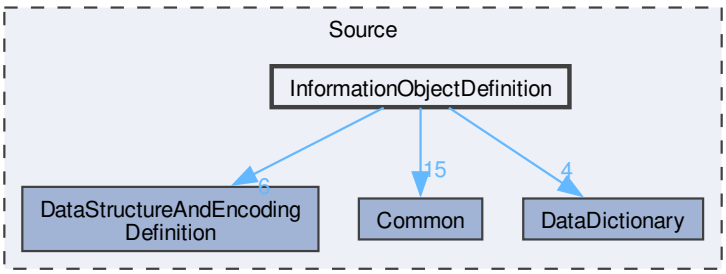
Files

- file gdcmAttribute.h
- file gdcmBasicOffsetTable.h
- file gdcmByteBuffer.h
- file gdcmByteSwapFilter.h
- file gdcmByteValue.h
- file gdcmCodeString.h
- file gdcmCP246ExplicitDataElement.h
- file gdcmCSAElement.h
- file gdcmCSAHeader.h
- file gdcmDataElement.h
- file gdcmDataSet.h
- file gdcmDataSetEvent.h
- file gdcmElement.h
- file gdcmExplicitDataElement.h
- file gdcmExplicitImplicitDataElement.h
- file gdcmFile.h
- file gdcmFileMetaInformation.h
- file gdcmFileSet.h
- file gdcmFragment.h
- file gdcmImplicitDataElement.h
- file gdcmItem.h
- file gdcmLO.h
- file gdcmMediaStorage.h
- file gdcmMrProtocol.h

- file gdcmParseException.h
- file gdcmParser.h
- file gdcmPDBElement.h
- file gdcmPDBHeader.h
- file gdcmPreamble.h
- file gdcmPrivateTag.h
- file gdcmReader.h
- file gdcmSequenceOfFragments.h
- file gdcmSequenceOfItems.h
- file gdcmTag.h
- file gdcmTagToVR.h
- file gdcmTransferSyntax.h
- file gdcmUNExplicitDataElement.h
- file gdcmUNExplicitImplicitDataElement.h
- file gdcmValue.h
- file gdcmValueIO.h
- file gdcmVL.h
- file gdcmVM.h
- file gdcmVR.h
- file gdcmVR16ExplicitDataElement.h
- file gdcmWriter.h

10.4 InformationObjectDefinition Directory Reference

Directory dependency graph for InformationObjectDefinition:



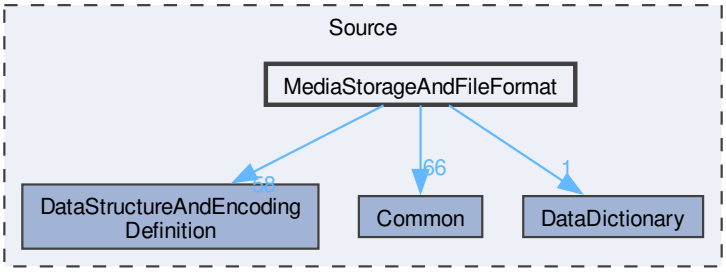
Files

- file gdcmDefinedTerms.h
- file gdcmDefs.h
- file gdcmEnumeratedValues.h
- file gdcmIOD.h

- file gdcmIODEntry.h
- file gdcmIODs.h
- file gdcmMacro.h
- file gdcmMacroEntry.h
- file gdcmMacros.h
- file gdcmModule.h
- file gdcmModuleEntry.h
- file gdcmModules.h
- file gdcmNestedModuleEntries.h
- file gdcmPatient.h
- file gdcmSeries.h
- file gdcmStudy.h
- file gdcmTable.h
- file gdcmTableEntry.h
- file gdcmTableReader.h
- file gdcmType.h
- file gdcmUsage.h
- file gdcmXMLDictReader.h
- file gdcmXMLPrivateDictReader.h

10.5 MediaStorageAndFileFormat Directory Reference

Directory dependency graph for MediaStorageAndFileFormat:



Files

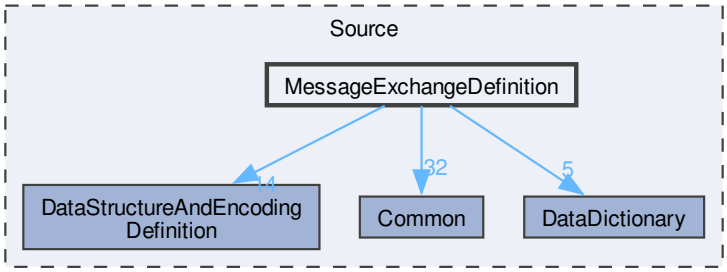
- file gdcmAnonymizeEvent.h
- file gdcmAnonymizer.h
- file gdcmApplicationEntity.h
- file gdcmAudioCodec.h
- file gdcmBitmap.h
- file gdcmBitmapToBitmapFilter.h

- file gdcmCleaner.h
- file gdcmCodec.h
- file gdcmCoder.h
- file gdcmConstCharWrapper.h
- file gdcmCurve.h
- file gdcmDataSetHelper.h
- file gdcmDecoder.h
- file gdcmDeltaEncodingCodec.h
- file gdcmDICOMDIR.h
- file gdcmDICOMDIRGenerator.h
- file gdcmDictPrinter.h
- file gdcmDirectionCosines.h
- file gdcmDirectoryHelper.h
- file gdcmDPath.h
- file gdcmDumper.h
- file gdcmEmptyMaskGenerator.h
- file gdcmEncapsulatedDocument.h
- file gdcmEquipmentManufacturer.h
- file gdcmFiducials.h
- file gdcmFileAnonymizer.h
- file gdcmFileChangeTransferSyntax.h
- file gdcmFileDecompressLookupTable.h
- file gdcmFileDerivation.h
- file gdcmFileExplicitFilter.h
- file gdcmFileStreamer.h
- file gdcmIconImage.h
- file gdcmIconImageFilter.h
- file gdcmIconImageGenerator.h
- file gdcmImage.h
- file gdcmImageApplyLookupTable.h
- file gdcmImageChangePhotometricInterpretation.h
- file gdcmImageChangePlanarConfiguration.h
- file gdcmImageChangeTransferSyntax.h
- file gdcmImageCodec.h
- file gdcmImageConverter.h
- file gdcmImageFragmentSplitter.h
- file gdcmImageHelper.h
- file gdcmImageReader.h
- file gdcmImageRegionReader.h
- file gdcmImageToImageFilter.h
- file gdcmImageWriter.h
- file gdcmIPPSorter.h
- file gdcmJPEG12Codec.h
- file gdcmJPEG16Codec.h
- file gdcmJPEG2000Codec.h
- file gdcmJPEG8Codec.h
- file gdcmJPEGCodec.h
- file gdcmJPEGLSCodec.h
- file gdcmJPEGTurboCodec.h
- file gdcmJSON.h
- file gdcmKAKADUCodec.h

- file gdcmLookupTable.h
- file gdcmMEC_MR3.h
- file gdcmMeshPrimitive.h
- file gdcmOrientation.h
- file gdcmOverlay.h
- file gdcmPDFCodec.h
- file gdcmPersonName.h
- file gdcmPGXCodec.h
- file gdcmPhotometricInterpretation.h
- file gdcmPixelFormat.h
- file gdcmPixmap.h
- file gdcmPixmapReader.h
- file gdcmPixmapToPixmapFilter.h
- file gdcmPixmapWriter.h
- file gdcmPNMCodec.h
- file gdcmPrinter.h
- file gdcmPVRGCodec.h
- file gdcmRAWCodec.h
- file gdcmRescaler.h
- file gdcmRLECodec.h
- file gdcmScanner.h
- file gdcmScanner2.h
- file gdcmSegment.h
- file gdcmSegmentedPaletteColorLookupTable.h
- file gdcmSegmentHelper.h
- file gdcmSegmentReader.h
- file gdcmSegmentWriter.h
- file gdcmSerieHelper.h
- file gdcmSimpleSubjectWatcher.h
- file gdcmSorter.h
- file gdcmSpacing.h
- file gdcmSpectroscopy.h
- file gdcmSplitGridFilter.h
- file gdcmSplitMosaicFilter.h
- file gdcmStreamImageReader.h
- file gdcmStreamImageWriter.h
- file gdcmStrictScanner.h
- file gdcmStrictScanner2.h
- file gdcmStringFilter.h
- file gdcmSurface.h
- file gdcmSurfaceHelper.h
- file gdcmSurfaceReader.h
- file gdcmSurfaceWriter.h
- file gdcmTagPath.h
- file gdcmUIDGenerator.h
- file gdcmUUIDGenerator.h
- file gdcmValidate.h
- file gdcmWaveform.h
- file gdcmXMLPrinter.h

10.6 MessageExchangeDefinition Directory Reference

Directory dependency graph for MessageExchangeDefinition:



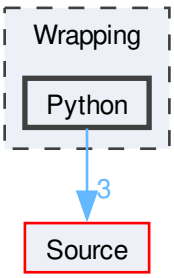
Files

- file gdcmAAbortPDU.h
- file gdcmAAssociateACPDU.h
- file gdcmAAssociateRJPDU.h
- file gdcmAAssociateRQPDU.h
- file gdcmAbstractSyntax.h
- file gdcmApplicationContext.h
- file gdcmAReleaseRPPDU.h
- file gdcmAReleaseRQPDU.h
- file gdcmARTIMTimer.h
- file gdcmAsynchronousOperationsWindowSub.h
- file gdcmBaseCompositeMessage.h
- file gdcmBaseNormalizedMessage.h
- file gdcmBasePDU.h
- file gdcmBaseQuery.h
- file gdcmBaseRootQuery.h
- file gdcmCEchoMessages.h
- file gdcmCFindMessages.h
- file gdcmCMoveMessages.h
- file gdcmCommandDataSet.h
- file gdcmCompositeMessageFactory.h
- file gdcmCompositeNetworkFunctions.h
- file gdcmCStoreMessages.h
- file gdcmDIMSE.h
- file gdcmFindPatientRootQuery.h
- file gdcmFindStudyRootQuery.h
- file gdcmImplementationClassUIDSub.h
- file gdcmImplementationUIDSub.h

- file gdcmImplementationVersionNameSub.h
- file gdcmMaximumLengthSub.h
- file gdcmModalityPerformedProcedureStepCreateQuery.h
- file gdcmModalityPerformedProcedureStepSetQuery.h
- file gdcmMovePatientRootQuery.h
- file gdcmMoveStudyRootQuery.h
- file gdcmNActionMessages.h
- file gdcmNCreateMessages.h
- file gdcmNDeleteMessages.h
- file gdcmNetworkEvents.h
- file gdcmNetworkStateID.h
- file gdcmNEventReportMessages.h
- file gdcmNGetMessages.h
- file gdcmNormalizedMessageFactory.h
- file gdcmNormalizedNetworkFunctions.h
- file gdcmNSetMessages.h
- file gdcmPDataTFPDU.h
- file gdcmPDUFactory.h
- file gdcmPresentationContext.h
- file gdcmPresentationContextAC.h
- file gdcmPresentationContextGenerator.h
- file gdcmPresentationContextRQ.h
- file gdcmPresentationDataValue.h
- file gdcmQueryBase.h
- file gdcmQueryFactory.h
- file gdcmQueryImage.h
- file gdcmQueryPatient.h
- file gdcmQuerySeries.h
- file gdcmQueryStudy.h
- file gdcmRoleSelectionSub.h
- file gdcmServiceClassApplicationInformation.h
- file gdcmServiceClassUser.h
- file gdcmSOPClassExtendedNegociationSub.h
- file gdcmTransferSyntaxSub.h
- file gdcmULAction.h
- file gdcmULActionAA.h
- file gdcmULActionAE.h
- file gdcmULActionAR.h
- file gdcmULActionDT.h
- file gdcmULBasicCallback.h
- file gdcmULConnection.h
- file gdcmULConnectionCallback.h
- file gdcmULConnectionInfo.h
- file gdcmULConnectionManager.h
- file gdcmULEvent.h
- file gdcmULTransitionTable.h
- file gdcmULWritingCallback.h
- file gdcmUserInformation.h
- file gdcmWLMFindQuery.h

10.7 Python Directory Reference

Directory dependency graph for Python:

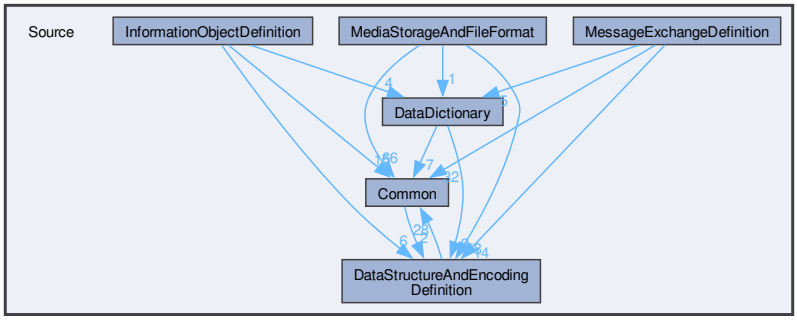


Files

- file gdcmPythonFilter.h

10.8 Source Directory Reference

Directory dependency graph for Source:



Directories

- directory Common
- directory DataDictionary
- directory DataStructureAndEncodingDefinition
- directory InformationObjectDefinition
- directory MediaStorageAndFileFormat
- directory MessageExchangeDefinition

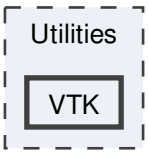
10.9 Utilities Directory Reference

Directories

- directory VTK

10.10 VTK Directory Reference

Directory dependency graph for VTK:

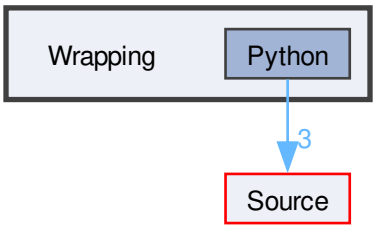


Files

- file vtkGDCMImageReader.h
- file vtkGDCMImageReader2.h
- file vtkGDCMImageWriter.h
- file vtkGDCMMedicalImageProperties.h
- file vtkGDCMPolyDataReader.h
- file vtkGDCMPolyDataWriter.h
- file vtkGDCMTesting.h
- file vtkGDCMThreadedImageReader.h
- file vtkGDCMThreadedImageReader2.h
- file vtkImageColorViewer.h
- file vtkImageMapToColors16.h
- file vtkImageMapToWindowLevelColors2.h
- file vtkImagePlanarComponentsToComponents.h
- file vtkImageRGBToYBR.h
- file vtkImageYBRToRGB.h
- file vtkLookupTable16.h
- file vtkRTStructSetProperties.h

10.11 Wrapping Directory Reference

Directory dependency graph for Wrapping:



Directories

- directory Python

Chapter 11

Namespace Documentation

11.1 gdcm Namespace Reference

Namespaces

- namespace network
- namespace SegmentHelper
- namespace terminal

  Class for Terminal.

Classes

- class AbortEvent
- class AnonymizeEvent

  AnonymizeEvent.
- class Anonymizer

  Anonymizer.
- class AnyEvent
- class ApplicationEntity

  ApplicationEntity.
- class ASN1

  Class for ASN1.
- class Attribute

  Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.
- class Attribute< Group, Element, TVR, VM::VM1 >
- class Attribute< Group, Element, TVR, VM::VM1_3 >
- class Attribute< Group, Element, TVR, VM::VM1_8 >
- class Attribute< Group, Element, TVR, VM::VM1_n >
- class Attribute< Group, Element, TVR, VM::VM2_2n >
- class Attribute< Group, Element, TVR, VM::VM2_n >
- class Attribute< Group, Element, TVR, VM::VM3_3n >
- class Attribute< Group, Element, TVR, VM::VM3_n >

- class AudioCodec

  AudioCodec.
- class Base64

  Class for Base64.
- class BaseQuery

  BaseQuery.
- class BaseRootQuery

  BaseRootQuery.
- class BasicOffsetTable

  Class to represent a BasicOffsetTable.
- class Bitmap

  Bitmap class.
- class BitmapToBitmapFilter

  BitmapToBitmapFilter class.
- class BoxRegion

  Class for manipulation box region.
- class ByteBuffer

  ByteBuffer.
- class ByteSwap

  ByteSwap.
- class ByteSwapFilter

  ByteSwapFilter.
- class ByteValue

  Class to represent binary value (array of bytes).
- class CAPICryptoFactory
- class CAPICryptographicMessageSyntax
- class Cleaner

  Cleaner.
- class Codec

  Codec class.
- class Coder

  Coder.
- class CodeString

  CodeString.
- class Command

  Command superclass for callback/observer methods.
- class CommandDataSet

  Class to represent a Command DataSet.
- class CompositeNetworkFunctions

  Composite Network Functions.
- class ConstCharWrapper

  Do not use me.
- class CP246ExplicitDataElement

  Class to read/write a DataElement as CP246Explicit Data Element.
- class CryptoFactory

  Class to do handle the crypto factory.
- class CryptographicMessageSyntax

- class CSAElement

  Class to represent a CSA Element.
- class CSAHeader

  Class for CSAHeader.
- class CSAHeaderDict

  Class to represent a map of CSAHeaderDictEntry.
- class CSAHeaderDictEntry

  Class to represent an Entry in the Dict.
- class CSAHeaderDictException
- class Curve

  Curve class to handle element 50xx,3000 Curve Data.
- class DataElement

  Class to represent a Data Element either Implicit or Explicit.
- class DataElementException
- class DataEvent

  DataEvent.
- class DataSet

  Class to represent a Data Set (which contains Data Elements).
- class DataSetEvent

  DataSetEvent.
- class DataSetHelper

  DataSetHelper (internal class, not intended for user level).
- class Decoder

  Decoder.
- class DefinedTerms

  Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor.
- class Defs

  FIXME I do not like the name 'Defs'.
- class DeltaEncodingCodec

  DeltaEncodingCodec compression used by some private vendor.
- class DICOMDIR

  DICOMDIR class.
- class DICOMDIRGenerator

  DICOMDIRGenerator class.
- class Dict

  Class to represent a map of DictEntry.
- class DictConverter

  Class to convert a .dic file into something else:
- class DictEntry

  Class to represent an Entry in the Dict.
- class DictPrinter

  DictPrinter class.

- class Dicts

  Class to manipulate the sum of knowledge (all the dict user load).
- class DirectionCosines

  class to handle DirectionCosines
- class Directory

  Class for manipulation directories.
- class DirectoryHelper

  DirectoryHelper.
- class DPath

  class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.google.com/g/comp.protocols.dicom/c/IyIH0IOBMPA`
- class DummyValueGenerator

  Class for generating dummy value.
- class Dumper

  Codec class.
- class Element

  Element class.
- class Element< TVR, VM::VM1_2 >
- class Element< TVR, VM::VM1_n >
- class Element< TVR, VM::VM2_2n >
- class Element< TVR, VM::VM2_n >
- class Element< TVR, VM::VM3_3n >
- class Element< TVR, VM::VM3_4 >
- class Element< TVR, VM::VM3_n >
- class Element< VR::AS, VM::VM5 >
- class Element< VR::OB, VM::VM1 >
- class Element< VR::OW, VM::VM1 >
- class ElementDisableCombinations

  A class which is used to produce compile errors for an invalid combination of template parameters.
- class ElementDisableCombinations< VR::OB, VM::VM1_n >
- class ElementDisableCombinations< VR::OW, VM::VM1_n >
- class EmptyMaskGenerator

  EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory.
- class EncapsulatedDocument

  EncapsulatedDocument.
- class EncodingImplementation

  EncodingImplementation.
- class EncodingImplementation< VR::VRASCII >
- class EncodingImplementation< VR::VRBINARY >
- class EndEvent
- class EnumeratedValues

  Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:
- class EquipmentManufacturer
- class Event

  superclass for callback/observer methods

- class Exception

  Exception.
- class ExitEvent
- class ExplicitDataElement

  Class to read/write a DataElement as Explicit Data Element.
- class ExplicitImplicitDataElement

  Class to read/write a DataElement as ExplicitImplicit Data Element.
- class Fiducials

  Fiducials.
- class File

  a DICOM File
- class FileAnonymizer

  FileAnonymizer.
- class FileChangeTransferSyntax

  FileChangeTransferSyntax.
- class FileDecompressLookupTable

  FileDecompressLookupTable class.
- class FileDerivation

  FileDerivation class.
- class FileExplicitFilter

  FileExplicitFilter class.
- class FileMetaInformation

  Class to represent a File Meta Information.
- class Filename

  Class to manipulate file name's.
- class FileNameEvent

  FileNameEvent.
- class FilenameGenerator

  FilenameGenerator.
- class FileSet
- class FileStreamer

  FileStreamer.
- class FileWithName

  FileWithName.
- class FindPatientRootQuery

  PatientRootQuery.
- class FindStudyRootQuery

  FindStudyRootQuery.
- class Fragment

  Class to represent a Fragment.
- class Global

  Global.
- class GroupDict

  Class to represent the mapping from group number to its abbreviation and name.
- class IconImageFilter

  IconImageFilter.
- class IconImageGenerator

IconImageGenerator.

- struct ignore_char
- class Image

  Image.
- class ImageApplyLookupTable

  ImageApplyLookupTable class.
- class ImageChangePhotometricInterpretation

  ImageChangePhotometricInterpretation class.
- class ImageChangePlanarConfiguration

  ImageChangePlanarConfiguration class.
- class ImageChangeTransferSyntax

  ImageChangeTransferSyntax class.
- class ImageCodec

  ImageCodec.
- class ImageConverter

  Image Converter.
- class ImageFragmentSplitter

  ImageFragmentSplitter class.
- class ImageHelper

  ImageHelper (internal class, not intended for user level).
- class ImageReader

  ImageReader.
- class ImageRegionReader

  ImageRegionReader.
- class ImageToImageFilter

  ImageToImageFilter class.
- class ImageWriter

  ImageWriter.
- class ImplicitDataElement

  Class to represent an Implicit *VR* Data *Element*.
- class InitializeEvent
- class IOD

  Class for representing a *IOD*.
- class IODEntry

  Class for representing a *IODEntry*.
- class IODs

  Class for representing a *IODs*.
- class IPPSorter

  IPPSorter.
- class Item

  Class to represent an *Item*.
- class IterationEvent
- class JPEG12Codec

  Class to do JPEG 12bits (lossy & lossless).
- class JPEG16Codec

  Class to do JPEG 16bits (lossless).
- class JPEG2000Codec

Class to do JPEG 2000.

- class JPEG8Codec

  Class to do JPEG 8bits (lossy & lossless).
- class JPEGCodec

  JPEG codec.
- class JPEGLSCodec

  JPEG-LS.
- class JPEGTurboCodec

  Class to do JPEG using libjpeg-turbo (8/12/16 bits, lossy & lossless).
- class JSON
- class KAKADUCodec

  KAKADUCodec.
- class LO

  LO.
- class LookupTable

  LookupTable class.
- class Macro

  Class for representing a Macro.
- class Macros

  Class for representing a Modules.
- class MD5

  Class for MD5.
- class MEC_MR3

  Class for MEC_MR3.
- class MediaStorage

  MediaStorage.
- class MemberCommand

  Command subclass that calls a pointer to a member function.
- class MeshPrimitive

  This class defines surface mesh primitives.
- class ModalityPerformedProcedureStepCreateQuery

  ModalityPerformedProcedureStepCreateQuery.
- class ModalityPerformedProcedureStepSetQuery

  ModalityPerformedProcedureStepSetQuery.
- class ModifiedEvent
- class Module

  Class for representing a Module.
- class ModuleEntry

  Class for representing a ModuleEntry.
- class Modules

  Class for representing a Modules.
- class MovePatientRootQuery

  MovePatientRootQuery.
- class MoveStudyRootQuery

  MoveStudyRootQuery.
- class MrProtocol

  Class for MrProtocol.

- class NestedModuleEntries

  Class for representing a NestedModuleEntries.
- class NoEvent
- class NormalizedNetworkFunctions

  Normalized Network Functions.
- class Object

  Object.
- class OpenSSLCryptoFactory
- class OpenSSLCryptographicMessageSyntax
- class OpenSSLP7CryptoFactory
- class OpenSSLP7CryptographicMessageSyntax
- class Orientation

  class to handle Orientation
- class Overlay

  Overlay class.
- class ParseException

  ParseException Standard exception handling object.
- class Parser

  Parser ala XML_Parser from expat (SAX).
- class Patient

  See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.
- class PDBElement

  Class to represent a PDB Element.
- class PDBHeader

  Class for PDBHeader.
- class PDFCodec

  PDFCodec class.
- class PersonName

  PersonName class.
- class PGXCodec

  Class to do PGX.
- class PhotometricInterpretation

  Class to represent an PhotometricInterpretation.
- class PixelFormat

  PixelFormat.
- class Pixmap

  Pixmap class.
- class PixmapReader

  PixmapReader.
- class PixmapToPixmapFilter

  PixmapToPixmapFilter class.
- class PixmapWriter

  PixmapWriter.
- class PNMCodec

  Class to do PNM.
- class Preamble

  DICOM Preamble (Part 10).

- class PresentationContext

  PresentationContext.
- class PresentationContextGenerator

  PresentationContextGenerator.
- class Printer

  Printer class.
- class PrivateDict

  Private Dict.
- class PrivateTag

  Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner).
- class ProgressEvent

  ProgressEvent.
- class PVRGCodec

  PVRGCodec.
- class PythonFilter

  PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language.
- class QueryBase

  QueryBase.
- class QueryFactory

  QueryFactory.h.
- class QueryImage

  QueryImage.
- class QueryPatient

  QueryPatient.
- class QuerySeries

  QuerySeries.
- class QueryStudy

  QueryStudy.h.
- class RAWCodec

  RAWCodec class.
- class Reader

  Reader ala DOM (Document Object Model).
- struct RealWorldValueMappingContent
- class Region

  Class for manipulation region.
- class Rescaler

  Rescale class.
- class RLECodec

  Class to do RLE.
- class Scanner

  Scanner.
- class Scanner2

  Scanner2.
- class Segment

  This class defines a segment.
- class SegmentedPaletteColorLookupTable

SegmentedPaletteColorLookupTable class.

- class SegmentReader

  This class defines a segment reader.
- class SegmentWriter

  This class defines a segment writer.
- class SequenceOfFragments

  Class to represent a Sequence Of Fragments.
- class SequenceOfItems

  Class to represent a Sequence Of Items.
- class SerieHelper

  SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.
- class Series

  Series.
- class ServiceClassUser

  ServiceClassUser.
- class SHA1

  Class for SHA1.
- class SimpleMemberCommand

  Command subclass that calls a pointer to a member function.
- class SimpleSubjectWatcher

  SimpleSubjectWatcher.
- class SmartPointer

  Class for Smart Pointer.
- class SOPClassUIDToIOD

  Class convert a class SOP Class UID into IOD.
- class Sorter

  Sorter.
- class Spacing

  Class for Spacing.
- class Spectroscopy

  Spectroscopy class.
- class SplitGridFilter

  SplitGridFilter class.
- class SplitMosaicFilter

  SplitMosaicFilter class.
- class StartEvent
- struct static_assert_test
- struct STATIC_ASSERTION_FAILURE
- struct STATIC_ASSERTION_FAILURE< true >
- class StreamImageReader

  StreamImageReader.
- class StreamImageWriter

  StreamImageReader.
- class StrictScanner

  StrictScanner.
- class StrictScanner2

StrictScanner2.

- class String

  String.
- class StringFilter

  StringFilter.
- class Study

  Study.
- class Subject

  Subject.
- class Surface

  This class defines a SURFACE IE.
- class SurfaceHelper

  SurfaceHelper.
- class SurfaceReader

  This class defines a SURFACE IE reader.
- class SurfaceWriter

  This class defines a SURFACE IE writer.
- class SwapCode

  SwapCode representation.
- class SwapperDoOp
- class SwapperNoOp
- class System

  Class to do system operation.
- class Table

  Table.
- class TableEntry

  TableEntry.
- class TableReader

  Class for representing a TableReader.
- class Tag

  Class to represent a DICOM Data Element (Attribute) Tag (Group, Element).
- class TagPath

  class to handle a path of tag.
- class Testing

  class for testing
- class Trace

  Trace.
- class TransferSyntax

  Class to manipulate Transfer Syntax.
- class Type

  Type.
- struct UI
- class UIDGenerator

  Class for generating unique UID.
- class UIDs

  all known uids
- class UNExplicitDataElement

Class to read/write a DataElement as UNExplicit Data Element.

- class UNExplicitImplicitDataElement

  Class to read/write a DataElement as ExplicitImplicit Data Element.
- class Unpacker12Bits

  Pack/Unpack 12 bits pixel into 16bits.
- class Usage

  Usage.
- class UserEvent
- class UUIDGenerator

  Class for generating unique UUID.
- class Validate

  Validate class.
- class Value

  Class to represent the value of a Data Element.
- class ValueIO

  Class to dispatch template calls.
- class Version

  major/minor and build version
- class VL

  Value Length.
- class VM

  Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.
- struct VMToLength
- class VR

  VR class.
- class VR16ExplicitDataElement

  Class to read/write a DataElement as Explicit Data Element.
- struct VRToEncoding
- struct VRToType
- class VRVLSize
- class VRVLSize< 0 >
- class VRVLSize< 1 >
- class Waveform

  Waveform class.
- class WLMFindQuery

  PatientRootQuery.
- class Writer

  Writer ala DOM (Document Object Model).
- class XMLDictReader

  Class for representing a XMLDictReader.
- class XMLPrinter
- class XMLPrivateDictReader

  Class for representing a XMLPrivateDictReader.

Typedefs

- typedef String<'\\', 16 > AEComp
- typedef String<'\\', 64 > ASComp
- typedef bool(* BOOL_FUNCTION_PFILE_PFILE_POINTER) (File *, File *)
- typedef String<'\\', 16 > CSComp
- typedef String<'\\', 64 > DAComp
- typedef String<'\\', 64 > DTComp
- typedef std::vector< SmartPointer< FileWithName > > FileList
- typedef Bitmap IconImage
- typedef String<'\\', 64 > LOComp
- typedef String<'\\', 64 > LTComp
- typedef ModuleEntry MacroEntry
- typedef NestedModuleEntries NestedMacroEntries
- typedef String<'\\', 64 > PNComp
- typedef String<'\\', 64 > SHComp
- typedef String<'\\', 64 > STComp
- typedef String<'\\', 16 > TMComp
- typedef String<'\\', 4294967294 > UCComp
- typedef String<'\\', 64, 0 > UIComp
- typedef String<'\\', 4294967294 > URComp
- typedef String<'\\', 64 > UTComp

Enumerations

- enum CompOperators {
  GDCM_EQUAL = 0 ,
  GDCM_DIFFERENT ,
  GDCM_GREATER ,
  GDCM_GREATEROREQUAL ,
  GDCM_LESS ,
  GDCM_LESSOREQUAL }
- enum ECharSet {
  eLatin1 = 0 ,
  eLatin2 ,
  eLatin3 ,
  eLatin4 ,
  eCyrillic ,
  eArabic ,
  eGreek ,
  eHebrew ,
  eLatin5 ,
  eJapanese ,
  eThai ,
  eJapaneseKanjiMultibyte ,
  eJapaneseSupplementaryKanjiMultibyte ,
  eKoreanHangulHanjaMultibyte ,
  eUTF8 ,
  eGB18030 }
- enum ENQueryType {
  eCreateMMPS = 0 ,
  eSetMMPS }

- enum EQueryLevel {
  ePatient = 0 ,
  eStudy = 1 ,
  eSeries = 2 ,
  eImage = 3 }
- enum EQueryType {
  eFind = 0 ,
  eMove ,
  eWLMFind }
- enum ERootType {
  ePatientRootType ,
  eStudyRootType }
- enum LodModeType {
  LD_ALL = 0x00000000 ,
  LD_NOSEQ = 0x00000001 ,
  LD_NOSHADOW = 0x00000002 ,
  LD_NOSHADOWSEQ = 0x00000004 }

Functions

- static int add1 (char *buf, int n)
- ignore_char const backslash ('\\')
- template<typename T>
  static T Clamp (int v)
- static void clean (char *mant)
- static int doround (char *buf, unsigned int n)
- VR::VRType GetVRFromTag (Tag const &tag)
- bool operator!= (const CodeString &ref, const CodeString &cs)
- bool operator!= (const DataElement &lhs, const DataElement &rhs)
- std::ostream & operator<< (std::ostream &_os, const GroupDict &_val)
- std::ostream & operator<< (std::ostream &_os, const IOD &_val)
- std::ostream & operator<< (std::ostream &_os, const IODEntry &_val)
- std::ostream & operator<< (std::ostream &_os, const IODs &_val)
- std::ostream & operator<< (std::ostream &_os, const Macro &_val)
- std::ostream & operator<< (std::ostream &_os, const Macros &_val)
- std::ostream & operator<< (std::ostream &_os, const MediaStorage &ms)
- std::ostream & operator<< (std::ostream &_os, const Module &_val)
- std::ostream & operator<< (std::ostream &_os, const ModuleEntry &_val)
- std::ostream & operator<< (std::ostream &_os, const Modules &_val)
- std::ostream & operator<< (std::ostream &_os, const NestedModuleEntries &_val)
- std::ostream & operator<< (std::ostream &_os, const Tag &_val)
- std::ostream & operator<< (std::ostream &_os, const TransferSyntax &ts)
- std::ostream & operator<< (std::ostream &_os, const Type &val)
- std::ostream & operator<< (std::ostream &_os, const UI &_val)
- std::ostream & operator<< (std::ostream &_os, const UIDs &uid)
- std::ostream & operator<< (std::ostream &_os, const Usage &val)
- std::ostream & operator<< (std::ostream &_os, const VM &_val)
- std::ostream & operator<< (std::ostream &_os, const VR &val)
- std::ostream & operator<< (std::ostream &os, const BasicOffsetTable &val)
- std::ostream & operator<< (std::ostream &os, const CodeString &str)
- std::ostream & operator<< (std::ostream &os, const CommandDataSet &val)

- std::ostream & operator<< (std::ostream &os, const CSAElement &val)
- std::ostream & operator<< (std::ostream &os, const CSAHeader &d)
- std::ostream & operator<< (std::ostream &os, const CSAHeaderDict &val)
- std::ostream & operator<< (std::ostream &os, const CSAHeaderDictEntry &val)
- std::ostream & operator<< (std::ostream &os, const DataElement &val)
- std::ostream & operator<< (std::ostream &os, const DataSet &val)
- std::ostream & operator<< (std::ostream &os, const Dict &val)
- std::ostream & operator<< (std::ostream &os, const DictEntry &val)
- std::ostream & operator<< (std::ostream &os, const Dicts &d)
- std::ostream & operator<< (std::ostream &os, const Directory &d)
- std::ostream & operator<< (std::ostream &os, const DPath &val)
- std::ostream & operator<< (std::ostream &os, const Event &e)

  Generic inserter operator for Event and its subclasses.
- std::ostream & operator<< (std::ostream &os, const File &val)
- std::ostream & operator<< (std::ostream &os, const FileMetaInformation &val)
- std::ostream & operator<< (std::ostream &os, const FileSet &f)
- std::ostream & operator<< (std::ostream &os, const Fragment &val)
- std::ostream & operator<< (std::ostream &os, const Global &g)
- std::ostream & operator<< (std::ostream &os, const Item &val)
- std::ostream & operator<< (std::ostream &os, const MrProtocol &d)
- std::ostream & operator<< (std::ostream &os, const Object &obj)
- std::ostream & operator<< (std::ostream &os, const Orientation &o)
- std::ostream & operator<< (std::ostream &os, const PDBElement &val)
- std::ostream & operator<< (std::ostream &os, const PDBHeader &d)
- std::ostream & operator<< (std::ostream &os, const PhotometricInterpretation &val)
- std::ostream & operator<< (std::ostream &os, const PixelFormat &pf)
- std::ostream & operator<< (std::ostream &os, const Preamble &val)
- std::ostream & operator<< (std::ostream &os, const PrivateDict &val)
- std::ostream & operator<< (std::ostream &os, const PrivateTag &val)
- std::ostream & operator<< (std::ostream &os, const Region &r)
- std::ostream & operator<< (std::ostream &os, const Scanner &s)
- std::ostream & operator<< (std::ostream &os, const Scanner2 &s)
- std::ostream & operator<< (std::ostream &os, const Sorter &s)
- std::ostream & operator<< (std::ostream &os, const StrictScanner &s)
- std::ostream & operator<< (std::ostream &os, const StrictScanner2 &s)
- std::ostream & operator<< (std::ostream &os, const SwapCode &sc)
- std::ostream & operator<< (std::ostream &os, const Version &v)
- std::ostream & operator<< (std::ostream &os, const VL &val)
- bool operator== (const CodeString &ref, const CodeString &cs)
- std::istream & operator>> (std::istream &_is, Tag &_val)
- std::istream & operator>> (std::istream &in, ignore_char const &ic)
- template<char TDelimiter, unsigned int TMaxLength, char TPadChar>
  std::istream & operator>> (std::istream &is, String< TDelimiter, TMaxLength, TPadChar > &ms)
- template<typename T>
  static int Round (T x)
- static int roundat (char *buf, size_t bufLen, unsigned int i, int iexp)
- template<typename Float>
  static void x16printf (char *buf, int size, Float f)

Variables

- static Global GlobalInstance

11.1.1 Detailed Description

This header defines the classes for the AA Actions, Association Abort Related Actions (Table 9-9 of ps 3.8-2009).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

This header defines the classes for the AE Actions, Association Establishment Related Actions (Table 9-6 of ps 3.↩ 8-2009).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

This header defines the classes for the AR Actions, Association Release Related Actions (Table 9-8 of ps 3.8-2009).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

This header defines the classes for the DT Actions, Data Transfer Related Actions (Table 9-8 of ps 3.8-2009).

Since each class is essentially a placeholder for a function pointer, I'm breaking with having each class have its own file for the sake of brevity of the number of files.

11.1.2 Typedef Documentation

11.1.2.1 AEComp

```
typedef String<'\\',16> gdcm::AEComp
```

11.1.2.2 ASComp

```
typedef String<'\\',64> gdcm::ASComp
```

11.1.2.3 BOOL_FUNCTION_PFILE_PFILE_POINTER

```
typedef bool(* gdcm::BOOL_FUNCTION_PFILE_PFILE_POINTER) (File *, File *)
```

11.1.2.4 CSComp

```
typedef String<'\\',16> gdcm::CSComp
```

11.1.2.5 DAComp

```
typedef String<'\\',64> gdcm::DAComp
```

Examples

TemplateEmptyImage.cxx.

11.1.2.6 DTComp

```
typedef String<'\\',64> gdcm::DTComp
```

11.1.2.7 FileList

```
typedef std::vector< SmartPointer<FileWithName> > gdcm::FileList
```

11.1.2.8 IconImage

```
typedef Bitmap gdcm::IconImage
```

Examples

ExtractIconFromFile.cxx.

11.1.2.9 LOComp

```
typedef String<'\\',64> gdcm::LOComp
```

11.1.2.10 LTComp

```
typedef String<'\\',64> gdcm::LTComp
```

11.1.2.11 MacroEntry

```
typedef ModuleEntry gdcm::MacroEntry
```

11.1.2.12 NestedMacroEntries

```
typedef NestedModuleEntries gdcm::NestedMacroEntries
```

11.1.2.13 PNComp

```
typedef String<'\\',64> gdcm::PNComp
```

11.1.2.14 SHComp

```
typedef String<'\\',64> gdcm::SHComp
```

11.1.2.15 STComp

```
typedef String<'\\',64> gdcm::STComp
```

11.1.2.16 TMComp

```
typedef String<'\\',16> gdcm::TMComp
```

Examples

TemplateEmptyImage.cxx.

11.1.2.17 UCComp

```
typedef String<'\\',4294967294> gdcm::UCComp
```

11.1.2.18 UIComp

```
typedef String<'\\',64,0> gdcm::UIComp
```

11.1.2.19 URComp

```
typedef String<'\\',4294967294> gdcm::URComp
```

11.1.2.20 UTComp

```
typedef String<'\\',64> gdcm::UTComp
```

11.1.3 Enumeration Type Documentation

11.1.3.1 CompOperators

enum gdcm::CompOperators

Enumerator

GDCM_EQUAL	
GDCM_DIFFERENT	
GDCM_GREATER	
GDCM_GREATEROREQUAL	
GDCM_LESS	
GDCM_LESSOREQUAL	

11.1.3.2 ECharSet

enum gdcm::ECharSet

The character sets enumerated in PS 3.3 2009 Annex C, section C.12.1.1.2 The resulting character set is stored in 0008,0005 The conversion to the data element is performed by the QueryFactory itself

Enumerator

eLatin1	
eLatin2	
eLatin3	
eLatin4	
eCyrillic	
eArabic	
eGreek	
eHebrew	
eLatin5	
eJapanese	
eThai	
eJapaneseKanjiMultibyte	
eJapaneseSupplementaryKanjiMultibyte	
eKoreanHangulHanjaMultibyte	
eUTF8	
eGB18030	

11.1.3.3 ENQueryType

enum gdcm::ENQueryType

Enumerator

eCreateMMPS	
eSetMMPS	

11.1.3.4 EQueryLevel

enum gdcm::EQueryLevel

Enumerator

ePatient	
eStudy	
eSeries	
eImage	

11.1.3.5 EQueryType

enum gdcm::EQueryType

Enumerator

eFind	
eMove	
eWLMFind	

11.1.3.6 ERootType

enum gdcm::ERootType

Enumerator

ePatientRootType	
eStudyRootType	

11.1.3.7 LodModeType

```
enum gdcm::LodModeType
```

Enumerator

LD_ALL	
LD_NOSEQ	
LD_NOSHADOW	
LD_NOSHADOWSEQ	

11.1.4 Function Documentation

11.1.4.1 add1()

```
int gdcm::add1 (
            char * buf,
            int n)  [static]
```

References add1().

Referenced by add1(), and doround().

11.1.4.2 backslash()

```
ignore_char const gdcm::backslash (
            '\\' )
```

References backslash().

Referenced by backslash(), and gdcm::EncodingImplementation< VR::VRASCII >::ReadComputeLength().

11.1.4.3 Clamp()

```
template<typename T>
T gdcm::Clamp (
            int v)  [inline], [static]
```

References gdcm_assert.

Referenced by gdcm::ImageChangePhotometricInterpretation::RGB2YBR(), and gdcm::ImageChangePhotometricInterpretation::YBR2RG

11.1.4.4 clean()

```
void gdcm::clean (
            char * mant)  [inline], [static]
```

References clean().

Referenced by clean(), and x16printf().

11.1.4.5 doround()

```
int gdcm::doround (
            char * buf,
            unsigned int n)  [static]
```

References add1(), and doround().

Referenced by doround(), and roundat().

11.1.4.6 GetVRFromTag()

```
VR::VRType gdcm::GetVRFromTag (
            Tag const & tag)
```

11.1.4.7 operator"!=() [1/2]

```
bool gdcm::operator!= (
            const CodeString & ref,
            const CodeString & cs)  [inline]
```

Referenced by operator!=().

11.1.4.8 operator"!=() [2/2]

```
bool gdcm::operator!= (
            const DataElement & lhs,
            const DataElement & rhs)  [inline]
```

References operator!=().

11.1.4.9 operator<<() [1/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const GroupDict & _val)  [inline]
```

11.1.4.10 operator<<() [2/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const IOD & _val)  [inline]
```

11.1.4.11 operator<<() [3/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const IODEntry & _val)  [inline]
```

11.1.4.12 operator<<() [4/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const IODs & _val)  [inline]
```

11.1.4.13 operator<<() [5/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Macro & _val)  [inline]
```

11.1.4.14 operator<<() [6/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Macros & _val)  [inline]
```

11.1.4.15 operator<<() [7/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const MediaStorage & ms)  [inline]
```

11.1.4.16 operator<<() [8/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Module & _val)  [inline]
```

11.1.4.17 operator<<() [9/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const ModuleEntry & _val)  [inline]
```

11.1.4.18 operator<<() [10/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Modules & _val)  [inline]
```

11.1.4.19 operator<<() [11/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const NestedModuleEntries & _val)  [inline]
```

11.1.4.20 operator<<() [12/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Tag & _val)  [inline]
```

11.1.4.21 operator<<() [13/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const TransferSyntax & ts)  [inline]
```

11.1.4.22 operator<<() [14/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Type & val)  [inline]
```

11.1.4.23 operator<<() [15/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const UI & _val)  [inline]
```

11.1.4.24 operator<<() [16/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const UIDs & uid)  [inline]
```

References gdcm::UIDs::GetName(), and gdcm::UIDs::GetString().

11.1.4.25 operator<<() [17/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const Usage & val)  [inline]
```

11.1.4.26 operator<<() [18/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const VM & _val)  [inline]
```

11.1.4.27 operator<<() [19/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & _os,
            const VR & val)  [inline]
```

11.1.4.28 operator<<() [20/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const BasicOffsetTable & val)  [inline]
```

11.1.4.29 operator<<() [21/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CodeString & str)  [inline]
```

11.1.4.30 operator<<() [22/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CommandDataSet & val)  [inline]
```

11.1.4.31 operator<<() [23/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CSAElement & val)  [inline]
```

11.1.4.32 operator<<() [24/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CSAHeader & d)  [inline]
```

11.1.4.33 operator<<() [25/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CSAHeaderDict & val)  [inline]
```

11.1.4.34 operator<<() [26/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const CSAHeaderDictEntry & val)  [inline]
```

11.1.4.35 operator<<() [27/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const DataElement & val)  [inline]
```

11.1.4.36 operator<<() [28/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const DataSet & val)  [inline]
```

11.1.4.37 operator<<() [29/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Dict & val)  [inline]
```

11.1.4.38 operator<<() [30/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const DictEntry & val)  [inline]
```

11.1.4.39 operator<<() [31/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Dicts & d)  [inline]
```

11.1.4.40 operator<<() [32/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Directory & d)  [inline]
```

11.1.4.41 operator<<() [33/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const DPath & val)  [inline]
```

11.1.4.42 operator<<() [34/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Event & e)  [inline]
```

Generic inserter operator for Event and its subclasses.

References gdcm::Event::Print().

11.1.4.43 operator<<() [35/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const File & val)  [inline]
```

11.1.4.44 operator<<() [36/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const FileMetaInformation & val)  [inline]
```

11.1.4.45 operator<<() [37/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const FileSet & f)  [inline]
```

11.1.4.46 operator<<() [38/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Fragment & val)  [inline]
```

11.1.4.47 operator<<() [39/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Global & g)  [inline]
```

11.1.4.48 operator<<() [40/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Item & val)  [inline]
```

11.1.4.49 operator<<() [41/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const MrProtocol & d)  [inline]
```

11.1.4.50 operator<<() [42/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Object & obj)  [inline]
```

11.1.4.51 operator<<() [43/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Orientation & o)  [inline]
```

11.1.4.52 operator<<() [44/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PDBElement & val)  [inline]
```

11.1.4.53 operator<<() [45/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PDBHeader & d)  [inline]
```

11.1.4.54 operator<<() [46/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PhotometricInterpretation & val)  [inline]
```

11.1.4.55 operator<<() [47/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PixelFormat & pf)  [inline]
```

11.1.4.56 operator<<() [48/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Preamble & val)  [inline]
```

11.1.4.57 operator<<() [49/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PrivateDict & val)  [inline]
```

11.1.4.58 operator<<() [50/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const PrivateTag & val)  [inline]
```

11.1.4.59 operator<<() [51/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Region & r)  [inline]
```

References gdcm::Region::Print().

11.1.4.60 operator<<() [52/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Scanner & s)  [inline]
```

11.1.4.61 operator<<() [53/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Scanner2 & s)  [inline]
```

11.1.4.62 operator<<() [54/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Sorter & s)  [inline]
```

11.1.4.63 operator<<() [55/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const StrictScanner & s)  [inline]
```

11.1.4.64 operator<<() [56/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const StrictScanner2 & s)  [inline]
```

11.1.4.65 operator<<() [57/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const SwapCode & sc)  [inline]
```

11.1.4.66 operator<<() [58/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const Version & v)  [inline]
```

11.1.4.67 operator<<() [59/59]

```
std::ostream & gdcm::operator<< (
            std::ostream & os,
            const VL & val)  [inline]
```

11.1.4.68 operator==()

```
bool gdcm::operator== (
            const CodeString & ref,
            const CodeString & cs)  [inline]
```

11.1.4.69 operator>>() [1/3]

```
std::istream & gdcm::operator>> (
            std::istream & _is,
            Tag & _val)  [inline]
```

11.1.4.70 operator>>() [2/3]

```
std::istream & gdcm::operator>> (
            std::istream & in,
            ignore_char const & ic)  [inline]
```

References gdcm::ignore_char::m_char.

11.1.4.71 operator>>() [3/3]

```
template<char TDelimiter, unsigned int TMaxLength, char TPadChar>
std::istream & gdcm::operator>> (
            std::istream & is,
            String< TDelimiter, TMaxLength, TPadChar > & ms)  [inline]
```

11.1.4.72 Round()

```
template<typename T>
int gdcm::Round (
            T x)  [inline], [static]
```

Referenced by gdcm::ImageChangePhotometricInterpretation::RGB2YBR(), and gdcm::ImageChangePhotometricInterpretation::YBR2RG

11.1.4.73 roundat()

```
int gdcm::roundat (
            char * buf,
            size_t bufLen,
            unsigned int i,
            int iexp)  [static]
```

References doround(), and roundat().

Referenced by roundat(), and x16printf().

11.1.4.74 x16printf()

```
template<typename Float>
void gdcm::x16printf (
            char * buf,
            int size,
            Float f)  [static]
```

References clean(), roundat(), and x16printf().

Referenced by gdcm::EncodingImplementation< VR::VRASCII >::Write(), and x16printf().

11.1.5 Variable Documentation

11.1.5.1 GlobalInstance

```
Global gdcm::GlobalInstance  [static]
```

11.2 gdcm::network Namespace Reference

Classes

- class AAbortPDU
  AAbortPDU.
- class AAssociateACPDU
  AAssociateACPDU.
- class AAssociateRJPDU
  AAssociateRJPDU.
- class AAssociateRQPDU
  AAssociateRQPDU.
- class AbstractSyntax
  AbstractSyntax.
- class ApplicationContext

ApplicationContext.

- class AReleaseRPPDU

  AReleaseRPPDU.
- class AReleaseRQPDU

  AReleaseRQPDU.
- class ARTIMTimer

  ARTIMTimer.
- class AsynchronousOperationsWindowSub

  AsynchronousOperationsWindowSub.
- class BaseCompositeMessage

  BaseCompositeMessage.
- class BaseNormalizedMessage

  BaseNormalizedMessage.
- class BasePDU

  BasePDU.
- class CEchoRQ

  CEchoRQ.
- class CEchoRSP

  CEchoRSP this file defines the messages for the cecho action.
- class CFind
- class CFindCancelRQ

  CFindCancelRQ this file defines the messages for the cfind action.
- class CFindRQ

  CFindRQ.
- class CFindRSP

  CFindRSP this file defines the messages for the cfind action.
- class CMoveCancelRq
- class CMoveRQ

  CMoveRQ.
- class CMoveRSP

  CMoveRSP this file defines the messages for the cmove action.
- class CompositeMessageFactory

  CompositeMessageFactory.
- class CStoreRQ

  CStoreRQ.
- class CStoreRSP

  CStoreRSP this file defines the messages for the cecho action.
- class DIMSE

  DIMSE.
- class ImplementationClassUIDSub

  ImplementationClassUIDSub.
- class ImplementationUIDSub

  ImplementationUIDSub.
- class ImplementationVersionNameSub

  ImplementationVersionNameSub.
- class MaximumLengthSub

  MaximumLengthSub.

- class NActionRQ

  NActionRQ.
- class NActionRSP

  NActionRSP this file defines the messages for the NAction action.
- class NCreateRQ

  NCreateRQ.
- class NCreateRSP

  NCreateRSP this file defines the messages for the ncreate action.
- class NDeleteRQ

  NDeleteRQ.
- class NDeleteRSP

  NDeleteRSP this file defines the messages for the ndelete action.
- class NEventReportRQ

  NEventReportRQ.
- class NEventReportRSP

  NEventReportRSP this file defines the messages for the neventreport action.
- class NGetRQ

  NGetRQ.
- class NGetRSP

  NGetRSP this file defines the messages for the nget action.
- class NormalizedMessageFactory
- class NSetRQ

  NSetRQ.
- class NSetRSP

  NSetRSP this file defines the messages for the nset action.
- class PDataTFPDU

  PDataTFPDU.
- class PDUFactory

  PDUFactory basically, given an initial byte, construct the.
- class PresentationContextAC

  PresentationContextAC.
- class PresentationContextRQ

  PresentationContextRQ.
- class PresentationDataValue

  PresentationDataValue.
- class RoleSelectionSub

  RoleSelectionSub.
- class ServiceClassApplicationInformation
- class SOPClassExtendedNegociationSub

  SOPClassExtendedNegociationSub.
- class TableRow
- class TransferSyntaxSub

  TransferSyntaxSub.
- struct Transition
- class ULAction

  ULAction.
- class ULActionAA1

- class ULActionAA2
- class ULActionAA3
- class ULActionAA4
- class ULActionAA5
- class ULActionAA6
- class ULActionAA7
- class ULActionAA8
- class ULActionAE1
- class ULActionAE2
- class ULActionAE3
- class ULActionAE4
- class ULActionAE5
- class ULActionAE6
- class ULActionAE7
- class ULActionAE8
- class ULActionAR1
- class ULActionAR10
- class ULActionAR2
- class ULActionAR3
- class ULActionAR4
- class ULActionAR5
- class ULActionAR6
- class ULActionAR7
- class ULActionAR8
- class ULActionAR9
- class ULActionDT1
- class ULActionDT2
- class ULBasicCallback

  ULBasicCallback.
- class ULConnection

  ULConnection.
- class ULConnectionCallback
- class ULConnectionInfo

  ULConnectionInfo.
- class ULConnectionManager

  ULConnectionManager.
- class ULEvent

  ULEvent.
- class ULTransitionTable

  ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates.
- class ULWritingCallback
- class UserInformation

  UserInformation.

Enumerations

- enum EEventID {
  eAASSOCIATERequestLocalUser = 0 ,
  eTransportConnConfirmLocal ,
  eASSOCIATE_ACPDUreceived ,
  eASSOCIATE_RJPDUreceived ,
  eTransportConnIndicLocal ,
  eAASSOCIATE_RQPDUreceived ,
  eAASSOCIATEresponseAccept ,
  eAASSOCIATEresponseReject ,
  ePDATArequest ,
  ePDATATFPDU ,
  eARELEASERequest ,
  eARELEASE_RQPDUReceivedOpen ,
  eARELEASE_RPPDUReceived ,
  eARELEASEResponse ,
  eAABORTRequest ,
  eAABORTPDUReceivedOpen ,
  eTransportConnectionClosed ,
  eARTIMTimerExpired ,
  eUnrecognizedPDUReceived ,
  eEventDoesNotExist }
- enum EStateID {
  eStaDoesNotExist = 0 ,
  eSta1Idle = 1 ,
  eSta2Open = 2 ,
  eSta3WaitLocalAssoc = 4 ,
  eSta4LocalAssocDone = 8 ,
  eSta5WaitRemoteAssoc = 16 ,
  eSta6TransferReady = 32 ,
  eSta7WaitRelease = 64 ,
  eSta8WaitLocalRelease = 128 ,
  eSta9ReleaseCollisionRqLocal = 256 ,
  eSta10ReleaseCollisionAc = 512 ,
  eSta11ReleaseCollisionRq = 1024 ,
  eSta12ReleaseCollisionAcLocal = 2048 ,
  eSta13AwaitingClose = 4096 }

Functions

- int GetStateIndex (EStateID inState)

Variables

- const int cMaxEventID = eEventDoesNotExist
- const int cMaxStateID = 13

11.2.1 Enumeration Type Documentation

11.2.1.1 EEventID

enum gdcm::network::EEventID

Enumerator

eAASSOCIATERequestLocalUser	
eTransportConnConfirmLocal	
eASSOCIATE_ACPDUreceived	
eASSOCIATE_RJPDUreceived	
eTransportConnIndicLocal	
eAASSOCIATE_RQPDUreceived	
eAASSOCIATEresponseAccept	
eAASSOCIATEresponseReject	
ePDATArequest	
ePDATATFPDU	
eARELEASERequest	
eARELEASE_RQPDUReceivedOpen	
eARELEASE_RPPDUReceived	
eARELEASEResponse	
eAABORTRequest	
eAABORTPDUReceivedOpen	
eTransportConnectionClosed	
eARTIMTimerExpired	
eUnrecognizedPDUReceived	
eEventDoesNotExist	

11.2.1.2 EStateID

enum gdcm::network::EStateID

Each network connection will be in a particular state at any given time. Those states have IDs as described in the standard ps3.8-2009, roughly 1-13. This enumeration lists those states. The actual ULState class will contain more information about transitions to other states.

name and date: 16 sept 2010 mmr

Enumerator

eStaDoesNotExist	

eSta1Idle	
eSta2Open	
eSta3WaitLocalAssoc	
eSta4LocalAssocDone	
eSta5WaitRemoteAssoc	
eSta6TransferReady	
eSta7WaitRelease	
eSta8WaitLocalRelease	
eSta9ReleaseCollisionRqLocal	
eSta10ReleaseCollisionAc	
eSta11ReleaseCollisionRq	
eSta12ReleaseCollisionAcLocal	
eSta13AwaitingClose	

11.2.2 Function Documentation

11.2.2.1 GetStateIndex()

```
int gdcm::network::GetStateIndex (
            EStateID inState)  [inline]
```

References eSta10ReleaseCollisionAc, eSta11ReleaseCollisionRq, eSta12ReleaseCollisionAcLocal, eSta13AwaitingClose, eSta1Idle, eSta2Open, eSta3WaitLocalAssoc, eSta4LocalAssocDone, eSta5WaitRemoteAssoc, eSta6TransferReady, eSta7WaitRelease, eSta8WaitLocalRelease, eSta9ReleaseCollisionRqLocal, and eStaDoesNotExist.

11.2.3 Variable Documentation

11.2.3.1 cMaxEventID

```
const int gdcm::network::cMaxEventID = eEventDoesNotExist
```

11.2.3.2 cMaxStateID

```
const int gdcm::network::cMaxStateID = 13
```

Referenced by gdcm::network::TableRow::TableRow(), and gdcm::network::TableRow::~TableRow().

11.3 gdcm::SegmentHelper Namespace Reference

Classes

- struct BasicCodedEntry

  This structure defines a basic coded entry with all of its attributes.

11.4 gdcm::terminal Namespace Reference

Class for Terminal.

Enumerations

- enum Attribute {
  reset = 0 ,
  bright = 1 ,
  dim = 2 ,
  underline = 3 ,
  blink = 5 ,
  reverse = 7 ,
  hidden = 8 }
- enum Color {
  black = 0 ,
  red ,
  green ,
  yellow ,
  blue ,
  magenta ,
  cyan ,
  white }
- enum Mode {
  CONSOLE = 0 ,
  VT100 }

Functions

- GDCM_EXPORT std::string setattribute (Attribute att)
- GDCM_EXPORT std::string setbgcolor (Color c)
- GDCM_EXPORT std::string setfgcolor (Color c)
- GDCM_EXPORT void setmode (Mode m)

11.4.1 Detailed Description

Class for Terminal.

Allow one to print in color in a shell

- support VT100 compatible shell
- win32 console

11.4.2 Enumeration Type Documentation

11.4.2.1 Attribute

enum gdcm::terminal::Attribute

Enumerator

reset	
bright	
dim	
underline	
blink	
reverse	
hidden	

11.4.2.2 Color

enum gdcm::terminal::Color

Enumerator

black	
red	
green	
yellow	
blue	
magenta	
cyan	
white	

11.4.2.3 Mode

enum gdcm::terminal::Mode

Enumerator

CONSOLE	
VT100	

11.4.3 Function Documentation

11.4.3.1 setattribute()

```
GDCM_EXPORT std::string gdcm::terminal::setattribute (
            Attribute att)
```

References GDCM_EXPORT.

11.4.3.2 setbgcolor()

```
GDCM_EXPORT std::string gdcm::terminal::setbgcolor (
            Color c)
```

References GDCM_EXPORT.

11.4.3.3 setfgcolor()

```
GDCM_EXPORT std::string gdcm::terminal::setfgcolor (
            Color c)
```

References GDCM_EXPORT.

11.4.3.4 setmode()

```
GDCM_EXPORT void gdcm::terminal::setmode (
            Mode m)
```

References GDCM_EXPORT.

Chapter 12

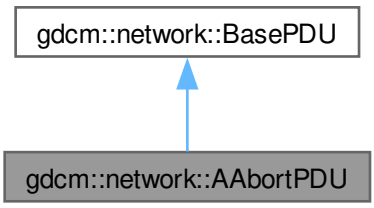
Class Documentation

12.1 gdcm::network::AAbortPDU Class Reference

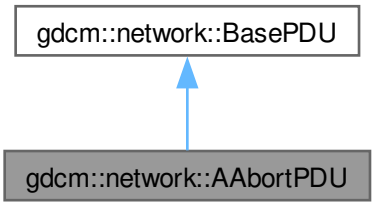
AAbortPDU.

`#include <gdcmAAbortPDU.h>`

Inheritance diagram for gdcm::network::AAbortPDU:



Collaboration diagram for gdcm::network::AAbortPDU:



Public Member Functions

- AAbortPDU ()
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- void SetReason (const uint8_t r)
- void SetSource (const uint8_t s)
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

12.1.1 Detailed Description

AAbortPDU.

Table 9-26 A-ABORT PDU FIELDS

12.1.2 Constructor & Destructor Documentation

12.1.2.1 AAbortPDU()

```
gdcm::network::AAbortPDU::AAbortPDU ()
```

12.1.3 Member Function Documentation

12.1.3.1 IsLastFragment()

```
bool gdcm::network::AAbortPDU::IsLastFragment () const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.1.3.2 Print()

```
void gdcm::network::AAbortPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.1.3.3 Read()

```
std::istream & gdcm::network::AAbortPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.1.3.4 SetReason()

```
void gdcm::network::AAbortPDU::SetReason (
            const uint8_t r)
```

12.1.3.5 SetSource()

```
void gdcm::network::AAbortPDU::SetSource (
            const uint8_t s)
```

12.1.3.6 Size()

```
size_t gdcm::network::AAbortPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.1.3.7 Write()

```
const std::ostream & gdcm::network::AAbortPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

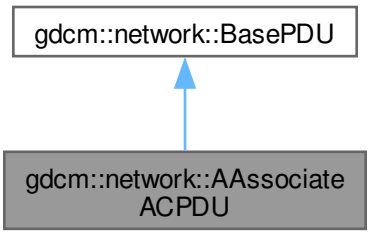
- gdcmAAbortPDU.h

12.2 gdcm::network::AAssociateACPDU Class Reference

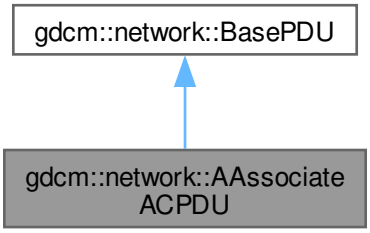
AAssociateACPDU.

`#include <gdcmAAssociateACPDU.h>`

Inheritance diagram for gdcm::network::AAssociateACPDU:



Collaboration diagram for gdcm::network::AAssociateACPDU:



Public Types

- typedef std::vector< PresentationContextAC >::size_type SizeType

Public Member Functions

- AAssociateACPDU ()
- void AddPresentationContextAC (PresentationContextAC const &pcac)
- SizeType GetNumberOfPresentationContextAC () const
- const PresentationContextAC & GetPresentationContextAC (SizeType i)
- const UserInformation & GetUserInformation () const
- void InitFromRQ (AAssociateRQPDU const &rqpdu)
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- SizeType Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

Protected Member Functions

- void SetCalledAETitle (const char calledaetitle[16])
- void SetCallingAETitle (const char callingaetitle[16])

Friends

- class AAssociateRQPDU

12.2.1 Detailed Description

AAssociateACPDU.

Table 9-17 ASSOCIATE-AC PDU fields

12.2.2 Member Typedef Documentation

12.2.2.1 SizeType

```
typedef std::vector<PresentationContextAC>::size_type gdcm::network::AAssociateACPDU::SizeType
```

12.2.3 Constructor & Destructor Documentation

12.2.3.1 AAssociateACPDU()

```
gdcm::network::AAssociateACPDU::AAssociateACPDU ()
```

12.2.4 Member Function Documentation

12.2.4.1 AddPresentationContextAC()

```
void gdcm::network::AAssociateACPDU::AddPresentationContextAC (
            PresentationContextAC const & pcac)
```

12.2.4.2 GetNumberOfPresentationContextAC()

```
SizeType gdcm::network::AAssociateACPDU::GetNumberOfPresentationContextAC () const  [inline]
```

12.2.4.3 GetPresentationContextAC()

```
const PresentationContextAC & gdcm::network::AAssociateACPDU::GetPresentationContextAC (
            SizeType i)  [inline]
```

References gdcm_assert.

12.2.4.4 GetUserInformation()

```
const UserInformation & gdcm::network::AAssociateACPDU::GetUserInformation () const  [inline]
```

12.2.4.5 InitFromRQ()

```
void gdcm::network::AAssociateACPDU::InitFromRQ (
            AAssociateRQPDU const & rqpdu)
```

References AAssociateRQPDU.

12.2.4.6 IsLastFragment()

```
bool gdcm::network::AAssociateACPDU::IsLastFragment () const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.2.4.7 Print()

```
void gdcm::network::AAssociateACPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.2.4.8 Read()

```
std::istream & gdcm::network::AAssociateACPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.2.4.9 SetCalledAETitle()

```
void gdcm::network::AAssociateACPDU::SetCalledAETitle (
            const char calledaetitle[16])  [protected]
```

12.2.4.10 SetCallingAETitle()

```
void gdcm::network::AAssociateACPDU::SetCallingAETitle (
            const char callingaetitle[16])  [protected]
```

References AAssociateRQPDU.

12.2.4.11 Size()

```
SizeType gdcm::network::AAssociateACPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.2.4.12 Write()

```
const std::ostream & gdcm::network::AAssociateACPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.2.5 Friends And Related Symbol Documentation

12.2.5.1 AAssociateRQPDU

```
friend class AAssociateRQPDU  [friend]
```

References AAssociateRQPDU.

Referenced by AAssociateRQPDU, InitFromRQ(), and SetCallingAETitle().

The documentation for this class was generated from the following file:

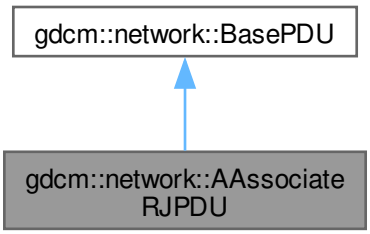
- gdcmAAssociateACPDU.h

12.3 gdcm::network::AAssociateRJPDU Class Reference

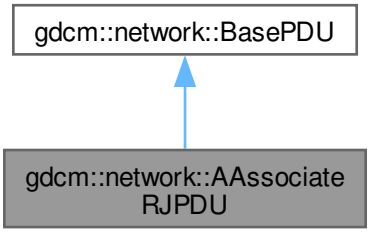
AAssociateRJPDU.

`#include <gdcmAAssociateRJPDU.h>`

Inheritance diagram for gdcm::network::AAssociateRJPDU:



Collaboration diagram for gdcm::network::AAssociateRJPDU:



Public Member Functions

- AAssociateRJPDU ()
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

12.3.1 Detailed Description

AAssociateRJPDU.

Table 9-21 ASSOCIATE-RJ PDU FIELDS

12.3.2 Constructor & Destructor Documentation

12.3.2.1 AAssociateRJPDU()

```
gdcm::network::AAssociateRJPDU::AAssociateRJPDU ()
```

12.3.3 Member Function Documentation

12.3.3.1 IsLastFragment()

```
bool gdcm::network::AAssociateRJPDU::IsLastFragment () const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.3.3.2 Print()

```
void gdcm::network::AAssociateRJPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.3.3.3 Read()

```
std::istream & gdcm::network::AAssociateRJPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.3.3.4 Size()

```
size_t gdcm::network::AAssociateRJPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.3.3.5 Write()

```
const std::ostream & gdcm::network::AAssociateRJPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

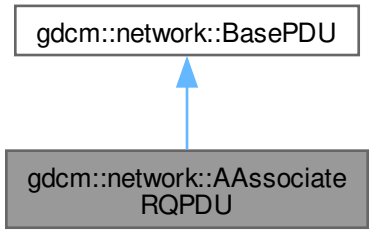
- gdcmAAssociateRJPDU.h

12.4 gdcm::network::AAssociateRQPDU Class Reference

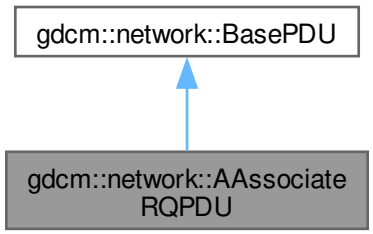
AAssociateRQPDU.

```
#include <gdcmAAssociateRQPDU.h>
```

Inheritance diagram for gdcm::network::AAssociateRQPDU:



Collaboration diagram for gdcm::network::AAssociateRQPDU:



Public Types

- typedef std::vector< PresentationContextRQ > PresentationContextArrayType
- typedef std::vector< PresentationContextRQ >::size_type SizeType

Public Member Functions

- AAssociateRQPDU ()
- AAssociateRQPDU (const AAssociateRQPDU &pdu)
- void AddPresentationContext (PresentationContextRQ const &pc)
- std::string GetCalledAETitle () const
- std::string GetCallingAETitle () const
- SizeType GetNumberOfPresentationContext () const
- PresentationContextRQ const & GetPresentationContext (SizeType i) const
- const PresentationContextRQ * GetPresentationContextByAbstractSyntax (AbstractSyntax const &absyn) const
- const PresentationContextRQ * GetPresentationContextByID (uint8_t i) const
- PresentationContextArrayType const & GetPresentationContexts ()
- const UserInformation & GetUserInformation () const
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- void SetCalledAETitle (const char calledaetitle[16])

  Set the Called AE Title.
- void SetCallingAETitle (const char callingaetitle[16])

  Set the Calling AE Title.
- void SetUserInformation (UserInformation const &ui)
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

Static Public Member Functions

- static bool IsAETitleValid (const char title[16])

  Check whether or not the.

Protected Member Functions

- std::string GetReserved43_74 () const

Friends

- class AAssociateACPDU

12.4.1 Detailed Description

AAssociateRQPDU.

Table 9-11 ASSOCIATE-RQ PDU fields

12.4.2 Member Typedef Documentation

12.4.2.1 PresentationContextArrayType

```
typedef std::vector<PresentationContextRQ> gdcm::network::AAssociateRQPDU::PresentationContextArrayType
```

12.4.2.2 SizeType

```
typedef std::vector<PresentationContextRQ>::size_type gdcm::network::AAssociateRQPDU::SizeType
```

12.4.3 Constructor & Destructor Documentation

12.4.3.1 AAssociateRQPDU() [1/2]

```
gdcm::network::AAssociateRQPDU::AAssociateRQPDU ()
```

Referenced by AAssociateRQPDU().

12.4.3.2 AAssociateRQPDU() [2/2]

```
gdcm::network::AAssociateRQPDU::AAssociateRQPDU (
            const AAssociateRQPDU & pdu)  [inline]
```

References AAssociateRQPDU(), and gdcm_assert.

12.4.4 Member Function Documentation

12.4.4.1 AddPresentationContext()

```
void gdcm::network::AAssociateRQPDU::AddPresentationContext (
            PresentationContextRQ const & pc)
```

12.4.4.2 GetCalledAETitle()

```
std::string gdcm::network::AAssociateRQPDU::GetCalledAETitle () const  [inline]
```

12.4.4.3 GetCallingAETitle()

```
std::string gdcm::network::AAssociateRQPDU::GetCallingAETitle () const  [inline]
```

12.4.4.4 GetNumberOfPresentationContext()

```
SizeType gdcm::network::AAssociateRQPDU::GetNumberOfPresentationContext () const  [inline]
```

12.4.4.5 GetPresentationContext()

```
PresentationContextRQ const & gdcm::network::AAssociateRQPDU::GetPresentationContext (
            SizeType i) const  [inline]
```

References gdcm_assert.

12.4.4.6 GetPresentationContextByAbstractSyntax()

```
const PresentationContextRQ * gdcm::network::AAssociateRQPDU::GetPresentationContextByAbstract↩
Syntax (
            AbstractSyntax const & absyn) const
```

12.4.4.7 GetPresentationContextByID()

```
const PresentationContextRQ * gdcm::network::AAssociateRQPDU::GetPresentationContextByID (
            uint8_t i) const
```

12.4.4.8 GetPresentationContexts()

```
PresentationContextArrayType const & gdcm::network::AAssociateRQPDU::GetPresentationContexts ()
[inline]
```

12.4.4.9 GetReserved43_74()

```
std::string gdcm::network::AAssociateRQPDU::GetReserved43_74 () const  [protected]
```

12.4.4.10 GetUserInformation()

```
const UserInformation & gdcm::network::AAssociateRQPDU::GetUserInformation () const  [inline]
```

12.4.4.11 IsAETitleValid()

```
bool gdcm::network::AAssociateRQPDU::IsAETitleValid (
            const char title[16])  [static]
```

Check whether or not the.

Parameters

title	is a valid AE title

12.4.4.12 IsLastFragment()

```
bool gdcm::network::AAssociateRQPDU::IsLastFragment () const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.4.4.13 Print()

```
void gdcm::network::AAssociateRQPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

This function will initialize an AAssociateACPDU from the fields in the AAssociateRQPDU structure

Implements gdcm::network::BasePDU.

12.4.4.14 Read()

```
std::istream & gdcm::network::AAssociateRQPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.4.4.15 SetCalledAETitle()

```
void gdcm::network::AAssociateRQPDU::SetCalledAETitle (
            const char calledaetitle[16])
```

Set the Called AE Title.

12.4.4.16 SetCallingAETitle()

```
void gdcm::network::AAssociateRQPDU::SetCallingAETitle (
            const char callingaetitle[16])
```

Set the Calling AE Title.

12.4.4.17 SetUserInformation()

```
void gdcm::network::AAssociateRQPDU::SetUserInformation (
            UserInformation const & ui)
```

12.4.4.18 Size()

```
size_t gdcm::network::AAssociateRQPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.4.4.19 Write()

```
const std::ostream & gdcm::network::AAssociateRQPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.4.5 Friends And Related Symbol Documentation

12.4.5.1 AAssociateACPDU

```
friend class AAssociateACPDU  [friend]
```

References AAssociateACPDU.

Referenced by AAssociateACPDU.

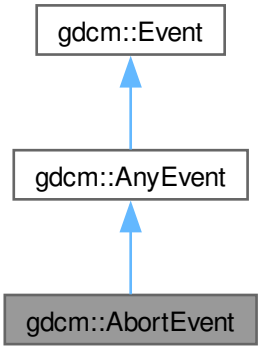
The documentation for this class was generated from the following file:

- gdcmAAssociateRQPDU.h

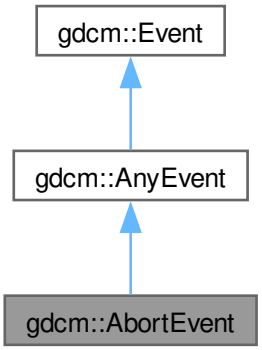
12.5 gdcm::AbortEvent Class Reference

`#include <gdcmEvent.h>`

Inheritance diagram for gdcm::AbortEvent:



Collaboration diagram for gdcm::AbortEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()

- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.6 gdcm::network::AbstractSyntax Class Reference

AbstractSyntax.

`#include <gdcmAbstractSyntax.h>`

Public Member Functions

- AbstractSyntax ()
- DataElement GetAsDataElement () const
- const char * GetName () const
- bool operator== (const AbstractSyntax &as) const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetName (const char *name)
- void SetNameFromUID (UIDs::TSName tsname)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.6.1 Detailed Description

AbstractSyntax.

Table 9-14 ABSTRACT SYNTAX SUB-ITEM FIELDS

12.6.2 Constructor & Destructor Documentation

12.6.2.1 AbstractSyntax()

`gdcm::network::AbstractSyntax::AbstractSyntax ()`

Referenced by operator==().

12.6.3 Member Function Documentation

12.6.3.1 GetAsDataElement()

```
DataElement gdcm::network::AbstractSyntax::GetAsDataElement () const
```

12.6.3.2 GetName()

```
const char * gdcm::network::AbstractSyntax::GetName () const  [inline]
```

12.6.3.3 operator==()

```
bool gdcm::network::AbstractSyntax::operator== (
            const AbstractSyntax & as) const  [inline]
```

References AbstractSyntax().

12.6.3.4 Print()

```
void gdcm::network::AbstractSyntax::Print (
            std::ostream & os) const
```

12.6.3.5 Read()

```
std::istream & gdcm::network::AbstractSyntax::Read (
            std::istream & is)
```

12.6.3.6 SetName()

```
void gdcm::network::AbstractSyntax::SetName (
            const char * name)  [inline]
```

12.6.3.7 SetNameFromUID()

```
void gdcm::network::AbstractSyntax::SetNameFromUID (
            UIDs::TSName tsname)
```

12.6.3.8 Size()

```
size_t gdcm::network::AbstractSyntax::Size () const
```

12.6.3.9 Write()

```
const std::ostream & gdcm::network::AbstractSyntax::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

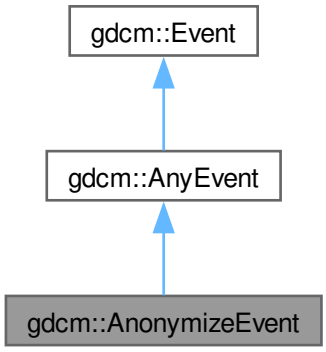
- gdcmAbstractSyntax.h

12.7 gdcm::AnonymizeEvent Class Reference

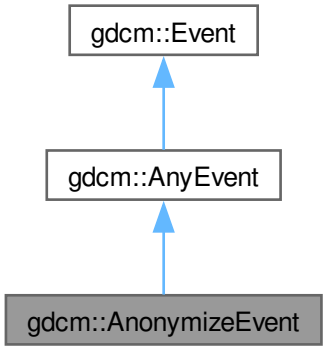
AnonymizeEvent.

```
#include <gdcmAnonymizeEvent.h>
```

Inheritance diagram for gdcm::AnonymizeEvent:



Collaboration diagram for gdcm::AnonymizeEvent:



Public Types

- typedef AnonymizeEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- AnonymizeEvent (const Self &s)
- AnonymizeEvent (Tag const &tag=0)
- ~AnonymizeEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- const char * GetEventName () const override
- Tag const & GetTag () const
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete
- void SetTag (const Tag &t)

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

12.7.1 Detailed Description

AnonymizeEvent.

Special type of event triggered during the Anonymization process

See also

Anonymizer

Examples

BasicAnonymizer.cs, Cleaner.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.7.2 Member Typedef Documentation

12.7.2.1 Self

```
typedef AnonymizeEvent gdcm::AnonymizeEvent::Self
```

12.7.2.2 Superclass

```
typedef AnyEvent gdcm::AnonymizeEvent::Superclass
```

12.7.3 Constructor & Destructor Documentation

12.7.3.1 AnonymizeEvent() [1/2]

```
gdcm::AnonymizeEvent::AnonymizeEvent (
            Tag const & tag = 0)  [inline]
```

12.7.3.2 ~AnonymizeEvent()

```
gdcm::AnonymizeEvent::~AnonymizeEvent ()  [override], [default]
```

12.7.3.3 AnonymizeEvent() [2/2]

```
gdcm::AnonymizeEvent::AnonymizeEvent (
            const Self & s)  [inline]
```

12.7.4 Member Function Documentation

12.7.4.1 CheckEvent()

```
bool gdcm::AnonymizeEvent::CheckEvent (
            const ::gdcm::Event * e) const  [inline], [override], [virtual]
```

Check if given event matches or derives from this event.

Implements gdcm::Event.

12.7.4.2 GetEventName()

```
const char * gdcm::AnonymizeEvent::GetEventName () const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

12.7.4.3 GetTag()

```
Tag const & gdcm::AnonymizeEvent::GetTag () const  [inline]
```

Examples

BasicAnonymizer.cs, Cleaner.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.7.4.4 MakeObject()

```
::gdcm::Event * gdcm::AnonymizeEvent::MakeObject () const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

12.7.4.5 operator=()

```
void gdcm::AnonymizeEvent::operator= (
            const Self & )  [delete]
```

12.7.4.6 SetTag()

```
void gdcm::AnonymizeEvent::SetTag (
            const Tag & t)  [inline]
```

The documentation for this class was generated from the following file:

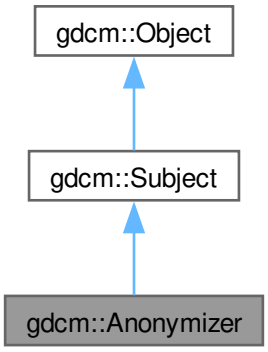
- gdcmAnonymizeEvent.h

12.8 gdcm::Anonymizer Class Reference

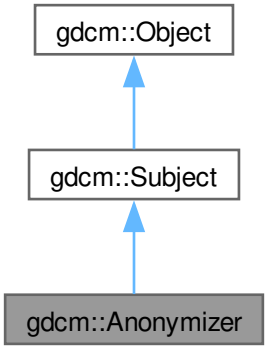
Anonymizer.

```
#include <gdcmAnonymizer.h>
```

Inheritance diagram for gdcm::Anonymizer:



Collaboration diagram for gdcm::Anonymizer:



Public Member Functions

- Anonymizer ()
- ~Anonymizer () override
- bool BasicApplicationLevelConfidentialityProfile (bool deidentify=true)
- bool Clear (PrivateTag const &pt)
- bool Clear (Tag const &t)

  Identical to 'Empty' except no action is done when tag is not present.
- bool Empty (PrivateTag const &pt)
- bool Empty (Tag const &t)

  Make Tag t empty (if not found tag will be created).
- const CryptographicMessageSyntax * GetCryptographicMessageSyntax () const
- File & GetFile ()
- bool Remove (PrivateTag const &pt)
- bool Remove (Tag const &t)

  remove a tag (even a SQ can be removed)
- bool RemoveGroupLength ()

  Main function that loop over all elements and remove group length.
- bool RemovePrivateTags ()

  Main function that loop over all elements and remove private tags.
- bool RemoveRetired ()

  Main function that loop over all elements and remove retired element.
- bool Replace (PrivateTag const &t, const char *value)
- bool Replace (PrivateTag const &t, const char *value, VL const &vl)
- bool Replace (Tag const &t, const char *value)
- bool Replace (Tag const &t, const char *value, VL const &vl)
- void SetCryptographicMessageSyntax (CryptographicMessageSyntax *cms)

  Set/Get CMS key that will be used to encrypt the dataset within BasicApplicationLevelConfidentialityProfile.
- void SetFile (const File &f)

  Set/Get File.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static void ClearInternalUIDs ()
- static std::vector< Tag > GetBasicApplicationLevelConfidentialityProfileAttributes ()

  Return the list of Tag that will be considered when anonymizing a DICOM file.
- static SmartPointer< Anonymizer > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- bool BALCPProtect (DataSet &ds, Tag const &tag, const IOD &iod)
- bool CanEmptyTag (Tag const &tag, const IOD &iod) const
- void RecurseDataSet (DataSet &ds)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.8.1 Detailed Description

Anonymizer.

This class is a multi purpose anonymizer. It can work in 2 mode:

- Full (irreversible) anonymizer (aka dumb mode)
- reversible de-identifier/re-identifier (aka smart mode). This implements the Basic Application Level Confidentiality Profile, DICOM PS 3.15-2009

1. dumb mode This is a dumb anonymizer implementation. All it allows user is simple operation such as:

Tag based functions:

- complete removal of DICOM attribute (Remove)
- make a tag empty, ie make it's length 0 (Empty)
- replace with another string-based value (Replace)

DataSet based functions:

- Remove all group length attribute from a DICOM dataset (Group Length element are deprecated, DICOM 2008)
- Remove all private attributes
- Remove all retired attributes

All function calls actually execute the user specified request. Previous implementation were calling a general Anonymize function but traversing a std::set is O(n) operation, while a simple user specified request is O(log(n)) operation. So 'm' user interaction is O(m∗log(n)) which is $<$ O(n) complexity.

1. smart mode this mode implements the Basic Application Level Confidentiality Profile (DICOM PS 3.15-2008) In this case, it is extremely important to use the same Anonymizer class when anonymizing a FileSet. Once the Anonymizer is destroyed its memory of known (already processed) UIDs will be lost. which will make the anonymizer behaves incorrectly for attributes such as Series UID Study UID where user want some consistency. When attribute is Type 1 / Type 1C, a dummy generator will take in the existing value and produce a dummy value (a sha1 representation). sha1 algorithm is considered to be cryptographically strong (compared to md5sum) so that we meet the following two conditions:
   - Produce the same dummy value for the same input value
   - do not provide an easy way to retrieve the original value from the sha1 generated value

This class implement the Subject/Observer pattern trigger the following event:

- AnonymizeEvent
- IterationEvent
- StartEvent
- EndEvent

See also

CryptographicMessageSyntax

Examples

ClinicalTrialAnnotate.cxx, CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, ManipulateFile.cs, and MpegVideoInfo.cs.

12.8.2 Constructor & Destructor Documentation

12.8.2.1 Anonymizer()

```
gdcm::Anonymizer::Anonymizer ()  [inline]
```

Referenced by New().

12.8.2.2 ~Anonymizer()

```
gdcm::Anonymizer::~Anonymizer ()  [override]
```

12.8.3 Member Function Documentation

12.8.3.1 BALCPProtect()

```
bool gdcm::Anonymizer::BALCPProtect (
            DataSet & ds,
            Tag const & tag,
            const IOD & iod)  [protected]
```

12.8.3.2 BasicApplicationLevelConfidentialityProfile()

```
bool gdcm::Anonymizer::BasicApplicationLevelConfidentialityProfile (
            bool deidentify = true)
```

PS 3.15 / E.1.1 De-Identifier An Application may claim conformance to the Basic Application Level Confidentiality Profile as a deidentifier if it protects all Attributes that might be used by unauthorized entities to identify the patient. NOT THREAD SAFE

Examples

BasicAnonymizer.cs.

12.8.3.3 CanEmptyTag()

```
bool gdcm::Anonymizer::CanEmptyTag (
            Tag const & tag,
            const IOD & iod) const  [protected]
```

12.8.3.4 Clear() [1/2]

```
bool gdcm::Anonymizer::Clear (
            PrivateTag const & pt)
```

12.8.3.5 Clear() [2/2]

```
bool gdcm::Anonymizer::Clear (
            Tag const & t)
```

Identical to 'Empty' except no action is done when tag is not present.

12.8.3.6 ClearInternalUIDs()

```
void gdcm::Anonymizer::ClearInternalUIDs ()  [static]
```

Clear the internal mapping of real UIDs to generated UIDs

Warning

the mapping is definitely lost

12.8.3.7 Empty() [1/2]

```
bool gdcm::Anonymizer::Empty (
            PrivateTag const & pt)
```

Make PrivateTag pt empty (if not found tag will be created) Pay special attention that this code must be done before any call to Empty/Remove of the associated Private Creator, but before any call to Replace.

12.8.3.8 Empty() [2/2]

```
bool gdcm::Anonymizer::Empty (
            Tag const & t)
```

Make Tag t empty (if not found tag will be created).

Examples

CreateJPIPDataSet.cxx.

12.8.3.9 GetBasicApplicationLevelConfidentialityProfileAttributes()

```
std::vector< Tag > gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes ()
[static]
```

Return the list of Tag that will be considered when anonymizing a DICOM file.

Examples

GenFakeIdentifyFile.cxx, and TraverseModules.cxx.

12.8.3.10 GetCryptographicMessageSyntax()

```
const CryptographicMessageSyntax * gdcm::Anonymizer::GetCryptographicMessageSyntax () const
```

12.8.3.11 GetFile()

```
File & gdcm::Anonymizer::GetFile ()  [inline]
```

Examples

BasicAnonymizer.cs, and ManipulateFile.cs.

12.8.3.12 New()

```
SmartPointer< Anonymizer > gdcm::Anonymizer::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References Anonymizer().

12.8.3.13 RecurseDataSet()

```
void gdcm::Anonymizer::RecurseDataSet (
            DataSet & ds)  [protected]
```

12.8.3.14 Remove() [1/2]

```
bool gdcm::Anonymizer::Remove (
            PrivateTag const & pt)
```

remove a private tag (even a SQ can be removed) Pay special attention that this code must be done before any call to Empty/Remove of the associated Private Creator, but before any call to Replace. When the private reservation becomes empty, no check is done to automatically remove the private creator

12.8.3.15 Remove() [2/2]

```
bool gdcm::Anonymizer::Remove (
            Tag const & t)
```

remove a tag (even a SQ can be removed)

12.8.3.16 RemoveGroupLength()

```
bool gdcm::Anonymizer::RemoveGroupLength ()
```

Main function that loop over all elements and remove group length.

Examples

ClinicalTrialAnnotate.cxx, and ManipulateFile.cs.

12.8.3.17 RemovePrivateTags()

```
bool gdcm::Anonymizer::RemovePrivateTags ()
```

Main function that loop over all elements and remove private tags.

Examples

ClinicalTrialAnnotate.cxx, and ManipulateFile.cs.

12.8.3.18 RemoveRetired()

```
bool gdcm::Anonymizer::RemoveRetired ()
```

Main function that loop over all elements and remove retired element.

12.8.3.19 Replace() [1/4]

```
bool gdcm::Anonymizer::Replace (
            PrivateTag const & t,
            const char * value)
```

12.8.3.20 Replace() [2/4]

```
bool gdcm::Anonymizer::Replace (
            PrivateTag const & t,
            const char * value,
            VL const & vl)
```

12.8.3.21 Replace() [3/4]

```
bool gdcm::Anonymizer::Replace (
            Tag const & t,
            const char * value)
```

Replace tag with another value, if tag is not found it will be created: WARNING: this function can only execute if tag is a VRASCII

Examples

ClinicalTrialAnnotate.cxx, CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, ManipulateFile.cs, and MpegVideoInfo.cs.

12.8.3.22 Replace() [4/4]

```
bool gdcm::Anonymizer::Replace (
            Tag const & t,
            const char * value,
            VL const & vl)
```

when the value contains \0, it is a good idea to specify the length. This function is required when dealing with VRBINARY tag

12.8.3.23 SetCryptographicMessageSyntax()

```
void gdcm::Anonymizer::SetCryptographicMessageSyntax (
            CryptographicMessageSyntax * cms)
```

Set/Get CMS key that will be used to encrypt the dataset within BasicApplicationLevelConfidentialityProfile.

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.8.3.24 SetFile()

```
void gdcm::Anonymizer::SetFile (
            const File & f)  [inline]
```

Set/Get File.

Examples

BasicAnonymizer.cs, ClinicalTrialAnnotate.cxx, CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, ManipulateFile.cs, and MpegVideoInfo.cs.

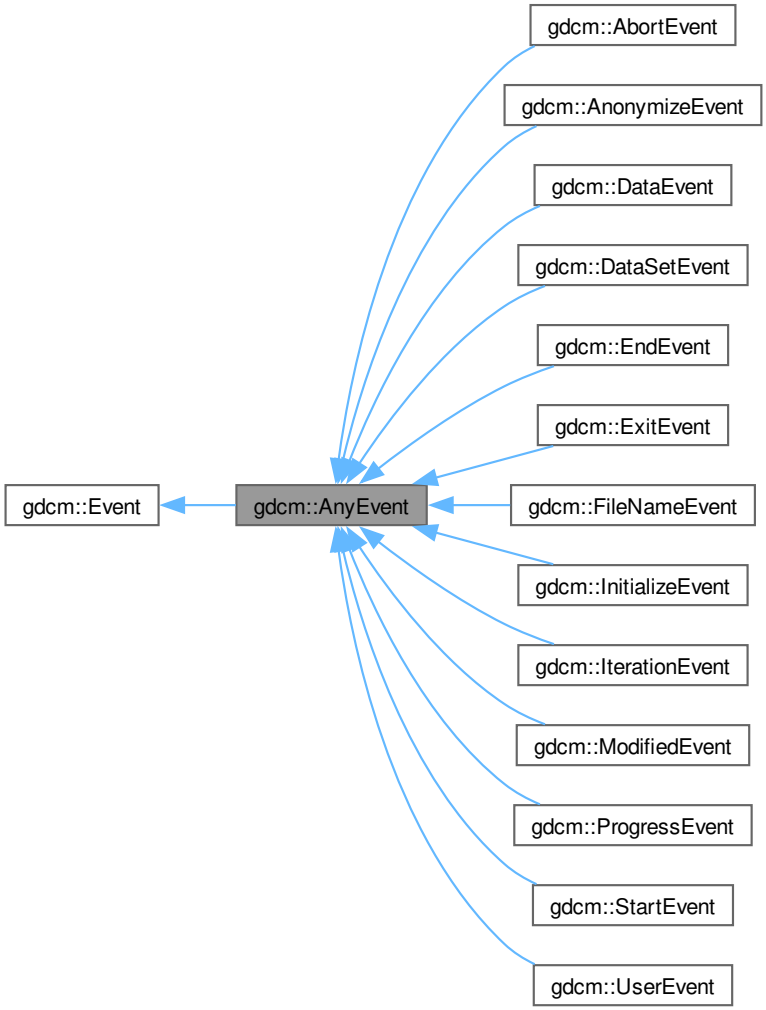
The documentation for this class was generated from the following file:

- gdcmAnonymizer.h

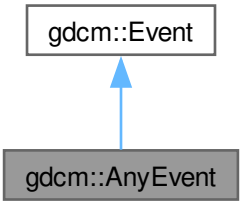
12.9 gdcm::AnyEvent Class Reference

`#include <gdcmEvent.h>`

Inheritance diagram for gdcm::AnyEvent:



Collaboration diagram for gdcm::AnyEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.10 gdcm::network::ApplicationContext Class Reference

ApplicationContext.

```
#include <gdcmApplicationContext.h>
```

Public Member Functions

- ApplicationContext ()
- const char * GetName () const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetName (const char *name)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.10.1 Detailed Description

ApplicationContext.

Table 9-12 APPLICATION CONTEXT ITEM FIELDS

Todo Looks like Application Context can only be 64 bytes at max (see Figure 9-1 / PS 3.8 - 2009)

12.10.2 Constructor & Destructor Documentation

12.10.2.1 ApplicationContext()

```
gdcm::network::ApplicationContext::ApplicationContext ()
```

12.10.3 Member Function Documentation

12.10.3.1 GetName()

```
const char * gdcm::network::ApplicationContext::GetName () const  [inline]
```

12.10.3.2 Print()

```
void gdcm::network::ApplicationContext::Print (
            std::ostream & os) const
```

12.10.3.3 Read()

```
std::istream & gdcm::network::ApplicationContext::Read (
            std::istream & is)
```

12.10.3.4 SetName()

```
void gdcm::network::ApplicationContext::SetName (
            const char * name)  [inline]
```

12.10.3.5 Size()

```
size_t gdcm::network::ApplicationContext::Size () const
```

12.10.3.6 Write()

```
const std::ostream & gdcm::network::ApplicationContext::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

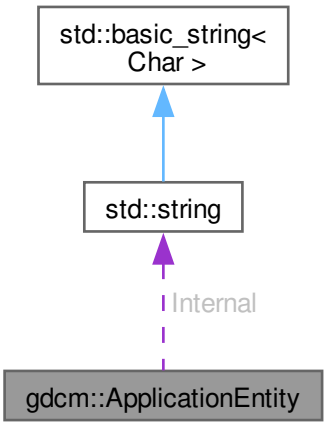
- gdcmApplicationContext.h

12.11 gdcm::ApplicationEntity Class Reference

ApplicationEntity.

```
#include <gdcmApplicationEntity.h>
```

Collaboration diagram for gdcm::ApplicationEntity:



Public Member Functions

- bool IsValid () const
- void Print (std::ostream &os) const
- void SetBlob (const std::vector< char > &v)
- void Squeeze ()

Public Attributes

- std::string Internal

Static Public Attributes

- static const unsigned int MaxLength = 16
- static const unsigned int MaxNumberOfComponents = 1
- static const char Padding = ' '
- static const char Separator = ' '

12.11.1 Detailed Description

ApplicationEntity.

- AE Application Entity
- A string of characters that identifies an Application Entity with leading and trailing spaces (20H) being non-significant. A value consisting solely of spaces shall not be used.
- Default Character Repertoire excluding character code 5CH (the BACKSLASH \ in ISO-IR 6), and control characters LF, FF, CR and ESC.
- 16 bytes maximum

12.11.2 Member Function Documentation

12.11.2.1 IsValid()

```
bool gdcm::ApplicationEntity::IsValid () const  [inline]
```

12.11.2.2 Print()

```
void gdcm::ApplicationEntity::Print (
            std::ostream & os) const  [inline]
```

References gdcm_assert.

12.11.2.3 SetBlob()

```
void gdcm::ApplicationEntity::SetBlob (
            const std::vector< char > & v)  [inline]
```

References gdcm_assert.

12.11.2.4 Squeeze()

```
void gdcm::ApplicationEntity::Squeeze ()  [inline]
```

12.11.3 Member Data Documentation

12.11.3.1 Internal

```
std::string gdcm::ApplicationEntity::Internal
```

12.11.3.2 MaxLength

```
const unsigned int gdcm::ApplicationEntity::MaxLength = 16  [static]
```

12.11.3.3 MaxNumberOfComponents

```
const unsigned int gdcm::ApplicationEntity::MaxNumberOfComponents = 1  [static]
```

12.11.3.4 Padding

```
const char gdcm::ApplicationEntity::Padding = ' '  [static]
```

12.11.3.5 Separator

```
const char gdcm::ApplicationEntity::Separator = ' '  [static]
```

The documentation for this class was generated from the following file:

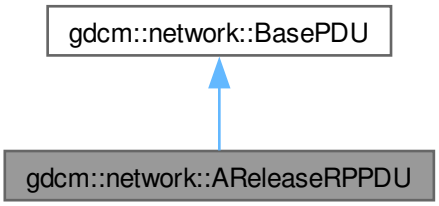
- gdcmApplicationEntity.h

12.12 gdcm::network::AReleaseRPPDU Class Reference

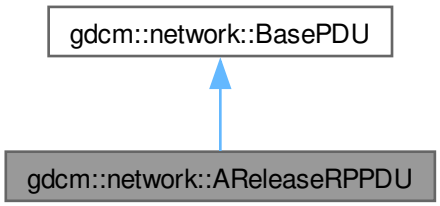
AReleaseRPPDU.

```
#include <gdcmAReleaseRPPDU.h>
```

Inheritance diagram for gdcm::network::AReleaseRPPDU:



Collaboration diagram for gdcm::network::AReleaseRPPDU:



Public Member Functions

- AReleaseRPPDU ()
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

12.12.1 Detailed Description

AReleaseRPPDU.

Table 9-25 A-RELEASE-RP PDU fields

12.12.2 Constructor & Destructor Documentation

12.12.2.1 AReleaseRPPDU()

```
gdcm::network::AReleaseRPPDU::AReleaseRPPDU ()
```

12.12.3 Member Function Documentation

12.12.3.1 IsLastFragment()

```
bool gdcm::network::AReleaseRPPDU::IsLastFragment () const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.12.3.2 Print()

```
void gdcm::network::AReleaseRPPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.12.3.3 Read()

```
std::istream & gdcm::network::AReleaseRPPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.12.3.4 Size()

```
size_t gdcm::network::AReleaseRPPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.12.3.5 Write()

```
const std::ostream & gdcm::network::AReleaseRPPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

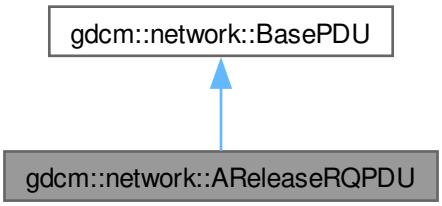
- gdcmAReleaseRPPDU.h

12.13 gdcm::network::AReleaseRQPDU Class Reference

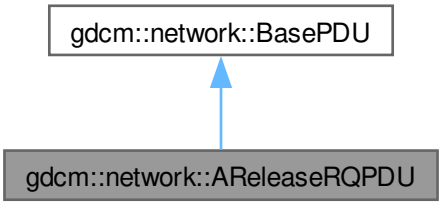
AReleaseRQPDU.

```
#include <gdcmAReleaseRQPDU.h>
```

Inheritance diagram for gdcm::network::AReleaseRQPDU:



Collaboration diagram for gdcm::network::AReleaseRQPDU:



Public Member Functions

- AReleaseRQPDU ()
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

12.13.1 Detailed Description

AReleaseRQPDU.

Table 9-24 A-RELEASE-RQ PDU FIELDS

12.13.2 Constructor & Destructor Documentation

12.13.2.1 AReleaseRQPDU()

```
gdcm::network::AReleaseRQPDU::AReleaseRQPDU ()
```

12.13.3 Member Function Documentation

12.13.3.1 IsLastFragment()

```
bool gdcm::network::AReleaseRQPDU::IsLastFragment () const  [inline], [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.13.3.2 Print()

```
void gdcm::network::AReleaseRQPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.13.3.3 Read()

```
std::istream & gdcm::network::AReleaseRQPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.13.3.4 Size()

```
size_t gdcm::network::AReleaseRQPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.13.3.5 Write()

```
const std::ostream & gdcm::network::AReleaseRQPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

- gdcmAReleaseRQPDU.h

12.14 gdcm::network::ARTIMTimer Class Reference

ARTIMTimer.

`#include <gdcmARTIMTimer.h>`

Public Member Functions

- ARTIMTimer ()
- double GetElapsedTime () const
- bool GetHasExpired () const
- double GetTimeout () const
- void SetTimeout (double inTimeout)
- void Start ()
- void Stop ()

12.14.1 Detailed Description

ARTIMTimer.

This file contains the code for the ARTIM timer.

Basically, the ARTIM timer will just get the wall time when it's started, and then can be queried for the current time, and then can be stopped (ie, the start time reset).

Because we're trying to do this without threading, we should be able to 'start' the ARTIM timer by this mechanism, and then when waiting for a particular response, tight loop that with sleep calls and determinations of when the ARTIM timer has reached its peak. As such, this isn't a strict 'timer' in the traditional sense of the word, but more of a time keeper.

There can be only one ARTIM timer per connection.

12.14.2 Constructor & Destructor Documentation

12.14.2.1 ARTIMTimer()

`gdcm::network::ARTIMTimer::ARTIMTimer ()`

12.14.3 Member Function Documentation

12.14.3.1 GetElapsedTime()

`double gdcm::network::ARTIMTimer::GetElapsedTime () const`

12.14.3.2 GetHasExpired()

```
bool gdcm::network::ARTIMTimer::GetHasExpired () const
```

12.14.3.3 GetTimeout()

```
double gdcm::network::ARTIMTimer::GetTimeout () const
```

12.14.3.4 SetTimeout()

```
void gdcm::network::ARTIMTimer::SetTimeout (
            double inTimeout)
```

12.14.3.5 Start()

```
void gdcm::network::ARTIMTimer::Start ()
```

12.14.3.6 Stop()

```
void gdcm::network::ARTIMTimer::Stop ()
```

The documentation for this class was generated from the following file:

- gdcmARTIMTimer.h

12.15 gdcm::ASN1 Class Reference

Class for ASN1.

```
#include <gdcmASN1.h>
```

Public Member Functions

- ASN1 ()
- ASN1 (const ASN1 &)=delete
- ~ASN1 ()
- void operator= (const ASN1 &)=delete

Static Public Member Functions

- static bool ParseDump (const char *array, size_t length)
- static bool ParseDumpFile (const char *filename)

Protected Member Functions

- int TestPBKDF2 ()

12.15.1 Detailed Description

Class for ASN1.

12.15.2 Constructor & Destructor Documentation

12.15.2.1 ASN1() [1/2]

```
gdcm::ASN1::ASN1 ()
```

Referenced by ASN1(), and operator=().

12.15.2.2 ~ASN1()

```
gdcm::ASN1::~ASN1 ()
```

12.15.2.3 ASN1() [2/2]

```
gdcm::ASN1::ASN1 (
            const ASN1 & )  [delete]
```

References ASN1().

12.15.3 Member Function Documentation

12.15.3.1 operator=()

```
void gdcm::ASN1::operator= (
            const ASN1 & )  [delete]
```

References ASN1().

12.15.3.2 ParseDump()

```
bool gdcm::ASN1::ParseDump (
            const char * array,
            size_t length)  [static]
```

12.15.3.3 ParseDumpFile()

```
bool gdcm::ASN1::ParseDumpFile (
            const char * filename)  [static]
```

12.15.3.4 TestPBKDF2()

```
int gdcm::ASN1::TestPBKDF2 ()  [protected]
```

The documentation for this class was generated from the following file:

- gdcmASN1.h

12.16 gdcm::network::AsynchronousOperationsWindowSub Class Reference

AsynchronousOperationsWindowSub.

```
#include <gdcmAsynchronousOperationsWindowSub.h>
```

Public Member Functions

- AsynchronousOperationsWindowSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.16.1 Detailed Description

AsynchronousOperationsWindowSub.

PS 3.7 Table D.3-7 ASYNCHRONOUS OPERATIONS WINDOW SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

12.16.2 Constructor & Destructor Documentation

12.16.2.1 AsynchronousOperationsWindowSub()

```
gdcm::network::AsynchronousOperationsWindowSub::AsynchronousOperationsWindowSub ()
```

12.16.3 Member Function Documentation

12.16.3.1 Print()

```
void gdcm::network::AsynchronousOperationsWindowSub::Print (
            std::ostream & os) const
```

12.16.3.2 Read()

```
std::istream & gdcm::network::AsynchronousOperationsWindowSub::Read (
            std::istream & is)
```

12.16.3.3 Size()

```
size_t gdcm::network::AsynchronousOperationsWindowSub::Size () const
```

12.16.3.4 Write()

```
const std::ostream & gdcm::network::AsynchronousOperationsWindowSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

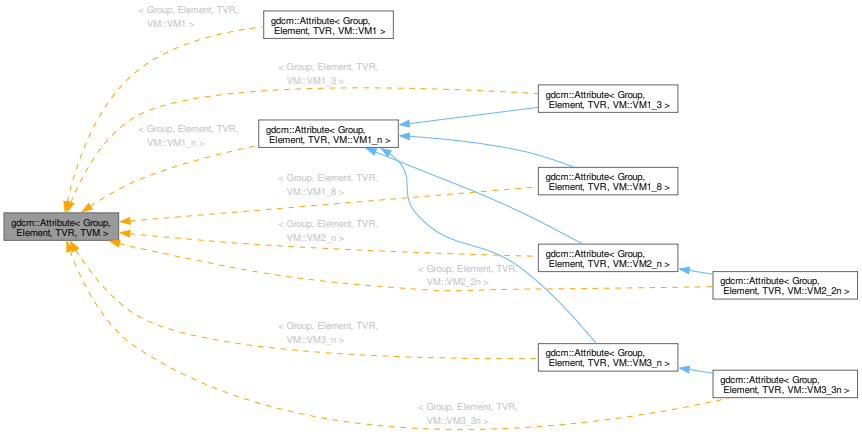
- gdcmAsynchronousOperationsWindowSub.h

12.17 gdcm::Attribute< Group, Element, TVR, TVM > Class Template Reference

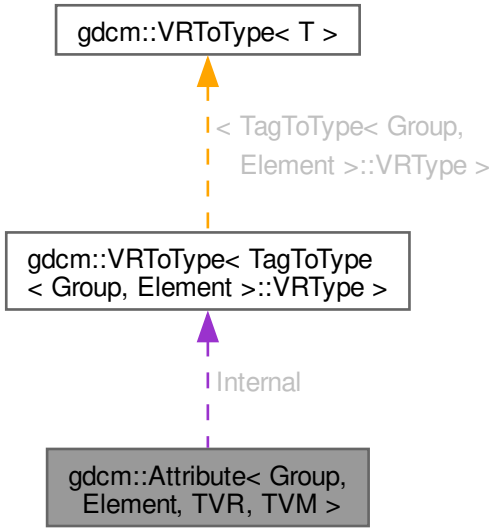
Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, TVM >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, TVM >:



Public Types

- enum { VMType = VMToLength<TVM>::Length }
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TVM==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VM::VMType) TVM &(VM::VMType)(TagToType< Group, Element >::VMType)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.17.1 Detailed Description

template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int TVM = TagToType<Group, Element>::VMType>
class gdcm::Attribute< Group, Element, TVR, TVM >

Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.

Typical example that compile is: Attribute<0x0008,0x9007> a = {"ORIGINAL","PRIMARY","T1","NONE"};

Examples that will NOT compile are:

Attribute<0x0018,0x1182, VR::IS, VM::VM1> fd1 = {}; // not enough parameters Attribute<0x0018,0x1182, VR::IS, VM::VM2> fd2 = {0,1,2}; // too many initializers Attribute<0x0018,0x1182, VR::IS, VM::VM3> fd3 = {0,1,2}; // VM3 is not valid Attribute<0x0018,0x1182, VR::UL, VM::VM2> fd3 = {0,1}; // UL is not valid VR

Examples

CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_In FixOrientation.cxx, GenFakeIdentifyFile.cxx, GetSequenceUltrasound.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, PatchFile.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, SortImage.cxx, StreamImageReaderTest.cxx, VolumeSorter.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.17.2 Member Typedef Documentation

12.17.2.1 ArrayType

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

Examples

ReadAndPrintAttributes.cxx.

12.17.3 Member Enumeration Documentation

12.17.3.1 anonymous enum

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
anonymous enum
```

Enumerator

VMType	

12.17.4 Member Function Documentation

12.17.4.1 GDCM_STATIC_ASSERT() [1/3]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
             ((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TVM==VM::VM1))||!((VR::VRType) TVR
&VR::VR_VM1)) )
```

References gdcm::VM::VM1, and gdcm::VR::VR_VM1.

12.17.4.2 GDCM_STATIC_ASSERT() [2/3]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
             ((VM::VMType) TVM &(VM::VMType)(TagToType< Group, Element >::VMType)) )
```

12.17.4.3 GDCM_STATIC_ASSERT() [3/3]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
             ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.17.4.4 GetAsDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

Examples

CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixOrientation.cxx, GenFakeIdentifyFile.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, PatchFile.cxx, and StreamImageReaderTest.cxx.

References gdcm_assert, GetNumberOfValues(), GetTag(), GetVR(), gdcm::DataElement::GetVR(), Internal, gdcm::DataElement::SetByteValue(), gdcm::DataElement::SetVR(), gdcm::VR::SQ, gdcm::VR::UI, and gdcm::VR::VRASCII.

12.17.4.5 GetDictVM()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.17.4.6 GetDictVR()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.17.4.7 GetNumberOfValues()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

Examples

LargeVRDSExplicit.cxx.

Referenced by GetAsDataElement(), GetValue(), GetValue(), operator!=(), operator<(), gdcm::Attribute< Group, Element, TVR, VM::VM1 operator==(), Print(), SetByteValue(), SetByteValueNoSwap(), SetValue(), and SetValues().

12.17.4.8 GetTag()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

Examples

PatchFile.cxx, ReadAndPrintAttributes.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

Referenced by GetAsDataElement(), and Print().

12.17.4.9 GetValue() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

Examples

DeriveSeries.cxx, FixOrientation.cxx, GetSequenceUltrasound.cxx, PatchFile.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References gdcm_assert, GetNumberOfValues(), and Internal.

Referenced by operator[ ](), and operator[ ]().

12.17.4.10 GetValue() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType const & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

References gdcm_assert, GetNumberOfValues(), and Internal.

12.17.4.11 GetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

Examples

FixOrientation.cxx, LargeVRDSExplicit.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

References Internal.

Referenced by operator!=(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator!=(), operator<(), gdcm::Attribute< Group, Ele
operator==(), and gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator==().

12.17.4.12 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetVM ()  [inline], [static]
```

12.17.4.13 GetVR()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

Examples

LargeVRDSExplicit.cxx.

Referenced by GetAsDataElement(), and SetFromDataElement().

12.17.4.14 operator"!=()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, TVM > & att) const  [inline]
```

References GetNumberOfValues(), GetValues(), and Internal.

12.17.4.15 operator<()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, TVM > & att) const  [inline]
```

References GetNumberOfValues(), GetValues(), and Internal.

12.17.4.16 operator==()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, TVM > & att) const  [inline]
```

References GetNumberOfValues(), GetValues(), and Internal.

12.17.4.17 operator[]() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

References GetValue().

12.17.4.18 operator[]() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType const & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

References GetValue().

12.17.4.19 Print()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

References GetNumberOfValues(), GetTag(), and Internal.

12.17.4.20 Set()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

Examples

LargeVRDSExplicit.cxx, SortImage.cxx, and VolumeSorter.cxx.

References gdcm::DataSet::GetDataElement(), and SetFromDataElement().

12.17.4.21 SetByteValue()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

References gdcm_assert, gdcm::ByteValue::GetLength(), GetNumberOfValues(), gdcm::ByteValue::GetPointer(), and Internal.

Referenced by SetFromDataElement().

12.17.4.22 SetByteValueNoSwap()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

References gdcm_assert, gdcm::ByteValue::GetLength(), GetNumberOfValues(), gdcm::ByteValue::GetPointer(), and Internal.

Referenced by SetFromDataElement().

12.17.4.23 SetFromDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

Examples

GetSequenceUltrasound.cxx, LargeVRDSExplicit.cxx, PatchFile.cxx, ReadAndDumpDICOMDIR2.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

References gdcm_assert, gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetTag(), GetVR(), gdcm::DataElement::GetVR(), gdcm::VR::INVALID, gdcm::DataElement::IsEmpty(), SetByteValue(), SetByteValueNoSwap(), and gdcm::VR::UN.

Referenced by Set(), and SetFromDataSet().

12.17.4.24 SetFromDataSet()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

Examples

DeriveSeries.cxx, FixOrientation.cxx, ReadAndPrintAttributes.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References gdcm::DataSet::FindDataElement(), gdcm::DataSet::GetDataElement(), and SetFromDataElement().

12.17.4.25 SetValue()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

Examples

CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, FixOrientation.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, and PatchFile.cxx.

References gdcm_assert, GetNumberOfValues(), and Internal.

12.17.4.26 SetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

Examples

FixOrientation.cxx, and LargeVRDSExplicit.cxx.

References gdcm_assert, GetNumberOfValues(), Internal, and VMType.

12.17.5 Member Data Documentation

12.17.5.1 Internal

```
template<uint16_t Group, uint16_t Element, long long TVR = TagToType<Group, Element>::VRType, int
TVM = TagToType<Group, Element>::VMType>
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

Referenced by GetAsDataElement(), GetValue(), GetValue(), GetValues(), operator!=(), operator<(), operator==(), Print(), SetByteValue(), SetByteValueNoSwap(), SetValue(), and SetValues().

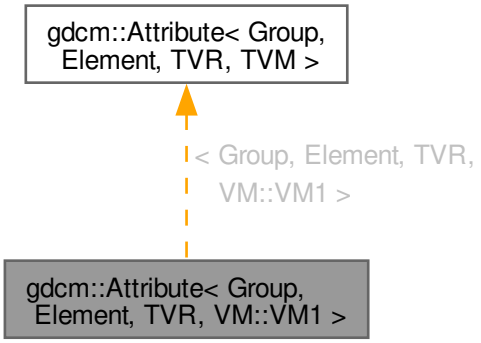
The documentation for this class was generated from the following file:

- gdcmAttribute.h

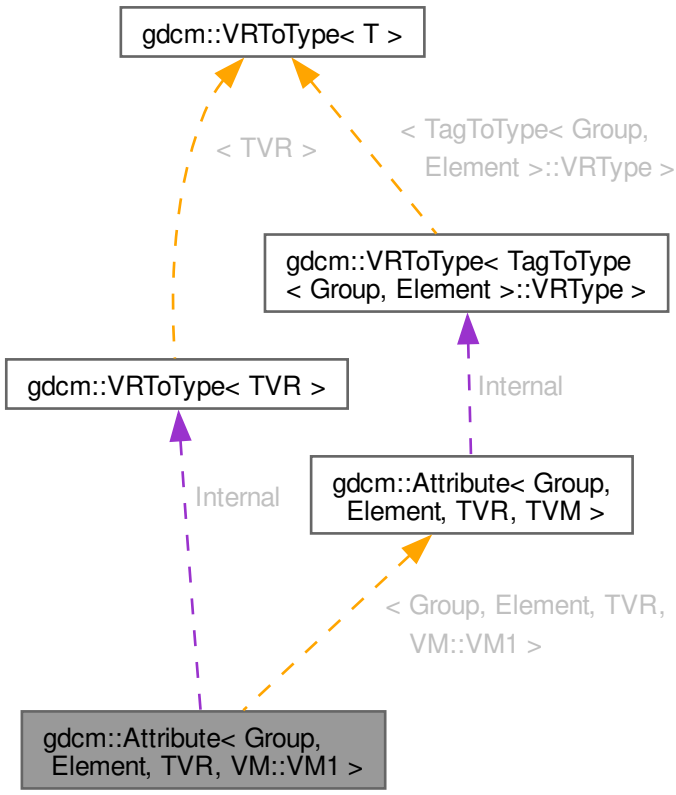
12.18 gdcm::Attribute< Group, Element, TVR, VM::VM1 > Class Template Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1 >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1 >:



Public Types

- enum { VMType = VMToLength<VM::VM1>::Length }
- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) VM::VM1==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VM::VMType) VM::VM1 &(VM::VMType)(TagToType< Group, Element >::VMType)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT (VMToLength< VM::VM1 >::Length==1)
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue ()

- ArrayType const & GetValue () const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.18.1 Member Typedef Documentation

12.18.1.1 ArrayType

```
template<uint16_t Group, uint16_t Element, long long TVR>
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, VM::VM1 >::ArrayType
```

12.18.2 Member Enumeration Documentation

12.18.2.1 anonymous enum

```
template<uint16_t Group, uint16_t Element, long long TVR>
anonymous enum
```

Enumerator

VMType	

12.18.2.2 anonymous enum

```
anonymous enum
```

12.18.3 Member Function Documentation

12.18.3.1 GDCM_STATIC_ASSERT() [1/4]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (
             ((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) VM::VM1==VM::VM1))||!((VR::VRType)
TVR &VR::VR_VM1)) )
```

References gdcm::VM::VM1, and gdcm::VR::VR_VM1.

12.18.3.2 GDCM_STATIC_ASSERT() [2/4]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (
             ((VM::VMType) VM::VM1 &(VM::VMType)(TagToType< Group, Element >::VMType)) )
```

References gdcm::VM::VM1.

12.18.3.3 GDCM_STATIC_ASSERT() [3/4]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (
             ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.18.3.4 GDCM_STATIC_ASSERT() [4/4]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GDCM_STATIC_ASSERT (
             VMToLength< VM::VM1 >::Length  = =1)
```

12.18.3.5 GetAsDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR>
DataElement gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetAsDataElement () const  [inline]
```

References gdcm_assert, GetNumberOfValues(), GetVR(), gdcm::DataElement::GetVR(), Internal, gdcm::DataElement::SetByteValue(), gdcm::DataElement::SetVR(), gdcm::VR::SQ, gdcm::VR::UI, and gdcm::VR::VRASCII.

12.18.3.6 GetDictVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetDictVM ()  [inline], [static]
```

12.18.3.7 GetDictVR()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VR gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetDictVR ()  [inline], [static]
```

12.18.3.8 GetNumberOfValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
unsigned int gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetNumberOfValues () const  [inline]
```

Referenced by GetAsDataElement(), operator!=(), operator<(), operator==(), SetByteValue(), and SetByteValueNoSwap().

12.18.3.9 GetTag()

```
template<uint16_t Group, uint16_t Element, long long TVR>
Tag gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetTag ()  [inline], [static]
```

Referenced by Print().

12.18.3.10 GetValue() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType & gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetValue ()  [inline]
```

References Internal.

12.18.3.11 GetValue() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType const & gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetValue () const  [inline]
```

References Internal.

12.18.3.12 GetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
const ArrayType * gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetValues () const  [inline]
```

References Internal.

12.18.3.13 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetVM ()  [inline], [static]
```

References gdcm::VM::VM1.

12.18.3.14 GetVR()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VR gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetVR ()  [inline], [static]
```

Referenced by GetAsDataElement(), and SetFromDataElement().

12.18.3.15 operator"!=()

```
template<uint16_t Group, uint16_t Element, long long TVR>
bool gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM1 > & att) const  [inline]
```

References GetNumberOfValues(), gdcm::Attribute< Group, Element, TVR, TVM >::GetValues(), and Internal.

12.18.3.16 operator<()

```
template<uint16_t Group, uint16_t Element, long long TVR>
bool gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator< (
            const Attribute< Group, Element, TVR, VM::VM1 > & att) const  [inline]
```

References gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues(), GetNumberOfValues(), gdcm::Attribute< Group, Ele
and Internal.

12.18.3.17 operator==()

```
template<uint16_t Group, uint16_t Element, long long TVR>
bool gdcm::Attribute< Group, Element, TVR, VM::VM1 >::operator== (
            const Attribute< Group, Element, TVR, VM::VM1 > & att) const  [inline]
```

References GetNumberOfValues(), gdcm::Attribute< Group, Element, TVR, TVM >::GetValues(), and Internal.

12.18.3.18 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.18.3.19 Print()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Print (
            std::ostream & os) const  [inline]
```

References GetTag(), and Internal.

12.18.3.20 Set()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Set (
            DataSet const & ds)  [inline]
```

References gdcm::DataSet::GetDataElement(), and SetFromDataElement().

12.18.3.21 SetByteValue()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

References gdcm_assert, gdcm::ByteValue::GetLength(), GetNumberOfValues(), gdcm::ByteValue::GetPointer(), and Internal.

Referenced by SetFromDataElement().

12.18.3.22 SetByteValueNoSwap()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

References gdcm_assert, gdcm::ByteValue::GetLength(), GetNumberOfValues(), gdcm::ByteValue::GetPointer(), and Internal.

Referenced by SetFromDataElement().

12.18.3.23 SetFromDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement (
            DataElement const & de)  [inline]
```

References gdcm_assert, gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetTag(), GetVR(), gdcm::DataElement::GetVR(), gdcm::VR::INVALID, gdcm::DataElement::IsEmpty(), SetByteValue(), SetByteValueNoSwap(), and gdcm::VR::UN.

Referenced by Set(), and SetFromDataSet().

12.18.3.24 SetFromDataSet()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

References gdcm::DataSet::FindDataElement(), gdcm::DataSet::GetDataElement(), and SetFromDataElement().

12.18.3.25 SetValue()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetValue (
            ArrayType v)  [inline]
```

References Internal.

12.18.3.26 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.18.4 Member Data Documentation

12.18.4.1 Internal

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Internal
```

Referenced by GetAsDataElement(), GetValue(), GetValue(), GetValues(), operator!=(), operator<(), operator==(), Print(), SetByteValue(), SetByteValueNoSwap(), and SetValue().

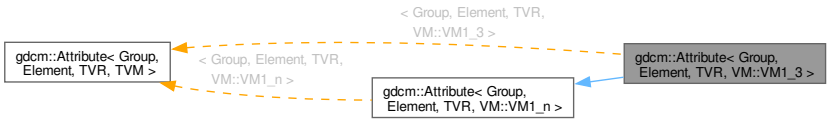
The documentation for this class was generated from the following file:

- gdcmAttribute.h

12.19 gdcm::Attribute< Group, Element, TVR, VM::VM1_3 > Class Template Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >:

Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- VM GetVM () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.19.1 Member Typedef Documentation

12.19.1.1 ArrayType

```
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

12.19.2 Member Enumeration Documentation

12.19.2.1 anonymous enum

```
anonymous enum
```

12.19.3 Member Function Documentation

12.19.3.1 GDCM_STATIC_ASSERT()

```
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.19.3.2 GetAsDataElement()

```
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

12.19.3.3 GetDictVM()

```
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.19.3.4 GetDictVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.19.3.5 GetNumberOfValues()

```
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

12.19.3.6 GetTag()

```
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

12.19.3.7 GetValue()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.19.3.8 GetValues()

```
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

12.19.3.9 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >::GetVM () const  [inline]
```

References gdcm::VM::VM1_3.

12.19.3.10 GetVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

12.19.3.11 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM1_3 > & att) const  [inline]
```

12.19.3.12 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM1_3 > & att) const  [inline]
```

12.19.3.13 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM1_3 > & att) const  [inline]
```

12.19.3.14 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.19.3.15 Print()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

12.19.3.16 Set()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

12.19.3.17 SetByteValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

12.19.3.18 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.19.3.19 SetFromDataElement()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

12.19.3.20 SetFromDataSet()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

12.19.3.21 SetValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

12.19.3.22 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.19.4 Member Data Documentation

12.19.4.1 Internal

```
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

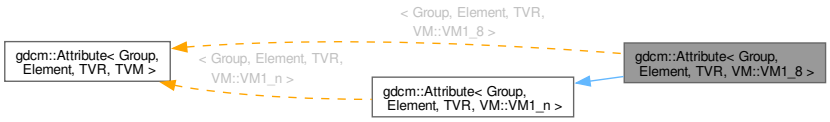
The documentation for this class was generated from the following file:

- gdcmAttribute.h

12.20 gdcm::Attribute< Group, Element, TVR, VM::VM1_8 > Class Template Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >:

Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- VM GetVM () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const

- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.20.1 Member Typedef Documentation

12.20.1.1 ArrayType

```
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

12.20.2 Member Enumeration Documentation

12.20.2.1 anonymous enum

```
anonymous enum
```

12.20.3 Member Function Documentation

12.20.3.1 GDCM_STATIC_ASSERT()

```
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
             ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.20.3.2 GetAsDataElement()

```
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

12.20.3.3 GetDictVM()

```
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.20.3.4 GetDictVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.20.3.5 GetNumberOfValues()

```
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

12.20.3.6 GetTag()

```
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

12.20.3.7 GetValue()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
             unsigned int idx = 0)  [inline]
```

12.20.3.8 GetValues()

```
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

12.20.3.9 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >::GetVM () const  [inline]
```

References gdcm::VM::VM1_8.

12.20.3.10 GetVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

12.20.3.11 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM1_8 > & att) const  [inline]
```

12.20.3.12 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM1_8 > & att) const  [inline]
```

12.20.3.13 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM1_8 > & att) const  [inline]
```

12.20.3.14 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.20.3.15 Print()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

12.20.3.16 Set()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

12.20.3.17 SetByteValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

12.20.3.18 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.20.3.19 SetFromDataElement()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

12.20.3.20 SetFromDataSet()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

12.20.3.21 SetValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

12.20.3.22 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.20.4 Member Data Documentation

12.20.4.1 Internal

```
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

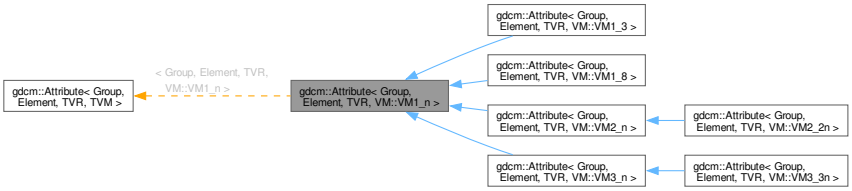
The documentation for this class was generated from the following file:

- gdcmAttribute.h

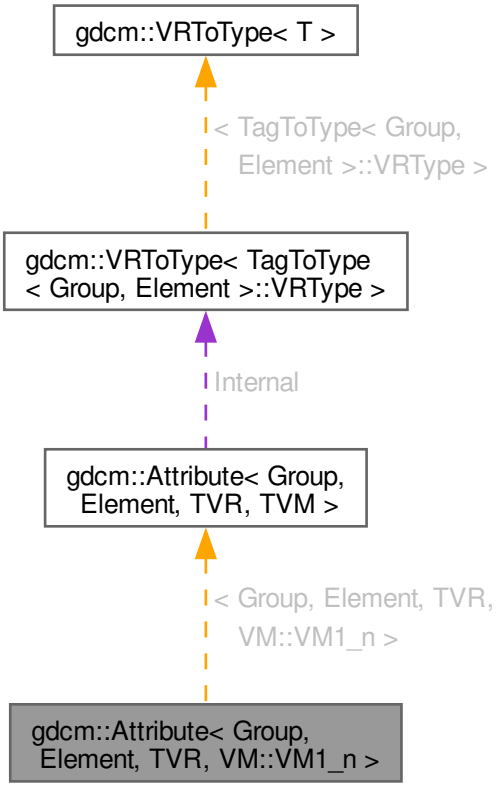
12.21 gdcm::Attribute< Group, Element, TVR, VM::VM1_n > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM1_n >:



Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)

- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.21.1 Member Typedef Documentation

12.21.1.1 ArrayType

```
template<uint16_t Group, uint16_t Element, long long TVR>
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::ArrayType
```

12.21.2 Member Enumeration Documentation

12.21.2.1 anonymous enum

```
anonymous enum
```

12.21.3 Constructor & Destructor Documentation

12.21.3.1 Attribute()

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Attribute ()  [inline], [explicit]
```

12.21.3.2 ~Attribute()

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::~Attribute ()  [inline]
```

12.21.4 Member Function Documentation

12.21.4.1 GDCM_STATIC_ASSERT() [1/3]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GDCM_STATIC_ASSERT (
             ((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((V
TVR &VR::VR_VM1)) )
```

References gdcm::VM::VM1, and gdcm::VR::VR_VM1.

12.21.4.2 GDCM_STATIC_ASSERT() [2/3]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GDCM_STATIC_ASSERT (
             ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.21.4.3 GDCM_STATIC_ASSERT() [3/3]

```
template<uint16_t Group, uint16_t Element, long long TVR>
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GDCM_STATIC_ASSERT (
             (VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)) )
```

References gdcm::VM::VM1_n.

12.21.4.4 GetAsDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR>
DataElement gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement () const  [inline]
```

References gdcm_assert, GetNumberOfValues(), GetTag(), GetVR(), gdcm::DataElement::GetVR(), gdcm::DataElement::SetByteValue(), gdcm::DataElement::SetVR(), gdcm::VR::SQ, gdcm::VR::UI, and gdcm::VR::VRASCII.

12.21.4.5 GetDictVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetDictVM ()  [inline], [static]
```

References GetVM().

12.21.4.6 GetDictVR()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VR gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetDictVR ()  [inline], [static]
```

12.21.4.7 GetNumberOfValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
unsigned int gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetNumberOfValues () const  [inline]
```

Referenced by GetAsDataElement(), GetValue(), GetValue(), Print(), SetValue(), and SetValues().

12.21.4.8 GetTag()

```
template<uint16_t Group, uint16_t Element, long long TVR>
Tag gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetTag ()  [inline], [static]
```

Referenced by GetAsDataElement(), Print(), Set(), SetFromDataElement(), and SetFromDataSet().

12.21.4.9 GetValue() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType & gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValue (
            unsigned int idx = 0)  [inline]
```

References gdcm_assert, and GetNumberOfValues().

Referenced by operator[ ](), and operator[ ]().

12.21.4.10 GetValue() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType const & gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValue (
            unsigned int idx = 0) const  [inline]
```

References gdcm_assert, and GetNumberOfValues().

12.21.4.11 GetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
const ArrayType * gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValues () const  [inline]
```

12.21.4.12 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetVM ()  [inline], [static]
```

References gdcm::VM::VM1_n.

Referenced by GetDictVM(), and Print().

12.21.4.13 GetVR()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VR gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetVR ()  [inline], [static]
```

Referenced by GetAsDataElement(), Print(), and SetFromDataElement().

12.21.4.14 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM1_n > & att) const  [inline]
```

12.21.4.15 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM1_n > & att) const  [inline]
```

12.21.4.16 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM1_n > & att) const  [inline]
```

12.21.4.17 operator[]() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType & gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::operator[] (
            unsigned int idx)  [inline]
```

References GetValue().

12.21.4.18 operator[]() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
ArrayType const & gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::operator[] (
            unsigned int idx) const  [inline]
```

References GetValue().

12.21.4.19 Print()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Print (
            std::ostream & os) const  [inline]
```

References GetNumberOfValues(), GetTag(), GetVM(), and GetVR().

12.21.4.20 Set()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Set (
            DataSet const & ds)  [inline]
```

References gdcm::DataSet::GetDataElement(), GetTag(), and SetFromDataElement().

12.21.4.21 SetByteValue()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

References gdcm_assert, gdcm::ByteValue::GetLength(), gdcm::ByteValue::GetPointer(), and SetValues().

Referenced by SetFromDataElement().

12.21.4.22 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.21.4.23 SetFromDataElement()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataElement (
            DataElement const & de)  [inline]
```

References gdcm_assert, gdcm::DataElement::GetByteValue(), GetTag(), gdcm::DataElement::GetTag(), GetVR(), gdcm::DataElement::GetVR(), gdcm::DataElement::IsEmpty(), and SetByteValue().

Referenced by Set(), and SetFromDataSet().

12.21.4.24 SetFromDataSet()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

References gdcm::DataSet::FindDataElement(), gdcm::DataSet::GetDataElement(), GetTag(), and SetFromDataElement().

12.21.4.25 SetNumberOfValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetNumberOfValues (
            unsigned int numel)  [inline]
```

References SetValues().

12.21.4.26 SetValue() [1/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValue (
            ArrayType v)  [inline]
```

References SetValue().

Referenced by SetValue().

12.21.4.27 SetValue() [2/2]

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValue (
            unsigned int idx,
            ArrayType v)  [inline]
```

References gdcm_assert, and GetNumberOfValues().

12.21.4.28 SetValues()

```
template<uint16_t Group, uint16_t Element, long long TVR>
void gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValues (
            const ArrayType * array,
            unsigned int numel,
            bool own = false)  [inline]
```

References gdcm_assert, and GetNumberOfValues().

Referenced by SetByteValue(), and SetNumberOfValues().

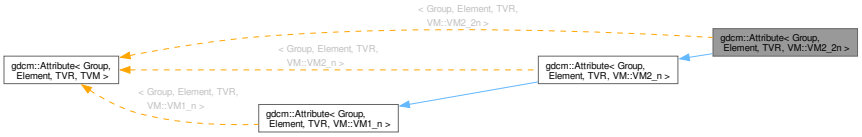
The documentation for this class was generated from the following file:

- gdcmAttribute.h

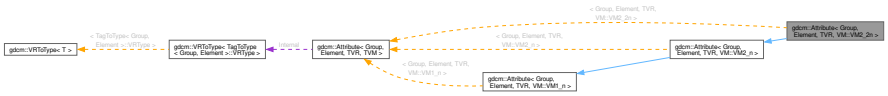
12.22 gdcm::Attribute< Group, Element, TVR, VM::VM2_2n > Class Template Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >:



Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM2_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM2_n >

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- VM GetVM () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const

- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM2_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Public Attributes inherited from gdcm::Attribute< Group, Element, TVR, VM::VM2_n >

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM2_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.22.1 Member Typedef Documentation

12.22.1.1 ArrayType

```
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

12.22.2 Member Enumeration Documentation

12.22.2.1 anonymous enum

```
anonymous enum
```

12.22.3 Member Function Documentation

12.22.3.1 GDCM_STATIC_ASSERT()

```
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.22.3.2 GetAsDataElement()

```
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

12.22.3.3 GetDictVM()

```
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.22.3.4 GetDictVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.22.3.5 GetNumberOfValues()

```
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

12.22.3.6 GetTag()

```
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

12.22.3.7 GetValue()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.22.3.8 GetValues()

```
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

12.22.3.9 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >::GetVM ()  [inline], [static]
```

References gdcm::VM::VM2_2n.

12.22.3.10 GetVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

12.22.3.11 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM2_2n > & att) const  [inline]
```

12.22.3.12 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM2_2n > & att) const  [inline]
```

12.22.3.13 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM2_2n > & att) const  [inline]
```

12.22.3.14 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.22.3.15 Print()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

12.22.3.16 Set()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

12.22.3.17 SetByteValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

12.22.3.18 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.22.3.19 SetFromDataElement()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

12.22.3.20 SetFromDataSet()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

12.22.3.21 SetValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

12.22.3.22 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.22.4 Member Data Documentation

12.22.4.1 Internal

```
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

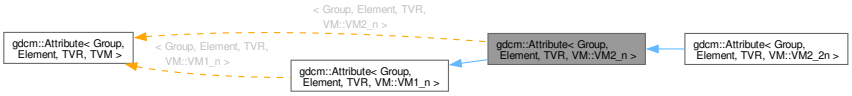
The documentation for this class was generated from the following file:

- gdcmAttribute.h

12.23 gdcm::Attribute< Group, Element, TVR, VM::VM2_n > Class Template Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM2_n >:

Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- VM GetVM () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.23.1 Member Typedef Documentation

12.23.1.1 ArrayType

```
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

12.23.2 Member Enumeration Documentation

12.23.2.1 anonymous enum

```
anonymous enum
```

12.23.3 Member Function Documentation

12.23.3.1 GDCM_STATIC_ASSERT()

```
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.23.3.2 GetAsDataElement()

```
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

12.23.3.3 GetDictVM()

```
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.23.3.4 GetDictVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.23.3.5 GetNumberOfValues()

```
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

12.23.3.6 GetTag()

```
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

12.23.3.7 GetValue()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.23.3.8 GetValues()

```
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

12.23.3.9 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM2_n >::GetVM () const  [inline]
```

References gdcm::VM::VM2_n.

12.23.3.10 GetVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

12.23.3.11 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM2_n > & att) const  [inline]
```

12.23.3.12 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM2_n > & att) const  [inline]
```

12.23.3.13 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM2_n > & att) const  [inline]
```

12.23.3.14 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.23.3.15 Print()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

12.23.3.16 Set()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

12.23.3.17 SetByteValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

12.23.3.18 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.23.3.19 SetFromDataElement()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

12.23.3.20 SetFromDataSet()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

12.23.3.21 SetValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

12.23.3.22 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.23.4 Member Data Documentation

12.23.4.1 Internal

```
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

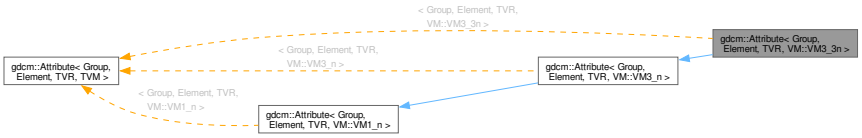
The documentation for this class was generated from the following file:

- gdcmAttribute.h

12.24 gdcm::Attribute< Group, Element, TVR, VM::VM3_3n > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >:

Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM3_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM3_n >

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM3_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Public Attributes inherited from gdcm::Attribute< Group, Element, TVR, VM::VM3_n >

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM3_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.24.1 Member Typedef Documentation

12.24.1.1 ArrayType

```
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

12.24.2 Member Enumeration Documentation

12.24.2.1 anonymous enum

```
anonymous enum
```

12.24.3 Member Function Documentation

12.24.3.1 GDCM_STATIC_ASSERT()

```
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.24.3.2 GetAsDataElement()

```
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

12.24.3.3 GetDictVM()

```
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.24.3.4 GetDictVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.24.3.5 GetNumberOfValues()

```
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

12.24.3.6 GetTag()

```
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

12.24.3.7 GetValue()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.24.3.8 GetValues()

```
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

12.24.3.9 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >::GetVM ()  [inline], [static]
```

References gdcm::VM::VM3_3n.

12.24.3.10 GetVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

12.24.3.11 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM3_3n > & att) const  [inline]
```

12.24.3.12 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM3_3n > & att) const  [inline]
```

12.24.3.13 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM3_3n > & att) const  [inline]
```

12.24.3.14 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.24.3.15 Print()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

12.24.3.16 Set()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

12.24.3.17 SetByteValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

12.24.3.18 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.24.3.19 SetFromDataElement()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

12.24.3.20 SetFromDataSet()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

12.24.3.21 SetValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

12.24.3.22 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.24.4 Member Data Documentation

12.24.4.1 Internal

```
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

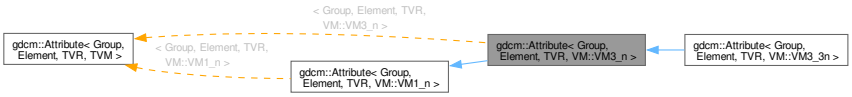
The documentation for this class was generated from the following file:

- gdcmAttribute.h

12.25 gdcm::Attribute< Group, Element, TVR, VM::VM3_n > Class Template Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::Attribute< Group, Element, TVR, VM::VM3_n >:



Collaboration diagram for gdcm::Attribute< Group, Element, TVR, VM::VM3_n >:

Public Types

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Types inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- enum
- typedef VRToType< TVR >::Type ArrayType

Public Member Functions

- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetValue (ArrayType v, unsigned int idx=0)
- void SetValues (const ArrayType *array, unsigned int numel=VMType)

Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- Attribute ()
- ~Attribute ()
- GDCM_STATIC_ASSERT (((((VR::VRType) TVR &VR::VR_VM1) &&((VM::VMType) TagToType< Group, Element >::VMType==VM::VM1))||!((VR::VRType) TVR &VR::VR_VM1)))
- GDCM_STATIC_ASSERT (((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)))
- GDCM_STATIC_ASSERT ((VM::VM1_n &(VM::VMType)(TagToType< Group, Element >::VMType)))
- DataElement GetAsDataElement () const
- unsigned int GetNumberOfValues () const
- ArrayType & GetValue (unsigned int idx=0)
- ArrayType const & GetValue (unsigned int idx=0) const
- const ArrayType * GetValues () const
- bool operator!= (const Attribute &att) const
- bool operator< (const Attribute &att) const
- bool operator== (const Attribute &att) const
- ArrayType & operator[ ] (unsigned int idx)
- ArrayType const & operator[ ] (unsigned int idx) const
- void Print (std::ostream &os) const
- void Set (DataSet const &ds)
- void SetFromDataElement (DataElement const &de)
- void SetFromDataSet (DataSet const &ds)
- void SetNumberOfValues (unsigned int numel)
- void SetValue (ArrayType v)
- void SetValue (unsigned int idx, ArrayType v)
- void SetValues (const ArrayType *array, unsigned int numel, bool own=false)

Static Public Member Functions

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- static VM GetDictVM ()
- static VR GetDictVR ()
- static Tag GetTag ()
- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- ArrayType Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

Protected Member Functions inherited from gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

- void SetByteValue (const ByteValue *bv)
- void SetByteValueNoSwap (const ByteValue *bv)

12.25.1 Member Typedef Documentation

12.25.1.1 ArrayType

```
typedef VRToType<TVR>::Type gdcm::Attribute< Group, Element, TVR, TVM >::ArrayType
```

12.25.2 Member Enumeration Documentation

12.25.2.1 anonymous enum

```
anonymous enum
```

12.25.3 Member Function Documentation

12.25.3.1 GDCM_STATIC_ASSERT()

```
gdcm::Attribute< Group, Element, TVR, TVM >::GDCM_STATIC_ASSERT (
            ((VR::VRType) TVR &(VR::VRType)(TagToType< Group, Element >::VRType)) )
```

12.25.3.2 GetAsDataElement()

```
DataElement gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement () const  [inline]
```

12.25.3.3 GetDictVM()

```
VM gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVM ()  [inline], [static]
```

12.25.3.4 GetDictVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetDictVR ()  [inline], [static]
```

12.25.3.5 GetNumberOfValues()

```
unsigned int gdcm::Attribute< Group, Element, TVR, TVM >::GetNumberOfValues () const  [inline]
```

12.25.3.6 GetTag()

```
Tag gdcm::Attribute< Group, Element, TVR, TVM >::GetTag ()  [inline], [static]
```

12.25.3.7 GetValue()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.25.3.8 GetValues()

```
const ArrayType * gdcm::Attribute< Group, Element, TVR, TVM >::GetValues () const  [inline]
```

12.25.3.9 GetVM()

```
template<uint16_t Group, uint16_t Element, long long TVR>
VM gdcm::Attribute< Group, Element, TVR, VM::VM3_n >::GetVM ()  [inline], [static]
```

References gdcm::VM::VM3_n.

12.25.3.10 GetVR()

```
VR gdcm::Attribute< Group, Element, TVR, TVM >::GetVR ()  [inline], [static]
```

12.25.3.11 operator"!=()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator!= (
            const Attribute< Group, Element, TVR, VM::VM3_n > & att) const  [inline]
```

12.25.3.12 operator<()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator< (
            const Attribute< Group, Element, TVR, VM::VM3_n > & att) const  [inline]
```

12.25.3.13 operator==()

```
bool gdcm::Attribute< Group, Element, TVR, TVM >::operator== (
            const Attribute< Group, Element, TVR, VM::VM3_n > & att) const  [inline]
```

12.25.3.14 operator[]()

```
ArrayType & gdcm::Attribute< Group, Element, TVR, TVM >::operator[] (
            unsigned int idx)  [inline]
```

12.25.3.15 Print()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Print (
            std::ostream & os) const  [inline]
```

12.25.3.16 Set()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::Set (
            DataSet const & ds)  [inline]
```

12.25.3.17 SetByteValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue (
            const ByteValue * bv)  [inline], [protected]
```

12.25.3.18 SetByteValueNoSwap()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueNoSwap (
            const ByteValue * bv)  [inline], [protected]
```

12.25.3.19 SetFromDataElement()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement (
            DataElement const & de)  [inline]
```

12.25.3.20 SetFromDataSet()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet (
            DataSet const & ds)  [inline]
```

12.25.3.21 SetValue()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValue (
            ArrayType v,
            unsigned int idx = 0)  [inline]
```

12.25.3.22 SetValues()

```
void gdcm::Attribute< Group, Element, TVR, TVM >::SetValues (
            const ArrayType * array,
            unsigned int numel = VMType)  [inline]
```

12.25.4 Member Data Documentation

12.25.4.1 Internal

```
ArrayType gdcm::Attribute< Group, Element, TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

The documentation for this class was generated from the following file:

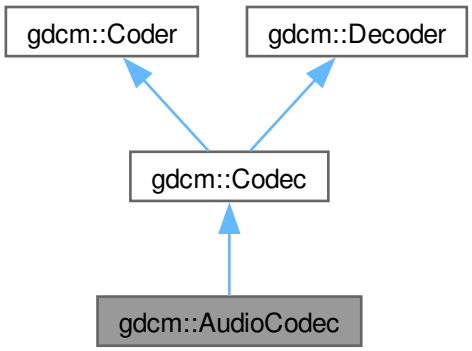
- gdcmAttribute.h

12.26 gdcm::AudioCodec Class Reference

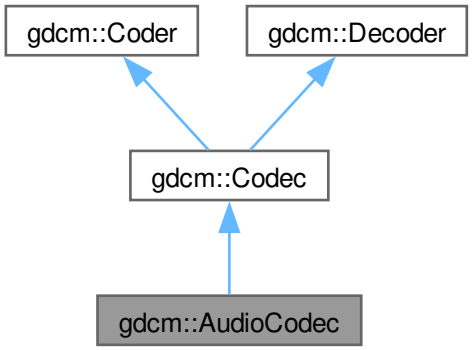
AudioCodec.

`#include <gdcmAudioCodec.h>`

Inheritance diagram for gdcm::AudioCodec:



Collaboration diagram for gdcm::AudioCodec:



Public Member Functions

- AudioCodec ()
- ~AudioCodec () override
- bool CanCode (TransferSyntax const &) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &) const override

  Return whether this decoder support this transfer syntax (can decode it).
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Member Functions inherited from gdcm::Decoder

- virtual bool DecodeByStreams (std::istream &, std::ostream &)

12.26.1 Detailed Description

AudioCodec.

12.26.2 Constructor & Destructor Documentation

12.26.2.1 AudioCodec()

```
gdcm::AudioCodec::AudioCodec ()
```

12.26.2.2 ~AudioCodec()

```
gdcm::AudioCodec::~AudioCodec ()  [override]
```

12.26.3 Member Function Documentation

12.26.3.1 CanCode()

```
bool gdcm::AudioCodec::CanCode (
            TransferSyntax const & ) const  [inline], [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Implements gdcm::Coder.

12.26.3.2 CanDecode()

```
bool gdcm::AudioCodec::CanDecode (
            TransferSyntax const & ) const  [inline], [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Implements gdcm::Decoder.

12.26.3.3 Decode()

```
bool gdcm::AudioCodec::Decode (
            DataElement const & is,
            DataElement & os)  [override], [virtual]
```

Decode.

Reimplemented from gdcm::Decoder.

The documentation for this class was generated from the following file:

- gdcmAudioCodec.h

12.27 gdcm::Base64 Class Reference

Class for Base64.

```
#include <gdcmBase64.h>
```

Public Member Functions

- Base64 (const Base64 &)=delete
- void operator= (const Base64 &)=delete

Static Public Member Functions

- static size_t Decode (char *dst, size_t dlen, const char *src, size_t slen)

  Decode a base64-formatted buffer.
- static size_t Encode (char *dst, size_t dlen, const char *src, size_t slen)

  Encode a buffer into base64 format.
- static size_t GetDecodeLength (const char *src, size_t len)
- static size_t GetEncodeLength (const char *src, size_t srclen)

12.27.1 Detailed Description

Class for Base64.

12.27.2 Constructor & Destructor Documentation

12.27.2.1 Base64()

```
gdcm::Base64::Base64 (
            const Base64 & )  [delete]
```

References Base64().

Referenced by Base64(), and operator=().

12.27.3 Member Function Documentation

12.27.3.1 Decode()

```
size_t gdcm::Base64::Decode (
            char * dst,
            size_t dlen,
            const char * src,
            size_t slen)  [static]
```

Decode a base64-formatted buffer.

Parameters

dst	destination buffer
dlen	size of the buffer
src	source buffer
slen	amount of data to be decoded

Returns

0 if not successful, size of decoded otherwise

Examples

DumpExamCard.cxx, and DumpSiemensBase64.cxx.

12.27.3.2 Encode()

```
size_t gdcm::Base64::Encode (
            char * dst,
            size_t dlen,
            const char * src,
            size_t slen)  [static]
```

Encode a buffer into base64 format.

Parameters

dst	destination buffer
dlen	size of the buffer
src	source buffer
slen	amount of data to be encoded

Returns

0 if not successful, size of encoded otherwise

12.27.3.3 GetDecodeLength()

```
size_t gdcm::Base64::GetDecodeLength (
            const char * src,
            size_t len)  [static]
```

Call this function to obtain the required buffer size

Examples

DumpExamCard.cxx, and DumpSiemensBase64.cxx.

12.27.3.4 GetEncodeLength()

```
size_t gdcm::Base64::GetEncodeLength (
            const char * src,
            size_t srclen)  [static]
```

Call this function to obtain the required buffer size

12.27.3.5 operator=()

```
void gdcm::Base64::operator= (
            const Base64 & )  [delete]
```

References Base64().

The documentation for this class was generated from the following file:

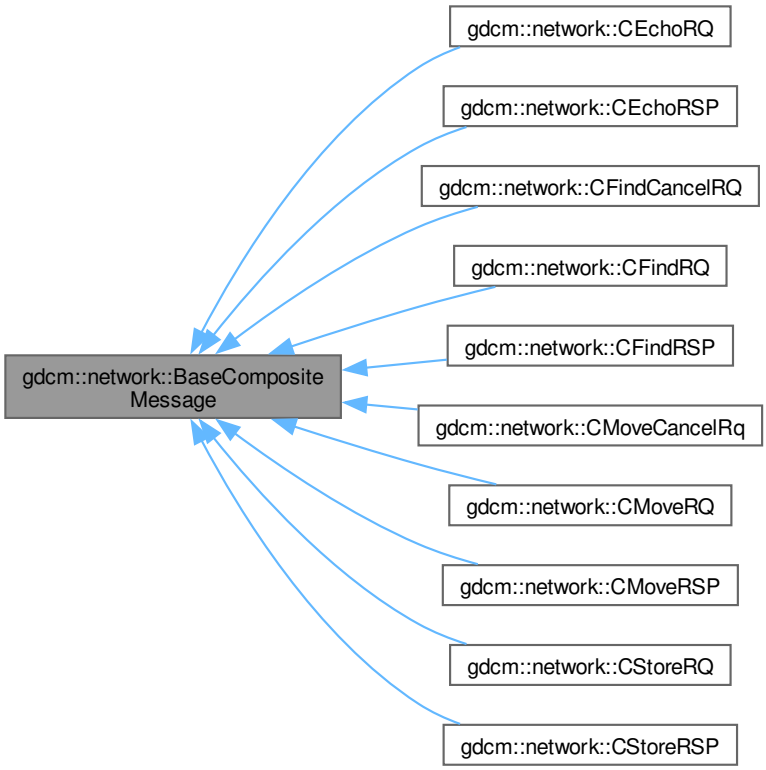
- gdcmBase64.h

12.28 gdcm::network::BaseCompositeMessage Class Reference

BaseCompositeMessage.

```
#include <gdcmBaseCompositeMessage.h>
```

Inheritance diagram for gdcm::network::BaseCompositeMessage:



Public Member Functions

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

12.28.1 Detailed Description

BaseCompositeMessage.

The Composite events described in section 3.7-2009 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2009 of the standard, and then fill in appropriate values in their datasets.

So, for the five composites:

- C-ECHO

- C-FIND
- C-MOVE
- C-GET
- C-STORE there are a series of messages. However, all of these messages are obtained as part of a PDataPDU, and all have to be placed there. Therefore, since they all have shared functionality and construction tropes, that will be put into a base class. Further, the base class will be then returned by the factory class, gdcmComposite↩ PDUFactory.

This is an abstract class. It cannot be instantiated on its own.

12.28.2 Constructor & Destructor Documentation

12.28.2.1 ~BaseCompositeMessage()

```
virtual gdcm::network::BaseCompositeMessage::~BaseCompositeMessage ()  [virtual], [default]
```

12.28.3 Member Function Documentation

12.28.3.1 ConstructPDV()

```
virtual std::vector< PresentationDataValue > gdcm::network::BaseCompositeMessage::ConstructPDV (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [pure virtual]
```

Implemented in gdcm::network::CEchoRQ, gdcm::network::CFindRQ, and gdcm::network::CMoveRQ.

The documentation for this class was generated from the following file:

- gdcmBaseCompositeMessage.h

12.29 gdcm::network::BaseNormalizedMessage Class Reference

BaseNormalizedMessage.

```
#include <gdcmBaseNormalizedMessage.h>
```

Inheritance diagram for gdcm::network::BaseNormalizedMessage:

Public Member Functions

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.29.1 Detailed Description

BaseNormalizedMessage.

The Normalized events described in section 3.7-2011 of the DICOM standard all use their own messages. These messages are constructed using Presentation Data Values, from section 3.8-2011 of the standard, and then fill in appropriate values in their datasets.

So, for the five normalized:

- N-ACTION
- N-CREATE
- N-DELETE
- N-EVENT
- N-GET
- N-SET there are a series of messages. However, all of these messages are obtained as part of a PData↩ PDU, and all have to be placed there. Therefore, since they all have shared functionality and construction tropes, that will be put into a base class. Further, the base class will be then returned by the factory class, gdcmNormalizedMessageFactory.h.

This is an abstract class. It cannot be instantiated on its own.

12.29.2 Constructor & Destructor Documentation

12.29.2.1 ~BaseNormalizedMessage()

```
virtual gdcm::network::BaseNormalizedMessage::~BaseNormalizedMessage ()  [virtual], [default]
```

12.29.3 Member Function Documentation

12.29.3.1 ConstructPDV()

```
virtual std::vector< PresentationDataValue > gdcm::network::BaseNormalizedMessage::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [pure virtual]
```

Implemented in gdcm::network::NActionRQ, gdcm::network::NCreateRQ, gdcm::network::NDeleteRQ, gdcm::network::NEventReportRQ, gdcm::network::NGetRQ, and gdcm::network::NSetRQ.

The documentation for this class was generated from the following file:

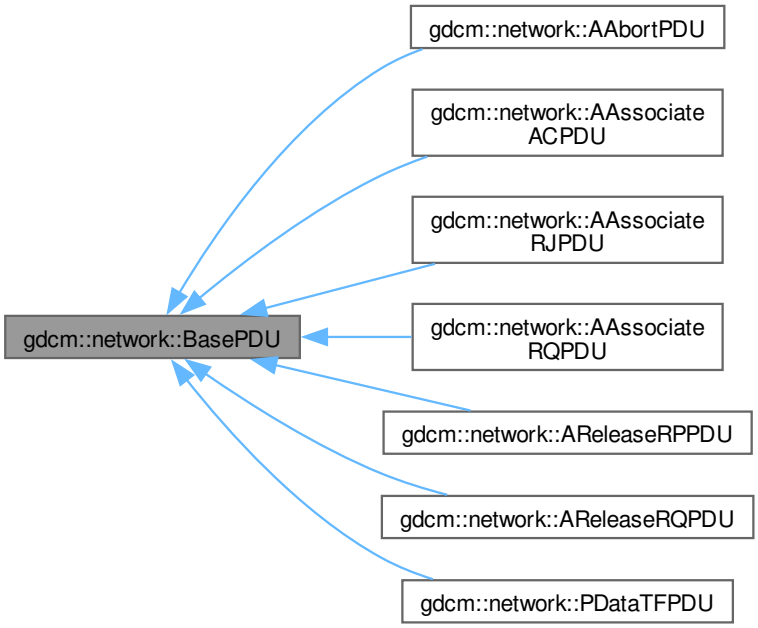
- gdcmBaseNormalizedMessage.h

12.30 gdcm::network::BasePDU Class Reference

BasePDU.

`#include <gdcmBasePDU.h>`

Inheritance diagram for gdcm::network::BasePDU:



Public Member Functions

- virtual ~BasePDU ()=default
- virtual bool IsLastFragment () const =0
- virtual void Print (std::ostream &os) const =0
- virtual std::istream & Read (std::istream &is)=0
- virtual size_t Size () const =0
- virtual const std::ostream & Write (std::ostream &os) const =0

12.30.1 Detailed Description

BasePDU.

base class for PDUs

all PDUs start with the first ten bytes as specified: 01 PDU type 02 reserved 3-6 PDU Length (unsigned) 7-10 variable

on some, 7-10 are split (7-8 as protocol version in Associate-RQ, for instance, while associate-rj splits those four bytes differently).

Also common to all the PDUs is their ability to read and write to a stream.

So, let's just get them all bunched together into one (abstract) class, shall we?

Why? 1) so that the ULEvent can have the PDU stored in it, since the event takes PDUs and not other class structures (other class structures get converted into PDUs) 2) to make reading PDUs in the event loop cleaner

12.30.2 Constructor & Destructor Documentation

12.30.2.1 ~BasePDU()

```
virtual gdcm::network::BasePDU::~BasePDU ()  [virtual], [default]
```

12.30.3 Member Function Documentation

12.30.3.1 IsLastFragment()

```
virtual bool gdcm::network::BasePDU::IsLastFragment () const  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

12.30.3.2 Print()

```
virtual void gdcm::network::BasePDU::Print (
            std::ostream & os) const  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

12.30.3.3 Read()

```
virtual std::istream & gdcm::network::BasePDU::Read (
            std::istream & is)  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

12.30.3.4 Size()

```
virtual size_t gdcm::network::BasePDU::Size () const  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

12.30.3.5 Write()

```
virtual const std::ostream & gdcm::network::BasePDU::Write (
            std::ostream & os) const  [pure virtual]
```

Implemented in gdcm::network::AAbortPDU, gdcm::network::AAssociateACPDU, gdcm::network::AAssociateRJPDU, gdcm::network::AAssociateRQPDU, gdcm::network::AReleaseRPPDU, gdcm::network::AReleaseRQPDU, and gdcm::network::PDataTFPDU.

The documentation for this class was generated from the following file:

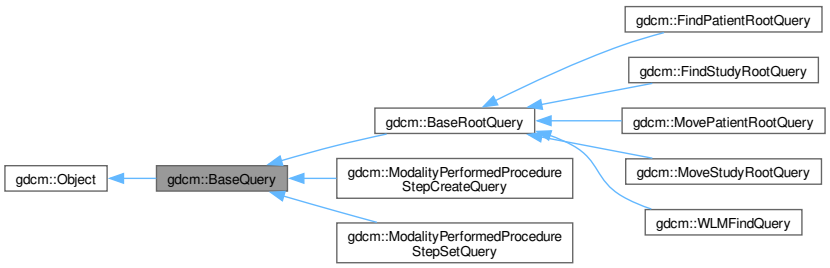
- gdcmBasePDU.h

12.31 gdcm::BaseQuery Class Reference

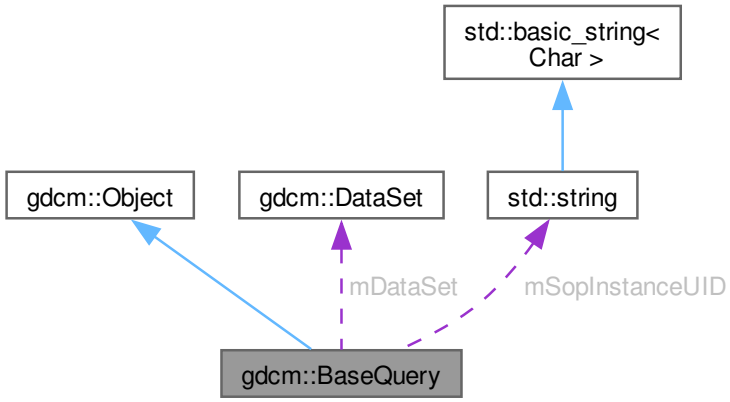
BaseQuery.

```
#include <gdcmBaseQuery.h>
```

Inheritance diagram for gdcm::BaseQuery:



Collaboration diagram for gdcm::BaseQuery:



Public Member Functions

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- virtual UIDs::TSName GetAbstractSyntaxUID () const =0
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- virtual bool ValidateQuery (bool inStrict=true) const =0
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Member Functions

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- DataSet mDataSet
- std::string mSopInstanceUID

Friends

- class QueryFactory

12.31.1 Detailed Description

BaseQuery.

contains: a baseclass which will produce a dataset for all dimse messages

12.31.2 Constructor & Destructor Documentation

12.31.2.1 BaseQuery()

```
gdcm::BaseQuery::BaseQuery ()  [protected]
```

12.31.2.2 ~BaseQuery()

```
gdcm::BaseQuery::~BaseQuery ()  [override]
```

12.31.3 Member Function Documentation

12.31.3.1 AddQueryDataSet()

```
void gdcm::BaseQuery::AddQueryDataSet (
            const DataSet & ds)
```

12.31.3.2 GetAbstractSyntaxUID()

```
virtual UIDs::TSName gdcm::BaseQuery::GetAbstractSyntaxUID () const  [pure virtual]
```

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::ModalityPerformedProcedureStepCreateQuery, gdcm::ModalityPerformedProcedureStepSetQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

12.31.3.3 GetQueryDataSet() [1/2]

```
DataSet & gdcm::BaseQuery::GetQueryDataSet ()
```

12.31.3.4 GetQueryDataSet() [2/2]

```
DataSet const & gdcm::BaseQuery::GetQueryDataSet () const
```

Set/Get the internal representation of the query as a DataSet.

12.31.3.5 GetSOPInstanceUID()

```
std::string gdcm::BaseQuery::GetSOPInstanceUID () const  [inline]
```

References mSopInstanceUID.

12.31.3.6 Print()

```
void gdcm::BaseQuery::Print (
            std::ostream & os) const  [override], [virtual]
```

Reimplemented from gdcm::Object.

12.31.3.7 SetSearchParameter() [1/3]

```
void gdcm::BaseQuery::SetSearchParameter (
            const std::string & inKeyword,
            const std::string & inValue)
```

12.31.3.8 SetSearchParameter() [2/3]

```
void gdcm::BaseQuery::SetSearchParameter (
            const Tag & inTag,
            const DictEntry & inDictEntry,
            const std::string & inValue)  [protected]
```

12.31.3.9 SetSearchParameter() [3/3]

```
void gdcm::BaseQuery::SetSearchParameter (
            const Tag & inTag,
            const std::string & inValue)
```

12.31.3.10 SetSOPInstanceUID()

```
void gdcm::BaseQuery::SetSOPInstanceUID (
            const std::string & iSopInstanceUID)  [inline]
```

References mSopInstanceUID.

12.31.3.11 ValidateQuery()

```
virtual bool gdcm::BaseQuery::ValidateQuery (
            bool inStrict = true) const  [pure virtual]
```

Implemented in gdcm::BaseRootQuery, gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::ModalityPerformedProcedureS gdcm::ModalityPerformedProcedureStepSetQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

12.31.3.12 ValidDataSet()

```
bool gdcm::BaseQuery::ValidDataSet (
            const DataSet & dataSetToValid,
            const DataSet & dataSetReference) const  [protected]
```

12.31.3.13 WriteHelpFile()

```
const std::ostream & gdcm::BaseQuery::WriteHelpFile (
            std::ostream & os)
```

12.31.3.14 WriteQuery()

```
bool gdcm::BaseQuery::WriteQuery (
            const std::string & inFileName)
```

12.31.4 Friends And Related Symbol Documentation

12.31.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

12.31.5 Member Data Documentation

12.31.5.1 mDataSet

```
DataSet gdcm::BaseQuery::mDataSet  [protected]
```

12.31.5.2 mSopInstanceUID

```
std::string gdcm::BaseQuery::mSopInstanceUID  [protected]
```

Referenced by GetSOPInstanceUID(), and SetSOPInstanceUID().

The documentation for this class was generated from the following file:

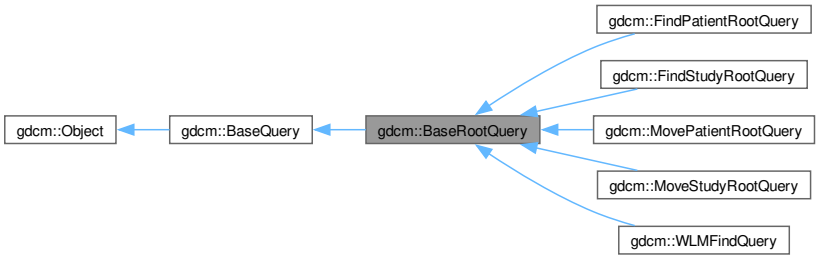
- gdcmBaseQuery.h

12.32 gdcm::BaseRootQuery Class Reference

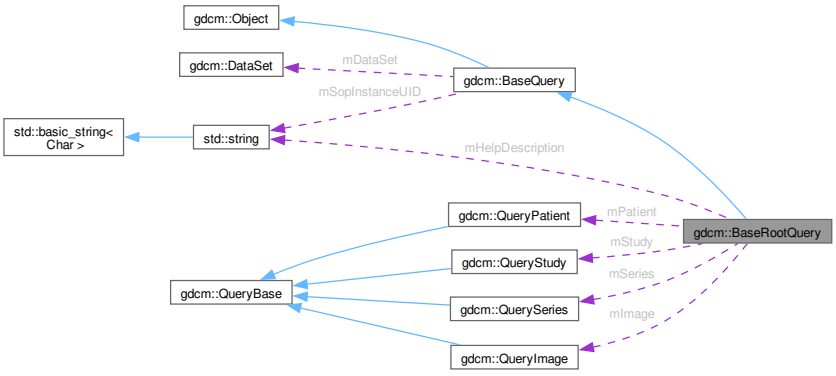
BaseRootQuery.

```
#include <gdcmBaseRootQuery.h>
```

Inheritance diagram for gdcm::BaseRootQuery:



Collaboration diagram for gdcm::BaseRootQuery:



Public Member Functions

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)
- virtual std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel)=0
- virtual void InitializeDataSet (const EQueryLevel &inQueryLevel)=0
- bool ValidateQuery (bool inStrict=true) const override=0

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- virtual UIDs::TSName GetAbstractSyntaxUID () const =0
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

Friends

- class QueryFactory

12.32.1 Detailed Description

BaseRootQuery.

contains: a baseclass which will produce a dataset for c-find and c-move with patient/study root

This class contains the functionality used in patient c-find and c-move queries. PatientRootQuery and StudyRootQuery derive from this class.

Namely: 1) list all tags associated with a particular query type 2) produce a query dataset via tag association

Eventually, it can be used to validate a particular dataset type.

The dataset held by this object (or, really, one of its derivates) should be passed to a c-find or c-move query.

12.32.2 Constructor & Destructor Documentation

12.32.2.1 BaseRootQuery()

```
gdcm::BaseRootQuery::BaseRootQuery ()  [protected]
```

12.32.2.2 ~BaseRootQuery()

```
gdcm::BaseRootQuery::~BaseRootQuery ()  [override], [default]
```

12.32.3 Member Function Documentation

12.32.3.1 Construct()

```
QueryBase * gdcm::BaseRootQuery::Construct (
            ERootType inRootType,
            EQueryLevel qlevel)  [static]
```

12.32.3.2 GetQueryLevelFromQueryRoot()

```
EQueryLevel gdcm::BaseRootQuery::GetQueryLevelFromQueryRoot (
            ERootType roottype)
```

12.32.3.3 GetQueryLevelFromString()

```
int gdcm::BaseRootQuery::GetQueryLevelFromString (
            const char * str)  [static]
```

12.32.3.4 GetQueryLevelString()

```
const char * gdcm::BaseRootQuery::GetQueryLevelString (
            EQueryLevel ql)  [static]
```

12.32.3.5 GetTagListByLevel()

```
virtual std::vector< Tag > gdcm::BaseRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel)  [pure virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

12.32.3.6 InitializeDataSet()

```
virtual void gdcm::BaseRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel)  [pure virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

12.32.3.7 ValidateQuery()

```
bool gdcm::BaseRootQuery::ValidateQuery (
            bool inStrict = true) const  [override], [pure virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseQuery.

Implemented in gdcm::FindPatientRootQuery, gdcm::FindStudyRootQuery, gdcm::MovePatientRootQuery, gdcm::MoveStudyRootQuery, and gdcm::WLMFindQuery.

12.32.4 Friends And Related Symbol Documentation

12.32.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

12.32.5 Member Data Documentation

12.32.5.1 mHelpDescription

```
std::string gdcm::BaseRootQuery::mHelpDescription  [protected]
```

12.32.5.2 mImage

```
QueryImage gdcm::BaseRootQuery::mImage  [protected]
```

12.32.5.3 mPatient

```
QueryPatient gdcm::BaseRootQuery::mPatient  [protected]
```

12.32.5.4 mRootType

```
ERootType gdcm::BaseRootQuery::mRootType  [protected]
```

12.32.5.5 mSeries

```
QuerySeries gdcm::BaseRootQuery::mSeries  [protected]
```

12.32.5.6 mStudy

```
QueryStudy gdcm::BaseRootQuery::mStudy  [protected]
```

The documentation for this class was generated from the following file:

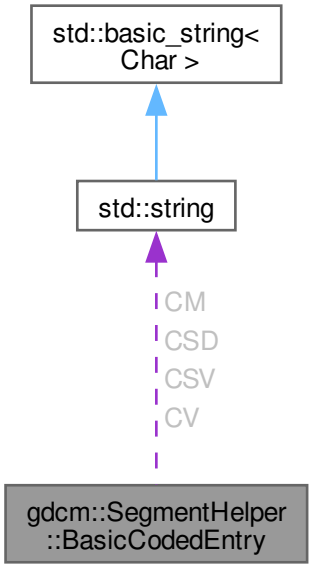
- gdcmBaseRootQuery.h

12.33 gdcm::SegmentHelper::BasicCodedEntry Struct Reference

This structure defines a basic coded entry with all of its attributes.

```
#include <gdcmSegmentHelper.h>
```

Collaboration diagram for gdcm::SegmentHelper::BasicCodedEntry:



Public Member Functions

- BasicCodedEntry ()

  Constructor.
- BasicCodedEntry (const char *a_CV, const char *a_CSD, const char *a_CM)

  constructor which defines type 1 attributes.
- BasicCodedEntry (const char *a_CV, const char *a_CSD, const char *a_CSV, const char *a_CM)

  constructor which defines attributes.
- bool IsEmpty (const bool checkOptionalAttributes=false) const

  Check if each attributes of the basic coded entry is defined.

Public Attributes

- std::string CM

  Coding Scheme Version attribute.
- std::string CSD

  Code Value attribute.
- std::string CSV

  Coding Scheme Designator attribute.
- std::string CV

12.33.1 Detailed Description

This structure defines a basic coded entry with all of its attributes.

See also

PS 3.3 section 8.8.

12.33.2 Constructor & Destructor Documentation

12.33.2.1 BasicCodedEntry() [1/3]

```
gdcm::SegmentHelper::BasicCodedEntry::BasicCodedEntry ()  [inline]
```

Constructor.

References CM, CSD, CSV, and CV.

12.33.2.2 BasicCodedEntry() [2/3]

```
gdcm::SegmentHelper::BasicCodedEntry::BasicCodedEntry (
            const char * a_CV,
            const char * a_CSD,
            const char * a_CM)  [inline]
```

constructor which defines type 1 attributes.

References CM, CSD, CSV, and CV.

12.33.2.3 BasicCodedEntry() [3/3]

```
gdcm::SegmentHelper::BasicCodedEntry::BasicCodedEntry (
            const char * a_CV,
            const char * a_CSD,
            const char * a_CSV,
            const char * a_CM)  [inline]
```

constructor which defines attributes.

References CM, CSD, CSV, and CV.

12.33.3 Member Function Documentation

12.33.3.1 IsEmpty()

```
bool gdcm::SegmentHelper::BasicCodedEntry::IsEmpty (
            const bool checkOptionalAttributes = false) const
```

Check if each attributes of the basic coded entry is defined.

Parameters

checkOptionalAttributes	Check also type 1C attributes.

12.33.4 Member Data Documentation

12.33.4.1 CM

```
std::string gdcm::SegmentHelper::BasicCodedEntry::CM
```

Coding Scheme Version attribute.

Referenced by BasicCodedEntry(), BasicCodedEntry(), and BasicCodedEntry().

12.33.4.2 CSD

```
std::string gdcm::SegmentHelper::BasicCodedEntry::CSD
```

Code Value attribute.

Referenced by BasicCodedEntry(), BasicCodedEntry(), and BasicCodedEntry().

12.33.4.3 CSV

```
std::string gdcm::SegmentHelper::BasicCodedEntry::CSV
```

Coding Scheme Designator attribute.

Referenced by BasicCodedEntry(), BasicCodedEntry(), and BasicCodedEntry().

12.33.4.4 CV

```
std::string gdcm::SegmentHelper::BasicCodedEntry::CV
```

Referenced by BasicCodedEntry(), BasicCodedEntry(), and BasicCodedEntry().

The documentation for this struct was generated from the following file:

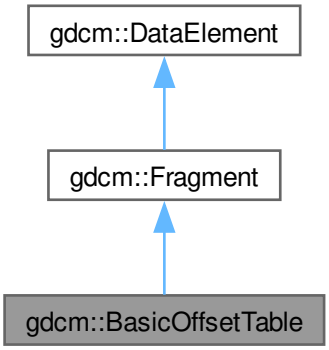
- gdcmSegmentHelper.h

12.34 gdcm::BasicOffsetTable Class Reference

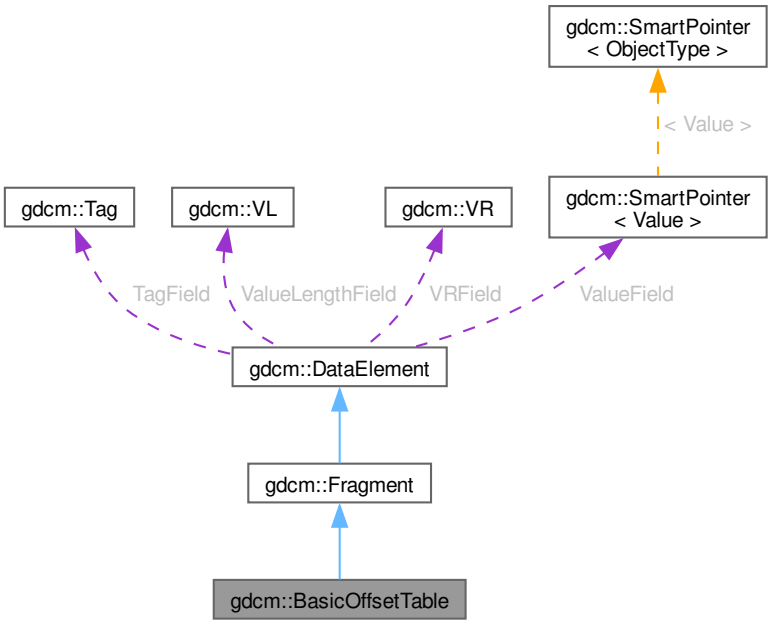
Class to represent a BasicOffsetTable.

`#include <gdcmBasicOffsetTable.h>`

Inheritance diagram for gdcm::BasicOffsetTable:



Collaboration diagram for gdcm::BasicOffsetTable:



Public Member Functions

- BasicOffsetTable ()
- template<typename TSwap>
  std::istream & Read (std::istream &is)

Public Member Functions inherited from gdcm::Fragment

- Fragment ()
- VL ComputeLength () const
- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadBacktrack (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is)
- template<typename TSwap>
  std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag + VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.

- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &os, const BasicOffsetTable &val)

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.34.1 Detailed Description

Class to represent a BasicOffsetTable.

12.34.2 Constructor & Destructor Documentation

12.34.2.1 BasicOffsetTable()

```
gdcm::BasicOffsetTable::BasicOffsetTable ()  [inline]
```

References gdcm::Fragment::Fragment().

Referenced by operator<<.

12.34.3 Member Function Documentation

12.34.3.1 Read()

```
template<typename TSwap>
std::istream & gdcm::BasicOffsetTable::Read (
             std::istream & is)  [inline]
```

References gdcm_assert, gdcmAssertAlwaysMacro, gdcm::ParseException::SetLastElement(), gdcm::DataElement::TagField, gdcm::DataElement::ValueField, and gdcm::DataElement::ValueLengthField.

12.34.4 Friends And Related Symbol Documentation

12.34.4.1 operator<<

```
std::ostream & operator<< (
             std::ostream & os,
             const BasicOffsetTable & val)  [friend]
```

References BasicOffsetTable(), gdcm_assert, gdcm::DataElement::GetByteValue(), operator<<, gdcm::DataElement::ValueField, and gdcm::DataElement::ValueLengthField.

Referenced by operator<<.

The documentation for this class was generated from the following file:

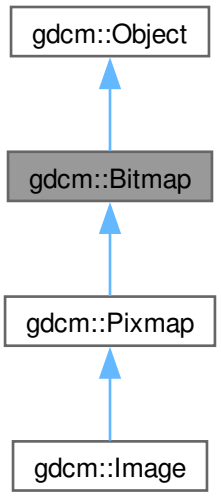
- gdcmBasicOffsetTable.h

12.35 gdcm::Bitmap Class Reference

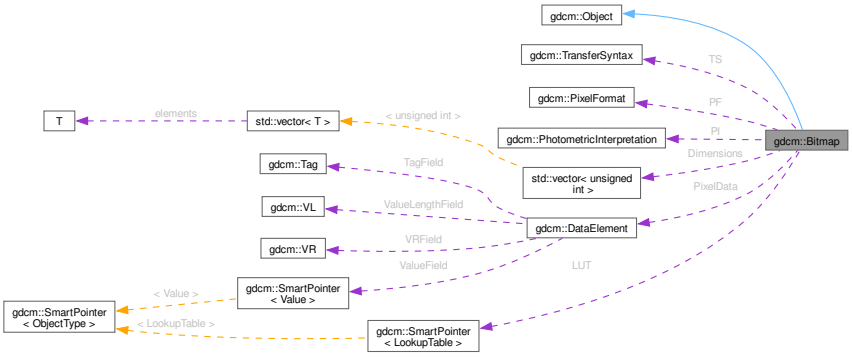
Bitmap class.

`#include <gdcmBitmap.h>`

Inheritance diagram for gdcm::Bitmap:



Collaboration diagram for gdcm::Bitmap:



Public Member Functions

- Bitmap ()
- ~Bitmap () override
- virtual bool AreOverlaysInPixelData () const
- void Clear ()
- bool GetBuffer (char *buffer) const

  Access the raw data.
- unsigned long GetBufferLength () const
- unsigned int GetColumns () const
- DataElement & GetDataElement ()
- const DataElement & GetDataElement () const
- unsigned int GetDimension (unsigned int idx) const
- const unsigned int * GetDimensions () const

  Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...
- LookupTable & GetLUT ()
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const

  INTERNAL do not use.
- unsigned int GetNumberOfDimensions () const

  Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.
- const PhotometricInterpretation & GetPhotometricInterpretation () const

  return the photometric interpretation
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const

  Get/Set PixelFormat.
- unsigned int GetPlanarConfiguration () const

  return the planar configuration
- unsigned int GetRows () const
- const TransferSyntax & GetTransferSyntax () const
- bool IsEmpty () const
- bool IsLossy () const

  Return whether or not the image was compressed using a lossy compressor or not.
- bool IsTransferSyntaxCompatible (TransferSyntax const &ts) const
- void Print (std::ostream &) const override
- void SetColumns (unsigned int col)
- void SetDataElement (DataElement const &de)
- void SetDimension (unsigned int idx, unsigned int dim)
- void SetDimensions (const unsigned int dims[3])
- void SetLossyFlag (bool f)

  Specifically set that the image was compressed using a lossy compression mechanism.
- void SetLUT (LookupTable const &lut)

  Set/Get LUT.
- void SetNeedByteSwap (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)
- void SetRows (unsigned int rows)
- void SetTransferSyntax (TransferSyntax const &ts)

  Transfer syntax.
- virtual bool UnusedBitsPresentInPixelData () const

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Types

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions

- bool ComputeLossyFlag ()
- bool GetBuffer2 (std::ostream &os) const
- bool TryJPEG2000Codec (char *buffer, bool &lossyflag) const
- bool TryJPEG2000Codec2 (std::ostream &os) const
- bool TryJPEGCodec (char *buffer, bool &lossyflag) const
- bool TryJPEGCodec2 (std::ostream &os) const
- bool TryJPEGLSCodec (char *buffer, bool &lossyflag) const
- bool TryKAKADUCodec (char *buffer, bool &lossyflag) const
- bool TryPVRGCodec (char *buffer, bool &lossyflag) const
- bool TryRAWCodec (char *buffer, bool &lossyflag) const
- bool TryRLECodec (char *buffer, bool &lossyflag) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- std::vector< unsigned int > Dimensions
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- DataElement PixelData
- unsigned int PlanarConfiguration
- TransferSyntax TS

Friends

- class ImageChangeTransferSyntax
- class PixmapReader

12.35.1 Detailed Description

Bitmap class.

A bitmap based image. Used as parent for both IconImage and the main Pixel Data Image It does not contains any World Space information (IPP, IOP)

12.35.2 Member Typedef Documentation

12.35.2.1 LUTPtr

```
typedef SmartPointer<LookupTable> gdcm::Bitmap::LUTPtr  [protected]
```

12.35.3 Constructor & Destructor Documentation

12.35.3.1 Bitmap()

```
gdcm::Bitmap::Bitmap ()
```

12.35.3.2 ~Bitmap()

```
gdcm::Bitmap::~Bitmap ()  [override]
```

12.35.4 Member Function Documentation

12.35.4.1 AreOverlaysInPixelData()

```
virtual bool gdcm::Bitmap::AreOverlaysInPixelData () const  [inline], [virtual]
```

Reimplemented in gdcm::Pixmap.

12.35.4.2 Clear()

```
void gdcm::Bitmap::Clear ()
```

12.35.4.3 ComputeLossyFlag()

```
bool gdcm::Bitmap::ComputeLossyFlag ()  [protected]
```

12.35.4.4 GetBuffer()

```
bool gdcm::Bitmap::GetBuffer (
            char * buffer) const
```

Access the raw data.

Examples

BasicImageAnonymizer.cs, ConvertToQImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, GetArray.cs, ReadMultiTimesException.cxx, and threadgdcm.cxx.

12.35.4.5 GetBuffer2()

```
bool gdcm::Bitmap::GetBuffer2 (
            std::ostream & os) const  [protected]
```

12.35.4.6 GetBufferLength()

```
unsigned long gdcm::Bitmap::GetBufferLength () const
```

Return the length of the image after decompression WARNING for palette color: It will NOT take into account the Palette Color thus you need to multiply this length by 3 if computing the size of equivalent RGB image

Examples

BasicImageAnonymizer.cs, ConvertToQImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, GetArray.cs, PatchFile.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, and threadgdcm.cxx.

12.35.4.7 GetColumns()

```
unsigned int gdcm::Bitmap::GetColumns () const  [inline]
```

References GetDimension().

12.35.4.8 GetDataElement() [1/2]

```
DataElement & gdcm::Bitmap::GetDataElement ()  [inline]
```

References PixelData.

12.35.4.9 GetDataElement() [2/2]

```
const DataElement & gdcm::Bitmap::GetDataElement () const  [inline]
```

Examples

ExtractIconFromFile.cxx.

References PixelData.

12.35.4.10 GetDimension()

```
unsigned int gdcm::Bitmap::GetDimension (
            unsigned int idx) const
```

Examples

BasicImageAnonymizer.cs, DecompressImage.cs, and GetArray.cs.

Referenced by GetColumns(), and GetRows().

12.35.4.11 GetDimensions()

```
const unsigned int * gdcm::Bitmap::GetDimensions () const
```

Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...

Examples

ConvertToQImage.cxx, ExtractIconFromFile.cxx, FixJAIBugJPEGLS.cxx, HelloVizWorld.cxx, and threadgdcm.cxx.

12.35.4.12 GetLUT() [1/2]

```
LookupTable & gdcm::Bitmap::GetLUT ()  [inline]
```

References LUT.

12.35.4.13 GetLUT() [2/2]

```
const LookupTable & gdcm::Bitmap::GetLUT () const  [inline]
```

Examples

ExtractIconFromFile.cxx, ExtractImageRegionWithLUT.cs, and PrintLUT.cxx.

References LUT.

12.35.4.14 GetNeedByteSwap()

```
bool gdcm::Bitmap::GetNeedByteSwap () const  [inline]
```

INTERNAL do not use.

References NeedByteSwap.

12.35.4.15 GetNumberOfDimensions()

```
unsigned int gdcm::Bitmap::GetNumberOfDimensions () const
```

Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.

Examples

DecompressImage.cs, GetArray.cs, HelloVizWorld.cxx, and threadgdcm.cxx.

12.35.4.16 GetPhotometricInterpretation()

```
const PhotometricInterpretation & gdcm::Bitmap::GetPhotometricInterpretation () const
```

return the photometric interpretation

Examples

ConvertToQImage.cxx, DecompressImage.cs, ExtractIconFromFile.cxx, and HelloVizWorld.cxx.

12.35.4.17 GetPixelFormat() [1/2]

```
PixelFormat & gdcm::Bitmap::GetPixelFormat ()  [inline]
```

References PF.

12.35.4.18 GetPixelFormat() [2/2]

```
const PixelFormat & gdcm::Bitmap::GetPixelFormat () const  [inline]
```

Get/Set PixelFormat.

Examples

ConvertToQImage.cxx, DecompressImage.cs, ExtractIconFromFile.cxx, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, RescaleImage.cs, TemplateEmptyImage.cxx, and threadgdcm.cxx.

References PF.

12.35.4.19 GetPlanarConfiguration()

```
unsigned int gdcm::Bitmap::GetPlanarConfiguration () const
```

return the planar configuration

12.35.4.20 GetRows()

```
unsigned int gdcm::Bitmap::GetRows () const  [inline]
```

References GetDimension().

12.35.4.21 GetTransferSyntax()

```
const TransferSyntax & gdcm::Bitmap::GetTransferSyntax () const  [inline]
```

Examples

ExtractIconFromFile.cxx.

References TS.

12.35.4.22 IsEmpty()

```
bool gdcm::Bitmap::IsEmpty () const  [inline]
```

References Dimensions.

12.35.4.23 IsLossy()

```
bool gdcm::Bitmap::IsLossy () const
```

Return whether or not the image was compressed using a lossy compressor or not.

12.35.4.24 IsTransferSyntaxCompatible()

```
bool gdcm::Bitmap::IsTransferSyntaxCompatible (
            TransferSyntax const & ts) const
```

12.35.4.25 Print()

```
void gdcm::Bitmap::Print (
            std::ostream & ) const  [override], [virtual]
```

Reimplemented from gdcm::Object.

Reimplemented in gdcm::Image, and gdcm::Pixmap.

Examples

ExtractIconFromFile.cxx.

12.35.4.26 SetColumns()

```
void gdcm::Bitmap::SetColumns (
            unsigned int col)  [inline]
```

References SetDimension().

12.35.4.27 SetDataElement()

```
void gdcm::Bitmap::SetDataElement (
            DataElement const & de)  [inline]
```

Examples

BasicImageAnonymizer.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.c DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

References PixelData.

12.35.4.28 SetDimension()

```
void gdcm::Bitmap::SetDimension (
            unsigned int idx,
            unsigned int dim)
```

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

Referenced by SetColumns(), and SetRows().

12.35.4.29 SetDimensions()

```
void gdcm::Bitmap::SetDimensions (
            const unsigned int dims[3])
```

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, and DecompressImage.cs.

12.35.4.30 SetLossyFlag()

```
void gdcm::Bitmap::SetLossyFlag (
            bool f)  [inline]
```

Specifically set that the image was compressed using a lossy compression mechanism.

References LossyFlag.

12.35.4.31 SetLUT()

```
void gdcm::Bitmap::SetLUT (
            LookupTable const & lut)  [inline]
```

Set/Get LUT.

References LUT, and gdcm::Object::SmartPointer.

12.35.4.32 SetNeedByteSwap()

```
void gdcm::Bitmap::SetNeedByteSwap (
            bool b)  [inline]
```

References NeedByteSwap.

12.35.4.33 SetNumberOfDimensions()

```
void gdcm::Bitmap::SetNumberOfDimensions (
            unsigned int dim)
```

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

12.35.4.34 SetPhotometricInterpretation()

```
void gdcm::Bitmap::SetPhotometricInterpretation (
            PhotometricInterpretation const & pi)
```

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

12.35.4.35 SetPixelFormat()

```
void gdcm::Bitmap::SetPixelFormat (
            PixelFormat const & pf)  [inline]
```

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

References PF.

12.35.4.36 SetPlanarConfiguration()

```
void gdcm::Bitmap::SetPlanarConfiguration (
            unsigned int pc)
```

Warning

you need to call SetPixelFormat first (before SetPlanarConfiguration) for consistency checking

12.35.4.37 SetRows()

```
void gdcm::Bitmap::SetRows (
            unsigned int rows)  [inline]
```

References SetDimension().

12.35.4.38 SetTransferSyntax()

```
void gdcm::Bitmap::SetTransferSyntax (
            TransferSyntax const & ts)  [inline]
```

Transfer syntax.

Examples

BasicImageAnonymizer.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, MergeTwoFiles.cxx, and MpegVideoInfo.cs.

References TS.

12.35.4.39 TryJPEG2000Codec()

```
bool gdcm::Bitmap::TryJPEG2000Codec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.40 TryJPEG2000Codec2()

```
bool gdcm::Bitmap::TryJPEG2000Codec2 (
            std::ostream & os) const  [protected]
```

12.35.4.41 TryJPEGCodec()

```
bool gdcm::Bitmap::TryJPEGCodec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.42 TryJPEGCodec2()

```
bool gdcm::Bitmap::TryJPEGCodec2 (
            std::ostream & os) const  [protected]
```

12.35.4.43 TryJPEGLSCodec()

```
bool gdcm::Bitmap::TryJPEGLSCodec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.44 TryKAKADUCodec()

```
bool gdcm::Bitmap::TryKAKADUCodec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.45 TryPVRGCodec()

```
bool gdcm::Bitmap::TryPVRGCodec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.46 TryRAWCodec()

```
bool gdcm::Bitmap::TryRAWCodec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.47 TryRLECodec()

```
bool gdcm::Bitmap::TryRLECodec (
            char * buffer,
            bool & lossyflag) const  [protected]
```

12.35.4.48 UnusedBitsPresentInPixelData()

```
virtual bool gdcm::Bitmap::UnusedBitsPresentInPixelData () const  [inline], [virtual]
```

Reimplemented in gdcm::Pixmap.

12.35.5 Friends And Related Symbol Documentation

12.35.5.1 ImageChangeTransferSyntax

```
friend class ImageChangeTransferSyntax  [friend]
```

References ImageChangeTransferSyntax.

Referenced by ImageChangeTransferSyntax.

12.35.5.2 PixmapReader

```
friend class PixmapReader  [friend]
```

References PixmapReader.

Referenced by PixmapReader.

12.35.6 Member Data Documentation

12.35.6.1 Dimensions

```
std::vector<unsigned int> gdcm::Bitmap::Dimensions  [protected]
```

Referenced by IsEmpty().

12.35.6.2 LossyFlag

```
bool gdcm::Bitmap::LossyFlag  [protected]
```

Referenced by SetLossyFlag().

12.35.6.3 LUT

```
LUTPtr gdcm::Bitmap::LUT  [protected]
```

Referenced by GetLUT(), GetLUT(), and SetLUT().

12.35.6.4 NeedByteSwap

```
bool gdcm::Bitmap::NeedByteSwap  [protected]
```

Referenced by GetNeedByteSwap(), and SetNeedByteSwap().

12.35.6.5 NumberOfDimensions

```
unsigned int gdcm::Bitmap::NumberOfDimensions  [protected]
```

12.35.6.6 PF

```
PixelFormat gdcm::Bitmap::PF  [protected]
```

Referenced by GetPixelFormat(), GetPixelFormat(), and SetPixelFormat().

12.35.6.7 PI

```
PhotometricInterpretation gdcm::Bitmap::PI  [protected]
```

12.35.6.8 PixelData

```
DataElement gdcm::Bitmap::PixelData  [protected]
```

Referenced by GetDataElement(), GetDataElement(), and SetDataElement().

12.35.6.9 PlanarConfiguration

```
unsigned int gdcm::Bitmap::PlanarConfiguration  [protected]
```

12.35.6.10 TS

```
TransferSyntax gdcm::Bitmap::TS  [protected]
```

Referenced by GetTransferSyntax(), and SetTransferSyntax().

The documentation for this class was generated from the following file:

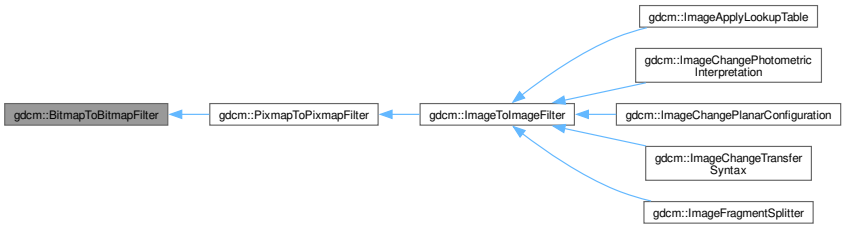
- gdcmBitmap.h

12.36 gdcm::BitmapToBitmapFilter Class Reference

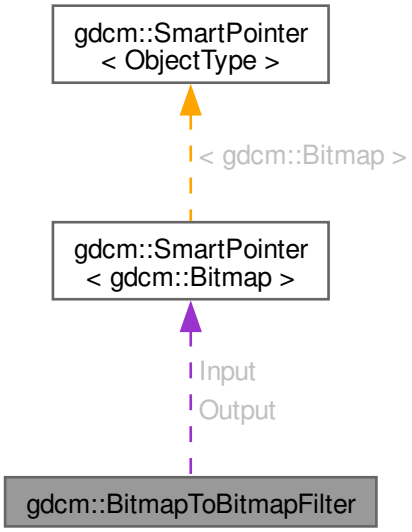
BitmapToBitmapFilter class.

```
#include <gdcmBitmapToBitmapFilter.h>
```

Inheritance diagram for gdcm::BitmapToBitmapFilter:



Collaboration diagram for gdcm::BitmapToBitmapFilter:



Public Member Functions

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Protected Attributes

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.36.1 Detailed Description

BitmapToBitmapFilter class.

Super class for all filter taking an image and producing an output image

12.36.2 Constructor & Destructor Documentation

12.36.2.1 BitmapToBitmapFilter()

```
gdcm::BitmapToBitmapFilter::BitmapToBitmapFilter ()
```

12.36.2.2 ~BitmapToBitmapFilter()

```
gdcm::BitmapToBitmapFilter::~BitmapToBitmapFilter ()  [default]
```

12.36.3 Member Function Documentation

12.36.3.1 GetOutput()

```
const Bitmap & gdcm::BitmapToBitmapFilter::GetOutput () const  [inline]
```

Get Output image.

References Output.

12.36.3.2 GetOutputAsBitmap()

```
const Bitmap & gdcm::BitmapToBitmapFilter::GetOutputAsBitmap () const
```

12.36.3.3 SetInput()

```
void gdcm::BitmapToBitmapFilter::SetInput (
            const Bitmap & image)
```

Set input image.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, ExplicitLittleEndian.cs, and StandardizeFiles.cs.

12.36.4 Member Data Documentation

12.36.4.1 Input

```
SmartPointer<Bitmap> gdcm::BitmapToBitmapFilter::Input  [protected]
```

12.36.4.2 Output

```
SmartPointer<Bitmap> gdcm::BitmapToBitmapFilter::Output  [protected]
```

Referenced by GetOutput().

The documentation for this class was generated from the following file:

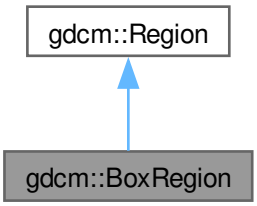
- gdcmBitmapToBitmapFilter.h

12.37 gdcm::BoxRegion Class Reference

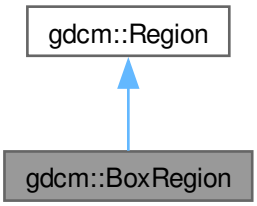
Class for manipulation box region.

```
#include <gdcmBoxRegion.h>
```

Inheritance diagram for gdcm::BoxRegion:



Collaboration diagram for gdcm::BoxRegion:



Public Member Functions

- BoxRegion ()
- BoxRegion (const BoxRegion &)

  copy/cstor and al.
- ~BoxRegion () override
- size_t Area () const override

  compute the area
- Region * Clone () const override
- BoxRegion ComputeBoundingBox () override

  Return the Axis-Aligned minimum bounding box for all regions.
- bool Empty () const override

  return whether this domain is empty:
- unsigned int GetXMax () const
- unsigned int GetXMin () const

  Get domain.
- unsigned int GetYMax () const
- unsigned int GetYMin () const
- unsigned int GetZMax () const
- unsigned int GetZMin () const
- bool IsValid () const override

  return whether this is valid domain
- void operator= (const BoxRegion &)
- void Print (std::ostream &os=std::cout) const override

  Print.
- void SetDomain (unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax)

  Set domain.

Public Member Functions inherited from gdcm::Region

- Region ()
- virtual ~Region ()

Static Public Member Functions

- static BoxRegion BoundingBox (BoxRegion const &b1, BoxRegion const &b2)

  Helper class to compute the bounding box of two BoxRegion.

12.37.1 Detailed Description

Class for manipulation box region.

This is a very simple implementation of the Region class. It only support 3D box type region. It assumes the 3D Box does not have a tilt Origin is as (0,0,0)

Examples

ExtractImageRegion.cs, and ExtractImageRegionWithLUT.cs.

12.37.2 Constructor & Destructor Documentation

12.37.2.1 BoxRegion() [1/2]

```
gdcm::BoxRegion::BoxRegion ()
```

Referenced by BoxRegion(), BoundingBox(), ComputeBoundingBox(), and operator=().

12.37.2.2 ~BoxRegion()

```
gdcm::BoxRegion::~BoxRegion ()  [override]
```

12.37.2.3 BoxRegion() [2/2]

```
gdcm::BoxRegion::BoxRegion (
            const BoxRegion & )
```

copy/cstor and al.

References BoxRegion().

12.37.3 Member Function Documentation

12.37.3.1 Area()

```
size_t gdcm::BoxRegion::Area () const  [override], [virtual]
```

compute the area

Implements gdcm::Region.

12.37.3.2 BoundingBox()

```
BoxRegion gdcm::BoxRegion::BoundingBox (
            BoxRegion const & b1,
            BoxRegion const & b2)  [static]
```

Helper class to compute the bounding box of two BoxRegion.

References BoxRegion().

12.37.3.3 Clone()

```
Region * gdcm::BoxRegion::Clone () const  [override], [virtual]
```

Implements gdcm::Region.

References gdcm::Region::Region().

12.37.3.4 ComputeBoundingBox()

```
BoxRegion gdcm::BoxRegion::ComputeBoundingBox ()  [override], [virtual]
```

Return the Axis-Aligned minimum bounding box for all regions.

Implements gdcm::Region.

References BoxRegion().

12.37.3.5 Empty()

```
bool gdcm::BoxRegion::Empty () const  [override], [virtual]
```

return whether this domain is empty:

Implements gdcm::Region.

12.37.3.6 GetXMax()

```
unsigned int gdcm::BoxRegion::GetXMax () const
```

12.37.3.7 GetXMin()

```
unsigned int gdcm::BoxRegion::GetXMin () const
```

Get domain.

12.37.3.8 GetYMax()

```
unsigned int gdcm::BoxRegion::GetYMax () const
```

12.37.3.9 GetYMin()

```
unsigned int gdcm::BoxRegion::GetYMin () const
```

12.37.3.10 GetZMax()

```
unsigned int gdcm::BoxRegion::GetZMax () const
```

12.37.3.11 GetZMin()

```
unsigned int gdcm::BoxRegion::GetZMin () const
```

12.37.3.12 IsValid()

```
bool gdcm::BoxRegion::IsValid () const  [override], [virtual]
```

return whether this is valid domain

Implements gdcm::Region.

12.37.3.13 operator=()

```
void gdcm::BoxRegion::operator= (
            const BoxRegion & )
```

References BoxRegion().

12.37.3.14 Print()

```
void gdcm::BoxRegion::Print (
            std::ostream & os = std::cout) const  [override], [virtual]
```

Print.

Reimplemented from gdcm::Region.

12.37.3.15 SetDomain()

```
void gdcm::BoxRegion::SetDomain (
            unsigned int xmin,
            unsigned int xmax,
            unsigned int ymin,
            unsigned int ymax,
            unsigned int zmin,
            unsigned int zmax)
```

Set domain.

Examples

ExtractImageRegion.cs, and ExtractImageRegionWithLUT.cs.

The documentation for this class was generated from the following file:

- gdcmBoxRegion.h

12.38 gdcm::ByteBuffer Class Reference

ByteBuffer.

```
#include <gdcmByteBuffer.h>
```

Public Member Functions

- ByteBuffer ()
- char * Get (int len)
- const char * GetStart () const
- void ShiftEnd (int len)
- void UpdatePosition ()

12.38.1 Detailed Description

ByteBuffer.

Detailed description here

Note

looks like a std::streambuf or std::filebuf class with the get and peek pointer

12.38.2 Constructor & Destructor Documentation

12.38.2.1 ByteBuffer()

```
gdcm::ByteBuffer::ByteBuffer ()  [inline]
```

12.38.3 Member Function Documentation

12.38.3.1 Get()

```
char * gdcm::ByteBuffer::Get (
            int len)  [inline]
```

References gdcm_assert.

12.38.3.2 GetStart()

```
const char * gdcm::ByteBuffer::GetStart () const  [inline]
```

12.38.3.3 ShiftEnd()

```
void gdcm::ByteBuffer::ShiftEnd (
            int len)  [inline]
```

12.38.3.4 UpdatePosition()

```
void gdcm::ByteBuffer::UpdatePosition ()  [inline]
```

The documentation for this class was generated from the following file:

- gdcmByteBuffer.h

12.39 gdcm::ByteSwap< T > Class Template Reference

ByteSwap.

```
#include <gdcmByteSwap.h>
```

Static Public Member Functions

- static void Swap (T &p)
- static void SwapFromSwapCodeIntoSystem (T &p, SwapCode const &sc)
- static void SwapRange (T *p, unsigned int num)
- static void SwapRangeFromSwapCodeIntoSystem (T *p, SwapCode const &sc, std::streamoff num)
- static bool SystemIsBigEndian ()
- static bool SystemIsLittleEndian ()

12.39.1 Detailed Description

template<class T>
class gdcm::ByteSwap< T >

ByteSwap.

Perform machine dependent byte swapping (Little Endian, Big Endian, Bad Little Endian, Bad Big Endian). TODO: bswap_32 / bswap_64 ...

12.39.2 Member Function Documentation

12.39.2.1 Swap()

```
template<class T>
void gdcm::ByteSwap< T >::Swap (
            T & p)  [static]
```

12.39.2.2 SwapFromSwapCodeIntoSystem()

```
template<class T>
void gdcm::ByteSwap< T >::SwapFromSwapCodeIntoSystem (
            T & p,
            SwapCode const & sc)  [static]
```

Examples

TestByteSwap.cxx.

12.39.2.3 SwapRange()

```
template<class T>
void gdcm::ByteSwap< T >::SwapRange (
            T * p,
            unsigned int num)  [static]
```

12.39.2.4 SwapRangeFromSwapCodeIntoSystem()

```
template<class T>
void gdcm::ByteSwap< T >::SwapRangeFromSwapCodeIntoSystem (
            T * p,
            SwapCode const & sc,
            std::streamoff num)  [static]
```

Examples

TestByteSwap.cxx.

12.39.2.5 SystemIsBigEndian()

```
template<class T>
bool gdcm::ByteSwap< T >::SystemIsBigEndian ()  [static]
```

Query the machine Endian-ness.

Examples

TestByteSwap.cxx.

12.39.2.6 SystemIsLittleEndian()

```
template<class T>
bool gdcm::ByteSwap< T >::SystemIsLittleEndian ()  [static]
```

Examples

TestByteSwap.cxx.

The documentation for this class was generated from the following file:

- gdcmByteSwap.h

12.40 gdcm::ByteSwapFilter Class Reference

ByteSwapFilter.

```
#include <gdcmByteSwapFilter.h>
```

Public Member Functions

- ByteSwapFilter (const ByteSwapFilter &)=delete
- ByteSwapFilter (DataSet &ds)
- ~ByteSwapFilter ()=default
- bool ByteSwap ()
- ByteSwapFilter & operator= (const ByteSwapFilter &)=delete
- void SetByteSwapTag (bool b)

12.40.1 Detailed Description

ByteSwapFilter.

In place byte-swapping of a dataset FIXME: FL status ??

12.40.2 Constructor & Destructor Documentation

12.40.2.1 ByteSwapFilter() [1/2]

```
gdcm::ByteSwapFilter::ByteSwapFilter (
            DataSet & ds)  [inline]
```

Referenced by ByteSwapFilter(), and operator=().

12.40.2.2 ~ByteSwapFilter()

```
gdcm::ByteSwapFilter::~ByteSwapFilter ()  [default]
```

12.40.2.3 ByteSwapFilter() [2/2]

```
gdcm::ByteSwapFilter::ByteSwapFilter (
            const ByteSwapFilter & )  [delete]
```

References ByteSwapFilter().

12.40.3 Member Function Documentation

12.40.3.1 ByteSwap()

```
bool gdcm::ByteSwapFilter::ByteSwap ()
```

Referenced by gdcm::Item::Read().

12.40.3.2 operator=()

```
ByteSwapFilter & gdcm::ByteSwapFilter::operator= (
            const ByteSwapFilter & )  [delete]
```

References ByteSwapFilter().

12.40.3.3 SetByteSwapTag()

```
void gdcm::ByteSwapFilter::SetByteSwapTag (
            bool b)  [inline]
```

Referenced by gdcm::Item::Read().

The documentation for this class was generated from the following file:

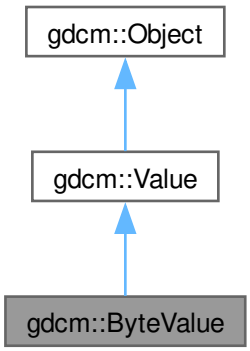
- gdcmByteSwapFilter.h

12.41 gdcm::ByteValue Class Reference

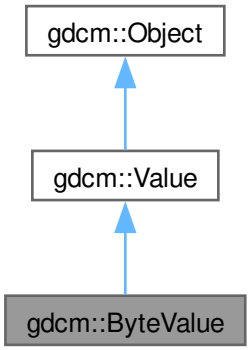
Class to represent binary value (array of bytes).

`#include <gdcmByteValue.h>`

Inheritance diagram for gdcm::ByteValue:



Collaboration diagram for gdcm::ByteValue:



Public Member Functions

- ByteValue (const char *array=nullptr, VL const &vl=0)
- ByteValue (std::vector< char > &v)
- ~ByteValue () override
- void Append (ByteValue const &bv)
- void Clear () override
- VL ComputeLength () const
- void Fill (char c)
- bool GetBuffer (char *buffer, unsigned long length) const
- VL GetLength () const override
- const char * GetPointer () const
- void * GetVoidPointer ()
- const void * GetVoidPointer () const
- bool IsEmpty () const
- bool IsPrintable (VL length) const

  Checks whether a 'ByteValue' is printable or not (in order to avoid corrupting the terminal of invocation when printing) I don't think this function is working since it does not handle UNICODE or character set...
- operator const std::vector< char > & () const
- ByteValue & operator= (const ByteValue &val)
- bool operator== (const ByteValue &val) const
- bool operator== (const Value &val) const override
- void PrintASCII (std::ostream &os, VL maxlength) const
- void PrintASCIIXML (std::ostream &os) const
- void PrintGroupLength (std::ostream &os)
- void PrintHex (std::ostream &os, VL maxlength) const
- void PrintHexXML (std::ostream &os) const
- void PrintPNXML (std::ostream &os) const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap, typename TType>
  std::istream & Read (std::istream &is, bool readvalues=true)
- void SetLength (VL vl) override
- template<typename TSwap>
  std::ostream const & Write (std::ostream &os) const
- template<typename TSwap, typename TType>
  std::ostream const & Write (std::ostream &os) const
- bool WriteBuffer (std::ostream &os) const

Public Member Functions inherited from gdcm::Value

- Value ()=default
- ~Value () override=default

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Member Functions

- void Print (std::ostream &os) const override
- void SetLengthOnly (VL vl) override

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.41.1 Detailed Description

Class to represent binary value (array of bytes).

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetSubSequenceData.cxx, MrProtocol.cxx, PatchFile.cxx, ReadExplicitLengthSQIVR.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.41.2 Constructor & Destructor Documentation

12.41.2.1 ByteValue() [1/2]

```
gdcm::ByteValue::ByteValue (
            const char * array = nullptr,
            VL const & vl = 0)  [inline]
```

Referenced by Append(), operator=(), operator==(), and operator==().

12.41.2.2 ByteValue() [2/2]

```
gdcm::ByteValue::ByteValue (
            std::vector< char > & v)  [inline]
```

Warning

casting to uint32_t

12.41.2.3 ~ByteValue()

```
gdcm::ByteValue::~ByteValue ()  [inline], [override]
```

12.41.3 Member Function Documentation

12.41.3.1 Append()

```
void gdcm::ByteValue::Append (
            ByteValue const & bv)
```

References ByteValue().

12.41.3.2 Clear()

```
void gdcm::ByteValue::Clear ()  [inline], [override], [virtual]
```

Implements gdcm::Value.

12.41.3.3 ComputeLength()

```
VL gdcm::ByteValue::ComputeLength () const  [inline]
```

Referenced by gdcm::Fragment::Write().

12.41.3.4 Fill()

```
void gdcm::ByteValue::Fill (
            char c)  [inline]
```

Examples

DuplicatePCDE.cxx.

12.41.3.5 GetBuffer()

```
bool gdcm::ByteValue::GetBuffer (
            char * buffer,
            unsigned long length) const
```

Examples

ExtractEncapsulatedFile.cs, and FixJAIBugJPEGLS.cxx.

12.41.3.6 GetLength()

```
VL gdcm::ByteValue::GetLength () const  [inline], [override], [virtual]
```

Implements gdcm::Value.

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetSubSequenceData.cxx, MrProtocol.cxx, PatchFile.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::CSAElement::operator<<, gdcm::SequenceOfFragments::ReadValue(), gdcm::Element< TVR, TVM >::Set(), gdcm::Element< TVR, VM::VM1_n >::Set(), gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue(), gdcm::Attribute< Group, E gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueN gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap(), gdcm::Element< TVR, TVM >::SetNoSwap(), gdcm::Element< TVR, VM::VM1_n >::SetNoSwap(), and gdcm::Fragment::Write().

12.41.3.7 GetPointer()

```
const char * gdcm::ByteValue::GetPointer () const  [inline]
```

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, ELSCINT1WaveToText.cxx, ExtractEncryptedContent.cxx ExtractIconFromFile.cxx, GetSubSequenceData.cxx, MrProtocol.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::CSAElement::operator<<, gdcm::SequenceOfFragments::ReadValue(), gdcm::Element< TVR, TVM >::Set(), gdcm::Element< TVR, VM::VM1_n >::Set(), gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue(), gdcm::Attribute< Group, E gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueN gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap(), gdcm::Element< TVR, TVM >::SetNoSwap(), and gdcm::Element< TVR, VM::VM1_n >::SetNoSwap().

12.41.3.8 GetVoidPointer() [1/2]

```
void * gdcm::ByteValue::GetVoidPointer ()  [inline]
```

12.41.3.9 GetVoidPointer() [2/2]

```
const void * gdcm::ByteValue::GetVoidPointer () const  [inline]
```

Examples

FixBrokenJ2K.cxx.

Referenced by Read(), and gdcm::Element< TVR, VM::VM1_n >::Set().

12.41.3.10 IsEmpty()

```
bool gdcm::ByteValue::IsEmpty () const  [inline]
```

References gdcm_assert.

12.41.3.11 IsPrintable()

```
bool gdcm::ByteValue::IsPrintable (
            VL length) const  [inline]
```

Checks whether a 'ByteValue' is printable or not (in order to avoid corrupting the terminal of invocation when printing) I don't think this function is working since it does not handle UNICODE or character set...

References gdcm_assert.

Referenced by Print().

12.41.3.12 operator const std::vector< char > &()

```
gdcm::ByteValue::operator const std::vector< char > & () const  [inline]
```

12.41.3.13 operator=()

```
ByteValue & gdcm::ByteValue::operator= (
            const ByteValue & val)  [inline]
```

References ByteValue().

12.41.3.14 operator==() [1/2]

```
bool gdcm::ByteValue::operator== (
            const ByteValue & val) const  [inline]
```

References ByteValue().

12.41.3.15 operator==() [2/2]

```
bool gdcm::ByteValue::operator== (
            const Value & val) const  [inline], [override], [virtual]
```

Implements gdcm::Value.

References ByteValue(), and gdcm::Value::Value().

12.41.3.16 Print()

```
void gdcm::ByteValue::Print (
            std::ostream & os) const  [inline], [override], [protected], [virtual]
```

Reimplemented from gdcm::Object.

References IsPrintable().

12.41.3.17 PrintASCII()

```
void gdcm::ByteValue::PrintASCII (
            std::ostream & os,
            VL maxlength) const
```

12.41.3.18 PrintASCIIXML()

```
void gdcm::ByteValue::PrintASCIIXML (
            std::ostream & os) const
```

12.41.3.19 PrintGroupLength()

```
void gdcm::ByteValue::PrintGroupLength (
            std::ostream & os)  [inline]
```

References gdcm_assert.

12.41.3.20 PrintHex()

```
void gdcm::ByteValue::PrintHex (
            std::ostream & os,
            VL maxlength) const
```

12.41.3.21 PrintHexXML()

```
void gdcm::ByteValue::PrintHexXML (
            std::ostream & os) const
```

12.41.3.22 PrintPNXML()

```
void gdcm::ByteValue::PrintPNXML (
            std::ostream & os) const
```

To Print Values in Native DICOM format

12.41.3.23 Read() [1/2]

```
template<typename TSwap>
std::istream & gdcm::ByteValue::Read (
            std::istream & is)  [inline]
```

References Read().

12.41.3.24 Read() [2/2]

```
template<typename TSwap, typename TType>
std::istream & gdcm::ByteValue::Read (
            std::istream & is,
            bool readvalues = true)  [inline]
```

References gdcm_assert, and GetVoidPointer().

Referenced by Read().

12.41.3.25 SetLength()

```
void gdcm::ByteValue::SetLength (
            VL vl)  [override], [virtual]
```

Implements gdcm::Value.

12.41.3.26 SetLengthOnly()

```
void gdcm::ByteValue::SetLengthOnly (
            VL vl)  [inline], [override], [protected], [virtual]
```

Reimplemented from gdcm::Value.

12.41.3.27 Write() [1/2]

```
template<typename TSwap>
std::ostream const & gdcm::ByteValue::Write (
            std::ostream & os) const  [inline]
```

References Write().

12.41.3.28 Write() [2/2]

```
template<typename TSwap, typename TType>
std::ostream const & gdcm::ByteValue::Write (
             std::ostream & os) const  [inline]
```

References gdcm_assert.

Referenced by Write(), and gdcm::Fragment::Write().

12.41.3.29 WriteBuffer()

```
bool gdcm::ByteValue::WriteBuffer (
             std::ostream & os) const  [inline]
```

References gdcm_assert.

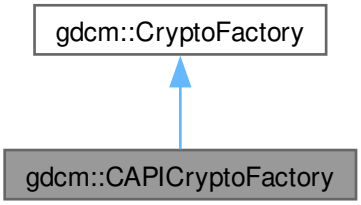
The documentation for this class was generated from the following file:

- gdcmByteValue.h

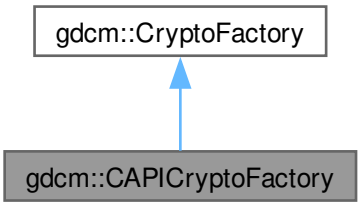
12.42 gdcm::CAPICryptoFactory Class Reference

```
#include <gdcmCAPICryptoFactory.h>
```

Inheritance diagram for gdcm::CAPICryptoFactory:



Collaboration diagram for gdcm::CAPICryptoFactory:



Public Member Functions

- CAPICryptoFactory (CryptoLib id)
- CryptographicMessageSyntax * CreateCMSProvider ()

Additional Inherited Members

Public Types inherited from gdcm::CryptoFactory

- enum CryptoLib {
  DEFAULT = 0 ,
  OPENSSL = 1 ,
  CAPI = 2 ,
  OPENSSLP7 = 3 }

Static Public Member Functions inherited from gdcm::CryptoFactory

- static CryptoFactory * GetFactoryInstance (CryptoLib id=DEFAULT)

Protected Member Functions inherited from gdcm::CryptoFactory

- CryptoFactory ()=default
- CryptoFactory (CryptoLib id)
- ~CryptoFactory ()=default

12.42.1 Constructor & Destructor Documentation

12.42.1.1 CAPICryptoFactory()

```
gdcm::CAPICryptoFactory::CAPICryptoFactory (
            CryptoLib id)
```

Referenced by CreateCMSProvider().

12.42.2 Member Function Documentation

12.42.2.1 CreateCMSProvider()

```
CryptographicMessageSyntax * gdcm::CAPICryptoFactory::CreateCMSProvider ()  [virtual]
```

Implements gdcm::CryptoFactory.

References CAPICryptoFactory().

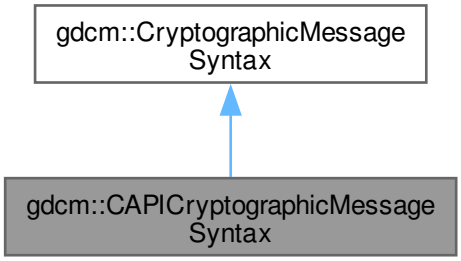
The documentation for this class was generated from the following file:

- gdcmCAPICryptoFactory.h

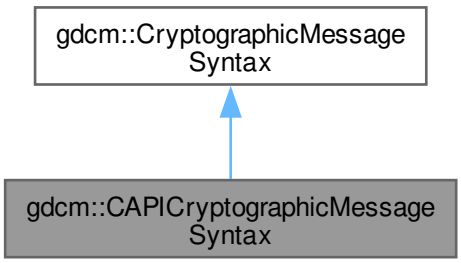
12.43 gdcm::CAPICryptographicMessageSyntax Class Reference

```
#include <gdcmCAPICryptographicMessageSyntax.h>
```

Inheritance diagram for gdcm::CAPICryptographicMessageSyntax:



Collaboration diagram for gdcm::CAPICryptographicMessageSyntax:



Public Member Functions

- CAPICryptographicMessageSyntax ()
- ~CAPICryptographicMessageSyntax ()
- bool Decrypt (char *output, size_t &outlen, const char *array, size_t len) const

  decrypt content from a CMS envelopedData structure
- bool Encrypt (char *output, size_t &outlen, const char *array, size_t len) const

  create a CMS envelopedData structure
- CipherTypes GetCipherType () const
- bool GetInitialized () const
- bool ParseCertificateFile (const char *filename)
- bool ParseKeyFile (const char *filename)
- void SetCipherType (CipherTypes type)
- bool SetPassword (const char *pass, size_t passLen)

Public Member Functions inherited from gdcm::CryptographicMessageSyntax

- CryptographicMessageSyntax ()=default
- CryptographicMessageSyntax (const CryptographicMessageSyntax &)=delete
- virtual ~CryptographicMessageSyntax ()=default
- void operator= (const CryptographicMessageSyntax &)=delete

Additional Inherited Members

Public Types inherited from gdcm::CryptographicMessageSyntax

- enum CipherTypes {
  DES3_CIPHER ,
  AES128_CIPHER ,
  AES192_CIPHER ,
  AES256_CIPHER }

12.43.1 Constructor & Destructor Documentation

12.43.1.1 CAPICryptographicMessageSyntax()

```
gdcm::CAPICryptographicMessageSyntax::CAPICryptographicMessageSyntax ()
```

12.43.1.2 ~CAPICryptographicMessageSyntax()

```
gdcm::CAPICryptographicMessageSyntax::~CAPICryptographicMessageSyntax ()
```

12.43.2 Member Function Documentation

12.43.2.1 Decrypt()

```
bool gdcm::CAPICryptographicMessageSyntax::Decrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [virtual]
```

decrypt content from a CMS envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

12.43.2.2 Encrypt()

```
bool gdcm::CAPICryptographicMessageSyntax::Encrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [virtual]
```

create a CMS envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

12.43.2.3 GetCipherType()

```
CipherTypes gdcm::CAPICryptographicMessageSyntax::GetCipherType () const  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.43.2.4 GetInitialized()

```
bool gdcm::CAPICryptographicMessageSyntax::GetInitialized () const  [inline]
```

12.43.2.5 ParseCertificateFile()

```
bool gdcm::CAPICryptographicMessageSyntax::ParseCertificateFile (
            const char * filename)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.43.2.6 ParseKeyFile()

```
bool gdcm::CAPICryptographicMessageSyntax::ParseKeyFile (
            const char * filename)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.43.2.7 SetCipherType()

```
void gdcm::CAPICryptographicMessageSyntax::SetCipherType (
            CipherTypes type)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.43.2.8 SetPassword()

```
bool gdcm::CAPICryptographicMessageSyntax::SetPassword (
            const char * pass,
            size_t passLen)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

The documentation for this class was generated from the following file:

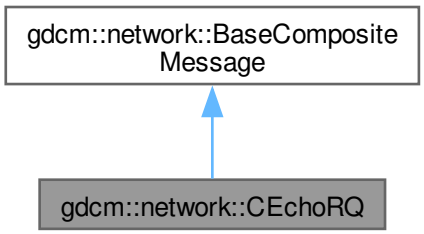
- gdcmCAPICryptographicMessageSyntax.h

12.44 gdcm::network::CEchoRQ Class Reference

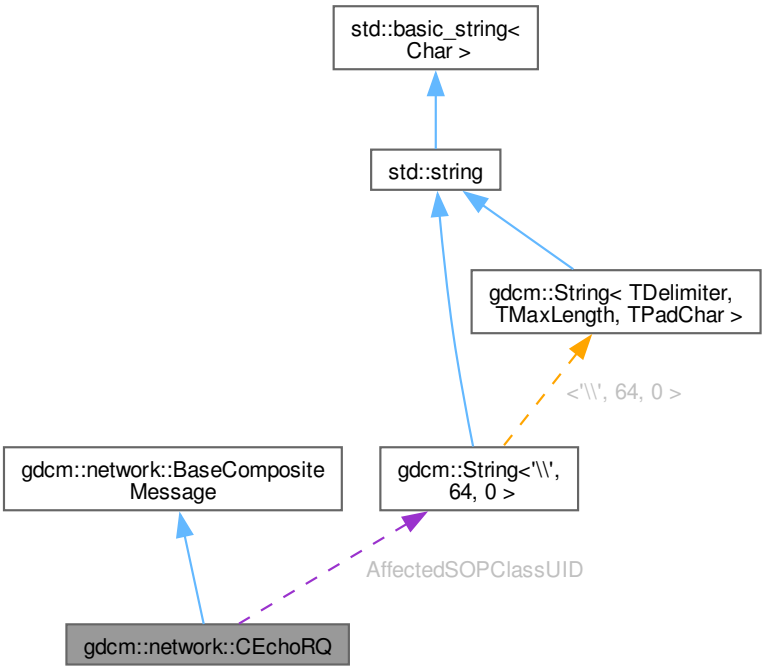
CEchoRQ.

```
#include <gdcmCEchoMessages.h>
```

Inheritance diagram for gdcm::network::CEchoRQ:



Collaboration diagram for gdcm::network::CEchoRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery) override

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

Public Attributes

- UIComp AffectedSOPClassUID
- uint16_t MessageID

12.44.1 Detailed Description

CEchoRQ.

this file defines the messages for the cecho action

12.44.2 Member Function Documentation

12.44.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CEchoRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [override], [virtual]
```

Implements gdcm::network::BaseCompositeMessage.

12.44.3 Member Data Documentation

12.44.3.1 AffectedSOPClassUID

```
UIComp gdcm::network::CEchoRQ::AffectedSOPClassUID
```

12.44.3.2 MessageID

```
uint16_t gdcm::network::CEchoRQ::MessageID
```

The documentation for this class was generated from the following files:

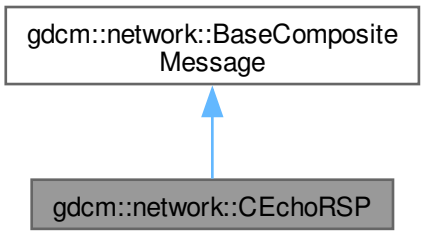
- gdcmCEchoMessages.h
- gdcmDIMSE.h

12.45 gdcm::network::CEchoRSP Class Reference

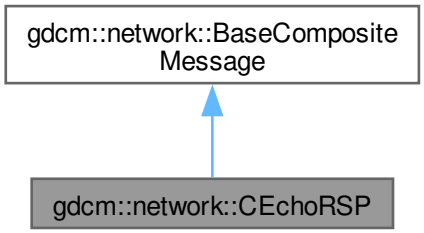
CEchoRSP this file defines the messages for the cecho action.

```
#include <gdcmCEchoMessages.h>
```

Inheritance diagram for gdcm::network::CEchoRSP:



Collaboration diagram for gdcm::network::CEchoRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

12.45.1 Detailed Description

CEchoRSP this file defines the messages for the cecho action.

12.45.2 Member Function Documentation

12.45.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CEchoRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

- gdcmCEchoMessages.h

12.46 gdcm::network::CFind Class Reference

```
#include <gdcmDIMSE.h>
```

12.46.1 Detailed Description

PS 3.4 - 2009 Table B.2-1 C-STORE STATUS

The documentation for this class was generated from the following file:

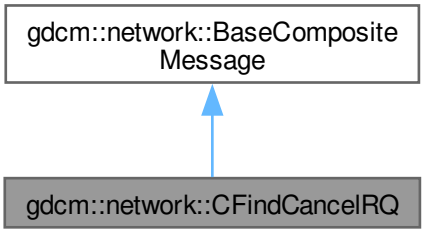
- gdcmDIMSE.h

12.47 gdcm::network::CFindCancelRQ Class Reference

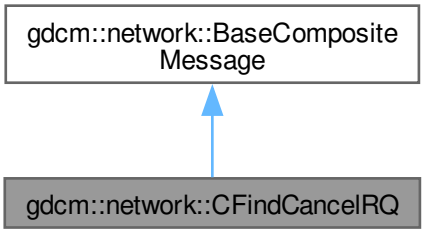
CFindCancelRQ this file defines the messages for the cfind action.

`#include <gdcmCFindMessages.h>`

Inheritance diagram for gdcm::network::CFindCancelRQ:



Collaboration diagram for gdcm::network::CFindCancelRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

12.47.1 Detailed Description

CFindCancelRQ this file defines the messages for the cfind action.

12.47.2 Member Function Documentation

12.47.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CFindCancelRQ::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

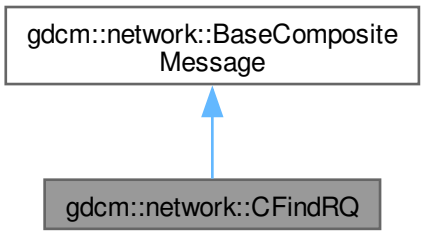
- gdcmCFindMessages.h

12.48 gdcm::network::CFindRQ Class Reference

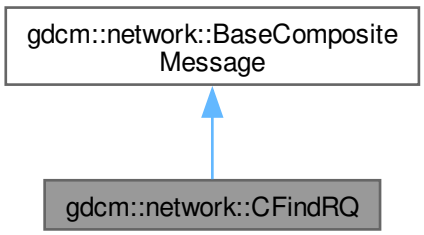
CFindRQ.

```
#include <gdcmCFindMessages.h>
```

Inheritance diagram for gdcm::network::CFindRQ:



Collaboration diagram for gdcm::network::CFindRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery) override

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

12.48.1 Detailed Description

CFindRQ.

this file defines the messages for the cfind action

12.48.2 Member Function Documentation

12.48.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CFindRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [override], [virtual]
```

Implements gdcm::network::BaseCompositeMessage.

The documentation for this class was generated from the following file:

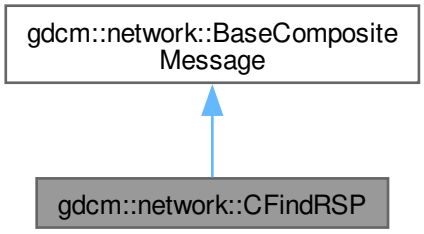
- gdcmCFindMessages.h

12.49 gdcm::network::CFindRSP Class Reference

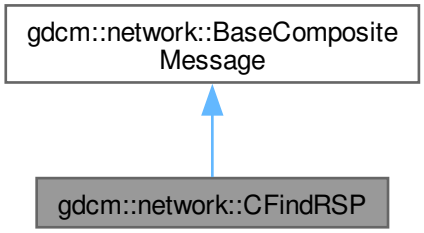
CFindRSP this file defines the messages for the cfind action.

`#include <gdcmCFindMessages.h>`

Inheritance diagram for gdcm::network::CFindRSP:



Collaboration diagram for gdcm::network::CFindRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

12.49.1 Detailed Description

CFindRSP this file defines the messages for the cfind action.

12.49.2 Member Function Documentation

12.49.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CFindRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

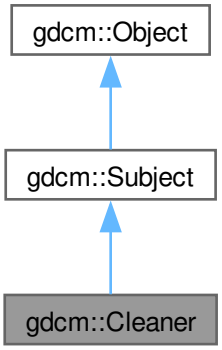
- gdcmCFindMessages.h

12.50 gdcm::Cleaner Class Reference

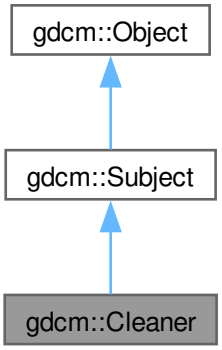
Cleaner.

```
#include <gdcmCleaner.h>
```

Inheritance diagram for gdcm::Cleaner:



Collaboration diagram for gdcm::Cleaner:



Public Types

- typedef std::tuple< std::string, std::string, std::string > CodedEntryData

Public Member Functions

- Cleaner ()
- ~Cleaner () override
- bool Clean ()

  main loop
- bool Empty (DPath const &dpath)
- bool Empty (PrivateTag const &pt)
- bool Empty (Tag const &t)
- bool Empty (VR const &vr)
- void EmptyWhenScrubFails (bool empty)

  Should I empty instead of scrub upon failure.
- File & GetFile ()
- bool Preserve (DPath const &dpath)

  Preserve.
- bool Remove (DPath const &dpath)
- bool Remove (PrivateTag const &pt)
- bool Remove (Tag const &t)
- bool Remove (VR const &vr)
- void RemoveAllGroupLength (bool remove)

  Should I remove all group length (deprecated). Default: true.
- void RemoveAllIllegal (bool remove)

  Should I remove all illegal attribute. Default: true.
- void RemoveAllMissingPrivateCreator (bool remove)

- bool RemoveMissingPrivateCreator (Tag const &t)
- bool ReplaceCodeMeaning (CodedEntryData const &ced)

  Coded Entry Data.
- bool Scrub (DPath const &dpath)
- bool Scrub (PrivateTag const &pt)
- bool Scrub (Tag const &t)

  Clean digital tash (typically SIEMENS CSA header):
- bool Scrub (VR const &vr)
- void SetFile (const File &f)

  Set/Get File.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< Cleaner > New ()

  for wrapped language: instantiate a reference counted object

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.50.1 Detailed Description

Cleaner.

This class implement the Subject/Observer pattern trigger the following event:

- AnonymizeEvent
- IterationEvent
- StartEvent
- EndEvent

Examples

Cleaner.cs.

12.50.2 Member Typedef Documentation

12.50.2.1 CodedEntryData

```
typedef std::tuple<std::string, std::string, std::string> gdcm::Cleaner::CodedEntryData
```

12.50.3 Constructor & Destructor Documentation

12.50.3.1 Cleaner()

```
gdcm::Cleaner::Cleaner ()
```

Referenced by New().

12.50.3.2 ~Cleaner()

```
gdcm::Cleaner::~Cleaner ()  [override]
```

12.50.4 Member Function Documentation

12.50.4.1 Clean()

```
bool gdcm::Cleaner::Clean ()
```

main loop

Examples

Cleaner.cs.

12.50.4.2 Empty() [1/4]

```
bool gdcm::Cleaner::Empty (
            DPath const & dpath)
```

12.50.4.3 Empty() [2/4]

```
bool gdcm::Cleaner::Empty (
            PrivateTag const & pt)
```

12.50.4.4 Empty() [3/4]

```
bool gdcm::Cleaner::Empty (
            Tag const & t)
```

Examples

Cleaner.cs.

12.50.4.5 Empty() [4/4]

```
bool gdcm::Cleaner::Empty (
            VR const & vr)
```

12.50.4.6 EmptyWhenScrubFails()

```
void gdcm::Cleaner::EmptyWhenScrubFails (
            bool empty)
```

Should I empty instead of scrub upon failure.

12.50.4.7 GetFile()

```
File & gdcm::Cleaner::GetFile ()  [inline]
```

Examples

Cleaner.cs.

12.50.4.8 New()

```
SmartPointer< Cleaner > gdcm::Cleaner::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References Cleaner().

12.50.4.9 Preserve()

```
bool gdcm::Cleaner::Preserve (
            DPath const & dpath)
```

Preserve.

Examples

Cleaner.cs.

12.50.4.10 Remove() [1/4]

```
bool gdcm::Cleaner::Remove (
            DPath const & dpath)
```

12.50.4.11 Remove() [2/4]

```
bool gdcm::Cleaner::Remove (
            PrivateTag const & pt)
```

12.50.4.12 Remove() [3/4]

```
bool gdcm::Cleaner::Remove (
            Tag const & t)
```

Examples

Cleaner.cs.

12.50.4.13 Remove() [4/4]

```
bool gdcm::Cleaner::Remove (
            VR const & vr)
```

12.50.4.14 RemoveAllGroupLength()

```
void gdcm::Cleaner::RemoveAllGroupLength (
            bool remove)
```

Should I remove all group length (deprecated). Default: true.

12.50.4.15 RemoveAllIllegal()

```
void gdcm::Cleaner::RemoveAllIllegal (
            bool remove)
```

Should I remove all illegal attribute. Default: true.

12.50.4.16 RemoveAllMissingPrivateCreator()

```
void gdcm::Cleaner::RemoveAllMissingPrivateCreator (
            bool remove)
```

Should I remove all private tag for which no private creator is found. Default: true

12.50.4.17 RemoveMissingPrivateCreator()

```
bool gdcm::Cleaner::RemoveMissingPrivateCreator (
            Tag const & t)
```

Specify a private tag (odd number) without a private creator (root level only for now):

12.50.4.18 ReplaceCodeMeaning()

```
bool gdcm::Cleaner::ReplaceCodeMeaning (
            CodedEntryData const & ced)
```

Coded Entry Data.

12.50.4.19 Scrub() [1/4]

```
bool gdcm::Cleaner::Scrub (
            DPath const & dpath)
```

12.50.4.20 Scrub() [2/4]

```
bool gdcm::Cleaner::Scrub (
            PrivateTag const & pt)
```

12.50.4.21 Scrub() [3/4]

```
bool gdcm::Cleaner::Scrub (
            Tag const & t)
```

Clean digital tash (typically SIEMENS CSA header):

Examples

Cleaner.cs.

12.50.4.22 Scrub() [4/4]

```
bool gdcm::Cleaner::Scrub (
            VR const & vr)
```

12.50.4.23 SetFile()

```
void gdcm::Cleaner::SetFile (
            const File & f)  [inline]
```

Set/Get File.

Examples

Cleaner.cs.

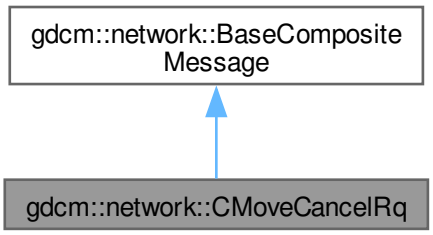
The documentation for this class was generated from the following file:

- gdcmCleaner.h

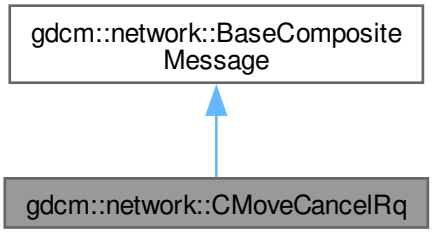
12.51 gdcm::network::CMoveCancelRq Class Reference

`#include <gdcmCMoveMessages.h>`

Inheritance diagram for gdcm::network::CMoveCancelRq:



Collaboration diagram for gdcm::network::CMoveCancelRq:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

12.51.1 Member Function Documentation

12.51.1.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CMoveCancelRq::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

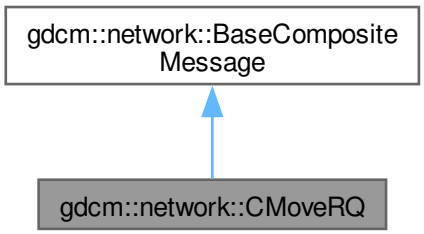
- gdcmCMoveMessages.h

12.52 gdcm::network::CMoveRQ Class Reference

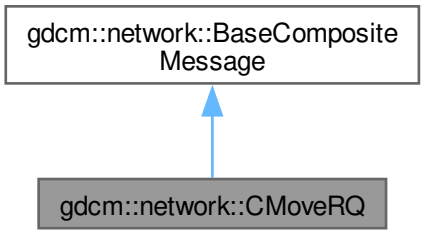
CMoveRQ.

`#include <gdcmCMoveMessages.h>`

Inheritance diagram for gdcm::network::CMoveRQ:



Collaboration diagram for gdcm::network::CMoveRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery) override

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

12.52.1 Detailed Description

CMoveRQ.

this file defines the messages for the cmove action

12.52.2 Member Function Documentation

12.52.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CMoveRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [override], [virtual]
```

Implements gdcm::network::BaseCompositeMessage.

The documentation for this class was generated from the following file:

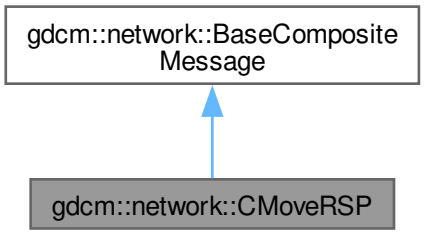
- gdcmCMoveMessages.h

12.53 gdcm::network::CMoveRSP Class Reference

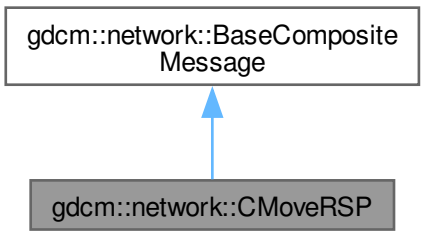
CMoveRSP this file defines the messages for the cmove action.

```
#include <gdcmCMoveMessages.h>
```

Inheritance diagram for gdcm::network::CMoveRSP:



Collaboration diagram for gdcm::network::CMoveRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)=0

12.53.1 Detailed Description

CMoveRSP this file defines the messages for the cmove action.

12.53.2 Member Function Documentation

12.53.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::CMoveRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

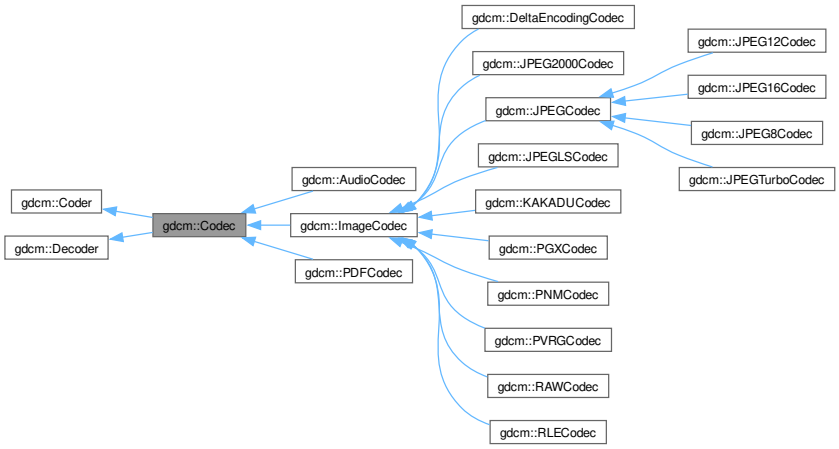
- gdcmCMoveMessages.h

12.54 gdcm::Codec Class Reference

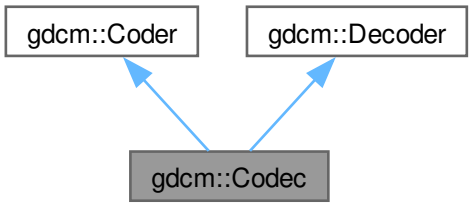
Codec class.

`#include <gdcmCodec.h>`

Inheritance diagram for gdcm::Codec:



Collaboration diagram for gdcm::Codec:



Additional Inherited Members

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool CanCode (TransferSyntax const &) const =0

  Return whether this coder support this transfer syntax (can code it).
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default
- virtual bool CanDecode (TransferSyntax const &) const =0

  Return whether this decoder support this transfer syntax (can decode it).
- virtual bool Decode (DataElement const &, DataElement &)

  Decode.

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Member Functions inherited from gdcm::Decoder

- virtual bool DecodeByStreams (std::istream &, std::ostream &)

12.54.1 Detailed Description

Codec class.

The documentation for this class was generated from the following file:

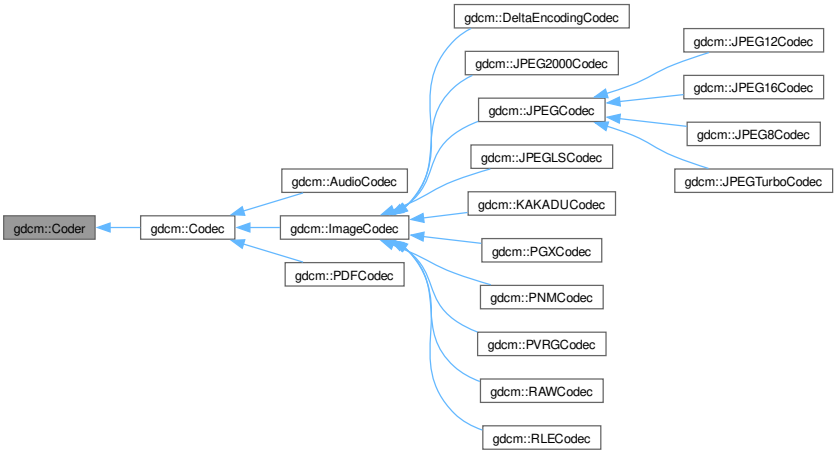
- gdcmCodec.h

12.55 gdcm::Coder Class Reference

Coder.

`#include <gdcmCoder.h>`

Inheritance diagram for gdcm::Coder:



Public Member Functions

- virtual ~Coder ()=default
- virtual bool CanCode (TransferSyntax const &) const =0

  Return whether this coder support this transfer syntax (can code it).
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Protected Member Functions

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

12.55.1 Detailed Description

Coder.

12.55.2 Constructor & Destructor Documentation

12.55.2.1 ~Coder()

```
virtual gdcm::Coder::~Coder ()  [virtual], [default]
```

12.55.3 Member Function Documentation

12.55.3.1 CanCode()

```
virtual bool gdcm::Coder::CanCode (
            TransferSyntax const & ) const  [pure virtual]
```

Return whether this coder support this transfer syntax (can code it).

Implemented in gdcm::AudioCodec, gdcm::ImageCodec, gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PDFCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.55.3.2 Code()

```
virtual bool gdcm::Coder::Code (
            DataElement const & in_,
            DataElement & out_)  [inline], [virtual]
```

Code.

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.55.3.3 InternalCode()

```
virtual bool gdcm::Coder::InternalCode (
            const char * bv,
            unsigned long len,
            std::ostream & os)  [inline], [protected], [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, gdcm::JPEG8Codec, and gdcm::JPEGTurboCodec.

The documentation for this class was generated from the following file:

- gdcmCoder.h

12.56 gdcm::CodeString Class Reference

CodeString.

```
#include <gdcmCodeString.h>
```

Public Types

- typedef InternalClass::const_iterator const_iterator
- typedef InternalClass::const_reference const_reference
- typedef InternalClass::const_reverse_iterator const_reverse_iterator
- typedef InternalClass::difference_type difference_type
- typedef InternalClass::iterator iterator
- typedef InternalClass::pointer pointer
- typedef InternalClass::reference reference
- typedef InternalClass::reverse_iterator reverse_iterator
- typedef InternalClass::size_type size_type
- typedef InternalClass::value_type value_type

Public Member Functions

- CodeString ()

  CodeString constructors.
- CodeString (const InternalClass &s, size_type pos=0, size_type n=InternalClass::npos)
- CodeString (const value_type *s)
- CodeString (const value_type *s, size_type n)
- std::string GetAsString () const

  Return the full code string as std::string.
- bool IsValid () const

  Check if CodeString obj is correct..
- size_type Size () const

  Return the size of the string.

Protected Member Functions

- std::string TrimInternal () const

Friends

- bool operator!= (const CodeString &ref, const CodeString &cs)
- std::ostream & operator<< (std::ostream &os, const CodeString &str)
- bool operator== (const CodeString &ref, const CodeString &cs)

12.56.1 Detailed Description

CodeString.

This is an implementation of DICOM VR: CS The cstor will properly Trim so that operator== is correct.

Note

the cstor of CodeString will Trim the string on the fly so as to remove the extra leading and ending spaces. However it will not perform validation on the fly (CodeString obj can contains invalid char such as lower cases). This design was chosen to be a little tolerant to broken DICOM implementation, and thus allow user to compare lower case CS from there input file without the need to first rewrite them to get rid of invalid character (validation is a different operation from searching, querying).

Warning

when writing out DICOM file it is highly recommended to perform the IsValid() call, at least to check that the length of the string match the definition in the standard.

12.56.2 Member Typedef Documentation

12.56.2.1 const_iterator

```
typedef InternalClass::const_iterator gdcm::CodeString::const_iterator
```

12.56.2.2 const_reference

```
typedef InternalClass::const_reference gdcm::CodeString::const_reference
```

12.56.2.3 const_reverse_iterator

```
typedef InternalClass::const_reverse_iterator gdcm::CodeString::const_reverse_iterator
```

12.56.2.4 difference_type

```
typedef InternalClass::difference_type gdcm::CodeString::difference_type
```

12.56.2.5 iterator

```
typedef InternalClass::iterator gdcm::CodeString::iterator
```

12.56.2.6 pointer

```
typedef InternalClass::pointer gdcm::CodeString::pointer
```

12.56.2.7 reference

```
typedef InternalClass::reference gdcm::CodeString::reference
```

12.56.2.8 reverse_iterator

```
typedef InternalClass::reverse_iterator gdcm::CodeString::reverse_iterator
```

12.56.2.9 size_type

```
typedef InternalClass::size_type gdcm::CodeString::size_type
```

12.56.2.10 value_type

```
typedef InternalClass::value_type gdcm::CodeString::value_type
```

12.56.3 Constructor & Destructor Documentation

12.56.3.1 CodeString() [1/4]

```
gdcm::CodeString::CodeString () [inline]
```

CodeString constructors.

Referenced by operator!=, operator<<, and operator==.

12.56.3.2 CodeString() [2/4]

```
gdcm::CodeString::CodeString (
            const value_type * s)  [inline]
```

12.56.3.3 CodeString() [3/4]

```
gdcm::CodeString::CodeString (
            const value_type * s,
            size_type n)  [inline]
```

12.56.3.4 CodeString() [4/4]

```
gdcm::CodeString::CodeString (
            const InternalClass & s,
            size_type pos = 0,
            size_type n = InternalClass::npos)  [inline]
```

12.56.4 Member Function Documentation

12.56.4.1 GetAsString()

```
std::string gdcm::CodeString::GetAsString () const  [inline]
```

Return the full code string as std::string.

12.56.4.2 IsValid()

```
bool gdcm::CodeString::IsValid () const
```

Check if CodeString obj is correct..

12.56.4.3 Size()

```
size_type gdcm::CodeString::Size () const  [inline]
```

Return the size of the string.

12.56.4.4 TrimInternal()

```
std::string gdcm::CodeString::TrimInternal () const  [inline], [protected]
```

12.56.5 Friends And Related Symbol Documentation

12.56.5.1 operator"!=

```
bool operator!= (
            const CodeString & ref,
            const CodeString & cs)  [friend]
```

References CodeString().

12.56.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const CodeString & str)  [friend]
```

References CodeString().

12.56.5.3 operator==

```
bool operator== (
            const CodeString & ref,
            const CodeString & cs)  [friend]
```

References CodeString().

The documentation for this class was generated from the following file:

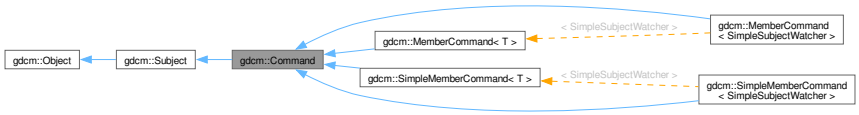
- gdcmCodeString.h

12.57 gdcm::Command Class Reference

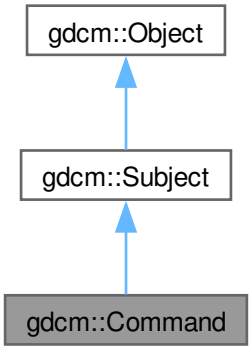
Command superclass for callback/observer methods.

```
#include <gdcmCommand.h>
```

Inheritance diagram for gdcm::Command:



Collaboration diagram for gdcm::Command:



Public Member Functions

- Command (const Command &)=delete
- virtual void Execute (const Subject *caller, const Event &event)=0
- virtual void Execute (Subject *caller, const Event &event)=0

  Abstract method that defines the action to be taken by the command.
- void operator= (const Command &)=delete

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Protected Member Functions

- Command ()
- ~Command () override

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.57.1 Detailed Description

Command superclass for callback/observer methods.

See also

Subject

12.57.2 Constructor & Destructor Documentation

12.57.2.1 Command() [1/2]

```
gdcm::Command::Command (
            const Command & )  [delete]
```

References Command().

Referenced by Command(), and operator=().

12.57.2.2 Command() [2/2]

```
gdcm::Command::Command ()  [protected]
```

12.57.2.3 ~Command()

```
gdcm::Command::~Command ()  [override], [protected]
```

12.57.3 Member Function Documentation

12.57.3.1 Execute() [1/2]

```
virtual void gdcm::Command::Execute (
            const Subject * caller,
            const Event & event)  [pure virtual]
```

Abstract method that defines the action to be taken by the command. This variant is expected to be used when requests comes from a const Object

Implemented in gdcm::MemberCommand< T >, gdcm::MemberCommand< SimpleSubjectWatcher >, gdcm::SimpleMemberCommand<
and gdcm::SimpleMemberCommand< SimpleSubjectWatcher >.

References gdcm::Subject::Subject().

12.57.3.2 Execute() [2/2]

```
virtual void gdcm::Command::Execute (
            Subject * caller,
            const Event & event)  [pure virtual]
```

Abstract method that defines the action to be taken by the command.

Implemented in gdcm::MemberCommand< T >, gdcm::MemberCommand< SimpleSubjectWatcher >, gdcm::SimpleMemberCommand<
and gdcm::SimpleMemberCommand< SimpleSubjectWatcher >.

References gdcm::Subject::Subject().

12.57.3.3 operator=()

```
void gdcm::Command::operator= (
            const Command & )  [delete]
```

References Command().

The documentation for this class was generated from the following file:

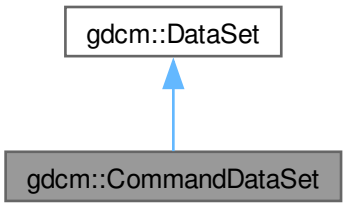
- gdcmCommand.h

12.58 gdcm::CommandDataSet Class Reference

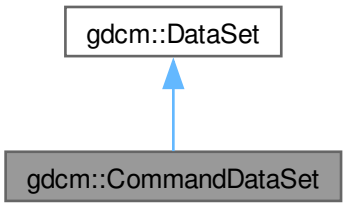
Class to represent a Command DataSet.

`#include <gdcmCommandDataSet.h>`

Inheritance diagram for gdcm::CommandDataSet:



Collaboration diagram for gdcm::CommandDataSet:



Public Member Functions

- CommandDataSet ()=default
- ~CommandDataSet ()=default
- void Insert (const DataElement &de)
- std::istream & Read (std::istream &is)

  Read.
- void Replace (const DataElement &de)
- std::ostream & Write (std::ostream &os) const

  Write.

Public Member Functions inherited from gdcm::DataSet

- Iterator Begin ()
- ConstIterator Begin () const
- void Clear ()
- template<typename TDE>
  unsigned int ComputeGroupLength (Tag const &tag) const
- Iterator End ()
- ConstIterator End () const
- bool FindDataElement (const PrivateTag &t) const

  Look up if private tag 't' is present in the dataset:
- bool FindDataElement (const Tag &t) const
- const DataElement & FindNextDataElement (const Tag &t) const
- const DataElement & GetDataElement (const PrivateTag &t) const

  Return the dataelement.
- const DataElement & GetDataElement (const Tag &t) const
- DataElementSet & GetDES ()
- const DataElementSet & GetDES () const
- template<typename TDE>
  VL GetLength () const
- MediaStorage GetMediaStorage () const
- std::string GetPrivateCreator (const Tag &t) const
- PrivateTag GetPrivateTag (const Tag &t) const

  Return the private tag of the private tag 't', private creator will be set to empty if not found.
- void Insert (const DataElement &de)
- bool IsEmpty () const

  Returns if the dataset is empty.
- const DataElement & operator() (uint16_t group, uint16_t element) const
- DataSet & operator= (DataSet const &)=default
- const DataElement & operator[ ] (const Tag &t) const
- void Print (std::ostream &os, std::string const &indent="") const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadNested (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedPrivateTags (std::istream &is, const std::set< PrivateTag > &tags, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedPrivateTagsWithLength (std::istream &is, const std::set< PrivateTag > &tags, VL &length, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedTags (std::istream &is, const std::set< Tag > &tags, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedTagsWithLength (std::istream &is, const std::set< Tag > &tags, VL &length, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadUpToTag (std::istream &is, const Tag &t, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadUpToTagWithLength (std::istream &is, const Tag &t, std::set< Tag > const &skiptags, VL &length)

- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- SizeType Remove (const Tag &tag)

  Completely remove a dataelement from the dataset.
- void Replace (const DataElement &de)

  Replace a dataelement with another one.
- void ReplaceEmpty (const DataElement &de)

  Only replace a DICOM attribute when it is missing or empty.
- SizeType Size () const
- template<typename TDE, typename TSwap>
  std::ostream const & Write (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &_os, const CommandDataSet &_val)

Additional Inherited Members

Public Types inherited from gdcm::DataSet

- typedef DataElementSet::const_iterator ConstIterator
- typedef std::set< DataElement > DataElementSet
- typedef DataElementSet::iterator Iterator
- typedef DataElementSet::size_type SizeType

Protected Member Functions inherited from gdcm::DataSet

- Tag ComputeDataElement (const PrivateTag &t) const
- const DataElement & GetDEEnd () const
- void InsertDataElement (const DataElement &de)

12.58.1 Detailed Description

Class to represent a Command DataSet.

See also

DataSet

12.58.2 Constructor & Destructor Documentation

12.58.2.1 CommandDataSet()

```
gdcm::CommandDataSet::CommandDataSet () [default]
```

Referenced by ~CommandDataSet(), and operator<<.

12.58.2.2 ~CommandDataSet()

```
gdcm::CommandDataSet::~CommandDataSet ()  [default]
```

References CommandDataSet(), and operator<<.

12.58.3 Member Function Documentation

12.58.3.1 Insert()

```
void gdcm::CommandDataSet::Insert (
            const DataElement & de)  [inline]
```

References gdcmErrorMacro, gdcm::Tag::GetGroup(), gdcm::DataElement::GetTag(), and gdcm::DataSet::InsertDataElement().

Referenced by Replace().

12.58.3.2 Read()

```
std::istream & gdcm::CommandDataSet::Read (
            std::istream & is)
```

Read.

12.58.3.3 Replace()

```
void gdcm::CommandDataSet::Replace (
            const DataElement & de)  [inline]
```

References gdcm::DataElement::GetTag(), Insert(), and gdcm::DataSet::Remove().

12.58.3.4 Write()

```
std::ostream & gdcm::CommandDataSet::Write (
            std::ostream & os) const
```

Write.

12.58.4 Friends And Related Symbol Documentation

12.58.4.1 operator<<

```
std::ostream & operator<< (
             std::ostream & _os,
             const CommandDataSet & _val)  [friend]
```

References CommandDataSet(), and gdcm::DataSet::Print().

Referenced by ~CommandDataSet().

The documentation for this class was generated from the following file:

- gdcmCommandDataSet.h

12.59 gdcm::network::CompositeMessageFactory Class Reference

CompositeMessageFactory.

```
#include <gdcmCompositeMessageFactory.h>
```

Static Public Member Functions

- static std::vector< PresentationDataValue > ConstructCEchoRQ (const ULConnection &inConnection)
- static std::vector< PresentationDataValue > ConstructCFindRQ (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)
- static std::vector< PresentationDataValue > ConstructCMoveRQ (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)
- static std::vector< PresentationDataValue > ConstructCStoreRQ (const ULConnection &inConnection, const File &file, bool writeDataSet=true)
- static std::vector< PresentationDataValue > ConstructCStoreRSP (const DataSet *inDataSet, const BasePDU *inPC)

12.59.1 Detailed Description

CompositeMessageFactory.

This class constructs PDataPDUs, but that have been specifically constructed for the composite DICOM services (C-Echo, C-Find, C-Get, C-Move, and C-Store). It will also handle parsing the incoming data to determine which of the CompositePDUs the incoming data is, and so therefore allowing the scu to determine what to do with incoming data (if acting as a storescp server, for instance).

12.59.2 Member Function Documentation

12.59.2.1 ConstructCEchoRQ()

```
std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::ConstructCEchoRQ (
            const ULConnection & inConnection)  [static]
```

12.59.2.2 ConstructCFindRQ()

```
std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::ConstructCFindRQ (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [static]
```

12.59.2.3 ConstructCMoveRQ()

```
std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::ConstructCMoveRQ (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [static]
```

12.59.2.4 ConstructCStoreRQ()

```
std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::ConstructCStoreRQ (
            const ULConnection & inConnection,
            const File & file,
            bool writeDataSet = true)  [static]
```

12.59.2.5 ConstructCStoreRSP()

```
std::vector< PresentationDataValue > gdcm::network::CompositeMessageFactory::ConstructCStoreRSP (
            const DataSet * inDataSet,
            const BasePDU * inPC)  [static]
```

The documentation for this class was generated from the following file:

- gdcmCompositeMessageFactory.h

12.60 gdcm::CompositeNetworkFunctions Class Reference

Composite Network Functions.

```
#include <gdcmCompositeNetworkFunctions.h>
```

Public Types

- typedef std::vector< KeyValuePairType > KeyValuePairArrayType
- typedef std::pair< Tag, std::string > KeyValuePairType

Static Public Member Functions

- static bool CEcho (const char *remote, uint16_t portno, const char *aetitle=nullptr, const char *call=nullptr)
- static bool CFind (const char *remote, uint16_t portno, const BaseRootQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle=nullptr, const char *call=nullptr)
- static bool CMove (const char *remote, uint16_t portno, const BaseRootQuery *query, uint16_t portscp, const char *aetitle=nullptr, const char *call=nullptr, const char *outputdir=nullptr)
- static BaseRootQuery * ConstructQuery (ERootType inRootType, EQueryLevel inQueryLevel, const DataSet &queryds, EQueryType queryType=eFind)
- static BaseRootQuery * ConstructQuery (ERootType inRootType, EQueryLevel inQueryLevel, const KeyValuePairArrayType &keys, EQueryType queryType=eFind)
- static bool CStore (const char *remote, uint16_t portno, const Directory::FilenamesType &filenames, const char *aetitle=nullptr, const char *call=nullptr)

12.60.1 Detailed Description

Composite Network Functions.

These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:

- C-ECHO SCU
- C-FIND SCU
- C-STORE SCU
- C-MOVE SCU (+internal C-STORE SCP)

Examples

SendFileSCU.cs.

12.60.2 Member Typedef Documentation

12.60.2.1 KeyValuePairArrayType

```
typedef std::vector< KeyValuePairType > gdcm::CompositeNetworkFunctions::KeyValuePairArrayType
```

12.60.2.2 KeyValuePairType

```
typedef std::pair<Tag, std::string> gdcm::CompositeNetworkFunctions::KeyValuePairType
```

12.60.3 Member Function Documentation

12.60.3.1 CEcho()

```
bool gdcm::CompositeNetworkFunctions::CEcho (
            const char * remote,
            uint16_t portno,
            const char * aetitle = nullptr,
            const char * call = nullptr)  [static]
```

The most basic network function. Use this function to ensure that the remote server is responding on the given IP and port number as expected.

Parameters

aetitle	when not set will default to 'GDCMSCU'
call	when not set will default to 'ANY-SCP'

Warning

This is an error to set remote to NULL or portno to 0

Returns

true if it worked.

Examples

SendFileSCU.cs.

12.60.3.2 CFind()

```
bool gdcm::CompositeNetworkFunctions::CFind (
            const char * remote,
            uint16_t portno,
            const BaseRootQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle = nullptr,
            const char * call = nullptr)  [static]
```

This function will use the provided query to determine what files a remote server contains that match the query strings. The return is a vector of datasets that contain tags as reported by the server. If the dataset is empty, then it is possible that an error condition was encountered; in which case, the user should monitor the error and warning streams.

Parameters

aetitle	when not set will default to 'GDCMSCU'
call	when not set will default to 'ANY-SCP'

Warning

This is an error to set remote to NULL or portno to 0

Returns

true if it worked.

12.60.3.3 CMove()

```
bool gdcm::CompositeNetworkFunctions::CMove (
              const char * remote,
              uint16_t portno,
              const BaseRootQuery * query,
              uint16_t portscp,
              const char * aetitle = nullptr,
              const char * call = nullptr,
              const char * outputdir = nullptr)  [static]
```

This function will use the provided query to get files from a remote server. NOTE that this functionality is essentially equivalent to C-GET in the DICOM standard; however, C-GET has been deprecated, so this function allows for the user to ask a remote server for files matching a query and return them to the local machine. Files will be written to the given output directory. If the operation succeeds, the function returns true. This function is a prime candidate for being overwritten by expert users; if the datasets should remain in memory, for instance, that behavior can be changed by creating a user-level version of this function.

Parameters

aetitle	when not set will default to 'GDCMSCU'
call	when not set will default to 'ANY-SCP' This is an error to set remote to NULL or portno to 0 when
outputdir	is not set default to current dir ('.')

Returns

true if it worked.

12.60.3.4 ConstructQuery() [1/2]

```
BaseRootQuery * gdcm::CompositeNetworkFunctions::ConstructQuery (
            ERootType inRootType,
            EQueryLevel inQueryLevel,
            const DataSet & queryds,
            EQueryType queryType = eFind)  [static]
```

This function will take a list of strings and tags and fill in a query that can be used for either CFind or CMove (depending on the input boolean

Parameters

inMove).	Note that the caller is responsible for deleting the constructed query. This function is used to build both a move and a find query (true for inMove if it's move, false if it's find)

References gdcm::eFind.

12.60.3.5 ConstructQuery() [2/2]

```
BaseRootQuery * gdcm::CompositeNetworkFunctions::ConstructQuery (
            ERootType inRootType,
            EQueryLevel inQueryLevel,
            const KeyValuePairArrayType & keys,
            EQueryType queryType = eFind)  [static]
```

Deprecated

References gdcm::eFind.

12.60.3.6 CStore()

```
bool gdcm::CompositeNetworkFunctions::CStore (
            const char * remote,
            uint16_t portno,
            const Directory::FilenamesType & filenames,
            const char * aetitle = nullptr,
            const char * call = nullptr)  [static]
```

This function will place the provided files into the remote server. The function returns true if it worked for all files.

Warning

the server side can refuse an association on a given file

Parameters

aetitle	when not set will default to 'GDCMSCU'
call	when not set will default to 'ANY-SCP'

Warning

This is an error to set remote to NULL or portno to 0

Returns

true if it worked for all files

Examples

SendFileSCU.cs.

The documentation for this class was generated from the following file:

- gdcmCompositeNetworkFunctions.h

12.61 gdcm::ConstCharWrapper Class Reference

Do not use me.

`#include <gdcmConstCharWrapper.h>`

Public Member Functions

- ConstCharWrapper (const char *i=0)
- operator const char * () const

12.61.1 Detailed Description

Do not use me.

12.61.2 Constructor & Destructor Documentation

12.61.2.1 ConstCharWrapper()

```
gdcm::ConstCharWrapper::ConstCharWrapper (
            const char * i = 0)  [inline]
```

12.61.3 Member Function Documentation

12.61.3.1 operator const char *()

```
gdcm::ConstCharWrapper::operator const char * () const  [inline]
```

The documentation for this class was generated from the following file:

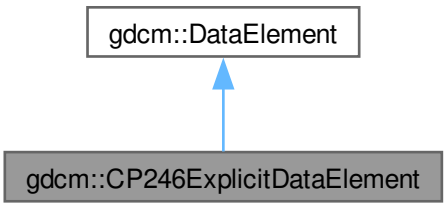
- gdcmConstCharWrapper.h

12.62 gdcm::CP246ExplicitDataElement Class Reference

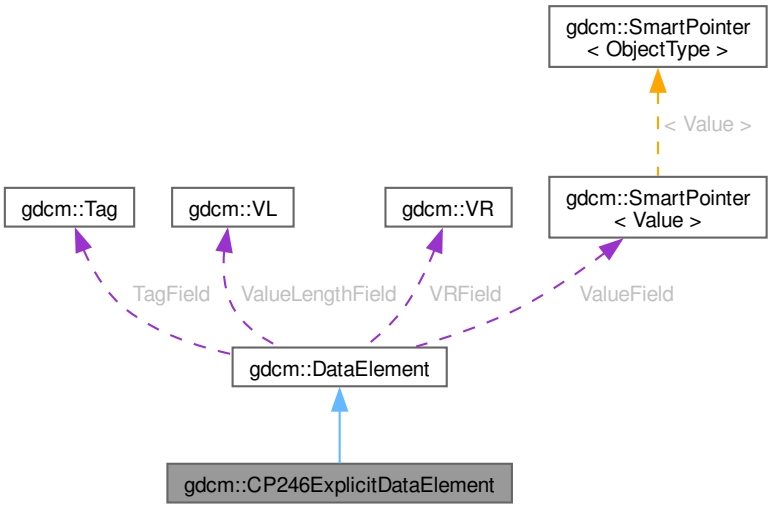
Class to read/write a DataElement as CP246Explicit Data Element.

```
#include <gdcmCP246ExplicitDataElement.h>
```

Inheritance diagram for gdcm::CP246ExplicitDataElement:



Collaboration diagram for gdcm::CP246ExplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag + VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const

- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.62.1 Detailed Description

Class to read/write a DataElement as CP246Explicit Data Element.

Note

Some system are producing SQ, declare them as UN, but encode the SQ as 'Explicit' instead of Implicit

12.62.2 Member Function Documentation

12.62.2.1 GetLength()

```
VL gdcm::CP246ExplicitDataElement::GetLength () const
```

12.62.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::CP246ExplicitDataElement::Read (
             std::istream & is)
```

12.62.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::CP246ExplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.62.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::CP246ExplicitDataElement::ReadValue (
             std::istream & is,
             bool readvalues = true)
```

12.62.2.5 ReadWithLength()

```
template<typename TSwap>
std::istream & gdcm::CP246ExplicitDataElement::ReadWithLength (
             std::istream & is,
             VL & length)
```

The documentation for this class was generated from the following file:

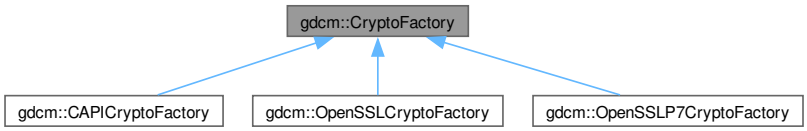
- gdcmCP246ExplicitDataElement.h

12.63 gdcm::CryptoFactory Class Reference

Class to do handle the crypto factory.

`#include <gdcmCryptoFactory.h>`

Inheritance diagram for gdcm::CryptoFactory:



Public Types

- enum CryptoLib {
  DEFAULT = 0 ,
  OPENSSL = 1 ,
  CAPI = 2 ,
  OPENSSLP7 = 3 }

Public Member Functions

- virtual CryptographicMessageSyntax * CreateCMSProvider ()=0

Static Public Member Functions

- static CryptoFactory * GetFactoryInstance (CryptoLib id=DEFAULT)

Protected Member Functions

- CryptoFactory ()=default
- CryptoFactory (CryptoLib id)
- ~CryptoFactory ()=default

12.63.1 Detailed Description

Class to do handle the crypto factory.

GDCM needs to access in a platform independent way the user specified crypto engine. It can be:

- CAPI (windows only)
- OPENSSL (portable)
- OPENSSLP7 (portable) By default the factory will try: CAPI if on windows OPENSSL if possible OPENSSLP7 when older OpenSSL is used.

12.63.2 Member Enumeration Documentation

12.63.2.1 CryptoLib

```
enum gdcm::CryptoFactory::CryptoLib
```

Enumerator

DEFAULT	
OPENSSL	
CAPI	
OPENSSLP7	

12.63.3 Constructor & Destructor Documentation

12.63.3.1 CryptoFactory() [1/2]

```
gdcm::CryptoFactory::CryptoFactory (
            CryptoLib id)  [inline], [protected]
```

Referenced by gdcm::OpenSSLCryptoFactory::OpenSSLCryptoFactory(), gdcm::OpenSSLP7CryptoFactory::OpenSSLP7CryptoFactory() and GetFactoryInstance().

12.63.3.2 CryptoFactory() [2/2]

```
gdcm::CryptoFactory::CryptoFactory ()  [protected], [default]
```

12.63.3.3 ~CryptoFactory()

```
gdcm::CryptoFactory::~CryptoFactory ()  [protected], [default]
```

12.63.4 Member Function Documentation

12.63.4.1 CreateCMSProvider()

```
virtual CryptographicMessageSyntax * gdcm::CryptoFactory::CreateCMSProvider ()  [pure virtual]
```

Implemented in gdcm::CAPICryptoFactory, gdcm::OpenSSLCryptoFactory, and gdcm::OpenSSLP7CryptoFactory.

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.63.4.2 GetFactoryInstance()

```
CryptoFactory * gdcm::CryptoFactory::GetFactoryInstance (
            CryptoLib id = DEFAULT)  [static]
```

References CryptoFactory(), and DEFAULT.

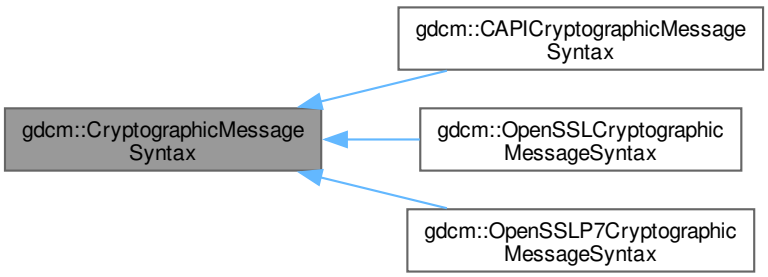
The documentation for this class was generated from the following file:

- gdcmCryptoFactory.h

12.64 gdcm::CryptographicMessageSyntax Class Reference

```
#include <gdcmCryptographicMessageSyntax.h>
```

Inheritance diagram for gdcm::CryptographicMessageSyntax:



Public Types

- enum CipherTypes {
  DES3_CIPHER ,
  AES128_CIPHER ,
  AES192_CIPHER ,
  AES256_CIPHER }

Public Member Functions

- CryptographicMessageSyntax ()=default
- CryptographicMessageSyntax (const CryptographicMessageSyntax &)=delete
- virtual ~CryptographicMessageSyntax ()=default
- virtual bool Decrypt (char *output, size_t &outlen, const char *array, size_t len) const =0

  decrypt content from a CMS envelopedData structure
- virtual bool Encrypt (char *output, size_t &outlen, const char *array, size_t len) const =0

  create a CMS envelopedData structure
- virtual CipherTypes GetCipherType () const =0
- void operator= (const CryptographicMessageSyntax &)=delete
- virtual bool ParseCertificateFile (const char *filename)=0
- virtual bool ParseKeyFile (const char *filename)=0
- virtual void SetCipherType (CipherTypes type)=0
- virtual bool SetPassword (const char *pass, size_t passLen)=0

12.64.1 Member Enumeration Documentation

12.64.1.1 CipherTypes

```
enum gdcm::CryptographicMessageSyntax::CipherTypes
```

Enumerator

DES3_CIPHER	
AES128_CIPHER	
AES192_CIPHER	
AES256_CIPHER	

12.64.2 Constructor & Destructor Documentation

12.64.2.1 CryptographicMessageSyntax() [1/2]

```
gdcm::CryptographicMessageSyntax::CryptographicMessageSyntax ()  [default]
```

Referenced by CryptographicMessageSyntax(), and operator=().

12.64.2.2 ~CryptographicMessageSyntax()

```
virtual gdcm::CryptographicMessageSyntax::~CryptographicMessageSyntax ()  [virtual], [default]
```

12.64.2.3 CryptographicMessageSyntax() [2/2]

```
gdcm::CryptographicMessageSyntax::CryptographicMessageSyntax (
            const CryptographicMessageSyntax & )  [delete]
```

References CryptographicMessageSyntax().

12.64.3 Member Function Documentation

12.64.3.1 Decrypt()

```
virtual bool gdcm::CryptographicMessageSyntax::Decrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [pure virtual]
```

decrypt content from a CMS envelopedData structure

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

12.64.3.2 Encrypt()

```
virtual bool gdcm::CryptographicMessageSyntax::Encrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [pure virtual]
```

create a CMS envelopedData structure

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

12.64.3.3 GetCipherType()

```
virtual CipherTypes gdcm::CryptographicMessageSyntax::GetCipherType () const  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

12.64.3.4 operator=()

```
void gdcm::CryptographicMessageSyntax::operator= (
            const CryptographicMessageSyntax & )  [delete]
```

References CryptographicMessageSyntax().

12.64.3.5 ParseCertificateFile()

```
virtual bool gdcm::CryptographicMessageSyntax::ParseCertificateFile (
            const char * filename)  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

Examples

BasicAnonymizer.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.64.3.6 ParseKeyFile()

```
virtual bool gdcm::CryptographicMessageSyntax::ParseKeyFile (
            const char * filename)  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

12.64.3.7 SetCipherType()

```
virtual void gdcm::CryptographicMessageSyntax::SetCipherType (
            CipherTypes type)  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

12.64.3.8 SetPassword()

```
virtual bool gdcm::CryptographicMessageSyntax::SetPassword (
            const char * pass,
            size_t passLen)  [pure virtual]
```

Implemented in gdcm::CAPICryptographicMessageSyntax, gdcm::OpenSSLCryptographicMessageSyntax, and gdcm::OpenSSLP7CryptographicMessageSyntax.

The documentation for this class was generated from the following file:

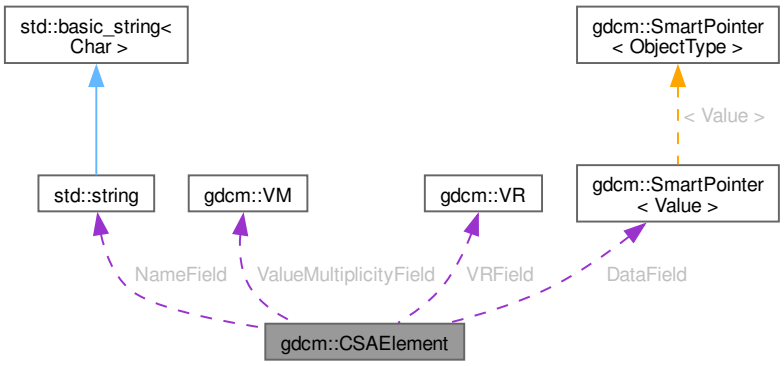
- gdcmCryptographicMessageSyntax.h

12.65 gdcm::CSAElement Class Reference

Class to represent a CSA Element.

`#include <gdcmCSAElement.h>`

Collaboration diagram for gdcm::CSAElement:



Public Member Functions

- CSAElement (const CSAElement &_val)
- CSAElement (unsigned int kf=0)
- const ByteValue * GetByteValue () const
- unsigned int GetKey () const

  Set/Get Key.
- const char * GetName () const

  Set/Get Name.
- unsigned int GetNoOfItems () const

  Set/Get NoOfItems.
- unsigned int GetSyngoDT () const

  Set/Get SyngoDT.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- const VM & GetVM () const

  Set/Get VM.
- VR const & GetVR () const

  Set/Get VR.
- bool IsEmpty () const

  Check if CSA Element is empty.
- bool operator< (const CSAElement &de) const

- CSAElement & operator= (const CSAElement &de)=default
- bool operator== (const CSAElement &de) const
- void SetByteValue (const char *array, VL length)

  Set.
- void SetKey (unsigned int key)
- void SetName (const char *name)
- void SetNoOfItems (unsigned int items)
- void SetSyngoDT (unsigned int syngodt)
- void SetValue (Value const &vl)
- void SetVM (const VM &vm)
- void SetVR (VR const &vr)

Protected Types

- typedef SmartPointer< Value > DataPtr

Protected Attributes

- DataPtr DataField
- unsigned int KeyField
- std::string NameField
- unsigned int NoOfItemsField
- unsigned int SyngoDTField
- VM ValueMultiplicityField
- VR VRField

Friends

- std::ostream & operator<< (std::ostream &os, const CSAElement &val)

12.65.1 Detailed Description

Class to represent a CSA Element.

See also

CSAHeader

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

12.65.2 Member Typedef Documentation

12.65.2.1 DataPtr

```
typedef SmartPointer<Value> gdcm::CSAElement::DataPtr  [protected]
```

12.65.3 Constructor & Destructor Documentation

12.65.3.1 CSAElement() [1/2]

```
gdcm::CSAElement::CSAElement (
            unsigned int kf = 0)  [inline]
```

References KeyField, NoOfItemsField, and SyngoDTField.

Referenced by CSAElement(), operator<(), operator<<, operator=(), and operator==().

12.65.3.2 CSAElement() [2/2]

```
gdcm::CSAElement::CSAElement (
            const CSAElement & _val)  [inline]
```

References CSAElement().

12.65.4 Member Function Documentation

12.65.4.1 GetByteValue()

```
const ByteValue * gdcm::CSAElement::GetByteValue () const  [inline]
```

Return the Value of CSAElement as a ByteValue (if possible)

Warning

: You need to check for NULL return value

Examples

DumpSiemensBase64.cxx, and MrProtocol.cxx.

References DataField.

12.65.4.2 GetKey()

```
unsigned int gdcm::CSAElement::GetKey () const  [inline]
```

Set/Get Key.

References KeyField.

Referenced by operator<().

12.65.4.3 GetName()

```
const char * gdcm::CSAElement::GetName () const  [inline]
```

Set/Get Name.

References NameField.

12.65.4.4 GetNoOfItems()

```
unsigned int gdcm::CSAElement::GetNoOfItems () const  [inline]
```

Set/Get NoOfItems.

References NoOfItemsField.

12.65.4.5 GetSyngoDT()

```
unsigned int gdcm::CSAElement::GetSyngoDT () const  [inline]
```

Set/Get SyngoDT.

References SyngoDTField.

12.65.4.6 GetValue() [1/2]

```
Value & gdcm::CSAElement::GetValue ()  [inline]
```

References DataField.

12.65.4.7 GetValue() [2/2]

```
Value const & gdcm::CSAElement::GetValue () const  [inline]
```

Set/Get Value (bytes array, SQ of items, SQ of fragments):

Examples

csa2img.cxx.

References DataField.

12.65.4.8 GetVM()

```
const VM & gdcm::CSAElement::GetVM () const  [inline]
```

Set/Get VM.

References ValueMultiplicityField.

12.65.4.9 GetVR()

```
VR const & gdcm::CSAElement::GetVR () const  [inline]
```

Set/Get VR.

References VRField.

12.65.4.10 IsEmpty()

```
bool gdcm::CSAElement::IsEmpty () const  [inline]
```

Check if CSA Element is empty.

Examples

csa2img.cxx.

References DataField.

12.65.4.11 operator<()

```
bool gdcm::CSAElement::operator< (
            const CSAElement & de) const  [inline]
```

References CSAElement(), and GetKey().

12.65.4.12 operator=()

```
CSAElement & gdcm::CSAElement::operator= (
            const CSAElement & de)  [default]
```

References CSAElement().

12.65.4.13 operator==()

```
bool gdcm::CSAElement::operator== (
            const CSAElement & de) const  [inline]
```

References CSAElement(), KeyField, NameField, SyngoDTField, ValueMultiplicityField, and VRField.

12.65.4.14 SetByteValue()

```
void gdcm::CSAElement::SetByteValue (
            const char * array,
            VL length)  [inline]
```

Set.

References SetValue().

12.65.4.15 SetKey()

```
void gdcm::CSAElement::SetKey (
            unsigned int key)  [inline]
```

References KeyField.

12.65.4.16 SetName()

```
void gdcm::CSAElement::SetName (
            const char * name)  [inline]
```

References NameField.

12.65.4.17 SetNoOfItems()

```
void gdcm::CSAElement::SetNoOfItems (
            unsigned int items)  [inline]
```

References NoOfItemsField.

12.65.4.18 SetSyngoDT()

```
void gdcm::CSAElement::SetSyngoDT (
            unsigned int syngodt)  [inline]
```

References SyngoDTField.

12.65.4.19 SetValue()

```
void gdcm::CSAElement::SetValue (
            Value const & vl)  [inline]
```

References DataField.

Referenced by SetByteValue().

12.65.4.20 SetVM()

```
void gdcm::CSAElement::SetVM (
            const VM & vm)  [inline]
```

References ValueMultiplicityField.

12.65.4.21 SetVR()

```
void gdcm::CSAElement::SetVR (
            VR const & vr)  [inline]
```

References VRField.

12.65.5 Friends And Related Symbol Documentation

12.65.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const CSAElement & val)  [friend]
```

References CSAElement(), DataField, gdcm_assert, gdcm::ByteValue::GetLength(), gdcm::ByteValue::GetPointer(), KeyField, NameField, NoOfItemsField, SyngoDTField, ValueMultiplicityField, gdcm::VM::VM1, and VRField.

12.65.6 Member Data Documentation

12.65.6.1 DataField

```
DataPtr gdcm::CSAElement::DataField  [protected]
```

Referenced by GetByteValue(), GetValue(), GetValue(), IsEmpty(), operator<<, and SetValue().

12.65.6.2 KeyField

```
unsigned int gdcm::CSAElement::KeyField  [protected]
```

Referenced by CSAElement(), GetKey(), operator<<, operator==(), and SetKey().

12.65.6.3 NameField

```
std::string gdcm::CSAElement::NameField  [protected]
```

Referenced by GetName(), operator<<, operator==(), and SetName().

12.65.6.4 NoOfItemsField

```
unsigned int gdcm::CSAElement::NoOfItemsField  [protected]
```

Referenced by CSAElement(), GetNoOfItems(), operator<<, and SetNoOfItems().

12.65.6.5 SyngoDTField

```
unsigned int gdcm::CSAElement::SyngoDTField  [protected]
```

Referenced by CSAElement(), GetSyngoDT(), operator<<, operator==(), and SetSyngoDT().

12.65.6.6 ValueMultiplicityField

```
VM gdcm::CSAElement::ValueMultiplicityField  [protected]
```

Referenced by GetVM(), operator<<, operator==(), and SetVM().

12.65.6.7 VRField

```
VR gdcm::CSAElement::VRField  [protected]
```

Referenced by GetVR(), operator<<, operator==(), and SetVR().

The documentation for this class was generated from the following file:

- gdcmCSAElement.h

12.66 gdcm::CSAHeader Class Reference

Class for CSAHeader.

```
#include <gdcmCSAHeader.h>
```

Public Types

- enum CSAHeaderType {
  UNKNOWN = 0 ,
  SV10 ,
  NOMAGIC ,
  DATASET_FORMAT ,
  INTERFILE ,
  ZEROED_OUT }

  Diverse format of CSAHeader as found 'in the wild'.

Public Member Functions

- CSAHeader ()
- ~CSAHeader ()=default
- bool FindCSAElementByName (const char *name)
- const CSAElement & GetCSAElementByName (const char *name)
- const DataSet & GetDataSet () const

  Return the DataSet output (use only if Format == DATASET_FORMAT).
- CSAHeaderType GetFormat () const
- const char * GetInterfile () const

  Return the string output (use only if Format == Interfile).
- bool GetMrProtocol (const DataSet &ds, MrProtocol &mrProtocol)

  Retrieve the ASCII portion stored within the MrProtocol/MrPhoenixProtocol:
- bool LoadFromDataElement (DataElement const &de)

  Decode the CSAHeader from element 'de'.
- void Print (std::ostream &os) const

  Print the CSAHeader (use only if Format == SV10 or NOMAGIC).

Static Public Member Functions

- static const PrivateTag & GetCSADataInfo ()
- static const PrivateTag & GetCSAImageHeaderInfoTag ()
- static const PrivateTag & GetCSASeriesHeaderInfoTag ()

Protected Member Functions

- const CSAElement & GetCSAEEnd () const

Friends

- std::ostream & operator<< (std::ostream &_os, const CSAHeader &d)

12.66.1 Detailed Description

Class for CSAHeader.

SIEMENS store private information in tag (0x0029,0x10,"SIEMENS CSA HEADER") this class is meant for user wishing to access values stored within this private attribute. There are basically two main 'format' for this attribute : SV10/↩ NOMAGIC and DATASET_FORMAT SV10 and NOMAGIC are from a user prospective identical, see CSAHeader.xml for possible name / value stored in this format. DATASET_FORMAT is in fact simply just another DICOM dataset (implicit) with -currently unknown- value. This can be only be printed for now.

Warning

Everything you do with this code is at your own risk, since decoding process was not written from specification documents.

the API of this class might change.

Todo MrEvaProtocol in 29,1020 contains ^M that would be nice to get rid of on UNIX system...

See also

PDBHeader

External references: 5.1.3.2.4.1 MEDCOM History Information and 5.1.4.3 CSA Non-Image Module in `http://↩ tamsinfo.toshiba.com/docrequest/pdf/E.Soft_v2.0.pdf`

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

12.66.2 Member Enumeration Documentation

12.66.2.1 CSAHeaderType

```
enum gdcm::CSAHeader::CSAHeaderType
```

Diverse format of CSAHeader as found 'in the wild'.

Enumerator

UNKNOWN	
SV10	
NOMAGIC	
DATASET_FORMAT	
INTERFILE	
ZEROED_OUT	

12.66.3 Constructor & Destructor Documentation

12.66.3.1 CSAHeader()

```
gdcm::CSAHeader::CSAHeader () [inline]
```

References UNKNOWN.

Referenced by operator<<.

12.66.3.2 ~CSAHeader()

```
gdcm::CSAHeader::~CSAHeader () [default]
```

12.66.4 Member Function Documentation

12.66.4.1 FindCSAElementByName()

```
bool gdcm::CSAHeader::FindCSAElementByName (
            const char * name)
```

Return true if the CSA element matching 'name' is found or not

Warning

Case Sensitive

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

12.66.4.2 GetCSADataInfo()

```
const PrivateTag & gdcm::CSAHeader::GetCSADataInfo ()  [static]
```

Return the private tag used by SIEMENS to store the CSA Data Info This is: PrivateTag(0x0029,0x10,"SIEMENS CSA NON-IMAGE");

12.66.4.3 GetCSAEEnd()

```
const CSAElement & gdcm::CSAHeader::GetCSAEEnd () const  [protected]
```

12.66.4.4 GetCSAElementByName()

```
const CSAElement & gdcm::CSAHeader::GetCSAElementByName (
            const char * name)
```

Return the CSAElement corresponding to name 'name'

Warning

Case Sensitive

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

12.66.4.5 GetCSAImageHeaderInfoTag()

```
const PrivateTag & gdcm::CSAHeader::GetCSAImageHeaderInfoTag ()  [static]
```

Return the private tag used by SIEMENS to store the CSA Image Header This is: PrivateTag(0x0029,0x10,"SIEMENS CSA HEADER");

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, PublicDict.cxx, and csa2img.cxx.

12.66.4.6 GetCSASeriesHeaderInfoTag()

```
const PrivateTag & gdcm::CSAHeader::GetCSASeriesHeaderInfoTag ()  [static]
```

Return the private tag used by SIEMENS to store the CSA Series Header This is: PrivateTag(0x0029,0x20,"SIEMENS CSA HEADER");

Examples

MrProtocol.cxx.

12.66.4.7 GetDataSet()

```
const DataSet & gdcm::CSAHeader::GetDataSet () const  [inline]
```

Return the DataSet output (use only if Format == DATASET_FORMAT).

12.66.4.8 GetFormat()

```
CSAHeaderType gdcm::CSAHeader::GetFormat () const
```

return the format of the CSAHeader SV10 and NOMAGIC are equivalent.

12.66.4.9 GetInterfile()

```
const char * gdcm::CSAHeader::GetInterfile () const  [inline]
```

Return the string output (use only if Format == Interfile).

12.66.4.10 GetMrProtocol()

```
bool gdcm::CSAHeader::GetMrProtocol (
            const DataSet & ds,
            MrProtocol & mrProtocol)
```

Retrieve the ASCII portion stored within the MrProtocol/MrPhoenixProtocol:

Examples

MrProtocol.cxx.

12.66.4.11 LoadFromDataElement()

```
bool gdcm::CSAHeader::LoadFromDataElement (
            DataElement const & de)
```

Decode the CSAHeader from element 'de'.

Examples

DumpCSA.cs, DumpSiemensBase64.cxx, MrProtocol.cxx, and csa2img.cxx.

12.66.4.12 Print()

```
void gdcm::CSAHeader::Print (
            std::ostream & os) const
```

Print the CSAHeader (use only if Format == SV10 or NOMAGIC).

Examples

csa2img.cxx.

Referenced by operator<<.

12.66.5 Friends And Related Symbol Documentation

12.66.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const CSAHeader & d)  [friend]
```

References CSAHeader(), and Print().

The documentation for this class was generated from the following file:

- gdcmCSAHeader.h

12.67 gdcm::CSAHeaderDict Class Reference

Class to represent a map of CSAHeaderDictEntry.

```
#include <gdcmCSAHeaderDict.h>
```

Public Types

- typedef MapCSAHeaderDictEntry::const_iterator ConstIterator
- typedef MapCSAHeaderDictEntry::iterator Iterator
- typedef std::set< CSAHeaderDictEntry > MapCSAHeaderDictEntry

Public Member Functions

- CSAHeaderDict ()
- CSAHeaderDict (const CSAHeaderDict &_val)=delete
- void AddCSAHeaderDictEntry (const CSAHeaderDictEntry &de)
- ConstIterator Begin () const
- ConstIterator End () const
- const CSAHeaderDictEntry & GetCSAHeaderDictEntry (const char *name) const
- bool IsEmpty () const
- CSAHeaderDict & operator= (const CSAHeaderDict &_val)=delete

Protected Member Functions

- void LoadDefault ()

Friends

- class Dicts
- std::ostream & operator<< (std::ostream &_os, const CSAHeaderDict &_val)

12.67.1 Detailed Description

Class to represent a map of CSAHeaderDictEntry.

Examples

MrProtocol.cxx.

12.67.2 Member Typedef Documentation

12.67.2.1 ConstIterator

```
typedef MapCSAHeaderDictEntry::const_iterator gdcm::CSAHeaderDict::ConstIterator
```

12.67.2.2 Iterator

```
typedef MapCSAHeaderDictEntry::iterator gdcm::CSAHeaderDict::Iterator
```

12.67.2.3 MapCSAHeaderDictEntry

```
typedef std::set<CSAHeaderDictEntry> gdcm::CSAHeaderDict::MapCSAHeaderDictEntry
```

12.67.3 Constructor & Destructor Documentation

12.67.3.1 CSAHeaderDict() [1/2]

```
gdcm::CSAHeaderDict::CSAHeaderDict () [inline]
```

References gdcm_assert.

Referenced by CSAHeaderDict(), operator<<, and operator=().

12.67.3.2 CSAHeaderDict() [2/2]

```
gdcm::CSAHeaderDict::CSAHeaderDict (
            const CSAHeaderDict & _val)  [delete]
```

References CSAHeaderDict(), and operator<<.

12.67.4 Member Function Documentation

12.67.4.1 AddCSAHeaderDictEntry()

```
void gdcm::CSAHeaderDict::AddCSAHeaderDictEntry (
            const CSAHeaderDictEntry & de)  [inline]
```

References gdcm_assert.

12.67.4.2 Begin()

```
ConstIterator gdcm::CSAHeaderDict::Begin () const  [inline]
```

12.67.4.3 End()

```
ConstIterator gdcm::CSAHeaderDict::End () const  [inline]
```

12.67.4.4 GetCSAHeaderDictEntry()

```
const CSAHeaderDictEntry & gdcm::CSAHeaderDict::GetCSAHeaderDictEntry (
            const char * name) const  [inline]
```

Examples

MrProtocol.cxx.

12.67.4.5 IsEmpty()

```
bool gdcm::CSAHeaderDict::IsEmpty () const  [inline]
```

12.67.4.6 LoadDefault()

```
void gdcm::CSAHeaderDict::LoadDefault ()  [protected]
```

12.67.4.7 operator=()

```
CSAHeaderDict & gdcm::CSAHeaderDict::operator= (
            const CSAHeaderDict & _val)  [delete]
```

References CSAHeaderDict().

12.67.5 Friends And Related Symbol Documentation

12.67.5.1 Dicts

```
friend class Dicts  [friend]
```

References Dicts.

Referenced by Dicts.

12.67.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const CSAHeaderDict & _val)  [friend]
```

References CSAHeaderDict().

Referenced by CSAHeaderDict().

The documentation for this class was generated from the following file:

- gdcmCSAHeaderDict.h

12.68 gdcm::CSAHeaderDictEntry Class Reference

Class to represent an Entry in the Dict.

```
#include <gdcmCSAHeaderDictEntry.h>
```

Public Member Functions

- CSAHeaderDictEntry (const char *name="", VR const &vr=VR::INVALID, VM const &vm=VM::VM0, const char *desc="")
- const char * GetDescription () const

  Set/Get Description.
- const char * GetName () const

  Set/Get Name.
- const VM & GetVM () const

  Set/Get VM.
- const VR & GetVR () const

  Set/Get VR.
- bool operator< (const CSAHeaderDictEntry &entry) const
- void SetDescription (const char *desc)
- void SetName (const char *name)
- void SetVM (VM const &vm)
- void SetVR (const VR &vr)

Friends

- std::ostream & operator<< (std::ostream &_os, const CSAHeaderDictEntry &_val)

12.68.1 Detailed Description

Class to represent an Entry in the Dict.

Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from gdcm::Tag to the needed information

Note

bla TODO FIXME: Need a PublicCSAHeaderDictEntry...indeed CSAHeaderDictEntry has a notion of retired which does not exist in PrivateCSAHeaderDictEntry...

See also

gdcm::Dict

Examples

MrProtocol.cxx.

12.68.2 Constructor & Destructor Documentation

12.68.2.1 CSAHeaderDictEntry()

```
gdcm::CSAHeaderDictEntry::CSAHeaderDictEntry (
            const char * name = "",
            VR const & vr = VR::INVALID,
            VM const & vm = VM::VM0,
            const char * desc = "")  [inline]
```

References gdcm::VR::INVALID, and gdcm::VM::VM0.

Referenced by operator<(), and operator<<.

12.68.3 Member Function Documentation

12.68.3.1 GetDescription()

```
const char * gdcm::CSAHeaderDictEntry::GetDescription () const  [inline]
```

Set/Get Description.

12.68.3.2 GetName()

```
const char * gdcm::CSAHeaderDictEntry::GetName () const  [inline]
```

Set/Get Name.

Referenced by operator<().

12.68.3.3 GetVM()

```
const VM & gdcm::CSAHeaderDictEntry::GetVM () const  [inline]
```

Set/Get VM.

12.68.3.4 GetVR()

```
const VR & gdcm::CSAHeaderDictEntry::GetVR () const  [inline]
```

Set/Get VR.

12.68.3.5 operator<()

```
bool gdcm::CSAHeaderDictEntry::operator< (
            const CSAHeaderDictEntry & entry) const  [inline]
```

References CSAHeaderDictEntry(), and GetName().

12.68.3.6 SetDescription()

```
void gdcm::CSAHeaderDictEntry::SetDescription (
            const char * desc)  [inline]
```

12.68.3.7 SetName()

```
void gdcm::CSAHeaderDictEntry::SetName (
            const char * name)  [inline]
```

12.68.3.8 SetVM()

```
void gdcm::CSAHeaderDictEntry::SetVM (
            VM const & vm)  [inline]
```

12.68.3.9 SetVR()

```
void gdcm::CSAHeaderDictEntry::SetVR (
            const VR & vr)  [inline]
```

12.68.4 Friends And Related Symbol Documentation

12.68.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const CSAHeaderDictEntry & _val)  [friend]
```

References CSAHeaderDictEntry().

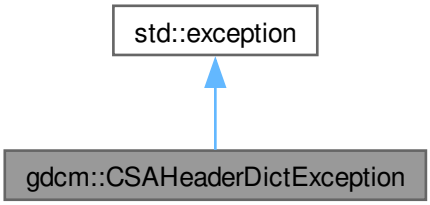
The documentation for this class was generated from the following file:

- gdcmCSAHeaderDictEntry.h

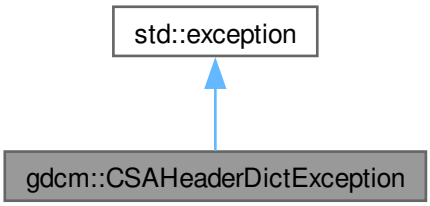
12.69 gdcm::CSAHeaderDictException Class Reference

`#include <gdcmCSAHeaderDict.h>`

Inheritance diagram for gdcm::CSAHeaderDictException:



Collaboration diagram for gdcm::CSAHeaderDictException:



The documentation for this class was generated from the following file:

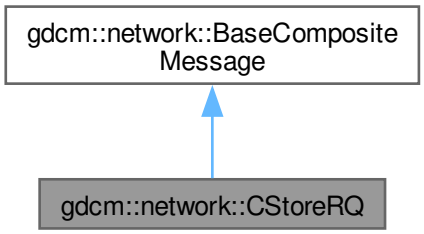
- gdcmCSAHeaderDict.h

12.70 gdcm::network::CStoreRQ Class Reference

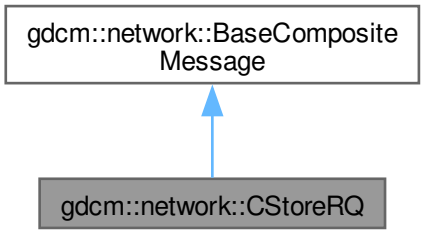
CStoreRQ.

`#include <gdcmCStoreMessages.h>`

Inheritance diagram for gdcm::network::CStoreRQ:



Collaboration diagram for gdcm::network::CStoreRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const File &file, bool writeDataSet=true)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

12.70.1 Detailed Description

CStoreRQ.

this file defines the messages for the cecho action

12.70.2 Member Function Documentation

12.70.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CStoreRQ::ConstructPDV (
            const ULConnection & inConnection,
            const File & file,
            bool writeDataSet = true)
```

The documentation for this class was generated from the following file:

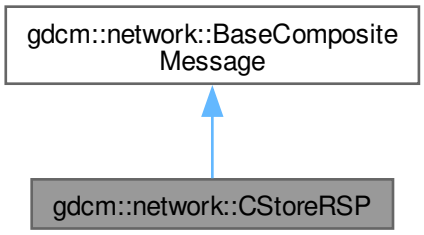
- gdcmCStoreMessages.h

12.71 gdcm::network::CStoreRSP Class Reference

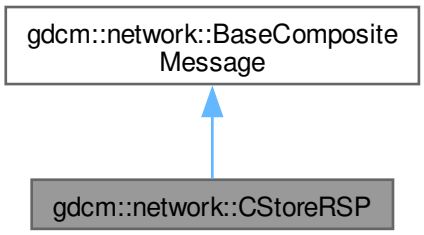
CStoreRSP this file defines the messages for the cecho action.

```
#include <gdcmCStoreMessages.h>
```

Inheritance diagram for gdcm::network::CStoreRSP:



Collaboration diagram for gdcm::network::CStoreRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const DataSet *inDataSet, const BasePDU *inPC)

Public Member Functions inherited from gdcm::network::BaseCompositeMessage

- virtual ~BaseCompositeMessage ()=default

12.71.1 Detailed Description

CStoreRSP this file defines the messages for the cecho action.

12.71.2 Member Function Documentation

12.71.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::CStoreRSP::ConstructPDV (
            const DataSet * inDataSet,
            const BasePDU * inPC)
```

The documentation for this class was generated from the following file:

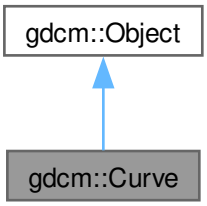
- gdcmCStoreMessages.h

12.72 gdcm::Curve Class Reference

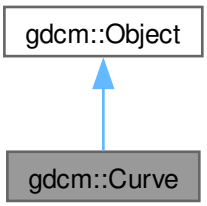
Curve class to handle element 50xx,3000 Curve Data.

```
#include <gdcmCurve.h>
```

Inheritance diagram for gdcm::Curve:



Collaboration diagram for gdcm::Curve:



Public Member Functions

- Curve ()
- Curve (Curve const &ov)
- ~Curve () override
- void Decode (std::istream &is, std::ostream &os)
- void GetAsPoints (float *array) const
- std::vector< unsigned short > const & GetCurveDataDescriptor () const
- unsigned short GetDataValueRepresentation () const
- unsigned short GetDimensions () const
- unsigned short GetGroup () const
- unsigned short GetNumberOfPoints () const
- const char * GetTypeOfData () const
- const char * GetTypeOfDataDescription () const
- bool IsEmpty () const
- void Print (std::ostream &) const override
- void SetCoordinateStartValue (unsigned short v)
- void SetCoordinateStepValue (unsigned short v)
- void SetCurve (const char *array, unsigned int length)
- void SetCurveDataDescriptor (const uint16_t *values, size_t num)
- void SetCurveDescription (const char *curvedescription)
- void SetDataValueRepresentation (unsigned short datavaluerepresentation)
- void SetDimensions (unsigned short dimensions)
- void SetGroup (unsigned short group)
- void SetNumberOfPoints (unsigned short numberofpoints)
- void SetTypeOfData (const char *typeofdata)
- void Update (const DataElement &de)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static unsigned int GetNumberOfCurves (DataSet const &ds)

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.72.1 Detailed Description

Curve class to handle element 50xx,3000 Curve Data.

WARNING: This is deprecated and lastly defined in PS 3.3 - 2004

Examples:

- GE_DLX-8-MONO2-Multiframe-Jpeg_Lossless.dcm
- GE_DLX-8-MONO2-Multiframe.dcm
- gdcmSampleData/Philips_Medical_Images/integris_HV_5000/xa_integris.dcm
- TOSHIBA-CurveData[1-3].dcm

12.72.2 Constructor & Destructor Documentation

12.72.2.1 Curve() [1/2]

```
gdcm::Curve::Curve ()
```

Referenced by Curve().

12.72.2.2 ~Curve()

```
gdcm::Curve::~Curve ()  [override]
```

12.72.2.3 Curve() [2/2]

```
gdcm::Curve::Curve (
            Curve const & ov)
```

References Curve().

12.72.3 Member Function Documentation

12.72.3.1 Decode()

```
void gdcm::Curve::Decode (
            std::istream & is,
            std::ostream & os)
```

12.72.3.2 GetAsPoints()

```
void gdcm::Curve::GetAsPoints (
            float * array) const
```

12.72.3.3 GetCurveDataDescriptor()

```
std::vector< unsigned short > const & gdcm::Curve::GetCurveDataDescriptor () const
```

12.72.3.4 GetDataValueRepresentation()

```
unsigned short gdcm::Curve::GetDataValueRepresentation () const
```

12.72.3.5 GetDimensions()

```
unsigned short gdcm::Curve::GetDimensions () const
```

12.72.3.6 GetGroup()

```
unsigned short gdcm::Curve::GetGroup () const
```

12.72.3.7 GetNumberOfCurves()

```
unsigned int gdcm::Curve::GetNumberOfCurves (
            DataSet const & ds)  [static]
```

12.72.3.8 GetNumberOfPoints()

```
unsigned short gdcm::Curve::GetNumberOfPoints () const
```

12.72.3.9 GetTypeOfData()

```
const char * gdcm::Curve::GetTypeOfData () const
```

12.72.3.10 GetTypeOfDataDescription()

```
const char * gdcm::Curve::GetTypeOfDataDescription () const
```

12.72.3.11 IsEmpty()

```
bool gdcm::Curve::IsEmpty () const
```

12.72.3.12 Print()

```
void gdcm::Curve::Print (
            std::ostream & ) const  [override], [virtual]
```

Reimplemented from gdcm::Object.

12.72.3.13 SetCoordinateStartValue()

```
void gdcm::Curve::SetCoordinateStartValue (
            unsigned short v)
```

12.72.3.14 SetCoordinateStepValue()

```
void gdcm::Curve::SetCoordinateStepValue (
            unsigned short v)
```

12.72.3.15 SetCurve()

```
void gdcm::Curve::SetCurve (
            const char * array,
            unsigned int length)
```

12.72.3.16 SetCurveDataDescriptor()

```
void gdcm::Curve::SetCurveDataDescriptor (
            const uint16_t * values,
            size_t num)
```

12.72.3.17 SetCurveDescription()

```
void gdcm::Curve::SetCurveDescription (
            const char * curvedescription)
```

12.72.3.18 SetDataValueRepresentation()

```
void gdcm::Curve::SetDataValueRepresentation (
            unsigned short datavaluerepresentation)
```

12.72.3.19 SetDimensions()

```
void gdcm::Curve::SetDimensions (
            unsigned short dimensions)
```

12.72.3.20 SetGroup()

```
void gdcm::Curve::SetGroup (
            unsigned short group)
```

12.72.3.21 SetNumberOfPoints()

```
void gdcm::Curve::SetNumberOfPoints (
            unsigned short numberofpoints)
```

12.72.3.22 SetTypeOfData()

```
void gdcm::Curve::SetTypeOfData (
            const char * typeofdata)
```

12.72.3.23 Update()

```
void gdcm::Curve::Update (
            const DataElement & de)
```

The documentation for this class was generated from the following file:

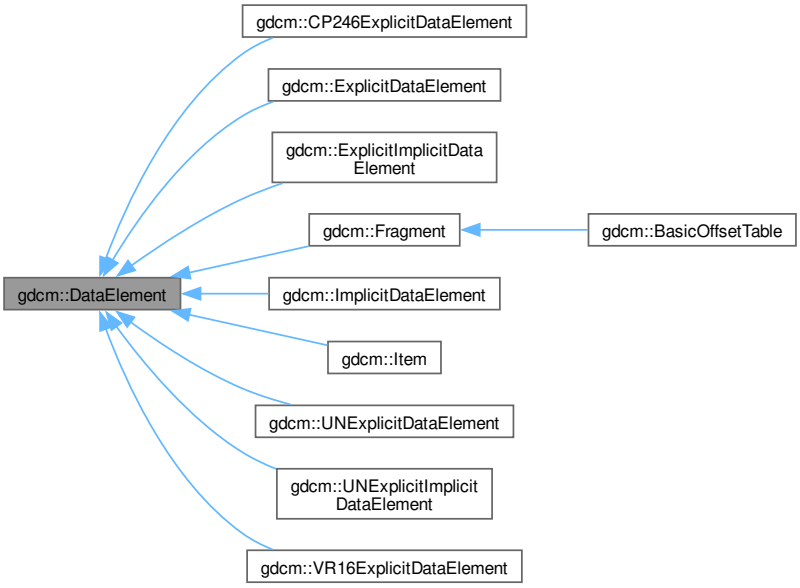
- gdcmCurve.h

12.73 gdcm::DataElement Class Reference

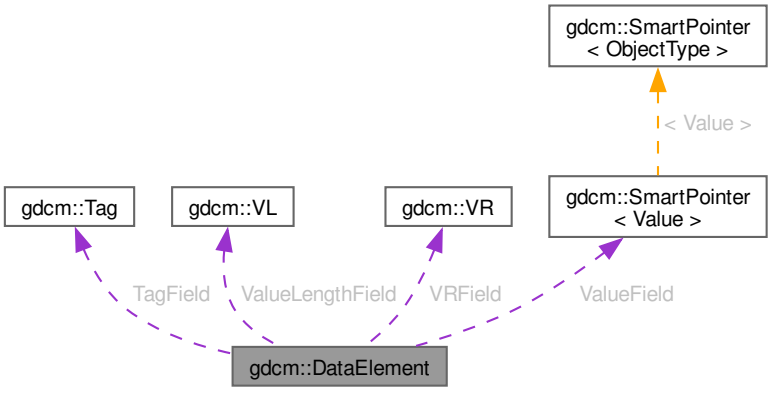
Class to represent a Data Element either Implicit or Explicit.

`#include <gdcmDataElement.h>`

Inheritance diagram for gdcm::DataElement:



Collaboration diagram for gdcm::DataElement:



Public Member Functions

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag + VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Protected Types

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

Friends

- std::ostream & operator<< (std::ostream &_os, const DataElement &_val)

12.73.1 Detailed Description

Class to represent a Data Element either Implicit or Explicit.

DATA ELEMENT: A unit of information as defined by a single entry in the data dictionary. An encoded Information Object Definition (IOD) Attribute that is composed of, at a minimum, three fields: a Data Element Tag, a Value Length, and a Value Field. For some specific Transfer Syntaxes, a Data Element also contains a VR Field where the Value Representation of that Data Element is specified explicitly.

Design:

- A DataElement in GDCM always store VL (Value Length) on a 32 bits integer even when VL is 16 bits
- A DataElement always store the VR even for Implicit TS, in which case VR is defaulted to VR::INVALID
- For Item start/end (See 0xfffe tags), Value is NULL

See also

ExplicitDataElement ImplicitDataElement

Examples

BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, MpegVideoInfo.cs, NewSequence.cs, ReadAndDumpDICOMDIR.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, SimplePrint.cs, StreamImageReaderTest.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.73.2 Member Typedef Documentation

12.73.2.1 ValuePtr

```
typedef SmartPointer<Value> gdcm::DataElement::ValuePtr  [protected]
```

12.73.3 Constructor & Destructor Documentation

12.73.3.1 DataElement() [1/2]

```
gdcm::DataElement::DataElement (
            const Tag & t = Tag(0),
            const VL & vl = 0,
            const VR & vr = VR::INVALID)  [inline]
```

References gdcm::VR::INVALID, TagField, ValueField, ValueLengthField, and VRField.

Referenced by DataElement(), gdcm::Fragment::Fragment(), gdcm::Item::Item(), gdcm::Item::Item(), gdcm::Item::GetDataElement(), gdcm::Item::InsertDataElement(), operator<(), operator<<, operator=(), and operator==().

12.73.3.2 DataElement() [2/2]

```
gdcm::DataElement::DataElement (
            const DataElement & _val)  [inline]
```

References DataElement().

12.73.4 Member Function Documentation

12.73.4.1 Clear()

```
void gdcm::DataElement::Clear ()  [inline]
```

Clear Data Element (make Value empty and invalidate Tag + VR).

References gdcm::VR::INVALID, TagField, ValueField, ValueLengthField, and VRField.

Referenced by gdcm::Item::Clear().

12.73.4.2 Empty()

```
void gdcm::DataElement::Empty ()  [inline]
```

Make Data Element empty (no Value).

References ValueField, and ValueLengthField.

12.73.4.3 GetByteValue()

```
const ByteValue * gdcm::DataElement::GetByteValue () const  [inline]
```

Return the Value of DataElement as a ByteValue (if possible)

Warning

: You need to check for NULL return value

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetSubSequenceData.cxx, PatchFile.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References ValueField.

Referenced by IsEmpty(), gdcm::BasicOffsetTable::operator<<, gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Se gdcm::Element< TVR, TVM >::SetFromDataElement(), gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement(), and gdcm::Fragment::Write().

12.73.4.4 GetLength()

```
template<typename TDE>
VL gdcm::DataElement::GetLength () const  [inline]
```

References GetLength().

Referenced by GetLength().

12.73.4.5 GetSequenceOfFragments() [1/2]

```
SequenceOfFragments * gdcm::DataElement::GetSequenceOfFragments ()
```

12.73.4.6 GetSequenceOfFragments() [2/2]

```
const SequenceOfFragments * gdcm::DataElement::GetSequenceOfFragments () const
```

Return the Value of DataElement as a Sequence Of Fragments (if possible)

Warning

: You need to check for NULL return value

Examples

DecompressImage.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, and GetJPEGSamplePrecision.cxx.

12.73.4.7 GetTag() [1/2]

```
Tag & gdcm::DataElement::GetTag ()  [inline]
```

References TagField.

12.73.4.8 GetTag() [2/2]

```
const Tag & gdcm::DataElement::GetTag () const  [inline]
```

Get Tag.

Examples

DumpGEMSMovieGroup.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, SimplePrint.cs, and pmsct_rgb1.cxx.

References TagField.

Referenced by gdcm::CommandDataSet::Insert(), gdcm::DataSet::Insert(), gdcm::FileMetaInformation::Insert(), operator<(), gdcm::SequenceOfItems::Read(), gdcm::SequenceOfFragments::ReadValue(), gdcm::CommandDataSet::Replace(), gdcm::FileMetaInformation::Replace(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement(), and gdcm::Attribute< Group, Element, TVR, VM::VM1_n >

12.73.4.9 GetValue() [1/2]

```
Value & gdcm::DataElement::GetValue ()  [inline]
```

References gdcmAssertAlwaysMacro, and ValueField.

12.73.4.10 GetValue() [2/2]

```
Value const & gdcm::DataElement::GetValue () const  [inline]
```

Set/Get Value (bytes array, SQ of items, SQ of fragments):

Examples

ReadAndDumpDICOMDIR.cxx.

References gdcmAssertAlwaysMacro, and ValueField.

Referenced by gdcm::DataSet::InsertDataElement(), gdcm::Element< TVR, TVM >::SetFromDataElement(), and gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement().

12.73.4.11 GetValueAsSQ()

```
SmartPointer< SequenceOfItems > gdcm::DataElement::GetValueAsSQ () const
```

Interpret the Value stored in the DataElement. This is more robust (but also more expensive) to call this function rather than the simplest form: GetSequenceOfItems() It also return NULL when the Value is NOT of type SequenceOfItems

Warning

in case GetSequenceOfItems() succeed the function return this value, otherwise it creates a new SequenceOfItems, you should handle that in your case, for instance: SmartPointer<SequenceOfItems> sqi = de.GetValueAsSQ();

Examples

ChangeSequenceUltrasound.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ExtractEncryptedContent.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, ReadAndDumpDICOMDIR.cxx, SimplePrint.cs, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.73.4.12 GetVL() [1/2]

```
VL & gdcm::DataElement::GetVL ()  [inline]
```

References ValueLengthField.

12.73.4.13 GetVL() [2/2]

```
const VL & gdcm::DataElement::GetVL () const  [inline]
```

Get VL.

Examples

SimplePrint.cs.

References ValueLengthField.

Referenced by gdcm::DataSet::InsertDataElement(), gdcm::SequenceOfItems::Read(), and gdcm::SequenceOfFragments::ReadValue().

12.73.4.14 GetVR()

```
VR const & gdcm::DataElement::GetVR () const  [inline]
```

Get VR do not set VR::SQ on bytevalue data element

Examples

DuplicatePCDE.cxx, and GenFakeIdentifyFile.cxx.

References VRField.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement(), gdcm::Element< TVR, TVM >::GetAsDataElement(), gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Se gdcm::Element< TVR, TVM >::SetFromDataElement(), and gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement().

12.73.4.15 IsEmpty()

```
bool gdcm::DataElement::IsEmpty () const  [inline]
```

Check if Data Element is empty.

Examples

DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, ELSCINT1WaveToText.cxx, FixJAIBugJPEGLS.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References GetByteValue(), and ValueField.

Referenced by gdcm::DataSet::InsertDataElement(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Se and gdcm::Fragment::Write().

12.73.4.16 IsUndefinedLength()

```
bool gdcm::DataElement::IsUndefinedLength () const  [inline]
```

return if Value Length if of undefined length

References ValueLengthField.

Referenced by gdcm::Item::InsertDataElement().

12.73.4.17 operator<()

```
bool gdcm::DataElement::operator< (
            const DataElement & de) const  [inline]
```

References DataElement(), and GetTag().

12.73.4.18 operator=()

```
DataElement & gdcm::DataElement::operator= (
            const DataElement & )  [default]
```

References DataElement().

12.73.4.19 operator==()

```
bool gdcm::DataElement::operator== (
            const DataElement & de) const  [inline]
```

References DataElement(), TagField, ValueField, ValueLengthField, and VRField.

12.73.4.20 Read()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataElement::Read (
            std::istream & is)  [inline]
```

Examples

DumpSiemensBase64.cxx.

References Read().

Referenced by Read(), and ReadOrSkip().

12.73.4.21 ReadOrSkip()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataElement::ReadOrSkip (
            std::istream & is,
            std::set< Tag > const & skiptags)  [inline]
```

References Read().

12.73.4.22 ReadPreValue()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataElement::ReadPreValue (
             std::istream & is,
             std::set< Tag > const & skiptags)  [inline]
```

References ReadPreValue().

Referenced by ReadPreValue().

12.73.4.23 ReadValue()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataElement::ReadValue (
             std::istream & is,
             std::set< Tag > const & skiptags)  [inline]
```

References ReadValue().

Referenced by ReadValue().

12.73.4.24 ReadValueWithLength()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataElement::ReadValueWithLength (
             std::istream & is,
             VL & length,
             std::set< Tag > const & skiptags)  [inline]
```

References ReadValueWithLength().

Referenced by ReadValueWithLength().

12.73.4.25 ReadWithLength()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataElement::ReadWithLength (
             std::istream & is,
             VL & length)  [inline]
```

References ReadWithLength().

Referenced by gdcm::Item::Read(), and ReadWithLength().

12.73.4.26 SetByteValue()

```
void gdcm::DataElement::SetByteValue (
            const char * array,
            VL length)  [inline]
```

Set the byte value

Warning

user need to read DICOM standard for an understanding of:

- even padding
- \0 vs space padding By default even padding is achieved using \0 regardless of the of VR

Examples

BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, Fake_Image_Using_Stream_Image_Writer.cxx, FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSubSequenceData.cxx, MpegVideoInfo.cs, NewSequence.cs, StreamImageReaderTest.cxx, iU22tomultisc.cxx, and rle2img.cxx.

References SetValue().

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement(), gdcm::Element< TVR, TVM >::GetAsDataElement(), and gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement().

12.73.4.27 SetTag()

```
void gdcm::DataElement::SetTag (
            const Tag & t)  [inline]
```

Set Tag Use with cautious (need to match Part 6)

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GenFakeIdentifyFile.cxx, and GetSubSequenceData.cxx.

References TagField.

12.73.4.28 SetValue()

```
void gdcm::DataElement::SetValue (
            Value const & vl)  [inline]
```

Warning

you need to set the ValueLengthField explicitly

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, DuplicatePCDE.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixBrokenJ2K.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, MpegVideoInfo.cs, and NewSequence.cs.

References gdcm::Value::GetLength(), ValueField, and ValueLengthField.

Referenced by SetByteValue().

12.73.4.29 SetValueFieldLength()

```
void gdcm::DataElement::SetValueFieldLength (
            VL vl,
            bool readvalues)  [protected]
```

12.73.4.30 SetVL()

```
void gdcm::DataElement::SetVL (
            const VL & vl)  [inline]
```

Set VL Use with cautious (need to match Part 6), advanced user only

See also

SetByteValue

References ValueLengthField.

12.73.4.31 SetVLToUndefined()

```
void gdcm::DataElement::SetVLToUndefined ()
```

Examples

Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, and NewSequence.cs.

12.73.4.32 SetVR()

```
void gdcm::DataElement::SetVR (
            VR const & vr)  [inline]
```

Set VR Use with cautious (need to match Part 6), advanced user only

Precondition

vr is a VR::VRALL (not a dual one such as OB_OW)

Examples

Fake_Image_Using_Stream_Image_Writer.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSubSequenceData.cxx, NewSequence.cs, StreamImageReaderTest.cxx, iU22tomultisc.cxx, and rle2img.cxx.

References gdcm::VR::IsVRFile(), and VRField.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetAsDataElement(), gdcm::Element< TVR, TVM >::GetAsDataElement(), and gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement().

12.73.4.33 Write()

```
template<typename TDE, typename TSwap>
const std::ostream & gdcm::DataElement::Write (
            std::ostream & os) const  [inline]
```

References Write().

Referenced by Write().

12.73.5 Friends And Related Symbol Documentation

12.73.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const DataElement & _val)  [friend]
```

References DataElement(), operator<<, gdcm::Object::Print(), TagField, ValueField, ValueLengthField, and VRField.

Referenced by operator<<.

12.73.6 Member Data Documentation

12.73.6.1 TagField

```
Tag gdcm::DataElement::TagField  [protected]
```

Referenced by DataElement(), Clear(), GetTag(), GetTag(), operator<<, gdcm::Fragment::operator<<, gdcm::Item::operator<<, operator==(), gdcm::BasicOffsetTable::Read(), gdcm::Item::Read(), gdcm::Fragment::ReadBacktrack(), gdcm::Fragment::ReadPreValue(), SetTag(), gdcm::Fragment::Write(), and gdcm::Item::Write().

12.73.6.2 ValueField

```
ValuePtr gdcm::DataElement::ValueField  [protected]
```

Referenced by DataElement(), Clear(), Empty(), GetByteValue(), GetValue(), GetValue(), IsEmpty(), gdcm::BasicOffsetTable::operator<<, operator<<, gdcm::Fragment::operator<<, operator==(), gdcm::BasicOffsetTable::Read(), gdcm::Fragment::ReadBacktrack(), gdcm::Fragment::ReadValue(), and SetValue().

12.73.6.3 ValueLengthField

```
VL gdcm::DataElement::ValueLengthField  [protected]
```

Referenced by DataElement(), Clear(), Empty(), GetVL(), GetVL(), IsUndefinedLength(), gdcm::BasicOffsetTable::operator<<, operator<<, gdcm::Fragment::operator<<, gdcm::Item::operator<<, operator==(), gdcm::BasicOffsetTable::Read(), gdcm::Item::Read(), gdcm::Fragment::ReadBacktrack(), gdcm::Fragment::ReadPreValue(), gdcm::Fragment::ReadValue(), SetValue(), SetVL(), gdcm::Fragment::Write(), and gdcm::Item::Write().

12.73.6.4 VRField

```
VR gdcm::DataElement::VRField  [protected]
```

Referenced by DataElement(), Clear(), GetVR(), operator<<, operator==(), and SetVR().

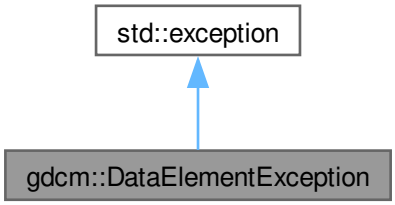
The documentation for this class was generated from the following file:

- gdcmDataElement.h

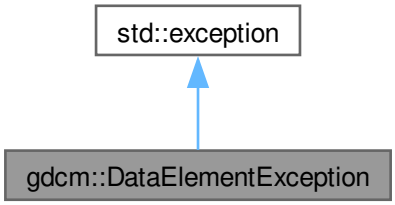
12.74 gdcm::DataElementException Class Reference

`#include <gdcmDataSet.h>`

Inheritance diagram for gdcm::DataElementException:



Collaboration diagram for gdcm::DataElementException:



The documentation for this class was generated from the following file:

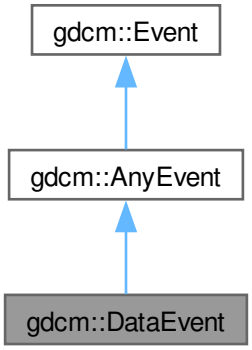
- gdcmDataSet.h

12.75 gdcm::DataEvent Class Reference

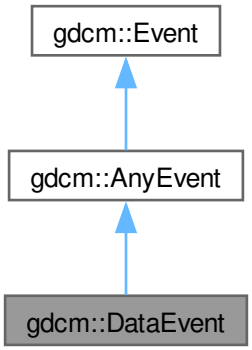
DataEvent.

`#include <gdcmDataEvent.h>`

Inheritance diagram for gdcm::DataEvent:



Collaboration diagram for gdcm::DataEvent:



Public Types

- typedef DataEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- DataEvent (const char *bytes=nullptr, size_t len=0)

- DataEvent (const Self &s)
- ~DataEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- const char * GetData () const
- size_t GetDataLength () const
- const char * GetEventName () const override
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete
- void SetData (const char *bytes, size_t len)

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

12.75.1 Detailed Description

DataEvent.

12.75.2 Member Typedef Documentation

12.75.2.1 Self

```
typedef DataEvent gdcm::DataEvent::Self
```

12.75.2.2 Superclass

```
typedef AnyEvent gdcm::DataEvent::Superclass
```

12.75.3 Constructor & Destructor Documentation

12.75.3.1 DataEvent() [1/2]

```
gdcm::DataEvent::DataEvent (
            const char * bytes = nullptr,
            size_t len = 0)  [inline]
```

12.75.3.2 ~DataEvent()

```
gdcm::DataEvent::~DataEvent ()  [override], [default]
```

12.75.3.3 DataEvent() [2/2]

```
gdcm::DataEvent::DataEvent (
            const Self & s)  [inline]
```

12.75.4 Member Function Documentation

12.75.4.1 CheckEvent()

```
bool gdcm::DataEvent::CheckEvent (
            const ::gdcm::Event * e) const  [inline], [override], [virtual]
```

Check if given event matches or derives from this event.

Implements gdcm::Event.

12.75.4.2 GetData()

```
const char * gdcm::DataEvent::GetData () const  [inline]
```

12.75.4.3 GetDataLength()

```
size_t gdcm::DataEvent::GetDataLength () const  [inline]
```

12.75.4.4 GetEventName()

```
const char * gdcm::DataEvent::GetEventName () const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

12.75.4.5 MakeObject()

```
::gdcm::Event * gdcm::DataEvent::MakeObject () const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

12.75.4.6 operator=()

```
void gdcm::DataEvent::operator= (
            const Self & )  [delete]
```

12.75.4.7 SetData()

```
void gdcm::DataEvent::SetData (
            const char * bytes,
            size_t len)  [inline]
```

The documentation for this class was generated from the following file:

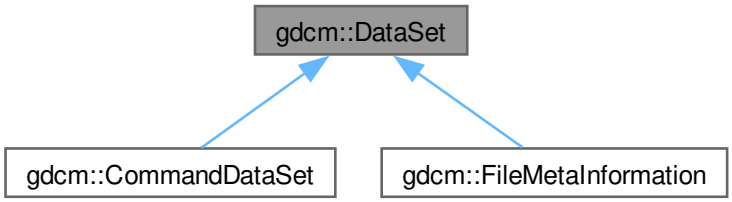
- gdcmDataEvent.h

12.76 gdcm::DataSet Class Reference

Class to represent a Data Set (which contains Data Elements).

`#include <gdcmDataSet.h>`

Inheritance diagram for gdcm::DataSet:



Public Types

- typedef DataElementSet::const_iterator ConstIterator
- typedef std::set< DataElement > DataElementSet
- typedef DataElementSet::iterator Iterator
- typedef DataElementSet::size_type SizeType

Public Member Functions

- Iterator Begin ()
- ConstIterator Begin () const
- void Clear ()
- template<typename TDE>
  unsigned int ComputeGroupLength (Tag const &tag) const
- Iterator End ()
- ConstIterator End () const
- bool FindDataElement (const PrivateTag &t) const

  Look up if private tag 't' is present in the dataset:
- bool FindDataElement (const Tag &t) const
- const DataElement & FindNextDataElement (const Tag &t) const
- const DataElement & GetDataElement (const PrivateTag &t) const

  Return the dataelement.
- const DataElement & GetDataElement (const Tag &t) const
- DataElementSet & GetDES ()
- const DataElementSet & GetDES () const
- template<typename TDE>
  VL GetLength () const
- MediaStorage GetMediaStorage () const
- std::string GetPrivateCreator (const Tag &t) const
- PrivateTag GetPrivateTag (const Tag &t) const

  Return the private tag of the private tag 't', private creator will be set to empty if not found.
- void Insert (const DataElement &de)
- bool IsEmpty () const

  Returns if the dataset is empty.
- const DataElement & operator() (uint16_t group, uint16_t element) const
- DataSet & operator= (DataSet const &)=default
- const DataElement & operator[ ] (const Tag &t) const
- void Print (std::ostream &os, std::string const &indent="") const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadNested (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedPrivateTags (std::istream &is, const std::set< PrivateTag > &tags, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedPrivateTagsWithLength (std::istream &is, const std::set< PrivateTag > &tags, VL &length, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedTags (std::istream &is, const std::set< Tag > &tags, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedTagsWithLength (std::istream &is, const std::set< Tag > &tags, VL &length, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadUpToTag (std::istream &is, const Tag &t, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadUpToTagWithLength (std::istream &is, const Tag &t, std::set< Tag > const &skiptags, VL &length)

- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- SizeType Remove (const Tag &tag)

  Completely remove a dataelement from the dataset.
- void Replace (const DataElement &de)

  Replace a dataelement with another one.
- void ReplaceEmpty (const DataElement &de)

  Only replace a DICOM attribute when it is missing or empty.
- SizeType Size () const
- template<typename TDE, typename TSwap>
  std::ostream const & Write (std::ostream &os) const

Protected Member Functions

- Tag ComputeDataElement (const PrivateTag &t) const
- const DataElement & GetDEEnd () const
- void InsertDataElement (const DataElement &de)

Friends

- class CSAHeader
- std::ostream & operator<< (std::ostream &_os, const DataSet &val)

12.76.1 Detailed Description

Class to represent a Data Set (which contains Data Elements).

A Data Set represents an instance of a real world Information Object

Note

DATA SET: Exchanged information consisting of a structured set of Attribute values directly or indirectly related to Information Objects. The value of each Attribute in a Data Set is expressed as a Data Element. A collection of Data Elements ordered by increasing Data Element Tag number that is an encoding of the values of Attributes of a real world object.

Implementation note. If one do: DataSet ds; ds.SetLength(0); ds.Read(is); setting length to 0 actually means try to read is as if it was a root DataSet. Other value are undefined (nested dataset with undefined length) or defined length (different from 0) means nested dataset with defined length.

Warning

a DataSet does not have a Transfer Syntax type, only a File does.

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writ FileChangeTS.cs, FileChangeTSLossy.cs, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MergeTwoFiles.cxx, MrProtocol.cxx, NewSequence.cs, PatchFile.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, SimplePrint.cs, SortImage.cxx, SortImage2.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, VolumeSorter.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.76.2 Member Typedef Documentation

12.76.2.1 ConstIterator

```
typedef DataElementSet::const_iterator gdcm::DataSet::ConstIterator
```

Examples

DiffFile.cxx, DumpGEMSMovieGroup.cxx, DumpVisusChange.cxx, and DuplicatePCDE.cxx.

12.76.2.2 DataElementSet

```
typedef std::set<DataElement> gdcm::DataSet::DataElementSet
```

12.76.2.3 Iterator

```
typedef DataElementSet::iterator gdcm::DataSet::Iterator
```

12.76.2.4 SizeType

```
typedef DataElementSet::size_type gdcm::DataSet::SizeType
```

12.76.3 Member Function Documentation

12.76.3.1 Begin() [1/2]

```
Iterator gdcm::DataSet::Begin ()  [inline]
```

12.76.3.2 Begin() [2/2]

```
ConstIterator gdcm::DataSet::Begin () const  [inline]
```

Examples

DiffFile.cxx, DumpGEMSMovieGroup.cxx, DumpVisusChange.cxx, and DuplicatePCDE.cxx.

12.76.3.3 Clear()

```
void gdcm::DataSet::Clear ()  [inline]
```

References gdcm_assert.

Referenced by gdcm::Item::Read().

12.76.3.4 ComputeDataElement()

```
Tag gdcm::DataSet::ComputeDataElement (
            const PrivateTag & t) const  [protected]
```

References operator<<.

12.76.3.5 ComputeGroupLength()

```
template<typename TDE>
unsigned int gdcm::DataSet::ComputeGroupLength (
            Tag const & tag) const  [inline]
```

References gdcm_assert, gdcm::Tag::GetElement(), and gdcm::Tag::GetGroup().

12.76.3.6 End() [1/2]

```
Iterator gdcm::DataSet::End ()  [inline]
```

12.76.3.7 End() [2/2]

```
ConstIterator gdcm::DataSet::End () const  [inline]
```

Examples

DiffFile.cxx, DumpGEMSMovieGroup.cxx, DumpVisusChange.cxx, and DuplicatePCDE.cxx.

12.76.3.8 FindDataElement() [1/2]

```
bool gdcm::DataSet::FindDataElement (
            const PrivateTag & t) const
```

Look up if private tag 't' is present in the dataset:

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, MrProtocol.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndPrintAttributes.cxx, ReadGEMSSDO.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >:
and gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataSet().

12.76.3.9 FindDataElement() [2/2]

```
bool gdcm::DataSet::FindDataElement (
            const Tag & t) const  [inline]
```

References GetDataElement(), and GetDEEnd().

12.76.3.10 FindNextDataElement()

```
const DataElement & gdcm::DataSet::FindNextDataElement (
            const Tag & t) const  [inline]
```

Examples

DuplicatePCDE.cxx.

References GetDEEnd().

12.76.3.11 GetDataElement() [1/2]

```
const DataElement & gdcm::DataSet::GetDataElement (
            const PrivateTag & t) const
```

Return the dataelement.

12.76.3.12 GetDataElement() [2/2]

```
const DataElement & gdcm::DataSet::GetDataElement (
            const Tag & t) const  [inline]
```

Return the DataElement with Tag 't'

Warning

: This only search at the 'root level' of the DataSet

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, DecompressImage.cs, DeriveSeries.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetJPEGSamplePrecision.cx GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, MrProtocol.cxx, PatchFile.cxx, ReadAndDumpDICOMDIR.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References GetDEEnd().

Referenced by FindDataElement(), operator()(), operator[](), gdcm::Attribute< Group, Element, TVR, TVM >::Set(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::Set(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::Set(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataSet(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromDataS and gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataSet().

12.76.3.13 GetDEEnd()

```
const DataElement & gdcm::DataSet::GetDEEnd () const  [protected]
```

Referenced by FindDataElement(), FindNextDataElement(), and GetDataElement().

12.76.3.14 GetDES() [1/2]

```
DataElementSet & gdcm::DataSet::GetDES ()  [inline]
```

12.76.3.15 GetDES() [2/2]

```
const DataElementSet & gdcm::DataSet::GetDES () const  [inline]
```

Examples

ReadAndDumpDICOMDIR.cxx.

12.76.3.16 GetLength()

```
template<typename TDE>
VL gdcm::DataSet::GetLength () const  [inline]
```

References gdcm_assert.

Referenced by gdcm::FileMetaInformation::GetFullLength().

12.76.3.17 GetMediaStorage()

```
MediaStorage gdcm::DataSet::GetMediaStorage () const
```

12.76.3.18 GetPrivateCreator()

```
std::string gdcm::DataSet::GetPrivateCreator (
            const Tag & t) const
```

Return the private creator of the private tag 't': or an empty string when not found

Examples

DuplicatePCDE.cxx.

12.76.3.19 GetPrivateTag()

```
PrivateTag gdcm::DataSet::GetPrivateTag (
            const Tag & t) const
```

Return the private tag of the private tag 't', private creator will be set to empty if not found.

12.76.3.20 Insert()

```
void gdcm::DataSet::Insert (
            const DataElement & de)  [inline]
```

Insert a DataElement in the DataSet.

Warning

: Tag need to be >= 0x8 to be considered valid data element

Examples

CreateJPIPDataSet.cxx, DumpSiemensBase64.cxx, DuplicatePCDE.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FileChangeTS.cs, FileChangeTSLossy.cs, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, NewSequence.cs, StreamImageReaderTest.cxx, and TemplateEmptyImage.cxx.

References gdcmErrorMacro, gdcm::Tag::GetGroup(), gdcm::DataElement::GetTag(), and InsertDataElement().

12.76.3.21 InsertDataElement()

```
void gdcm::DataSet::InsertDataElement (
            const DataElement & de)  [inline], [protected]
```

References gdcm_assert, gdcmWarningMacro, gdcm::Value::GetLength(), gdcm::DataElement::GetValue(), gdcm::DataElement::GetVL() and gdcm::DataElement::IsEmpty().

Referenced by gdcm::CommandDataSet::Insert(), Insert(), and gdcm::FileMetaInformation::Insert().

12.76.3.22 IsEmpty()

```
bool gdcm::DataSet::IsEmpty () const  [inline]
```

Returns if the dataset is empty.

Referenced by gdcm::Item::Read().

12.76.3.23 operator()()

```
const DataElement & gdcm::DataSet::operator() (
            uint16_t group,
            uint16_t element) const  [inline]
```

References GetDataElement().

12.76.3.24 operator=()

```
DataSet & gdcm::DataSet::operator= (
            DataSet const & )  [default]
```

12.76.3.25 operator[]()

```
const DataElement & gdcm::DataSet::operator[] (
            const Tag & t) const  [inline]
```

References GetDataElement().

12.76.3.26 Print()

```
void gdcm::DataSet::Print (
            std::ostream & os,
            std::string const & indent = "") const  [inline]
```

Referenced by gdcm::CommandDataSet::operator<<, operator<<, gdcm::FileMetaInformation::operator<<, and gdcm::Item::operator<<.

12.76.3.27 Read()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::Read (
            std::istream & is)
```

Examples

DumpToshibaDTI.cxx, and DumpToshibaDTI2.cxx.

12.76.3.28 ReadNested()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadNested (
            std::istream & is)
```

12.76.3.29 ReadSelectedPrivateTags()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadSelectedPrivateTags (
            std::istream & is,
            const std::set< PrivateTag > & tags,
            bool readvalues = true)
```

12.76.3.30 ReadSelectedPrivateTagsWithLength()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadSelectedPrivateTagsWithLength (
              std::istream & is,
              const std::set< PrivateTag > & tags,
              VL & length,
              bool readvalues = true)
```

12.76.3.31 ReadSelectedTags()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadSelectedTags (
              std::istream & is,
              const std::set< Tag > & tags,
              bool readvalues = true)
```

12.76.3.32 ReadSelectedTagsWithLength()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadSelectedTagsWithLength (
              std::istream & is,
              const std::set< Tag > & tags,
              VL & length,
              bool readvalues = true)
```

12.76.3.33 ReadUpToTag()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadUpToTag (
              std::istream & is,
              const Tag & t,
              std::set< Tag > const & skiptags)
```

12.76.3.34 ReadUpToTagWithLength()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadUpToTagWithLength (
              std::istream & is,
              const Tag & t,
              std::set< Tag > const & skiptags,
              VL & length)
```

12.76.3.35 ReadWithLength()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::DataSet::ReadWithLength (
            std::istream & is,
            VL & length)
```

12.76.3.36 Remove()

```
SizeType gdcm::DataSet::Remove (
            const Tag & tag)  [inline]
```

Completely remove a dataelement from the dataset.

Examples

ClinicalTrialIdentificationWorkflow.cs, GenFakeIdentifyFile.cxx, LargeVRDSExplicit.cxx, MergeTwoFiles.cxx, ReformatFile.cs, StandardizeFiles.cs, pmsct_rgb1.cxx, and rle2img.cxx.

References gdcm_assert.

Referenced by gdcm::CommandDataSet::Replace(), and gdcm::FileMetaInformation::Replace().

12.76.3.37 Replace()

```
void gdcm::DataSet::Replace (
            const DataElement & de)  [inline]
```

Replace a dataelement with another one.

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CreateFakeRTDOSE.cxx, DeriveSeries.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenFakeIdentifyFile.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, PatchFile.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References gdcmAssertAlwaysMacro.

12.76.3.38 ReplaceEmpty()

```
void gdcm::DataSet::ReplaceEmpty (
            const DataElement & de)  [inline]
```

Only replace a DICOM attribute when it is missing or empty.

Examples

rle2img.cxx.

References gdcmAssertAlwaysMacro.

12.76.3.39 Size()

```
SizeType gdcm::DataSet::Size () const  [inline]
```

Examples

DumpGEMSMovieGroup.cxx.

Referenced by gdcm::SequenceOfItems::Read().

12.76.3.40 Write()

```
template<typename TDE, typename TSwap>
std::ostream const & gdcm::DataSet::Write (
             std::ostream & os) const
```

12.76.4 Friends And Related Symbol Documentation

12.76.4.1 CSAHeader

```
friend class CSAHeader  [friend]
```

References CSAHeader.

Referenced by CSAHeader.

12.76.4.2 operator<<

```
std::ostream & operator<< (
             std::ostream & _os,
             const DataSet & val)  [friend]
```

References operator<<, and Print().

Referenced by ComputeDataElement(), and operator<<.

The documentation for this class was generated from the following file:

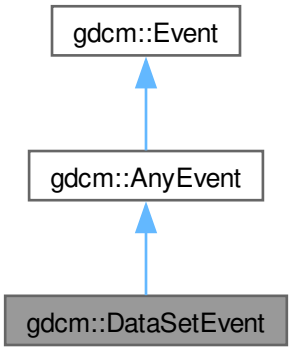
- gdcmDataSet.h

12.77 gdcm::DataSetEvent Class Reference

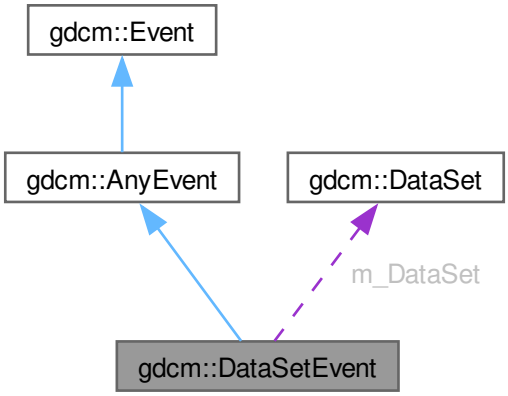
DataSetEvent.

`#include <gdcmDataSetEvent.h>`

Inheritance diagram for gdcm::DataSetEvent:



Collaboration diagram for gdcm::DataSetEvent:



Public Types

- typedef DataSetEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- DataSetEvent (const Self &s)
- DataSetEvent (DataSet const *ds=nullptr)
- ~DataSetEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- DataSet const & GetDataSet () const
- const char * GetEventName () const override
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

Public Attributes

- const DataSet * m_DataSet

12.77.1 Detailed Description

DataSetEvent.

Special type of event triggered during the DataSet store/move process

12.77.2 Member Typedef Documentation

12.77.2.1 Self

```
typedef DataSetEvent gdcm::DataSetEvent::Self
```

12.77.2.2 Superclass

```
typedef AnyEvent gdcm::DataSetEvent::Superclass
```

12.77.3 Constructor & Destructor Documentation

12.77.3.1 DataSetEvent() [1/2]

```
gdcm::DataSetEvent::DataSetEvent (
            DataSet const * ds = nullptr)  [inline]
```

References m_DataSet.

12.77.3.2 ~DataSetEvent()

```
gdcm::DataSetEvent::~DataSetEvent ()  [override], [default]
```

12.77.3.3 DataSetEvent() [2/2]

```
gdcm::DataSetEvent::DataSetEvent (
            const Self & s)  [inline]
```

12.77.4 Member Function Documentation

12.77.4.1 CheckEvent()

```
bool gdcm::DataSetEvent::CheckEvent (
            const ::gdcm::Event * e) const  [inline], [override], [virtual]
```

Check if given event matches or derives from this event.

Implements gdcm::Event.

12.77.4.2 GetDataSet()

```
DataSet const & gdcm::DataSetEvent::GetDataSet () const  [inline]
```

References m_DataSet.

12.77.4.3 GetEventName()

```
const char * gdcm::DataSetEvent::GetEventName () const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

12.77.4.4 MakeObject()

```
::gdcm::Event * gdcm::DataSetEvent::MakeObject () const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

12.77.4.5 operator=()

```
void gdcm::DataSetEvent::operator= (
             const Self & )  [delete]
```

12.77.5 Member Data Documentation

12.77.5.1 m_DataSet

```
const DataSet* gdcm::DataSetEvent::m_DataSet
```

Referenced by DataSetEvent(), and GetDataSet().

The documentation for this class was generated from the following file:

- gdcmDataSetEvent.h

12.78 gdcm::DataSetHelper Class Reference

DataSetHelper (internal class, not intended for user level).

```
#include <gdcmDataSetHelper.h>
```

Static Public Member Functions

- static VR ComputeVR (File const &file, DataSet const &ds, const Tag &tag)

12.78.1 Detailed Description

DataSetHelper (internal class, not intended for user level).

Examples

SimplePrint.cs.

12.78.2 Member Function Documentation

12.78.2.1 ComputeVR()

```
VR gdcm::DataSetHelper::ComputeVR (
            File const & file,
            DataSet const & ds,
            const Tag & tag)  [static]
```

ds -> current dataset, which is not the same as the root dataset return VR::INVALID in case of error

Examples

SimplePrint.cs.

The documentation for this class was generated from the following file:

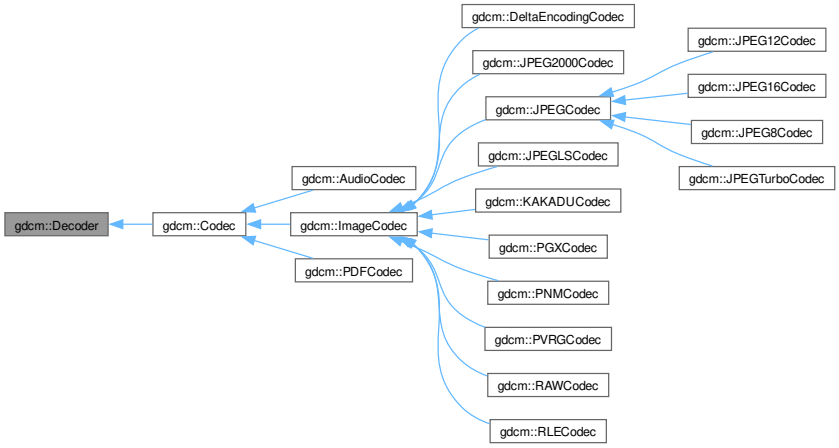
- gdcmDataSetHelper.h

12.79 gdcm::Decoder Class Reference

Decoder.

`#include <gdcmDecoder.h>`

Inheritance diagram for gdcm::Decoder:



Public Member Functions

- virtual ~Decoder ()=default
- virtual bool CanDecode (TransferSyntax const &) const =0

  Return whether this decoder support this transfer syntax (can decode it).
- virtual bool Decode (DataElement const &, DataElement &)

  Decode.

Protected Member Functions

- virtual bool DecodeByStreams (std::istream &, std::ostream &)

12.79.1 Detailed Description

Decoder.

12.79.2 Constructor & Destructor Documentation

12.79.2.1 ~Decoder()

```
virtual gdcm::Decoder::~Decoder ()  [virtual], [default]
```

12.79.3 Member Function Documentation

12.79.3.1 CanDecode()

```
virtual bool gdcm::Decoder::CanDecode (
            TransferSyntax const & ) const  [pure virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Implemented in gdcm::AudioCodec, gdcm::ImageCodec, gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PDFCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.79.3.2 Decode()

```
virtual bool gdcm::Decoder::Decode (
            DataElement const & ,
            DataElement & )  [inline], [virtual]
```

Decode.

Reimplemented in gdcm::AudioCodec, gdcm::DeltaEncodingCodec, gdcm::ImageCodec, gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PDFCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.79.3.3 DecodeByStreams()

```
virtual bool gdcm::Decoder::DecodeByStreams (
            std::istream & ,
            std::ostream & )  [inline], [protected], [virtual]
```

Reimplemented in gdcm::ImageCodec, gdcm::JPEG12Codec, gdcm::JPEG16Codec, gdcm::JPEG2000Codec, gdcm::JPEG8Codec, gdcm::JPEGCodec, gdcm::JPEGTurboCodec, gdcm::RAWCodec, and gdcm::RLECodec.

The documentation for this class was generated from the following file:

- gdcmDecoder.h

12.80 gdcm::DefinedTerms Class Reference

Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor.

```
#include <gdcmDefinedTerms.h>
```

Public Member Functions

- DefinedTerms ()=default

12.80.1 Detailed Description

Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor.

12.80.2 Constructor & Destructor Documentation

12.80.2.1 DefinedTerms()

```
gdcm::DefinedTerms::DefinedTerms ()  [default]
```

The documentation for this class was generated from the following file:

- gdcmDefinedTerms.h

12.81 gdcm::Defs Class Reference

FIXME I do not like the name 'Defs'.

`#include <gdcmDefs.h>`

Public Member Functions

- Defs ()
- Defs (const Defs &val)=delete
- ~Defs ()
- const IOD & GetIODFromFile (const File &file) const
- IODs & GetIODs ()
- const IODs & GetIODs () const
- Macros & GetMacros ()
- const Macros & GetMacros () const
- Modules & GetModules ()
- const Modules & GetModules () const
- Type GetTypeFromTag (const File &file, const Tag &tag) const
- bool IsEmpty () const
- Defs & operator= (const Defs &val)=delete
- bool Verify (const DataSet &ds) const
- bool Verify (const File &file) const

Static Public Member Functions

- static const char * GetIODNameFromMediaStorage (MediaStorage const &ms)

Protected Member Functions

- void LoadDefaults ()
- void LoadFromFile (const char *filename)

Friends

- class Global

12.81.1 Detailed Description

FIXME I do not like the name 'Defs'.

Note

bla

Examples

GenerateStandardSOPClasses.cxx, and TraverseModules.cxx.

12.81.2 Constructor & Destructor Documentation

12.81.2.1 Defs() [1/2]

```
gdcm::Defs::Defs ()
```

Referenced by Defs(), and operator=().

12.81.2.2 ~Defs()

```
gdcm::Defs::~Defs ()
```

12.81.2.3 Defs() [2/2]

```
gdcm::Defs::Defs (
            const Defs & val)  [delete]
```

References Defs().

12.81.3 Member Function Documentation

12.81.3.1 GetIODFromFile()

```
const IOD & gdcm::Defs::GetIODFromFile (
            const File & file) const
```

12.81.3.2 GetIODNameFromMediaStorage()

```
const char * gdcm::Defs::GetIODNameFromMediaStorage (
            MediaStorage const & ms)  [static]
```

Examples

GenerateStandardSOPClasses.cxx.

12.81.3.3 GetIODs() [1/2]

```
IODs & gdcm::Defs::GetIODs ()  [inline]
```

12.81.3.4 GetIODs() [2/2]

```
const IODs & gdcm::Defs::GetIODs () const  [inline]
```

Examples

TraverseModules.cxx.

12.81.3.5 GetMacros() [1/2]

```
Macros & gdcm::Defs::GetMacros ()  [inline]
```

12.81.3.6 GetMacros() [2/2]

```
const Macros & gdcm::Defs::GetMacros () const  [inline]
```

Users should not directly use Macro. Macro are simply a way for DICOM WG to re-use Tables. Macros are conveniently wrapped within Modules. See gdcm::Module API directly

Examples

TraverseModules.cxx.

12.81.3.7 GetModules() [1/2]

```
Modules & gdcm::Defs::GetModules ()  [inline]
```

12.81.3.8 GetModules() [2/2]

```
const Modules & gdcm::Defs::GetModules () const  [inline]
```

Examples

TraverseModules.cxx.

Referenced by IsEmpty().

12.81.3.9 GetTypeFromTag()

```
Type gdcm::Defs::GetTypeFromTag (
            const File & file,
            const Tag & tag) const
```

12.81.3.10 IsEmpty()

```
bool gdcm::Defs::IsEmpty () const  [inline]
```

References GetModules().

12.81.3.11 LoadDefaults()

```
void gdcm::Defs::LoadDefaults ()  [protected]
```

12.81.3.12 LoadFromFile()

```
void gdcm::Defs::LoadFromFile (
            const char * filename)  [protected]
```

12.81.3.13 operator=()

```
Defs & gdcm::Defs::operator= (
            const Defs & val)  [delete]
```

References Defs().

12.81.3.14 Verify() [1/2]

```
bool gdcm::Defs::Verify (
            const DataSet & ds) const
```

12.81.3.15 Verify() [2/2]

```
bool gdcm::Defs::Verify (
            const File & file) const
```

12.81.4 Friends And Related Symbol Documentation

12.81.4.1 Global

```
friend class Global  [friend]
```

References Global.

Referenced by Global.

The documentation for this class was generated from the following file:

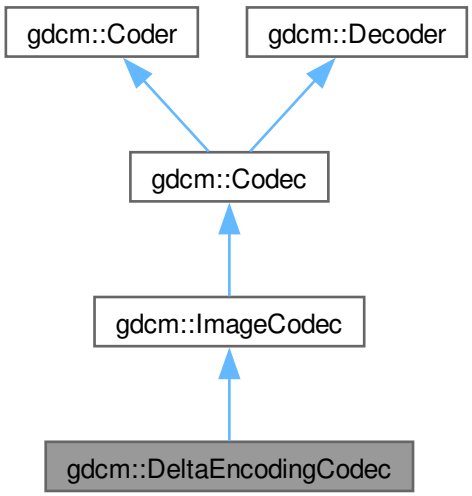
- gdcmDefs.h

12.82 gdcm::DeltaEncodingCodec Class Reference

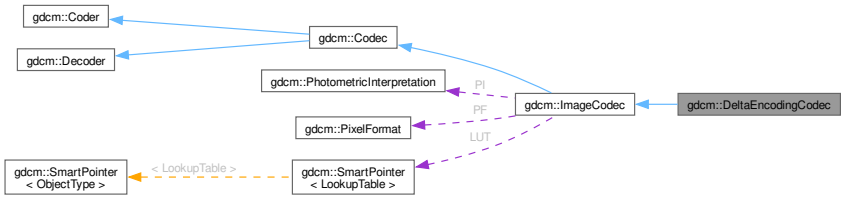
DeltaEncodingCodec compression used by some private vendor.

`#include <gdcmDeltaEncodingCodec.h>`

Inheritance diagram for gdcm::DeltaEncodingCodec:



Collaboration diagram for gdcm::DeltaEncodingCodec:



Public Member Functions

- DeltaEncodingCodec ()
- ~DeltaEncodingCodec ()
- bool CanDecode (TransferSyntax const &ts)
- bool Decode (DataElement const &is, DataElement &os)

  Decode.

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CanCode (TransferSyntax const &) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &) const override

  Return whether this decoder support this transfer syntax (can decode it).
- bool CleanupUnusedBits (char *data, size_t datalen)
- virtual ImageCodec * Clone () const =0
- bool Decode (DataElement const &is_, DataElement &os) override

  Decode.
- const unsigned int * GetDimensions () const
- virtual bool GetHeaderInfo (std::istream &is_, TransferSyntax &ts)
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool Decode (std::istream &is, std::ostream &os)

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.82.1 Detailed Description

DeltaEncodingCodec compression used by some private vendor.

12.82.2 Constructor & Destructor Documentation

12.82.2.1 DeltaEncodingCodec()

```
gdcm::DeltaEncodingCodec::DeltaEncodingCodec ()
```

12.82.2.2 ~DeltaEncodingCodec()

```
gdcm::DeltaEncodingCodec::~DeltaEncodingCodec ()
```

12.82.3 Member Function Documentation

12.82.3.1 CanDecode()

```
bool gdcm::DeltaEncodingCodec::CanDecode (
            TransferSyntax const & ts)
```

12.82.3.2 Decode() [1/2]

```
bool gdcm::DeltaEncodingCodec::Decode (
            DataElement const & is,
            DataElement & os)  [virtual]
```

Decode.

Reimplemented from gdcm::Decoder.

12.82.3.3 Decode() [2/2]

```
bool gdcm::DeltaEncodingCodec::Decode (
            std::istream & is,
            std::ostream & os)  [protected]
```

The documentation for this class was generated from the following file:

- gdcmDeltaEncodingCodec.h

12.83 gdcm::DICOMDIR Class Reference

DICOMDIR class.

```
#include <gdcmDICOMDIR.h>
```

Public Member Functions

- DICOMDIR ()=default
- DICOMDIR (FileSet fs)

12.83.1 Detailed Description

DICOMDIR class.

Structured for handling DICOMDIR

12.83.2 Constructor & Destructor Documentation

12.83.2.1 DICOMDIR() [1/2]

```
gdcm::DICOMDIR::DICOMDIR ()  [default]
```

12.83.2.2 DICOMDIR() [2/2]

```
gdcm::DICOMDIR::DICOMDIR (
            FileSet fs)  [inline]
```

The documentation for this class was generated from the following file:

- gdcmDICOMDIR.h

12.84 gdcm::DICOMDIRGenerator Class Reference

DICOMDIRGenerator class.

```
#include <gdcmDICOMDIRGenerator.h>
```

Public Types

- typedef Directory::FilenamesType FilenamesType
- typedef Directory::FilenameType FilenameType

Public Member Functions

- DICOMDIRGenerator ()
- ~DICOMDIRGenerator ()
- bool Generate ()

  Main function to generate the DICOMDIR.
- File & GetFile ()
- void SetDescriptor (const char *d)
- void SetFile (const File &f)

  Set/Get file. The DICOMDIR file will be valid once a call to Generate has been done.
- void SetFilenames (FilenamesType const &fns)

  Set the list of filenames from which the DICOMDIR should be generated from.
- void SetRootDirectory (FilenameType const &root)

  Set the root directory from which the filenames should be considered.

Protected Member Functions

- bool AddImageDirectoryRecord ()
- bool AddPatientDirectoryRecord ()
- bool AddSeriesDirectoryRecord ()
- bool AddStudyDirectoryRecord ()
- Scanner & GetScanner ()

12.84.1 Detailed Description

DICOMDIRGenerator class.

This is a STD-GEN-CD DICOMDIR generator. ref: PS 3.11-2008 Annex D (Normative) - General Purpose CD-R and DVD Interchange Profiles

Note

PS 3.11 - 2008 / D.3.2 Physical Medium And Medium Format The STD-GEN-CD and STD-GEN-SEC-CD application profiles require the 120 mm CD-R physical medium with the ISO/IEC 9660 Media Format, as defined in PS3.12. See also PS 3.12 - 2008 / Annex F 120mm CD-R Medium (Normative) and PS 3.10 - 2008 / 8 DICOM File Service / 8.1 FILE-SET

Warning

: PS 3.11 - 2008 / D.3.1 SOP Classes and Transfer Syntaxes Composite Image & Stand-alone Storage are required to be stored as Explicit VR Little Endian Uncompressed (1.2.840.10008.1.2.1). When a DICOM file is found using another Transfer Syntax the generator will simply stops.

- Input files should be Explicit VR Little Endian
- filenames should be valid VR::CS value (16 bytes, upper case ...)

Bug : There is a current limitation of not handling Referenced SOP Class UID / Referenced SOP Instance UID simply because the Scanner does not allow us See PS 3.11 / Table D.3-2 STD-GEN Additional DICOMDIR Keys

Examples

GenerateDICOMDIR.cs.

12.84.2 Member Typedef Documentation

12.84.2.1 FilenamesType

```
typedef Directory::FilenamesType gdcm::DICOMDIRGenerator::FilenamesType
```

12.84.2.2 FilenameType

```
typedef Directory::FilenameType gdcm::DICOMDIRGenerator::FilenameType
```

12.84.3 Constructor & Destructor Documentation

12.84.3.1 DICOMDIRGenerator()

```
gdcm::DICOMDIRGenerator::DICOMDIRGenerator ()
```

12.84.3.2 ~DICOMDIRGenerator()

```
gdcm::DICOMDIRGenerator::~DICOMDIRGenerator ()
```

12.84.4 Member Function Documentation

12.84.4.1 AddImageDirectoryRecord()

```
bool gdcm::DICOMDIRGenerator::AddImageDirectoryRecord ()  [protected]
```

12.84.4.2 AddPatientDirectoryRecord()

```
bool gdcm::DICOMDIRGenerator::AddPatientDirectoryRecord ()  [protected]
```

12.84.4.3 AddSeriesDirectoryRecord()

```
bool gdcm::DICOMDIRGenerator::AddSeriesDirectoryRecord ()  [protected]
```

12.84.4.4 AddStudyDirectoryRecord()

```
bool gdcm::DICOMDIRGenerator::AddStudyDirectoryRecord ()  [protected]
```

12.84.4.5 Generate()

```
bool gdcm::DICOMDIRGenerator::Generate ()
```

Main function to generate the DICOMDIR.

Examples

GenerateDICOMDIR.cs.

12.84.4.6 GetFile()

```
File & gdcm::DICOMDIRGenerator::GetFile ()
```

Examples

GenerateDICOMDIR.cs.

12.84.4.7 GetScanner()

```
Scanner & gdcm::DICOMDIRGenerator::GetScanner ()  [protected]
```

12.84.4.8 SetDescriptor()

```
void gdcm::DICOMDIRGenerator::SetDescriptor (
            const char * d)
```

Set the File Set ID.

Warning

this need to be a valid VR::CS value

Examples

GenerateDICOMDIR.cs.

12.84.4.9 SetFile()

```
void gdcm::DICOMDIRGenerator::SetFile (
            const File & f)
```

Set/Get file. The DICOMDIR file will be valid once a call to Generate has been done.

12.84.4.10 SetFilenames()

```
void gdcm::DICOMDIRGenerator::SetFilenames (
            FilenamesType const & fns)
```

Set the list of filenames from which the DICOMDIR should be generated from.

Examples

GenerateDICOMDIR.cs.

12.84.4.11 SetRootDirectory()

```
void gdcm::DICOMDIRGenerator::SetRootDirectory (
            FilenameType const & root)
```

Set the root directory from which the filenames should be considered.

The documentation for this class was generated from the following file:

- gdcmDICOMDIRGenerator.h

12.85 gdcm::Dict Class Reference

Class to represent a map of DictEntry.

`#include <gdcmDict.h>`

Public Types

- typedef MapDictEntry::const_iterator ConstIterator
- typedef MapDictEntry::iterator Iterator
- typedef std::map< Tag, DictEntry > MapDictEntry

Public Member Functions

- Dict ()
- Dict (const Dict &_val)=delete
- void AddDictEntry (const Tag &tag, const DictEntry &de)
- ConstIterator Begin () const
- ConstIterator End () const
- const DictEntry & GetDictEntry (const Tag &tag) const
- const DictEntry & GetDictEntryByKeyword (const char *keyword, Tag &tag) const
- const DictEntry & GetDictEntryByName (const char *name, Tag &tag) const
- const char * GetKeywordFromTag (Tag const &tag) const

  Function to return the Keyword from a Tag.
- bool IsEmpty () const
- Dict & operator= (const Dict &_val)=delete

Protected Member Functions

- void LoadDefault ()

Friends

- class Dicts
- std::ostream & operator<< (std::ostream &_os, const Dict &_val)

12.85.1 Detailed Description

Class to represent a map of DictEntry.

Note

bla TODO FIXME: For Element == 0x0 need to return Name = Group Length ValueRepresentation = UL Value↩ Multiplicity = 1

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, PublicDict.cxx, and ReadAndPrintAttributes.cxx.

12.85.2 Member Typedef Documentation

12.85.2.1 ConstIterator

```
typedef MapDictEntry::const_iterator gdcm::Dict::ConstIterator
```

12.85.2.2 Iterator

```
typedef MapDictEntry::iterator gdcm::Dict::Iterator
```

12.85.2.3 MapDictEntry

```
typedef std::map<Tag, DictEntry> gdcm::Dict::MapDictEntry
```

12.85.3 Constructor & Destructor Documentation

12.85.3.1 Dict() [1/2]

```
gdcm::Dict::Dict () [inline]
```

References gdcm_assert.

Referenced by Dict(), operator<<, and operator=().

12.85.3.2 Dict() [2/2]

```
gdcm::Dict::Dict (
            const Dict & _val)  [delete]
```

References Dict(), and operator<<.

12.85.4 Member Function Documentation

12.85.4.1 AddDictEntry()

```
void gdcm::Dict::AddDictEntry (
            const Tag & tag,
            const DictEntry & de)  [inline]
```

References gdcm_assert.

12.85.4.2 Begin()

```
ConstIterator gdcm::Dict::Begin () const  [inline]
```

Examples

GenAllVR.cxx, and GenFakeIdentifyFile.cxx.

12.85.4.3 End()

```
ConstIterator gdcm::Dict::End () const  [inline]
```

Examples

GenAllVR.cxx, and GenFakeIdentifyFile.cxx.

12.85.4.4 GetDictEntry()

```
const DictEntry & gdcm::Dict::GetDictEntry (
            const Tag & tag) const  [inline]
```

Examples

GenFakeIdentifyFile.cxx, and PublicDict.cxx.

References gdcm_assert.

12.85.4.5 GetDictEntryByKeyword()

```
const DictEntry & gdcm::Dict::GetDictEntryByKeyword (
            const char * keyword,
            Tag & tag) const  [inline]
```

Lookup DictEntry by keyword. Even if DICOM standard defines keyword as being unique. The lookup table is built on Tag. Therefore looking up a DictEntry by Keyword is more inefficient than looking up by Tag.

References gdcm_assert.

12.85.4.6 GetDictEntryByName()

```
const DictEntry & gdcm::Dict::GetDictEntryByName (
            const char * name,
            Tag & tag) const  [inline]
```

Inefficient way of looking up tag by name. Technically DICOM does not guarantee uniqueness (and Curve / Overlay are there to prove it). But most of the time name is in fact uniq and can be uniquely link to a tag

Examples

ReadAndPrintAttributes.cxx.

References gdcm_assert.

12.85.4.7 GetKeywordFromTag()

```
const char * gdcm::Dict::GetKeywordFromTag (
            Tag const & tag) const  [inline]
```

Function to return the Keyword from a Tag.

References gdcm_assert.

12.85.4.8 IsEmpty()

```
bool gdcm::Dict::IsEmpty () const  [inline]
```

12.85.4.9 LoadDefault()

```
void gdcm::Dict::LoadDefault ()  [protected]
```

12.85.4.10 operator=()

```
Dict & gdcm::Dict::operator= (
            const Dict & _val)  [delete]
```

References Dict().

12.85.5 Friends And Related Symbol Documentation

12.85.5.1 Dicts

```
friend class Dicts  [friend]
```

References Dicts.

Referenced by Dicts.

12.85.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Dict & _val)  [friend]
```

References Dict().

Referenced by Dict().

The documentation for this class was generated from the following file:

- gdcmDict.h

12.86 gdcm::DictConverter Class Reference

Class to convert a .dic file into something else:

```
#include <gdcmDictConverter.h>
```

Public Types

- enum OutputTypes {
  DICT_DEFAULT = 0 ,
  DICT_DEBUG ,
  DICT_XML }

Public Member Functions

- DictConverter ()
- ~DictConverter ()
- void Convert ()
- const std::string & GetDictName () const
- const std::string & GetInputFilename () const
- const std::string & GetOutputFilename () const
- int GetOutputType () const
- void SetDictName (const char *name)
- void SetInputFileName (const char *filename)
- void SetOutputFileName (const char *filename)
- void SetOutputType (int type)

Static Public Member Functions

- static bool Readuint16 (const char *raw, uint16_t &ov)
- static bool ReadVM (const char *raw, VM::VMType &type)
- static bool ReadVR (const char *raw, VR::VRType &type)

Protected Member Functions

- void AddGroupLength ()
- bool ConvertToCXX (const char *raw, std::string &cxx)
- bool ConvertToXML (const char *raw, std::string &cxx)
- void WriteFooter ()
- void WriteHeader ()

12.86.1 Detailed Description

Class to convert a .dic file into something else:

- CXX code : embed dict into shared lib (DICT_DEFAULT)
- Debug mode (DICT_DEBUG)
- XML dict (DICT_XML)

Note

12.86.2 Member Enumeration Documentation

12.86.2.1 OutputTypes

```
enum gdcm::DictConverter::OutputTypes
```

Enumerator

DICT_DEFAULT	
DICT_DEBUG	
DICT_XML	

12.86.3 Constructor & Destructor Documentation

12.86.3.1 DictConverter()

```
gdcm::DictConverter::DictConverter ()
```

12.86.3.2 ~DictConverter()

```
gdcm::DictConverter::~DictConverter ()
```

12.86.4 Member Function Documentation

12.86.4.1 AddGroupLength()

```
void gdcm::DictConverter::AddGroupLength ()  [protected]
```

12.86.4.2 Convert()

```
void gdcm::DictConverter::Convert ()
```

12.86.4.3 ConvertToCXX()

```
bool gdcm::DictConverter::ConvertToCXX (
            const char * raw,
            std::string & cxx)  [protected]
```

12.86.4.4 ConvertToXML()

```
bool gdcm::DictConverter::ConvertToXML (
            const char * raw,
            std::string & cxx)  [protected]
```

12.86.4.5 GetDictName()

```
const std::string & gdcm::DictConverter::GetDictName () const
```

12.86.4.6 GetInputFilename()

```
const std::string & gdcm::DictConverter::GetInputFilename () const
```

12.86.4.7 GetOutputFilename()

```
const std::string & gdcm::DictConverter::GetOutputFilename () const
```

12.86.4.8 GetOutputType()

```
int gdcm::DictConverter::GetOutputType () const  [inline]
```

12.86.4.9 Readuint16()

```
bool gdcm::DictConverter::Readuint16 (
            const char * raw,
            uint16_t & ov)  [static]
```

12.86.4.10 ReadVM()

```
bool gdcm::DictConverter::ReadVM (
            const char * raw,
            VM::VMType & type)  [static]
```

12.86.4.11 ReadVR()

```
bool gdcm::DictConverter::ReadVR (
            const char * raw,
            VR::VRType & type)  [static]
```

12.86.4.12 SetDictName()

```
void gdcm::DictConverter::SetDictName (
            const char * name)
```

12.86.4.13 SetInputFileName()

```
void gdcm::DictConverter::SetInputFileName (
            const char * filename)
```

12.86.4.14 SetOutputFileName()

```
void gdcm::DictConverter::SetOutputFileName (
            const char * filename)
```

12.86.4.15 SetOutputType()

```
void gdcm::DictConverter::SetOutputType (
            int type)  [inline]
```

12.86.4.16 WriteFooter()

```
void gdcm::DictConverter::WriteFooter ()  [protected]
```

12.86.4.17 WriteHeader()

```
void gdcm::DictConverter::WriteHeader ()  [protected]
```

The documentation for this class was generated from the following file:

- gdcmDictConverter.h

12.87 gdcm::DictEntry Class Reference

Class to represent an Entry in the Dict.

```
#include <gdcmDictEntry.h>
```

Public Member Functions

- DictEntry (const char *name="", const char *keyword="", VR const &vr=VR::INVALID, VM const &vm=VM::VM0, bool ret=false)
- const char * GetKeyword () const

  same as GetName but without spaces...
- const char * GetName () const

  Set/Get Name.
- bool GetRetired () const

  Set/Get Retired flag.
- const VM & GetVM () const

  Set/Get VM.
- const VR & GetVR () const

  Set/Get VR.
- bool IsUnique () const
- void SetElementXX (bool v)

  Set whether element is shared in multiple elements (Source Image IDs typically).
- void SetGroupXX (bool v)

  Set whether element is shared in multiple groups (Curve/Overlay typically).
- void SetKeyword (const char *keyword)
- void SetName (const char *name)
- void SetRetired (bool retired)
- void SetVM (VM const &vm)
- void SetVR (const VR &vr)

Friends

- class Dict
- std::ostream & operator<< (std::ostream &_os, const DictEntry &_val)

12.87.1 Detailed Description

Class to represent an Entry in the Dict.

Does not really exist within the DICOM definition, just a way to minimize storage and have a mapping from gdcm::Tag to the needed information

Note

bla TODO FIXME: Need a PublicDictEntry...indeed DictEntry has a notion of retired which does not exist in PrivateDictEntry...

See also

gdcm::Dict

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, PublicDict.cxx, and TraverseModules.cxx.

12.87.2 Constructor & Destructor Documentation

12.87.2.1 DictEntry()

```
gdcm::DictEntry::DictEntry (
            const char * name = "",
            const char * keyword = "",
            VR const & vr = VR::INVALID,
            VM const & vm = VM::VM0,
            bool ret = false)  [inline]
```

References gdcm::VR::INVALID, and gdcm::VM::VM0.

Referenced by operator<<.

12.87.3 Member Function Documentation

12.87.3.1 GetKeyword()

```
const char * gdcm::DictEntry::GetKeyword () const  [inline]
```

same as GetName but without spaces...

12.87.3.2 GetName()

```
const char * gdcm::DictEntry::GetName () const  [inline]
```

Set/Get Name.

Referenced by gdcm::PrivateDict::PrintXML().

12.87.3.3 GetRetired()

```
bool gdcm::DictEntry::GetRetired () const  [inline]
```

Set/Get Retired flag.

Examples

GenAllVR.cxx.

12.87.3.4 GetVM()

```
const VM & gdcm::DictEntry::GetVM () const  [inline]
```

Set/Get VM.

Referenced by gdcm::PrivateDict::AddDictEntry(), and gdcm::PrivateDict::PrintXML().

12.87.3.5 GetVR()

```
const VR & gdcm::DictEntry::GetVR () const  [inline]
```

Set/Get VR.

Examples

GenAllVR.cxx, and GenFakeIdentifyFile.cxx.

Referenced by gdcm::PrivateDict::AddDictEntry(), and gdcm::PrivateDict::PrintXML().

12.87.3.6 IsUnique()

```
bool gdcm::DictEntry::IsUnique () const  [inline]
```

Return whether the name of the DataElement can be considered to be unique. As of 2008 all elements name were unique (except the expclitely 'XX' ones)

12.87.3.7 SetElementXX()

```
void gdcm::DictEntry::SetElementXX (
            bool v)  [inline]
```

Set whether element is shared in multiple elements (Source Image IDs typically).

12.87.3.8 SetGroupXX()

```
void gdcm::DictEntry::SetGroupXX (
            bool v)  [inline]
```

Set whether element is shared in multiple groups (Curve/Overlay typically).

12.87.3.9 SetKeyword()

```
void gdcm::DictEntry::SetKeyword (
            const char * keyword)  [inline]
```

12.87.3.10 SetName()

```
void gdcm::DictEntry::SetName (
            const char * name)  [inline]
```

12.87.3.11 SetRetired()

```
void gdcm::DictEntry::SetRetired (
            bool retired)  [inline]
```

12.87.3.12 SetVM()

```
void gdcm::DictEntry::SetVM (
            VM const & vm)  [inline]
```

Referenced by gdcm::PrivateDict::AddDictEntry().

12.87.3.13 SetVR()

```
void gdcm::DictEntry::SetVR (
            const VR & vr)  [inline]
```

Referenced by gdcm::PrivateDict::AddDictEntry().

12.87.4 Friends And Related Symbol Documentation

12.87.4.1 Dict

```
friend class Dict  [friend]
```

References Dict.

Referenced by Dict.

12.87.4.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const DictEntry & _val)  [friend]
```

References DictEntry().

The documentation for this class was generated from the following file:

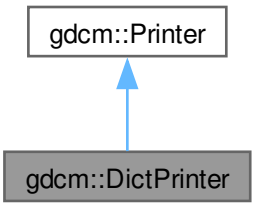
- gdcmDictEntry.h

12.88 gdcm::DictPrinter Class Reference

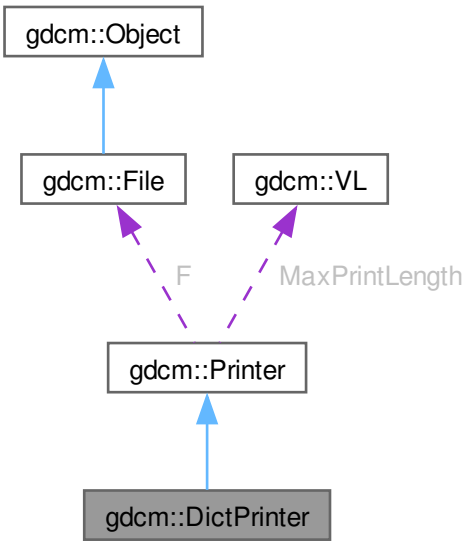
DictPrinter class.

`#include <gdcmDictPrinter.h>`

Inheritance diagram for gdcm::DictPrinter:



Collaboration diagram for gdcm::DictPrinter:



Public Member Functions

- DictPrinter ()
- ~DictPrinter ()=default
- void Print (std::ostream &os)

Public Member Functions inherited from gdcm::Printer

- Printer ()
- ~Printer ()=default
- PrintStyles GetPrintStyle () const

  Get PrintStyle value.
- void Print (std::ostream &os)

  Print.
- void PrintDataSet (const DataSet &ds, std::ostream &os, const std::string &s="")

  Print an individual dataset.
- void SetColor (bool c)

  Set color mode or not.
- void SetFile (File const &f)

  Set file.
- void SetStyle (PrintStyles ps)

  Set PrintStyle value.

Protected Member Functions

- void PrintDataElement2 (std::ostream &os, const DataSet &ds, const DataElement &ide)
- void PrintDataSet2 (std::ostream &os, const DataSet &ds)

Protected Member Functions inherited from gdcm::Printer

- VR PrintDataElement (std::ostringstream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, std::ostream &out, std::string const &indent)
- void PrintSQ (const SequenceOfItems *sqi, std::ostream &os, std::string const &indent)

Additional Inherited Members

Public Types inherited from gdcm::Printer

- enum PrintStyles {
  VERBOSE_STYLE = 0 ,
  CONDENSED_STYLE ,
  XML ,
  CXX }

Protected Attributes inherited from gdcm::Printer

- const File * F
- VL MaxPrintLength
- PrintStyles PrintStyle

12.88.1 Detailed Description

DictPrinter class.

12.88.2 Constructor & Destructor Documentation

12.88.2.1 DictPrinter()

```
gdcm::DictPrinter::DictPrinter ()
```

12.88.2.2 ~DictPrinter()

```
gdcm::DictPrinter::~DictPrinter ()  [default]
```

12.88.3 Member Function Documentation

12.88.3.1 Print()

```
void gdcm::DictPrinter::Print (
            std::ostream & os)
```

12.88.3.2 PrintDataElement2()

```
void gdcm::DictPrinter::PrintDataElement2 (
            std::ostream & os,
            const DataSet & ds,
            const DataElement & ide)  [protected]
```

12.88.3.3 PrintDataSet2()

```
void gdcm::DictPrinter::PrintDataSet2 (
            std::ostream & os,
            const DataSet & ds)  [protected]
```

The documentation for this class was generated from the following file:

- gdcmDictPrinter.h

12.89 gdcm::Dicts Class Reference

Class to manipulate the sum of knowledge (all the dict user load).

`#include <gdcmDicts.h>`

Public Member Functions

- Dicts ()
- Dicts (const Dicts &_val)=delete
- ~Dicts ()
- const CSAHeaderDict & GetCSAHeaderDict () const
- const DictEntry & GetDictEntry (const PrivateTag &tag) const
- const DictEntry & GetDictEntry (const Tag &tag, const char *owner=nullptr) const

  THREAD SAFE.
- PrivateDict & GetPrivateDict ()
- const PrivateDict & GetPrivateDict () const
- const Dict & GetPublicDict () const
- bool IsEmpty () const
- Dicts & operator= (const Dicts &_val)=delete

Protected Types

- enum ConstructorType {
  PHILIPS ,
  GEMS ,
  SIEMENS }

Protected Member Functions

- void LoadDefaults ()

Static Protected Member Functions

- static const char * GetConstructorString (ConstructorType type)

Friends

- class Global
- std::ostream & operator<< (std::ostream &_os, const Dicts &d)

12.89.1 Detailed Description

Class to manipulate the sum of knowledge (all the dict user load).

Note

bla

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, PublicDict.cxx, ReadAndPrintAttributes.cxx, and TraverseModules.cxx.

12.89.2 Member Enumeration Documentation

12.89.2.1 ConstructorType

```
enum gdcm::Dicts::ConstructorType  [protected]
```

Enumerator

PHILIPS	
GEMS	
SIEMENS	

12.89.3 Constructor & Destructor Documentation

12.89.3.1 Dicts() [1/2]

```
gdcm::Dicts::Dicts ()
```

Referenced by Dicts(), operator<<, and operator=().

12.89.3.2 ~Dicts()

```
gdcm::Dicts::~Dicts ()
```

12.89.3.3 Dicts() [2/2]

```
gdcm::Dicts::Dicts (
            const Dicts & _val)  [delete]
```

References Dicts().

12.89.4 Member Function Documentation

12.89.4.1 GetConstructorString()

```
const char * gdcm::Dicts::GetConstructorString (
            ConstructorType type)  [static], [protected]
```

12.89.4.2 GetCSAHeaderDict()

```
const CSAHeaderDict & gdcm::Dicts::GetCSAHeaderDict () const
```

Examples

MrProtocol.cxx.

12.89.4.3 GetDictEntry() [1/2]

```
const DictEntry & gdcm::Dicts::GetDictEntry (
            const PrivateTag & tag) const
```

12.89.4.4 GetDictEntry() [2/2]

```
const DictEntry & gdcm::Dicts::GetDictEntry (
            const Tag & tag,
            const char * owner = nullptr) const
```

THREAD SAFE.

works for both public and private dicts: owner is null for public dict

Warning

owner need to be set to appropriate owner for call to work. see

Examples

PublicDict.cxx, and TraverseModules.cxx.

12.89.4.5 GetPrivateDict() [1/2]

```
PrivateDict & gdcm::Dicts::GetPrivateDict ()
```

12.89.4.6 GetPrivateDict() [2/2]

```
const PrivateDict & gdcm::Dicts::GetPrivateDict () const
```

12.89.4.7 GetPublicDict()

```
const Dict & gdcm::Dicts::GetPublicDict () const
```

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, PublicDict.cxx, and ReadAndPrintAttributes.cxx.

Referenced by IsEmpty().

12.89.4.8 IsEmpty()

```
bool gdcm::Dicts::IsEmpty () const  [inline]
```

References GetPublicDict().

12.89.4.9 LoadDefaults()

```
void gdcm::Dicts::LoadDefaults ()  [protected]
```

12.89.4.10 operator=()

```
Dicts & gdcm::Dicts::operator= (
            const Dicts & _val)  [delete]
```

References Dicts().

12.89.5 Friends And Related Symbol Documentation

12.89.5.1 Global

```
friend class Global  [friend]
```

References Global.

Referenced by Global.

12.89.5.2 operator<<

```
std::ostream & operator<< (
             std::ostream & _os,
             const Dicts & d)  [friend]
```

References Dicts().

The documentation for this class was generated from the following file:

- gdcmDicts.h

12.90 gdcm::network::DIMSE Class Reference

DIMSE.

`#include <gdcmDIMSE.h>`

Public Types

- enum CommandTypes {
  C_STORE_RQ = 0x0001 ,
  C_STORE_RSP = 0x8001 ,
  C_GET_RQ = 0x0010 ,
  C_GET_RSP = 0x8010 ,
  C_FIND_RQ = 0x0020 ,
  C_FIND_RSP = 0x8020 ,
  C_MOVE_RQ = 0x0021 ,
  C_MOVE_RSP = 0x8021 ,
  C_ECHO_RQ = 0x0030 ,
  C_ECHO_RSP = 0x8030 ,
  N_EVENT_REPORT_RQ = 0x0100 ,
  N_EVENT_REPORT_RSP = 0x8100 ,
  N_GET_RQ = 0x0110 ,
  N_GET_RSP = 0x8110 ,
  N_SET_RQ = 0x0120 ,
  N_SET_RSP = 0x8120 ,
  N_ACTION_RQ = 0x0130 ,
  N_ACTION_RSP = 0x8130 ,
  N_CREATE_RQ = 0x0140 ,
  N_CREATE_RSP = 0x8140 ,
  N_DELETE_RQ = 0x0150 ,
  N_DELETE_RSP = 0x8150 ,
  C_CANCEL_RQ = 0x0FFF }

12.90.1 Detailed Description

DIMSE.

PS 3.7 - 2009 Annex E Command Dictionary (Normative) E.1 REGISTRY OF DICOM COMMAND ELEMENTS Table E.1-1 COMMAND FIELDS (PART 1)

12.90.2 Member Enumeration Documentation

12.90.2.1 CommandTypes

enum gdcm::network::DIMSE::CommandTypes

Enumerator

C_STORE_RQ	
C_STORE_RSP	
C_GET_RQ	
C_GET_RSP	
C_FIND_RQ	
C_FIND_RSP	
C_MOVE_RQ	
C_MOVE_RSP	
C_ECHO_RQ	
C_ECHO_RSP	
N_EVENT_REPORT_RQ	
N_EVENT_REPORT_RSP	
N_GET_RQ	
N_GET_RSP	
N_SET_RQ	
N_SET_RSP	
N_ACTION_RQ	
N_ACTION_RSP	
N_CREATE_RQ	
N_CREATE_RSP	
N_DELETE_RQ	
N_DELETE_RSP	
C_CANCEL_RQ	

The documentation for this class was generated from the following file:

- gdcmDIMSE.h

12.91 gdcm::DirectionCosines Class Reference

class to handle DirectionCosines

#include <gdcmDirectionCosines.h>

Public Member Functions

- DirectionCosines ()
- DirectionCosines (const double dircos[6])
- ~DirectionCosines ()
- double ComputeDistAlongNormal (const double ipp[3]) const

  Compute the distance along the normal.
- void Cross (double z[3]) const

  Compute Cross product.
- double CrossDot (DirectionCosines const &dc) const

  Compute the Dot product of the two cross vector of both DirectionCosines object.
- double Dot () const

  Compute Dot.
- bool IsValid () const

  Return whether or not this is a valid direction cosines.
- void Normalize ()

  Normalize in-place.
- operator const double * () const

  *Make the class behave like a const double *.*
- void Print (std::ostream &) const

  Print.
- bool SetFromString (const char *str)

Static Public Member Functions

- static double Distance (const double x[3], const double y[3])

  Compute Distance.
- static double Dot (const double x[3], const double y[3])

  Compute Dot.
- static double Norm (const double v[3])

  Return norm of the vector.
- static void Normalize (double v[3])

  Normalize in-place.

12.91.1 Detailed Description

class to handle DirectionCosines

Examples

DiscriminateVolume.cxx.

12.91.2 Constructor & Destructor Documentation

12.91.2.1 DirectionCosines() [1/2]

```
gdcm::DirectionCosines::DirectionCosines ()
```

Referenced by CrossDot().

12.91.2.2 DirectionCosines() [2/2]

```
gdcm::DirectionCosines::DirectionCosines (
            const double dircos[6])
```

12.91.2.3 ~DirectionCosines()

```
gdcm::DirectionCosines::~DirectionCosines ()
```

12.91.3 Member Function Documentation

12.91.3.1 ComputeDistAlongNormal()

```
double gdcm::DirectionCosines::ComputeDistAlongNormal (
            const double ipp[3]) const
```

Compute the distance along the normal.

12.91.3.2 Cross()

```
void gdcm::DirectionCosines::Cross (
            double z[3]) const
```

Compute Cross product.

12.91.3.3 CrossDot()

```
double gdcm::DirectionCosines::CrossDot (
            DirectionCosines const & dc) const
```

Compute the Dot product of the two cross vector of both DirectionCosines object.

Examples

DiscriminateVolume.cxx.

References DirectionCosines().

12.91.3.4 Distance()

```
double gdcm::DirectionCosines::Distance (
            const double x[3],
            const double y[3])  [static]
```

Compute Distance.

12.91.3.5 Dot() [1/2]

```
double gdcm::DirectionCosines::Dot () const
```

Compute Dot.

12.91.3.6 Dot() [2/2]

```
double gdcm::DirectionCosines::Dot (
            const double x[3],
            const double y[3])  [static]
```

Compute Dot.

12.91.3.7 IsValid()

```
bool gdcm::DirectionCosines::IsValid () const
```

Return whether or not this is a valid direction cosines.

12.91.3.8 Norm()

```
double gdcm::DirectionCosines::Norm (
            const double v[3])  [static]
```

Return norm of the vector.

12.91.3.9 Normalize() [1/2]

```
void gdcm::DirectionCosines::Normalize ()
```

Normalize in-place.

12.91.3.10 Normalize() [2/2]

```
void gdcm::DirectionCosines::Normalize (
            double v[3])  [static]
```

Normalize in-place.

12.91.3.11 operator const double *()

```
gdcm::DirectionCosines::operator const double * () const  [inline]
```

Make the class behave like a const double *.

12.91.3.12 Print()

```
void gdcm::DirectionCosines::Print (
            std::ostream & ) const
```

Print.

12.91.3.13 SetFromString()

```
bool gdcm::DirectionCosines::SetFromString (
            const char * str)
```

Initialize from string str. It requires 6 floating point separated by a backslash character.

Examples

DiscriminateVolume.cxx.

The documentation for this class was generated from the following file:

- gdcmDirectionCosines.h

12.92 gdcm::Directory Class Reference

Class for manipulation directories.

`#include <gdcmDirectory.h>`

Public Types

- typedef std::vector< FilenameType > FilenamesType
- typedef std::string FilenameType

Public Member Functions

- Directory ()=default
- ~Directory ()=default
- FilenamesType const & GetDirectories () const

  Return the Directories traversed.
- FilenamesType const & GetFilenames () const

  Set/Get the file names within the directory.
- FilenameType const & GetToplevel () const

  Get the name of the toplevel directory.
- unsigned int Load (FilenameType const &name, bool recursive=false)
- void Print (std::ostream &os=std::cout) const

  Print.

Protected Member Functions

- unsigned int Explore (FilenameType const &name, bool recursive)

  Return number of file found when 'recursive'ly exploring directory `name`.

Friends

- std::ostream & operator<< (std::ostream &_os, const Directory &d)

12.92.1 Detailed Description

Class for manipulation directories.

Note

This implementation provide a cross platform implementation for manipulating directories: basically traversing directories and harvesting files

will not take into account unix type hidden file recursive option will not look into UNIX type hidden directory (those starting with a '.')

Since python or C# provide there own equivalent implementation, in which case gdcm::Directory does not make much sense.

Examples

DecompressImageMultiframe.cs, DiscriminateVolume.cxx, DumpToSQLITE3.cxx, DumpVisusChange.cxx, ExplicitLittleEndian.cs, GenerateDICOMDIR.cs, GenerateRTSTRUCT.cxx, ReadUTF8QtDir.cxx, ScanDirectory.cs, SortImage.cxx, StandardizeFiles.cs, VolumeSorter.cxx, gdcmorthoplanes.cxx, and threadgdcm.cxx.

12.92.2 Member Typedef Documentation

12.92.2.1 FilenamesType

```
typedef std::vector<FilenameType> gdcm::Directory::FilenamesType
```

Examples

CStoreQtProgress.cxx, DumpVisusChange.cxx, GenerateRTSTRUCT.cxx, ReadUTF8QtDir.cxx, SimpleScanner.cxx, VolumeSorter.cxx, gdcmorthoplanes.cxx, reslicesphere.cxx, and threadgdcm.cxx.

12.92.2.2 FilenameType

```
typedef std::string gdcm::Directory::FilenameType
```

12.92.3 Constructor & Destructor Documentation

12.92.3.1 Directory()

```
gdcm::Directory::Directory () [default]
```

Referenced by operator<<.

12.92.3.2 ~Directory()

```
gdcm::Directory::~Directory () [default]
```

12.92.4 Member Function Documentation

12.92.4.1 Explore()

```
unsigned int gdcm::Directory::Explore (
            FilenameType const & name,
            bool recursive) [protected]
```

Return number of file found when 'recursive'ly exploring directory `name`.

12.92.4.2 GetDirectories()

```
FilenamesType const & gdcm::Directory::GetDirectories () const [inline]
```

Return the Directories traversed.

12.92.4.3 GetFilenames()

```
FilenamesType const & gdcm::Directory::GetFilenames () const  [inline]
```

Set/Get the file names within the directory.

Examples

ClinicalTrialIdentificationWorkflow.cs, DecompressImageMultiframe.cs, DiscriminateVolume.cxx, DumpToSQLITE3.cxx, DumpVisusChange.cxx, ExplicitLittleEndian.cs, GenerateDICOMDIR.cs, GenerateRTSTRUCT.cxx, ReadUTF8QtDir.cxx, ScanDirectory.cs, SortImage.cxx, StandardizeFiles.cs, VolumeSorter.cxx, gdcmorthoplanes.cxx, reslicesphere.cxx, and threadgdcm.cxx.

References gdcm_assert.

12.92.4.4 GetToplevel()

```
FilenameType const & gdcm::Directory::GetToplevel () const  [inline]
```

Get the name of the toplevel directory.

12.92.4.5 Load()

```
unsigned int gdcm::Directory::Load (
            FilenameType const & name,
            bool recursive = false)
```

construct a list of filenames and subdirectory beneath directory: name

Warning

: hidden file and hidden directory are not loaded.

Examples

ClinicalTrialIdentificationWorkflow.cs, DecompressImageMultiframe.cs, DiscriminateVolume.cxx, DumpToSQLITE3.cxx, DumpVisusChange.cxx, ExplicitLittleEndian.cs, GenerateDICOMDIR.cs, GenerateRTSTRUCT.cxx, ReadUTF8QtDir.cxx, ScanDirectory.cs, SortImage.cxx, StandardizeFiles.cs, VolumeSorter.cxx, gdcmorthoplanes.cxx, reslicesphere.cxx, and threadgdcm.cxx.

12.92.4.6 Print()

```
void gdcm::Directory::Print (
            std::ostream & os = std::cout) const
```

Print.

Examples

SortImage.cxx.

Referenced by operator<<.

12.92.5 Friends And Related Symbol Documentation

12.92.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Directory & d)  [friend]
```

References Directory(), and Print().

The documentation for this class was generated from the following file:

- gdcmDirectory.h

12.93 gdcm::DirectoryHelper Class Reference

DirectoryHelper.

```
#include <gdcmDirectoryHelper.h>
```

Static Public Member Functions

- static Directory::FilenamesType GetCTImageSeriesUIDs (const std::string &inDirectory)
- static Directory::FilenamesType GetFilenamesFromSeriesUIDs (const std::string &inDirectory, const std::string &inSeriesUID)
- static std::string GetFrameOfReference (const std::vector< DataSet > &inDS)
- static Directory::FilenamesType GetMRImageSeriesUIDs (const std::string &inDirectory)
- static Directory::FilenamesType GetRTStructSeriesUIDs (const std::string &inDirectory)
- static Directory::FilenamesType GetSeriesUIDsBySOPClassUID (const std::string &inDirectory, const std::string &inSOPClassUID)
- static std::string GetSOPClassUID (const std::vector< DataSet > &inDS)
- static std::string GetStringValueFromTag (const Tag &t, const DataSet &ds)
- static std::vector< DataSet > LoadImageFromFiles (const std::string &inDirectory, const std::string &inSeriesUID)
- static std::string RetrieveSOPInstanceUIDFromIndex (int inIndex, const std::vector< DataSet > &inDS)
- static std::string RetrieveSOPInstanceUIDFromZPosition (double inZPos, const std::vector< DataSet > &inDS)

12.93.1 Detailed Description

DirectoryHelper.

this class is designed to help mitigate some of the commonly performed operations on directories. namely: 1) the ability to determine the number of series in a directory by what type of series is present 2) the ability to find all ct series in a directory 3) the ability to find all mr series in a directory 4) to load a set of DataSets from a series that's already been sorted by the IPP sorter 5) For rtstruct stuff, you need to know the sopinstanceuid of each z plane, so there's a retrieval function for that 6) then a few other functions for rtstruct writeouts

12.93.2 Member Function Documentation

12.93.2.1 GetCTImageSeriesUIDs()

```
Directory::FilenamesType gdcm::DirectoryHelper::GetCTImageSeriesUIDs (
            const std::string & inDirectory)  [static]
```

12.93.2.2 GetFilenamesFromSeriesUIDs()

```
Directory::FilenamesType gdcm::DirectoryHelper::GetFilenamesFromSeriesUIDs (
            const std::string & inDirectory,
            const std::string & inSeriesUID)  [static]
```

Examples

GenerateRTSTRUCT.cxx.

12.93.2.3 GetFrameOfReference()

```
std::string gdcm::DirectoryHelper::GetFrameOfReference (
            const std::vector< DataSet > & inDS)  [static]
```

12.93.2.4 GetMRImageSeriesUIDs()

```
Directory::FilenamesType gdcm::DirectoryHelper::GetMRImageSeriesUIDs (
            const std::string & inDirectory)  [static]
```

12.93.2.5 GetRTStructSeriesUIDs()

```
Directory::FilenamesType gdcm::DirectoryHelper::GetRTStructSeriesUIDs (
            const std::string & inDirectory)  [static]
```

Examples

GenerateRTSTRUCT.cxx.

12.93.2.6 GetSeriesUIDsBySOPClassUID()

```
Directory::FilenamesType gdcm::DirectoryHelper::GetSeriesUIDsBySOPClassUID (
            const std::string & inDirectory,
            const std::string & inSOPClassUID)  [static]
```

12.93.2.7 GetSOPClassUID()

```
std::string gdcm::DirectoryHelper::GetSOPClassUID (
            const std::vector< DataSet > & inDS)  [static]
```

12.93.2.8 GetStringValueFromTag()

```
std::string gdcm::DirectoryHelper::GetStringValueFromTag (
            const Tag & t,
            const DataSet & ds)  [static]
```

12.93.2.9 LoadImageFromFiles()

```
std::vector< DataSet > gdcm::DirectoryHelper::LoadImageFromFiles (
            const std::string & inDirectory,
            const std::string & inSeriesUID)  [static]
```

12.93.2.10 RetrieveSOPInstanceUIDFromIndex()

```
std::string gdcm::DirectoryHelper::RetrieveSOPInstanceUIDFromIndex (
            int inIndex,
            const std::vector< DataSet > & inDS)  [static]
```

12.93.2.11 RetrieveSOPInstanceUIDFromZPosition()

```
std::string gdcm::DirectoryHelper::RetrieveSOPInstanceUIDFromZPosition (
            double inZPos,
            const std::vector< DataSet > & inDS)  [static]
```

The documentation for this class was generated from the following file:

- gdcmDirectoryHelper.h

12.94 gdcm::DPath Class Reference

class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.google.com/g/comp.protocols.dicom/c/IyIH0IOBMPA`

```
#include <gdcmDPath.h>
```

Public Member Functions

- DPath ()
- ~DPath ()
- bool ConstructFromString (const char *path)
- bool Match (DPath const &other) const

  Return whether or not 'other' match the template DPath.
- bool operator< (const DPath &rhs) const
- void Print (std::ostream &) const

Static Public Member Functions

- static bool IsValid (const char *path)

  Return if path is valid or not.

Friends

- std::ostream & operator<< (std::ostream &_os, const DPath &_val)

12.94.1 Detailed Description

class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.google.com/g/comp.protocols.dicom/c/IyIH0IOBMPA`

12.94.2 Constructor & Destructor Documentation

12.94.2.1 DPath()

```
gdcm::DPath::DPath ()
```

Referenced by Match(), operator<(), and operator<<.

12.94.2.2 ~DPath()

```
gdcm::DPath::~DPath ()
```

12.94.3 Member Function Documentation

12.94.3.1 ConstructFromString()

```
bool gdcm::DPath::ConstructFromString (
            const char * path)
```

Examples

Cleaner.cs.

12.94.3.2 IsValid()

```
bool gdcm::DPath::IsValid (
            const char * path)  [static]
```

Return if path is valid or not.

12.94.3.3 Match()

```
bool gdcm::DPath::Match (
            DPath const & other) const
```

Return whether or not 'other' match the template DPath.

References DPath().

12.94.3.4 operator<()

```
bool gdcm::DPath::operator< (
            const DPath & rhs) const
```

References DPath().

12.94.3.5 Print()

```
void gdcm::DPath::Print (
            std::ostream & ) const
```

12.94.4 Friends And Related Symbol Documentation

12.94.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const DPath & _val)  [friend]
```

References DPath().

The documentation for this class was generated from the following file:

- gdcmDPath.h

12.95 gdcm::DummyValueGenerator Class Reference

Class for generating dummy value.

`#include <gdcmDummyValueGenerator.h>`

Static Public Member Functions

- static const char * Generate (const char *input)

12.95.1 Detailed Description

Class for generating dummy value.

See also

Anonymizer

12.95.2 Member Function Documentation

12.95.2.1 Generate()

```
const char * gdcm::DummyValueGenerator::Generate (
            const char * input)  [static]
```

Generate a dummy value from an input value. This is guarantee to always return the same output value when input is identical. Return an array of bytes that can be used for anonymization purpose, return NULL on error NOT THREAD SAFE

The documentation for this class was generated from the following file:

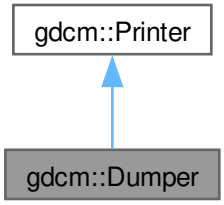
- gdcmDummyValueGenerator.h

12.96 gdcm::Dumper Class Reference

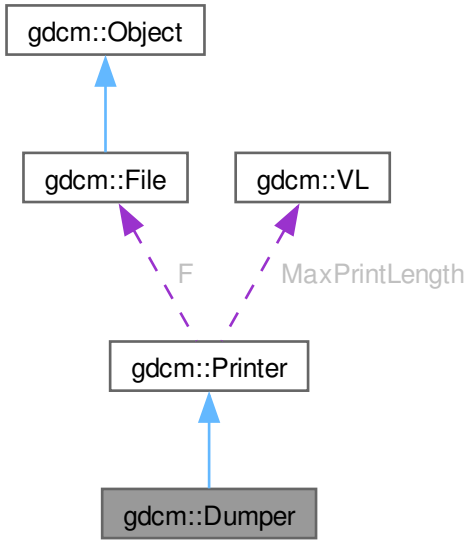
Codec class.

`#include <gdcmDumper.h>`

Inheritance diagram for gdcm::Dumper:



Collaboration diagram for gdcm::Dumper:



Public Member Functions

- Dumper ()
- ~Dumper ()=default

Public Member Functions inherited from gdcm::Printer

- Printer ()
- ~Printer ()=default
- PrintStyles GetPrintStyle () const

  Get PrintStyle value.
- void Print (std::ostream &os)

  Print.
- void PrintDataSet (const DataSet &ds, std::ostream &os, const std::string &s="")

  Print an individual dataset.
- void SetColor (bool c)

  Set color mode or not.
- void SetFile (File const &f)

  Set file.
- void SetStyle (PrintStyles ps)

  Set PrintStyle value.

Additional Inherited Members

Public Types inherited from gdcm::Printer

- enum PrintStyles {
  VERBOSE_STYLE = 0 ,
  CONDENSED_STYLE ,
  XML ,
  CXX }

Protected Member Functions inherited from gdcm::Printer

- VR PrintDataElement (std::ostringstream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, std::ostream &out, std::string const &indent)
- void PrintSQ (const SequenceOfItems *sqi, std::ostream &os, std::string const &indent)

Protected Attributes inherited from gdcm::Printer

- const File * F
- VL MaxPrintLength
- PrintStyles PrintStyle

12.96.1 Detailed Description

Codec class.

Note

Use it to simply dump value read from the file. No interpretation is done. But it is real fast ! Almost no overhead

12.96.2 Constructor & Destructor Documentation

12.96.2.1 Dumper()

```
gdcm::Dumper::Dumper () [inline]
```

References gdcm::Printer::CONDENSED_STYLE, and gdcm::Printer::PrintStyle.

12.96.2.2 ~Dumper()

```
gdcm::Dumper::~Dumper () [default]
```

The documentation for this class was generated from the following file:

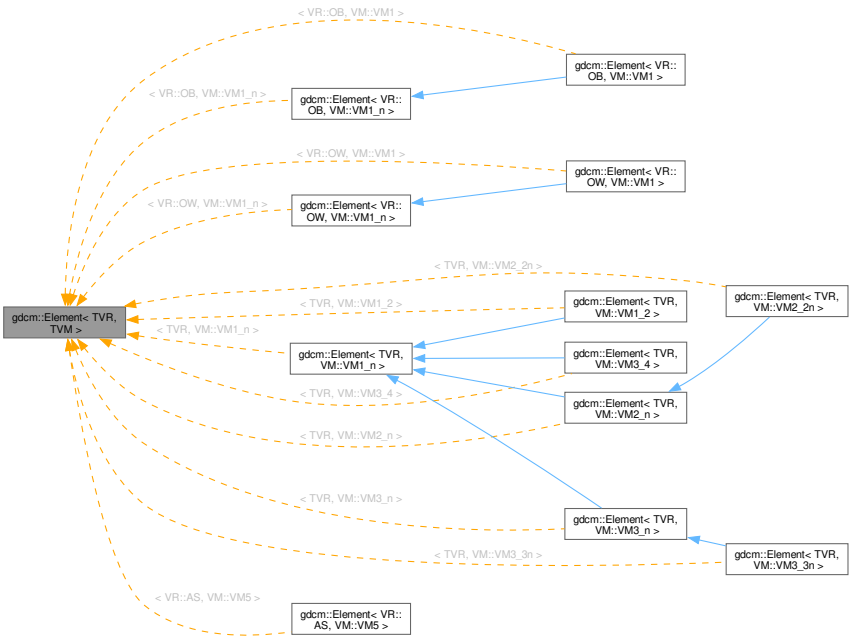
- gdcmDumper.h

12.97 gdcm::Element< TVR, TVM > Class Template Reference

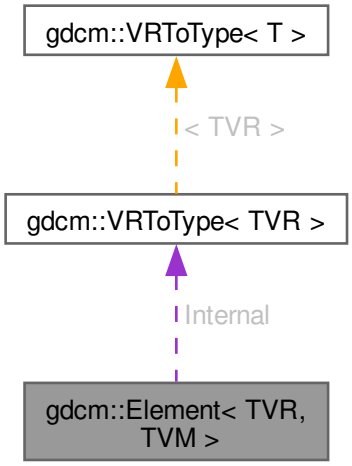
Element class.

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, TVM >:



Collaboration diagram for gdcm::Element< TVR, TVM >:



Public Types

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

12.97.1 Detailed Description

template<long long TVR, int TVM>
class gdcm::Element< TVR, TVM >

Element class.

Note

TODO

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GetSubSequenceData.cxx, csa2img.cxx, and iU22tomultisc.cxx.

12.97.2 Member Typedef Documentation

12.97.2.1 Type

```
template<long long TVR, int TVM>
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.97.3 Member Function Documentation

12.97.3.1 GetAsDataElement()

```
template<long long TVR, int TVM>
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

Examples

Extracting_All_Resolution.cxx, and Fake_Image_Using_Stream_Image_Writer.cxx.

References gdcm_assert, GetLength(), gdcm::DataElement::GetVR(), GetVR(), Internal, gdcm::DataElement::SetByteValue(), gdcm::DataElement::SetVR(), gdcm::VR::SQ, gdcm::VR::UI, gdcm::VR::VRASCII, and Write().

12.97.3.2 GetLength()

```
template<long long TVR, int TVM>
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

Examples

DumpGEMSMovieGroup.cxx, and GetSubSequenceData.cxx.

Referenced by GetAsDataElement(), Read(), Set(), SetNoSwap(), and Write().

12.97.3.3 GetValue() [1/2]

```
template<long long TVR, int TVM>
VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0)  [inline]
```

References gdcm_assert, and Internal.

12.97.3.4 GetValue() [2/2]

```
template<long long TVR, int TVM>
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, GetSubSequenceData.cxx, and csa2img.cxx.

References gdcm_assert, and Internal.

Referenced by operator[ ]().

12.97.3.5 GetValues()

```
template<long long TVR, int TVM>
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

References Internal.

12.97.3.6 GetVM()

```
template<long long TVR, int TVM>
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.97.3.7 GetVR()

```
template<long long TVR, int TVM>
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

Referenced by GetAsDataElement().

12.97.3.8 operator[]()

```
template<long long TVR, int TVM>
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

References GetValue().

12.97.3.9 Print()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

Examples

DumpGEMSMovieGroup.cxx.

References Internal.

12.97.3.10 Read()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

References GetLength(), Internal, and Read().

Referenced by Read(), and Set().

12.97.3.11 Set()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

Examples

csa2img.cxx.

References gdcm::ByteValue::GetLength(), GetLength(), gdcm::ByteValue::GetPointer(), Internal, and Read().

Referenced by SetFromDataElement().

12.97.3.12 SetFromDataElement()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, TVM > const & de)  [inline]
```

Examples

DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, GetSubSequenceData.cxx, and iU22tomultisc.cxx.

References gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetValue(), gdcm::DataElement::GetVR(), gdcm::VR::INVALID, Set(), SetNoSwap(), and gdcm::VR::UN.

12.97.3.13 SetNoSwap()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

References gdcm_assert, gdcm::ByteValue::GetLength(), GetLength(), gdcm::ByteValue::GetPointer(), and Internal.

Referenced by SetFromDataElement().

12.97.3.14 SetValue()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

Examples

Extracting_All_Resolution.cxx, and Fake_Image_Using_Stream_Image_Writer.cxx.

References gdcm_assert, and Internal.

12.97.3.15 Write()

```
template<long long TVR, int TVM>
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

References GetLength(), Internal, and Write().

Referenced by GetAsDataElement(), and Write().

12.97.4 Member Data Documentation

12.97.4.1 Internal

```
template<long long TVR, int TVM>
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

Referenced by GetAsDataElement(), GetValue(), GetValue(), GetValues(), Print(), Read(), Set(), SetNoSwap(), SetValue(), and Write().

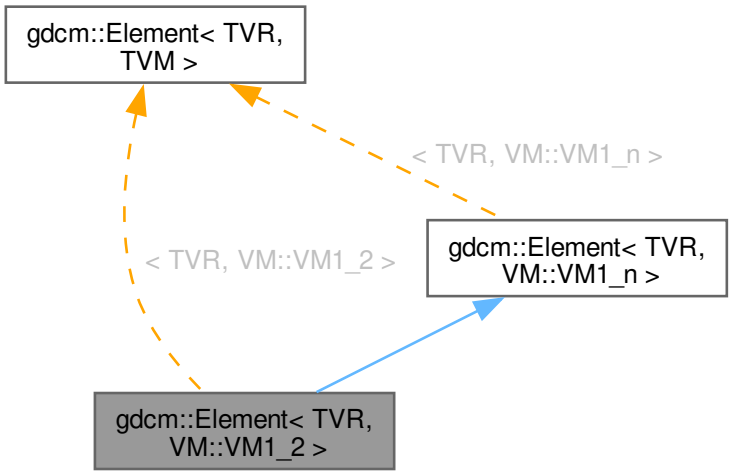
The documentation for this class was generated from the following file:

- gdcmElement.h

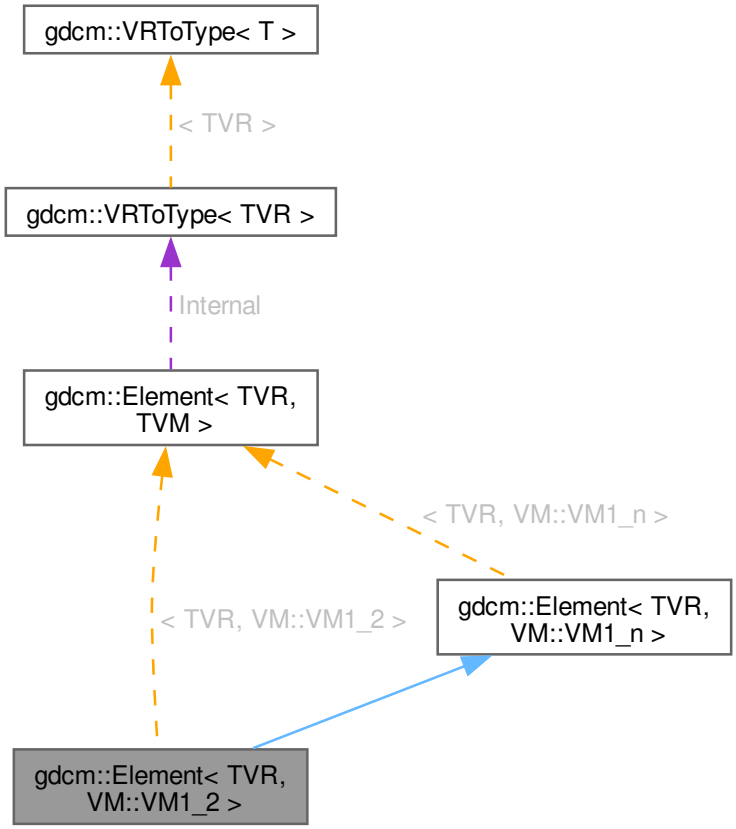
12.98 gdcm::Element< TVR, VM::VM1_2 > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM1_2 >:



Collaboration diagram for gdcm::Element< TVR, VM::VM1_2 >:



Public Types

- typedef Element< TVR, VM::VM1_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const

- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.98.1 Member Typedef Documentation

12.98.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM1_n> gdcm::Element< TVR, VM::VM1_2 >::Parent
```

12.98.1.2 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.98.2 Member Function Documentation

12.98.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.98.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.98.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.98.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.98.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.98.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.98.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.98.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.98.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.98.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.98.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, VM::VM1_2 > const & de)  [inline]
```

12.98.2.12 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_2 >::SetLength (
            int len)  [inline]
```

References gdcm::Element< TVR, VM::VM1_n >::SetLength().

12.98.2.13 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.98.2.14 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.98.2.15 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.98.3 Member Data Documentation

12.98.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

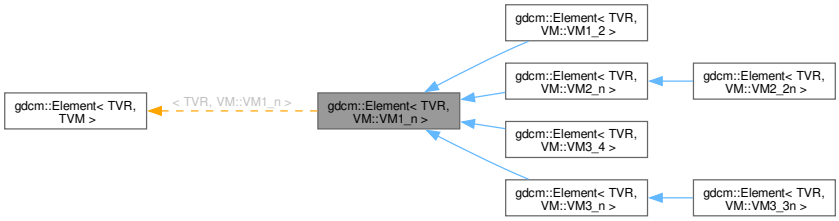
The documentation for this class was generated from the following file:

- gdcmElement.h

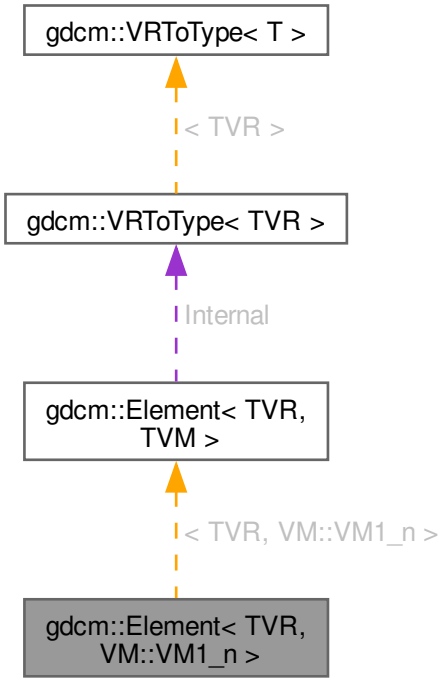
12.99 gdcm::Element< TVR, VM::VM1_n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM1_n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM1_n >:



Public Types

- typedef VRToType< TVR >::Type Type

Public Member Functions

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)

- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Protected Member Functions

- void SetNoSwap (Value const &v)

12.99.1 Member Typedef Documentation

12.99.1.1 Type

```
template<long long TVR>
typedef VRToType<TVR>::Type gdcm::Element< TVR, VM::VM1_n >::Type
```

12.99.2 Constructor & Destructor Documentation

12.99.2.1 Element() [1/2]

```
template<long long TVR>
gdcm::Element< TVR, VM::VM1_n >::Element ()  [inline], [explicit]
```

Referenced by Element(), and operator=().

12.99.2.2 ~Element()

```
template<long long TVR>
gdcm::Element< TVR, VM::VM1_n >::~Element ()  [inline]
```

12.99.2.3 Element() [2/2]

```
template<long long TVR>
gdcm::Element< TVR, VM::VM1_n >::Element (
            const Element< TVR, VM::VM1_n > & _val)  [inline]
```

References Element().

12.99.3 Member Function Documentation

12.99.3.1 GetAsDataElement()

```
template<long long TVR>
DataElement gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement () const  [inline]
```

References gdcm_assert, GetLength(), gdcm::DataElement::GetVR(), GetVR(), gdcm::DataElement::SetByteValue(), gdcm::DataElement::SetVR(), gdcm::VR::SQ, gdcm::VR::UI, gdcm::VR::VRASCII, and Write().

12.99.3.2 GetLength()

```
template<long long TVR>
unsigned long gdcm::Element< TVR, VM::VM1_n >::GetLength () const  [inline]
```

Referenced by GetAsDataElement(), Print(), Read(), Set(), SetNoSwap(), Write(), and WriteASCII().

12.99.3.3 GetValue() [1/2]

```
template<long long TVR>
VRToType< TVR >::Type & gdcm::Element< TVR, VM::VM1_n >::GetValue (
            unsigned int idx = 0)  [inline]
```

12.99.3.4 GetValue() [2/2]

```
template<long long TVR>
const VRToType< TVR >::Type & gdcm::Element< TVR, VM::VM1_n >::GetValue (
            unsigned int idx = 0) const  [inline]
```

References gdcm_assert.

Referenced by operator[]().

12.99.3.5 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.99.3.6 GetVM()

```
template<long long TVR>
VM gdcm::Element< TVR, VM::VM1_n >::GetVM ()  [inline], [static]
```

References gdcm::VM::VM1_n.

12.99.3.7 GetVR()

```
template<long long TVR>
VR gdcm::Element< TVR, VM::VM1_n >::GetVR ()  [inline], [static]
```

Referenced by GetAsDataElement().

12.99.3.8 operator=()

```
template<long long TVR>
Element & gdcm::Element< TVR, VM::VM1_n >::operator= (
            const Element< TVR, VM::VM1_n > & _val)  [inline]
```

References Element(), and SetArray().

12.99.3.9 operator[]()

```
template<long long TVR>
VRToType< TVR >::Type gdcm::Element< TVR, VM::VM1_n >::operator[] (
            unsigned int idx) const  [inline]
```

References GetValue().

12.99.3.10 Print()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::Print (
            std::ostream & _os) const  [inline]
```

References gdcm_assert, and GetLength().

12.99.3.11 Read()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::Read (
            std::istream & _is)  [inline]
```

References GetLength(), and Read().

Referenced by Read(), and Set().

12.99.3.12 Set()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::Set (
            Value const & v)  [inline]
```

References gdcm_assert, gdcm::ByteValue::GetLength(), GetLength(), gdcm::ByteValue::GetPointer(), gdcm::ByteValue::GetVoidPointer(
Read(), SetArray(), and gdcm::VR::VRBINARY.

Referenced by SetFromDataElement().

12.99.3.13 SetArray()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetArray (
            const Type * array,
            unsigned long len,
            bool save = false)  [inline]
```

References gdcm_assert, and SetLength().

Referenced by operator=(), Set(), and SetNoSwap().

12.99.3.14 SetFromDataElement()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetFromDataElement (
            DataElement< TVR, VM::VM1_n > const & de)  [inline]
```

References gdcm::DataElement::GetByteValue(), gdcm::DataElement::GetValue(), gdcm::DataElement::GetVR(), gdcm::VR::INVALID, Set(), SetNoSwap(), and gdcm::VR::UN.

12.99.3.15 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetLength (
            unsigned long len)  [inline]
```

References gdcm_assert.

Referenced by SetArray(), gdcm::Element< TVR, VM::VM1_2 >::SetLength(), gdcm::Element< TVR, VM::VM2_n >::SetLength(), gdcm::Element< TVR, VM::VM3_4 >::SetLength(), and gdcm::Element< TVR, VM::VM3_n >::SetLength().

12.99.3.16 SetNoSwap()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetNoSwap (
             Value const & v)  [inline], [protected]
```

References gdcm_assert, gdcm::ByteValue::GetLength(), GetLength(), gdcm::ByteValue::GetPointer(), SetArray(), and gdcm::VR::VRBINARY.

Referenced by SetFromDataElement().

12.99.3.17 SetValue()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::SetValue (
             typename VRToType< TVR >::Type v,
             unsigned int idx = 0)  [inline]
```

References gdcm_assert.

12.99.3.18 Write()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::Write (
             std::ostream & _os) const  [inline]
```

References GetLength(), and Write().

Referenced by GetAsDataElement(), and Write().

12.99.3.19 WriteASCII()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM1_n >::WriteASCII (
             std::ostream & os) const  [inline]
```

References GetLength().

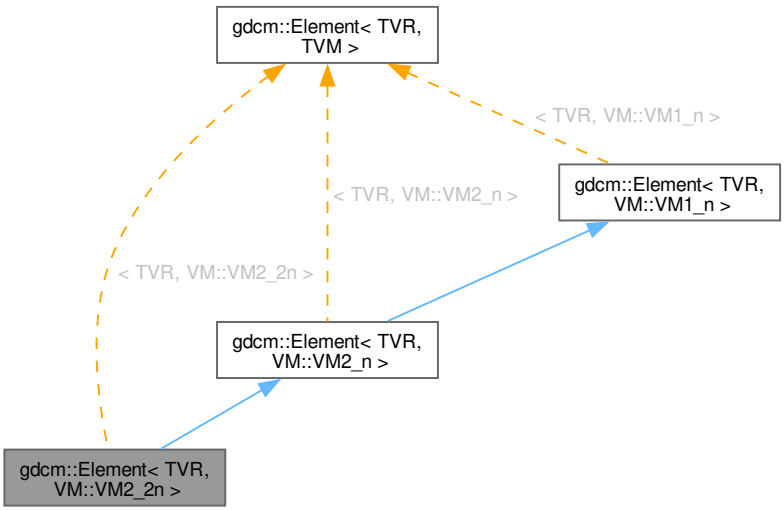
The documentation for this class was generated from the following file:

- gdcmElement.h

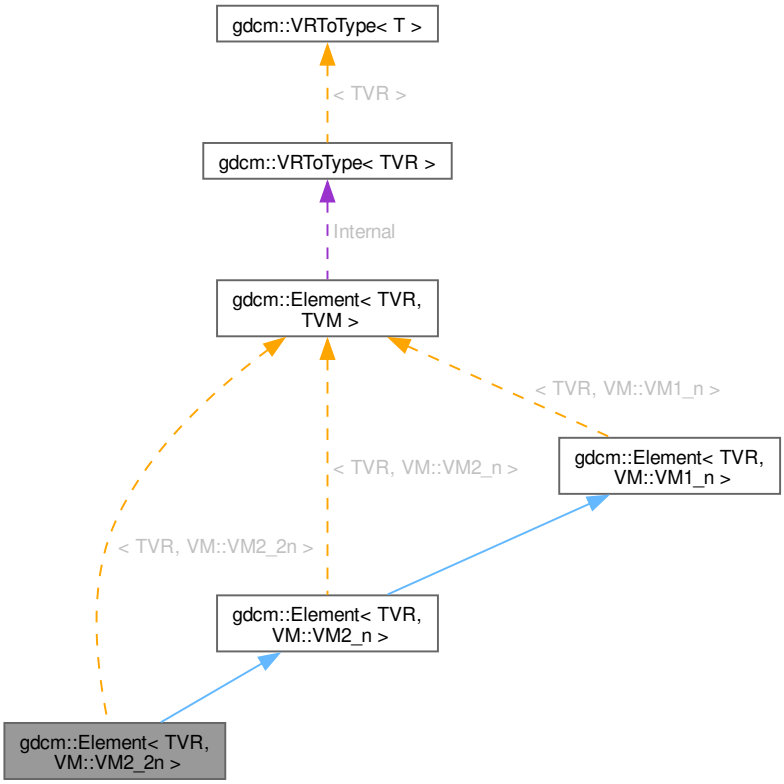
12.100 gdcm::Element< TVR, VM::VM2_2n > Class Template Reference

`#include <gdcmElement.h>`

Inheritance diagram for gdcm::Element< TVR, VM::VM2_2n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM2_2n >:



Public Types

- typedef Element< TVR, VM::VM2_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM2_n >

- typedef Element< TVR, VM::VM1_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM2_n >

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM2_n >

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Public Attributes inherited from gdcm::Element< TVR, VM::VM2_n >

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM2_n >

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.100.1 Member Typedef Documentation

12.100.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM2_n> gdcm::Element< TVR, VM::VM2_2n >::Parent
```

12.100.1.2 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.100.2 Member Function Documentation

12.100.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.100.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.100.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.100.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.100.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.100.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.100.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.100.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.100.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.100.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.100.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, VM::VM2_2n > const & de)  [inline]
```

12.100.2.12 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM2_2n >::SetLength (
            int len)  [inline]
```

References gdcm::Element< TVR, VM::VM2_n >::SetLength().

12.100.2.13 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.100.2.14 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.100.2.15 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.100.3 Member Data Documentation

12.100.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

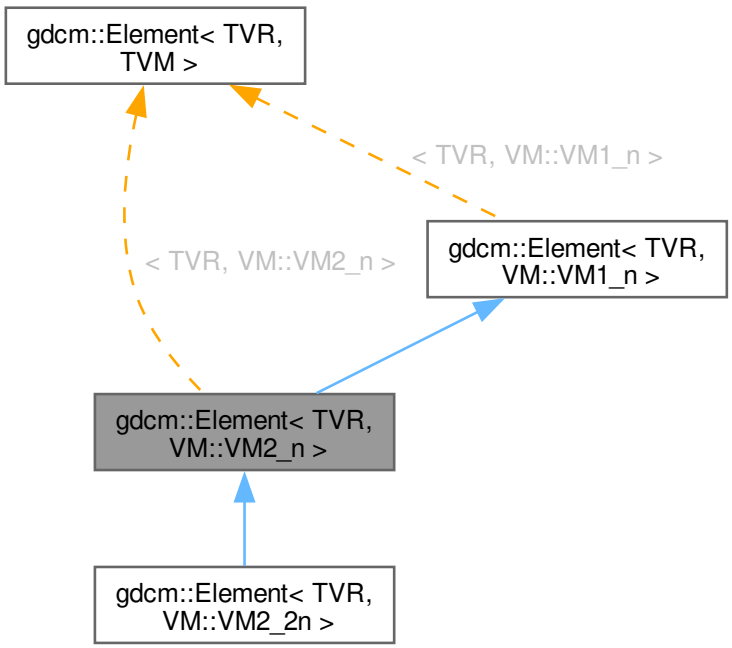
The documentation for this class was generated from the following file:

- gdcmElement.h

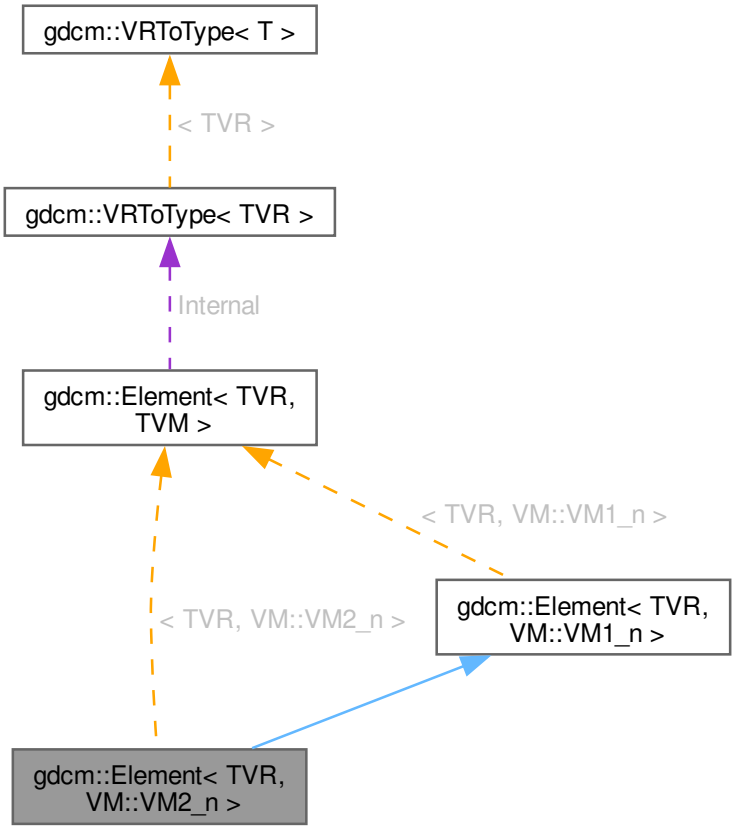
12.101 gdcm::Element< TVR, VM::VM2_n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM2_n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM2_n >:



Public Types

- typedef Element< TVR, VM::VM1_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const

- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.101.1 Member Typedef Documentation

12.101.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM1_n> gdcm::Element< TVR, VM::VM2_n >::Parent
```

12.101.1.2 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.101.2 Member Function Documentation

12.101.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.101.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.101.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.101.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.101.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.101.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.101.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.101.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.101.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.101.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.101.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, VM::VM2_n > const & de)  [inline]
```

12.101.2.12 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM2_n >::SetLength (
            int len)  [inline]
```

References gdcm::Element< TVR, VM::VM1_n >::SetLength().

Referenced by gdcm::Element< TVR, VM::VM2_2n >::SetLength().

12.101.2.13 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.101.2.14 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.101.2.15 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.101.3 Member Data Documentation

12.101.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

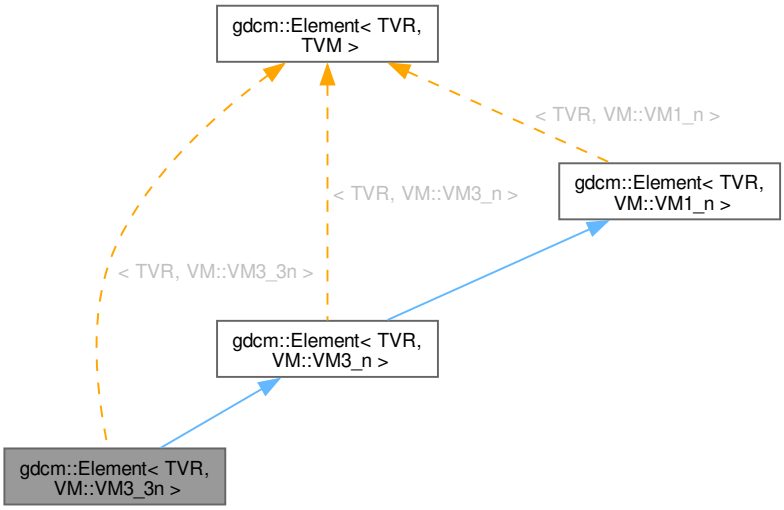
The documentation for this class was generated from the following file:

- gdcmElement.h

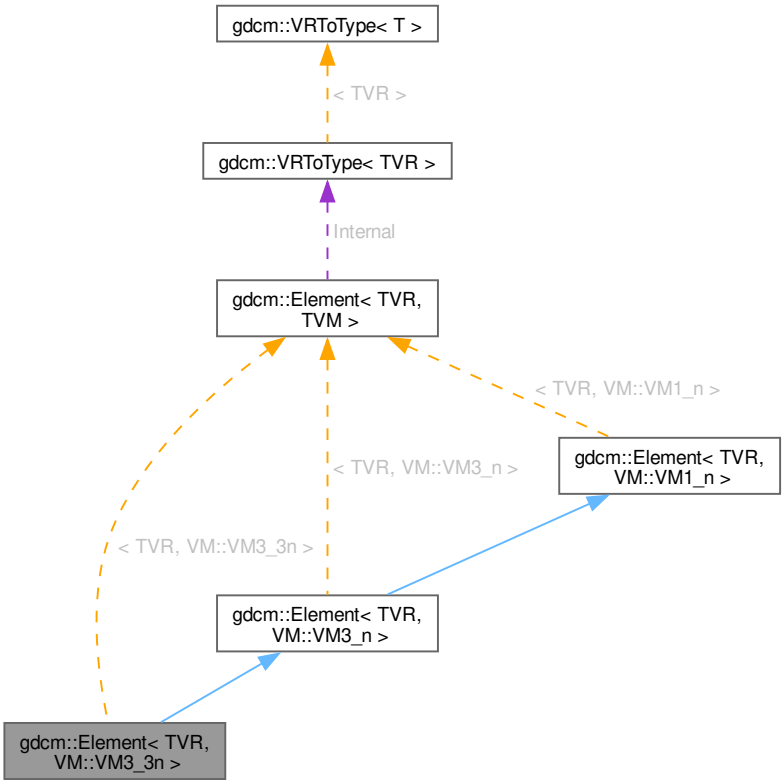
12.102 gdcm::Element< TVR, VM::VM3_3n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM3_3n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM3_3n >:



Public Types

- typedef Element< TVR, VM::VM3_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM3_n >

- typedef Element< TVR, VM::VM1_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM3_n >

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM3_n >

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Public Attributes inherited from gdcm::Element< TVR, VM::VM3_n >

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM3_n >

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.102.1 Member Typedef Documentation

12.102.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM3_n> gdcm::Element< TVR, VM::VM3_3n >::Parent
```

12.102.1.2 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.102.2 Member Function Documentation

12.102.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.102.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.102.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.102.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.102.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.102.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.102.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.102.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.102.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.102.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.102.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, VM::VM3_3n > const & de)  [inline]
```

12.102.2.12 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM3_3n >::SetLength (
            int len)  [inline]
```

References gdcm::Element< TVR, VM::VM3_n >::SetLength().

12.102.2.13 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.102.2.14 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.102.2.15 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.102.3 Member Data Documentation

12.102.3.1 Internal

`VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]`

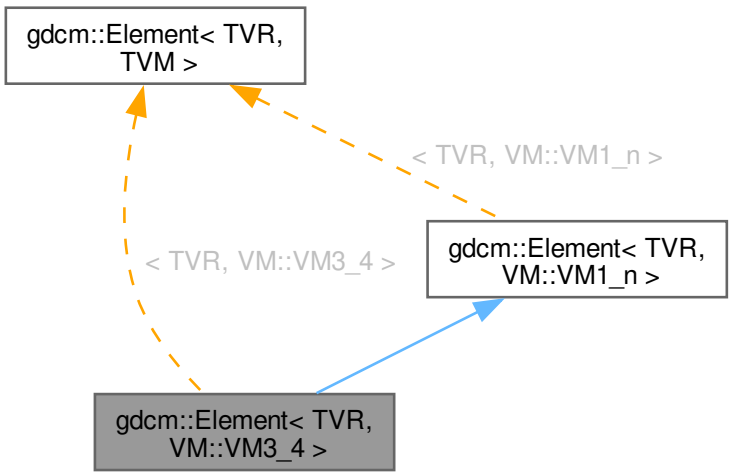
The documentation for this class was generated from the following file:

- gdcmElement.h

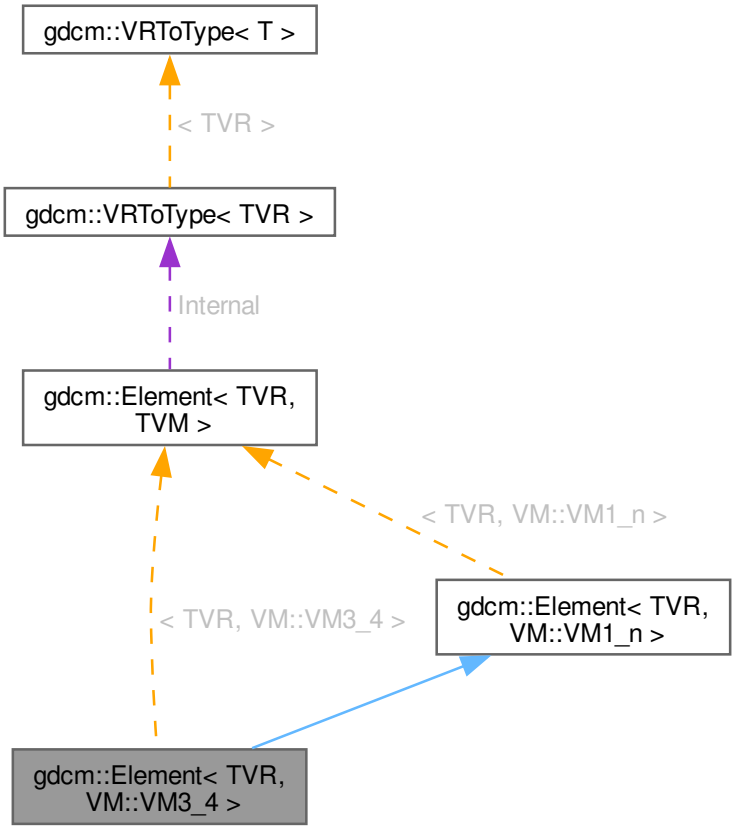
12.103 gdcm::Element< TVR, VM::VM3_4 > Class Template Reference

`#include <gdcmElement.h>`

Inheritance diagram for gdcm::Element< TVR, VM::VM3_4 >:



Collaboration diagram for gdcm::Element< TVR, VM::VM3_4 >:



Public Types

- typedef Element< TVR, VM::VM1_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const

- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.103.1 Member Typedef Documentation

12.103.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM1_n> gdcm::Element< TVR, VM::VM3_4 >::Parent
```

12.103.1.2 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.103.2 Member Function Documentation

12.103.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.103.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.103.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.103.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.103.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.103.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.103.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.103.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.103.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.103.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.103.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, VM::VM3_4 > const & de)  [inline]
```

12.103.2.12 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM3_4 >::SetLength (
            int len)  [inline]
```

References gdcm::Element< TVR, VM::VM1_n >::SetLength().

12.103.2.13 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.103.2.14 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.103.2.15 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.103.3 Member Data Documentation

12.103.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

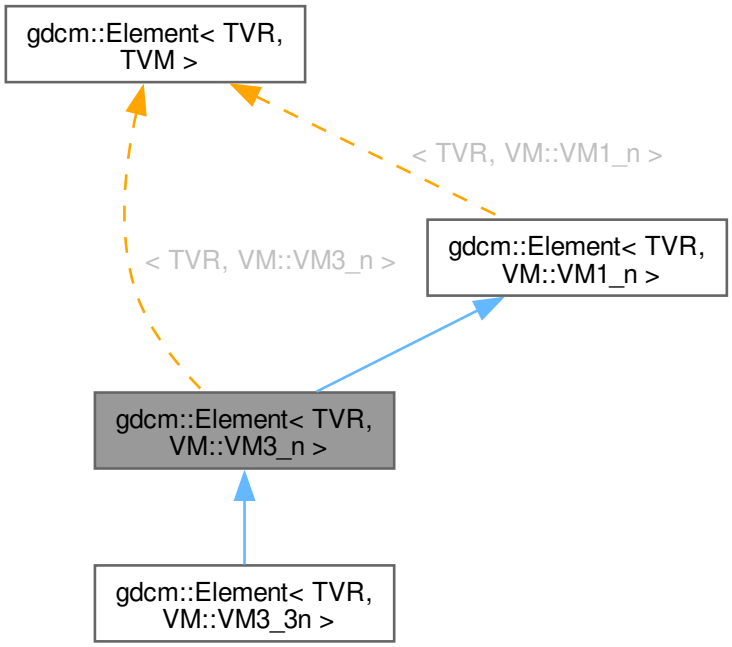
The documentation for this class was generated from the following file:

- gdcmElement.h

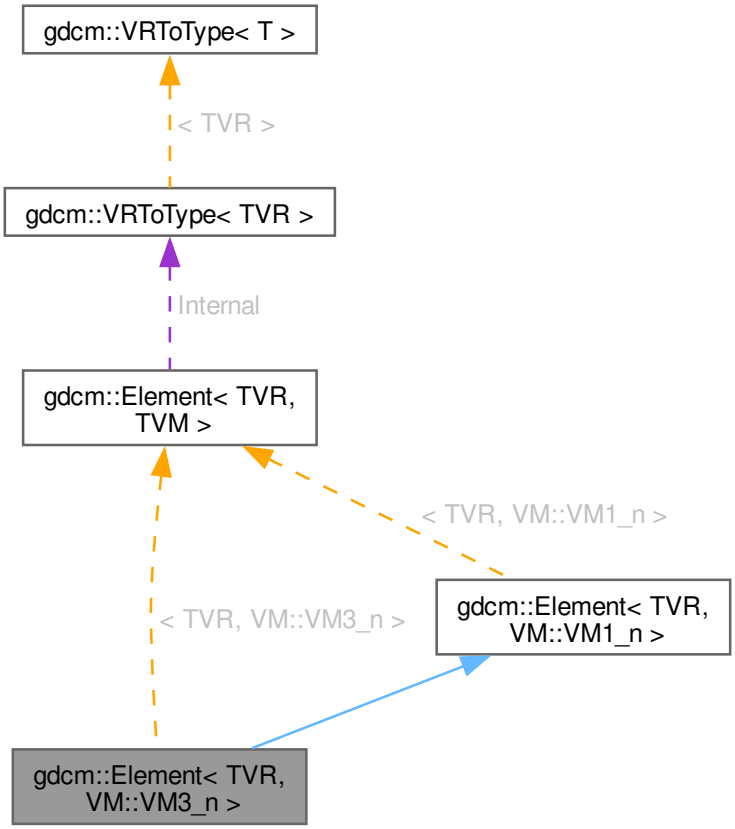
12.104 gdcm::Element< TVR, VM::VM3_n > Class Template Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< TVR, VM::VM3_n >:



Collaboration diagram for gdcm::Element< TVR, VM::VM3_n >:



Public Types

- typedef Element< TVR, VM::VM1_n > Parent
- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< TVR, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const

- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetLength (int len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- Element ()
- Element (const Element &_val)
- ~Element ()
- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- VRToType< TVR >::Type & GetValue (unsigned int idx=0)
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- Element & operator= (const Element &_val)
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetArray (const Type *array, unsigned long len, bool save=false)
- void SetFromDataElement (DataElement const &de)
- void SetLength (unsigned long len)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const
- void WriteASCII (std::ostream &os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< TVR, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.104.1 Member Typedef Documentation

12.104.1.1 Parent

```
template<long long TVR>
typedef Element<TVR, VM::VM1_n> gdcm::Element< TVR, VM::VM3_n >::Parent
```

12.104.1.2 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.104.2 Member Function Documentation

12.104.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.104.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.104.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.104.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.104.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.104.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.104.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.104.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.104.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.104.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.104.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< TVR, VM::VM3_n > const & de)  [inline]
```

12.104.2.12 SetLength()

```
template<long long TVR>
void gdcm::Element< TVR, VM::VM3_n >::SetLength (
            int len)  [inline]
```

References gdcm::Element< TVR, VM::VM1_n >::SetLength().

Referenced by gdcm::Element< TVR, VM::VM3_3n >::SetLength().

12.104.2.13 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
             Value const & v)  [inline], [protected]
```

12.104.2.14 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
             typename VRToType< TVR >::Type v,
             unsigned int idx = 0)  [inline]
```

12.104.2.15 Write()

```
void gdcm::Element< TVR, TVM >::Write (
             std::ostream & _os) const  [inline]
```

12.104.3 Member Data Documentation

12.104.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

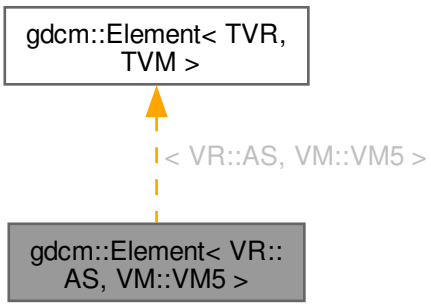
The documentation for this class was generated from the following file:

- gdcmElement.h

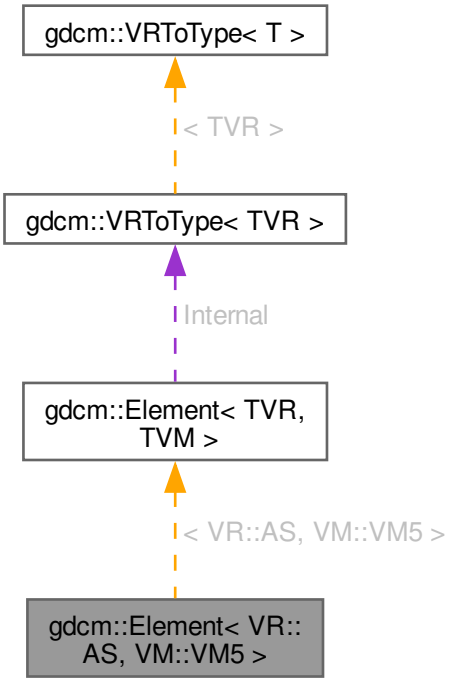
12.105 gdcm::Element< VR::AS, VM::VM5 > Class Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< VR::AS, VM::VM5 >:



Collaboration diagram for gdcm::Element< VR::AS, VM::VM5 >:



Public Types

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- char Internal [VMToLength< VM::VM5 >::Length *sizeof(VRToType< VR::AS >::Type)]

Protected Member Functions

- void SetNoSwap (Value const &v)

12.105.1 Member Typedef Documentation

12.105.1.1 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.105.2 Member Function Documentation

12.105.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.105.2.2 GetLength()

```
unsigned long gdcm::Element< VR::AS, VM::VM5 >::GetLength () const  [inline]
```

12.105.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.105.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.105.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.105.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.105.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.105.2.8 Print()

```
void gdcm::Element< VR::AS, VM::VM5 >::Print (
            std::ostream & _os) const  [inline]
```

References Internal.

12.105.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.105.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.105.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< VR::AS, VM::VM5 > const & de)  [inline]
```

12.105.2.12 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.105.2.13 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.105.2.14 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.105.3 Member Data Documentation

12.105.3.1 Internal

```
char gdcm::Element< VR::AS, VM::VM5 >::Internal[VMToLength< VM::VM5 >::Length *sizeof(VRToType<
VR::AS >::Type)]
```

Referenced by Print().

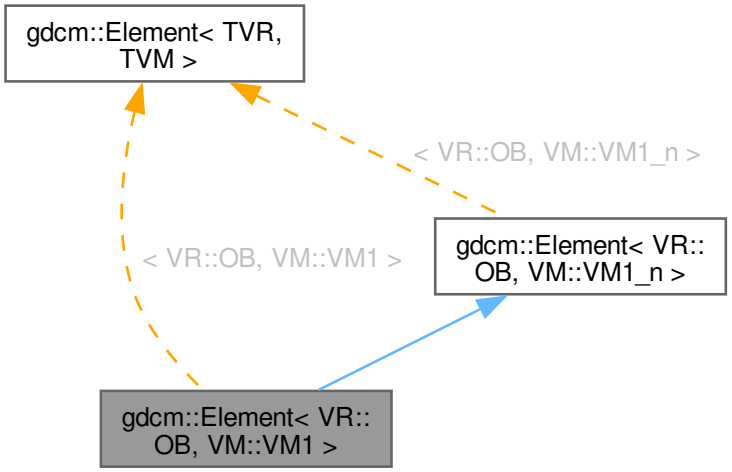
The documentation for this class was generated from the following file:

- gdcmElement.h

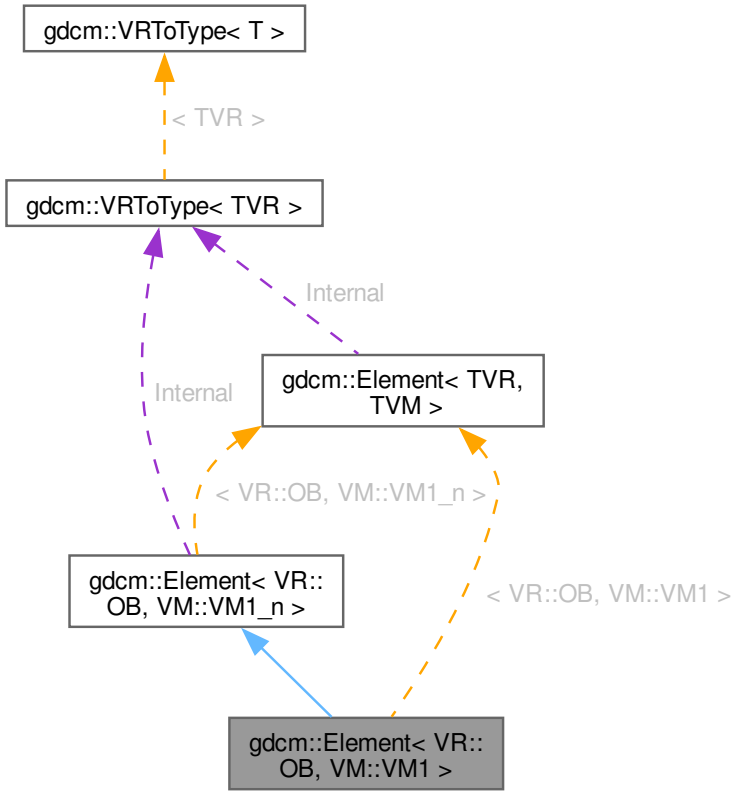
12.106 gdcm::Element< VR::OB, VM::VM1 > Class Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::Element< VR::OB, VM::VM1 >:



Collaboration diagram for gdcm::Element< VR::OB, VM::VM1 >:



Public Types

- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< VR::OB, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const

- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< VR::OB, VM::VM1_n >

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< VR::OB, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Public Attributes inherited from gdcm::Element< VR::OB, VM::VM1_n >

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< VR::OB, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.106.1 Member Typedef Documentation

12.106.1.1 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.106.2 Member Function Documentation

12.106.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.106.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.106.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.106.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.106.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.106.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.106.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.106.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.106.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.106.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.106.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< VR::OB, VM::VM1 > const & de)  [inline]
```

12.106.2.12 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.106.2.13 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.106.2.14 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.106.3 Member Data Documentation

12.106.3.1 Internal

`VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]`

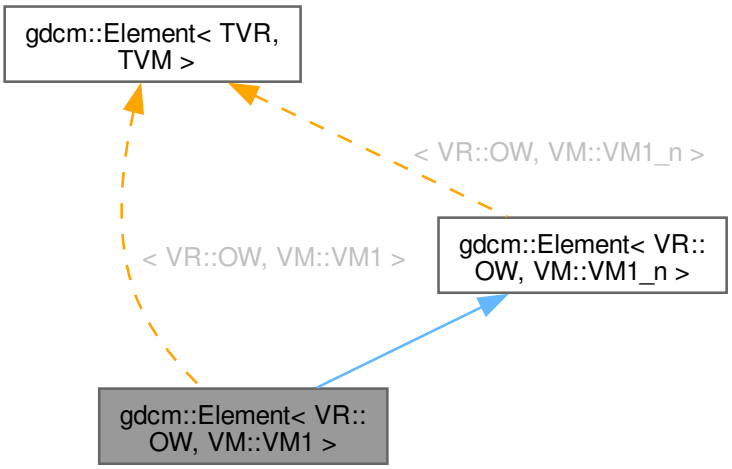
The documentation for this class was generated from the following file:

- gdcmElement.h

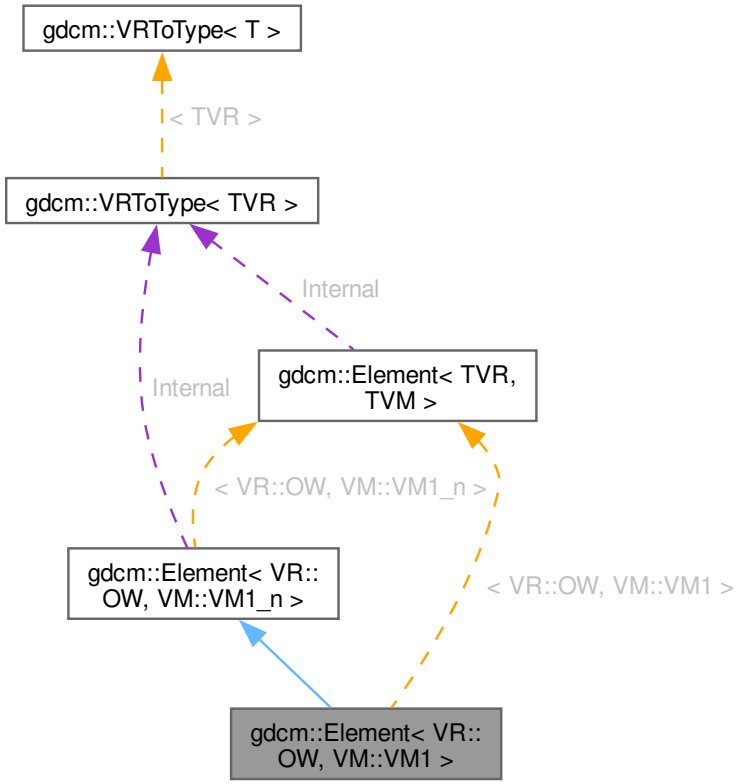
12.107 gdcm::Element< VR::OW, VM::VM1 > Class Reference

`#include <gdcmElement.h>`

Inheritance diagram for gdcm::Element< VR::OW, VM::VM1 >:



Collaboration diagram for gdcm::Element< VR::OW, VM::VM1 >:



Public Types

- typedef VRToType< TVR >::Type Type

Public Types inherited from gdcm::Element< VR::OW, VM::VM1_n >

- typedef VRToType< TVR >::Type Type

Public Member Functions

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const

- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Public Member Functions inherited from gdcm::Element< VR::OW, VM::VM1_n >

- DataElement GetAsDataElement () const
- unsigned long GetLength () const
- const VRToType< TVR >::Type & GetValue (unsigned int idx=0) const
- const VRToType< TVR >::Type * GetValues () const
- VRToType< TVR >::Type operator[ ] (unsigned int idx) const
- void Print (std::ostream &_os) const
- void Read (std::istream &_is)
- void Set (Value const &v)
- void SetFromDataElement (DataElement const &de)
- void SetValue (typename VRToType< TVR >::Type v, unsigned int idx=0)
- void Write (std::ostream &_os) const

Static Public Member Functions

- static VM GetVM ()
- static VR GetVR ()

Static Public Member Functions inherited from gdcm::Element< VR::OW, VM::VM1_n >

- static VM GetVM ()
- static VR GetVR ()

Public Attributes

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Public Attributes inherited from gdcm::Element< VR::OW, VM::VM1_n >

- VRToType< TVR >::Type Internal [VMToLength< TVM >::Length]

Protected Member Functions

- void SetNoSwap (Value const &v)

Protected Member Functions inherited from gdcm::Element< VR::OW, VM::VM1_n >

- void SetNoSwap (Value const &v)

12.107.1 Member Typedef Documentation

12.107.1.1 Type

```
typedef VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Type
```

12.107.2 Member Function Documentation

12.107.2.1 GetAsDataElement()

```
DataElement gdcm::Element< TVR, TVM >::GetAsDataElement () const  [inline]
```

12.107.2.2 GetLength()

```
unsigned long gdcm::Element< TVR, TVM >::GetLength () const  [inline]
```

12.107.2.3 GetValue()

```
const VRToType< TVR >::Type & gdcm::Element< TVR, TVM >::GetValue (
            unsigned int idx = 0) const  [inline]
```

12.107.2.4 GetValues()

```
const VRToType< TVR >::Type * gdcm::Element< TVR, TVM >::GetValues () const  [inline]
```

12.107.2.5 GetVM()

```
VM gdcm::Element< TVR, TVM >::GetVM ()  [inline], [static]
```

12.107.2.6 GetVR()

```
VR gdcm::Element< TVR, TVM >::GetVR ()  [inline], [static]
```

12.107.2.7 operator[]()

```
VRToType< TVR >::Type gdcm::Element< TVR, TVM >::operator[] (
            unsigned int idx) const  [inline]
```

12.107.2.8 Print()

```
void gdcm::Element< TVR, TVM >::Print (
            std::ostream & _os) const  [inline]
```

12.107.2.9 Read()

```
void gdcm::Element< TVR, TVM >::Read (
            std::istream & _is)  [inline]
```

12.107.2.10 Set()

```
void gdcm::Element< TVR, TVM >::Set (
            Value const & v)  [inline]
```

12.107.2.11 SetFromDataElement()

```
void gdcm::Element< TVR, TVM >::SetFromDataElement (
            DataElement< VR::OW, VM::VM1 > const & de)  [inline]
```

12.107.2.12 SetNoSwap()

```
void gdcm::Element< TVR, TVM >::SetNoSwap (
            Value const & v)  [inline], [protected]
```

12.107.2.13 SetValue()

```
void gdcm::Element< TVR, TVM >::SetValue (
            typename VRToType< TVR >::Type v,
            unsigned int idx = 0)  [inline]
```

12.107.2.14 Write()

```
void gdcm::Element< TVR, TVM >::Write (
            std::ostream & _os) const  [inline]
```

12.107.3 Member Data Documentation

12.107.3.1 Internal

```
VRToType<TVR>::Type gdcm::Element< TVR, TVM >::Internal[VMToLength< TVM >::Length]
```

The documentation for this class was generated from the following file:

- gdcmElement.h

12.108 gdcm::ElementDisableCombinations< TVR, TVM > Class Template Reference

A class which is used to produce compile errors for an invalid combination of template parameters.

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::ElementDisableCombinations< TVR, TVM >:

12.108.1 Detailed Description

template<long long TVR, int TVM>
class gdcm::ElementDisableCombinations< TVR, TVM >

A class which is used to produce compile errors for an invalid combination of template parameters.

Invalid combinations have specialized declarations with no definition.

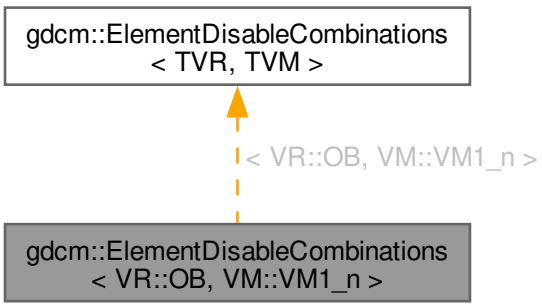
The documentation for this class was generated from the following file:

- gdcmElement.h

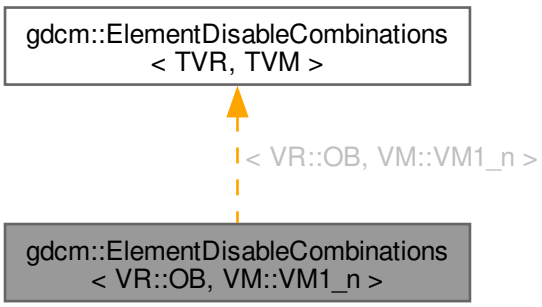
12.109 gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n > Class Reference

`#include <gdcmElement.h>`

Inheritance diagram for gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n >:



Collaboration diagram for gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n >:



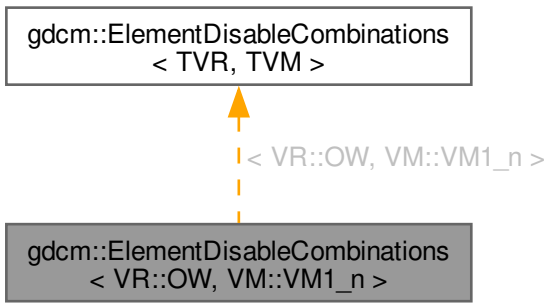
The documentation for this class was generated from the following file:

- gdcmElement.h

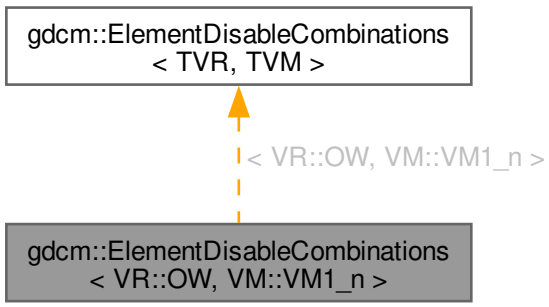
12.110 gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n > Class Reference

`#include <gdcmElement.h>`

Inheritance diagram for gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n >:



Collaboration diagram for gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n >:



The documentation for this class was generated from the following file:

- gdcmElement.h

12.111 gdcm::EmptyMaskGenerator Class Reference

EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory.

`#include <gdcmEmptyMaskGenerator.h>`

Public Types

- enum SOPClassUIDMode {
  UseOriginalSOPClassUID = 0 ,
  UseGrayscaleSecondaryImageStorage }

Public Member Functions

- EmptyMaskGenerator ()
- ~EmptyMaskGenerator ()
- bool Execute ()
  Main loop.
- void SetInputDirectory (const char *dirname)
  Specify input directory.
- void SetOutputDirectory (const char *dirname)
  Specify output directory.
- void SetSOPClassUIDMode (SOPClassUIDMode mode)

12.111.1 Detailed Description

EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory.

The class allow two mode of operations:

- UseOriginalSOPClassUID
- UseGrayscaleSecondaryImageStorage

UseOriginalSOPClassUID is the mode where original attributes are copied from the original DICOM instance.

UseGrayscaleSecondaryImageStorage is the mode where attributes are generated so as to create a Multiframe↩ GrayscaleByteSecondaryCaptureImageStorage (MultiframeGrayscaleWordSecondaryCaptureImageStorage) instance.

In both mode:

- the Study references (StudyInstanceUID and StudyID) are preserved.
- the PatientID reference is preserved.
- the Image Type attribute will be setup so that the fourth element is set to 'MASK'.
- a new Series Instance UID is generated. It is thus required to run the process over all files using the same input Series Instance UID so that a proper mapping from the old Series UID is done to the new one. Since a new Series Instance UID is generated, there is no sense to preserve the original Frame of Reference UID, although it would have made sense here.

Examples

EmptyMask.cxx.

12.111.2 Member Enumeration Documentation

12.111.2.1 SOPClassUIDMode

```
enum gdcm::EmptyMaskGenerator::SOPClassUIDMode
```

Enumerator

UseOriginalSOPClassUID	
UseGrayscaleSecondaryImageStorage	

12.111.3 Constructor & Destructor Documentation

12.111.3.1 EmptyMaskGenerator()

```
gdcm::EmptyMaskGenerator::EmptyMaskGenerator ()
```

12.111.3.2 ~EmptyMaskGenerator()

```
gdcm::EmptyMaskGenerator::~EmptyMaskGenerator ()
```

12.111.4 Member Function Documentation

12.111.4.1 Execute()

```
bool gdcm::EmptyMaskGenerator::Execute ()
```

Main loop.

Examples

EmptyMask.cxx.

12.111.4.2 SetInputDirectory()

```
void gdcm::EmptyMaskGenerator::SetInputDirectory (
            const char * dirname)
```

Specify input directory.

Examples

EmptyMask.cxx.

12.111.4.3 SetOutputDirectory()

```
void gdcm::EmptyMaskGenerator::SetOutputDirectory (
            const char * dirname)
```

Specify output directory.

Examples

EmptyMask.cxx.

12.111.4.4 SetSOPClassUIDMode()

```
void gdcm::EmptyMaskGenerator::SetSOPClassUIDMode (
            SOPClassUIDMode mode)
```

Select generation of SOP Class UID method: Default is UseOriginalSOPClassUID

Examples

EmptyMask.cxx.

The documentation for this class was generated from the following file:

- gdcmEmptyMaskGenerator.h

12.112 gdcm::EncapsulatedDocument Class Reference

EncapsulatedDocument.

`#include <gdcmEncapsulatedDocument.h>`

Public Member Functions

- EncapsulatedDocument ()=default

12.112.1 Detailed Description

EncapsulatedDocument.

12.112.2 Constructor & Destructor Documentation

12.112.2.1 EncapsulatedDocument()

```
gdcm::EncapsulatedDocument::EncapsulatedDocument () [default]
```

The documentation for this class was generated from the following file:

- gdcmEncapsulatedDocument.h

12.113 gdcm::EncodingImplementation< T > Class Template Reference

EncodingImplementation.

Inheritance diagram for gdcm::EncodingImplementation< T >:

12.113.1 Detailed Description

template<long long T>
class gdcm::EncodingImplementation< T >

EncodingImplementation.

Note

TODO

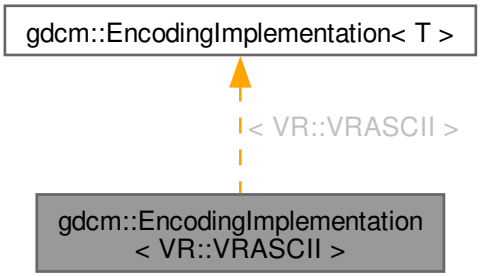
The documentation for this class was generated from the following file:

- gdcmElement.h

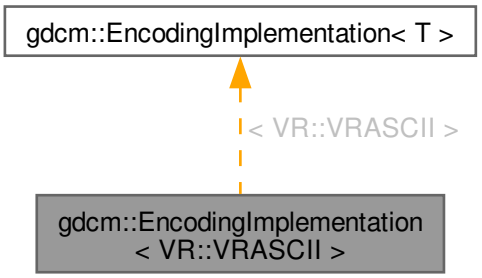
12.114 gdcm::EncodingImplementation< VR::VRASCII > Class Reference

`#include <gdcmElement.h>`

Inheritance diagram for gdcm::EncodingImplementation< VR::VRASCII >:



Collaboration diagram for gdcm::EncodingImplementation< VR::VRASCII >:



Public Member Functions

- template<> void Write (const double *data, unsigned long length, std::ostream &_os)

Static Public Member Functions

- template<typename T>
  static void Read (T *data, unsigned long length, std::istream &_is)
- template<typename T>
  static void ReadComputeLength (T *data, unsigned int &length, std::istream &_is)
- template<typename T>
  static void ReadNoSwap (T *data, unsigned long length, std::istream &_is)
- template<typename T>
  static void Write (const T *data, unsigned long length, std::ostream &_os)

12.114.1 Member Function Documentation

12.114.1.1 Read()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRASCII >::Read (
            T * data,
            unsigned long length,
            std::istream & _is)  [inline], [static]
```

References gdcm_assert.

Referenced by ReadNoSwap().

12.114.1.2 ReadComputeLength()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRASCII >::ReadComputeLength (
            T * data,
            unsigned int & length,
            std::istream & _is)  [inline], [static]
```

References gdcm::backslash(), and gdcm_assert.

12.114.1.3 ReadNoSwap()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRASCII >::ReadNoSwap (
            T * data,
            unsigned long length,
            std::istream & _is)  [inline], [static]
```

References Read().

12.114.1.4 Write() [1/2]

```
template<>
void gdcm::EncodingImplementation< VR::VRASCII >::Write (
             const double * data,
             unsigned long length,
             std::ostream & _os)  [inline]
```

References gdcm_assert, and gdcm::x16printf().

12.114.1.5 Write() [2/2]

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRASCII >::Write (
             const T * data,
             unsigned long length,
             std::ostream & _os)  [inline], [static]
```

References gdcm_assert.

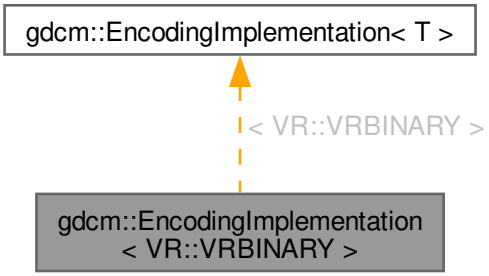
The documentation for this class was generated from the following file:

- gdcmElement.h

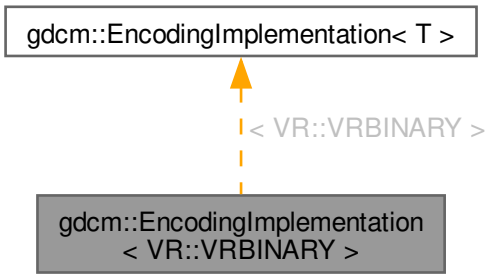
12.115 gdcm::EncodingImplementation< VR::VRBINARY > Class Reference

```
#include <gdcmElement.h>
```

Inheritance diagram for gdcm::EncodingImplementation< VR::VRBINARY >:



Collaboration diagram for gdcm::EncodingImplementation< VR::VRBINARY >:



Static Public Member Functions

- template<typename T>
  static void Read (T *data, unsigned long length, std::istream &_is)
- template<typename T>
  static void ReadComputeLength (T *data, unsigned int &length, std::istream &_is)
- template<typename T>
  static void ReadNoSwap (T *data, unsigned long length, std::istream &_is)
- template<typename T>
  static void Write (const T *data, unsigned long length, std::ostream &_os)

12.115.1 Member Function Documentation

12.115.1.1 Read()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRBINARY >::Read (
            T * data,
            unsigned long length,
            std::istream & _is)  [inline], [static]
```

References gdcm_assert, and gdcm::SwapperNoOp::SwapArray().

12.115.1.2 ReadComputeLength()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRBINARY >::ReadComputeLength (
            T * data,
            unsigned int & length,
            std::istream & _is)  [inline], [static]
```

References gdcm_assert.

12.115.1.3 ReadNoSwap()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRBINARY >::ReadNoSwap (
             T * data,
             unsigned long length,
             std::istream & _is)  [inline], [static]
```

References gdcm_assert.

12.115.1.4 Write()

```
template<typename T>
void gdcm::EncodingImplementation< VR::VRBINARY >::Write (
             const T * data,
             unsigned long length,
             std::ostream & _os)  [inline], [static]
```

References gdcm_assert, and gdcm::SwapperNoOp::Swap().

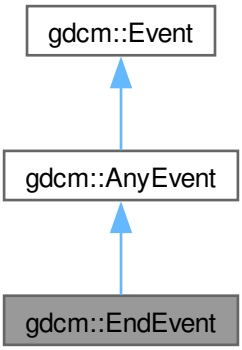
The documentation for this class was generated from the following file:

- gdcmElement.h

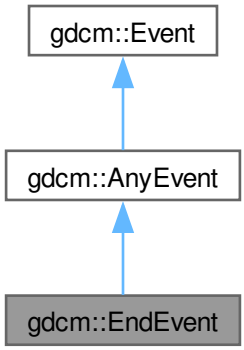
12.116 gdcm::EndEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::EndEvent:



Collaboration diagram for gdcm::EndEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.117 gdcm::EnumeratedValues Class Reference

Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

`#include <gdcmEnumeratedValues.h>`

Public Member Functions

- EnumeratedValues ()=default

12.117.1 Detailed Description

Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

1. Patient Sex (0010, 0040) is an example of a Data Element having Enumerated Values. It is defined to have a Value that is either "M", "F", or "O" (see PS 3.3). No other Value shall be given to this Data Element.
2. Future modifications of this standard may add to the set of allowed values for Data Elements with Enumerated Values. Such additions by themselves may or may not require a change in SOP Class UIDs, depending on the semantics of the Data Element.

12.117.2 Constructor & Destructor Documentation

12.117.2.1 EnumeratedValues()

```
gdcm::EnumeratedValues::EnumeratedValues () [default]
```

The documentation for this class was generated from the following file:

- gdcmEnumeratedValues.h

12.118 gdcm::EquipmentManufacturer Class Reference

```
#include <gdcmEquipmentManufacturer.h>
```

Public Types

- enum Type {
  UNKNOWN = 0 ,
  AGFA ,
  FUJI ,
  GEMS ,
  HITACHI ,
  KODAK ,
  MARCONI ,
  PMS ,
  SAMSUNG ,
  SIEMENS ,
  TOSHIBA ,
  UIH }

Static Public Member Functions

- static Type Compute (DataSet const &ds)
- static const char * TypeToString (Type type)

12.118.1 Detailed Description

The intent is for private tags handling. This class is not meant to handle all possible vendors in the world, simply those well known where we intend to read private tags afterwards (typically SIEMENS+CSA, GEMS+PDB ...)

12.118.2 Member Enumeration Documentation

12.118.2.1 Type

```
enum gdcm::EquipmentManufacturer::Type
```

Enumerator

UNKNOWN	
AGFA	
FUJI	
GEMS	
HITACHI	
KODAK	
MARCONI	
PMS	
SAMSUNG	
SIEMENS	
TOSHIBA	
UIH	

12.118.3 Member Function Documentation

12.118.3.1 Compute()

```
Type gdcm::EquipmentManufacturer::Compute (
            DataSet const & ds)  [static]
```

12.118.3.2 TypeToString()

```
const char * gdcm::EquipmentManufacturer::TypeToString (
            Type type)  [static]
```

The documentation for this class was generated from the following file:

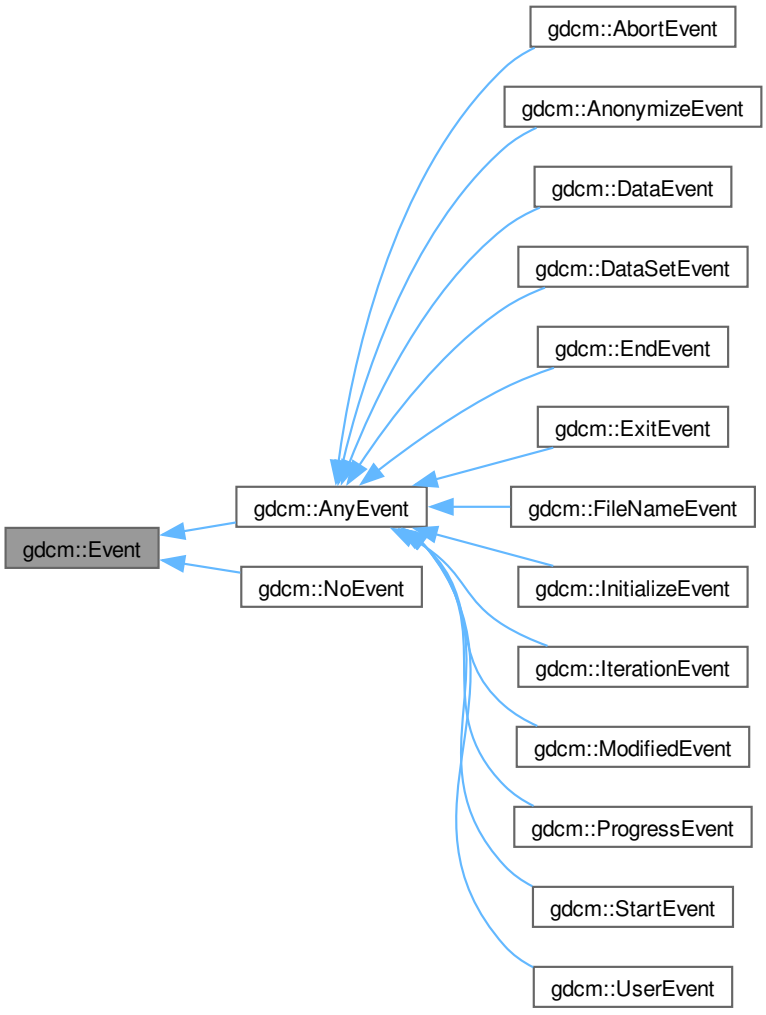
- gdcmEquipmentManufacturer.h

12.119 gdcm::Event Class Reference

superclass for callback/observer methods

`#include <gdcmEvent.h>`

Inheritance diagram for gdcm::Event:



Public Member Functions

- Event ()
- Event (const Event &)
- virtual ~Event ()

- virtual bool CheckEvent (const Event ∗) const =0
- virtual const char ∗ GetEventName () const =0
- virtual Event ∗ MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

12.119.1 Detailed Description

superclass for callback/observer methods

See also

Command Subject

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, ScanDirectory.cs, and SimpleScanner.cxx.

12.119.2 Constructor & Destructor Documentation

12.119.2.1 Event() [1/2]

```
gdcm::Event::Event ()
```

Referenced by Event(), CheckEvent(), MakeObject(), and operator=().

12.119.2.2 ∼Event()

```
virtual gdcm::Event::~Event ()  [virtual]
```

12.119.2.3 Event() [2/2]

```
gdcm::Event::Event (
            const Event & )
```

References Event().

12.119.3 Member Function Documentation

12.119.3.1 CheckEvent()

```
virtual bool gdcm::Event::CheckEvent (
            const Event * ) const  [pure virtual]
```

Check if given event matches or derives from this event.

Implemented in gdcm::AnonymizeEvent, gdcm::DataEvent, gdcm::DataSetEvent, gdcm::FileNameEvent, and gdcm::ProgressEvent.

References Event().

12.119.3.2 GetEventName()

```
virtual const char * gdcm::Event::GetEventName () const  [pure virtual]
```

Return the StringName associated with the event.

Implemented in gdcm::AnonymizeEvent, gdcm::DataEvent, gdcm::DataSetEvent, gdcm::FileNameEvent, and gdcm::ProgressEvent.

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, and ScanDirectory.cs.

12.119.3.3 MakeObject()

```
virtual Event * gdcm::Event::MakeObject () const  [pure virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implemented in gdcm::AnonymizeEvent, gdcm::DataEvent, gdcm::DataSetEvent, gdcm::FileNameEvent, and gdcm::ProgressEvent.

References Event().

12.119.3.4 operator=()

```
void gdcm::Event::operator= (
            const Event & )  [delete]
```

References Event().

12.119.3.5 Print()

```
virtual void gdcm::Event::Print (
            std::ostream & os) const  [virtual]
```

Print Event information. This method can be overridden by specific Event subtypes. The default is to print out the type of the event.

Referenced by gdcm::operator<<().

The documentation for this class was generated from the following file:

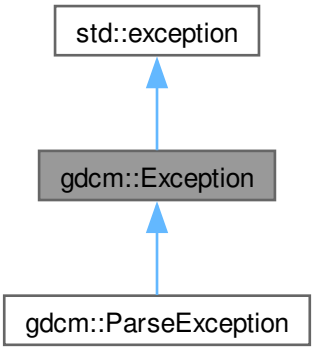
- gdcmEvent.h

12.120 gdcm::Exception Class Reference

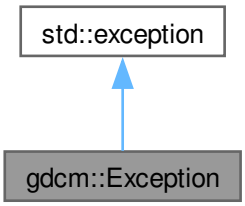
Exception.

`#include <gdcmException.h>`

Inheritance diagram for gdcm::Exception:



Collaboration diagram for gdcm::Exception:



Public Member Functions

- Exception (const char *desc="None", const char *file="/build/reproducible-path/gdcm-3.2.10/Source/Common/↩ gdcmException.h", unsigned int lineNumber=76, const char *func="")
- ~Exception () override throw ()
- const char * GetDescription () const

  Return the Description.
- const char * what () const override throw ()

  what implementation

12.120.1 Detailed Description

Exception.

Standard exception handling object.

Note

Its copy-constructor and assignment operator are generated by the compiler.

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, FileChangeTS.cs, and FileChangeTSLossy.cs.

12.120.2 Constructor & Destructor Documentation

12.120.2.1 Exception()

```
gdcm::Exception::Exception (
            const char * desc = "None",
            const char * file = "/build/reproducible-path/gdcm-3.2.10/Source/Common/gdcmException.h",
            unsigned int lineNumber = 76,
            const char * func = "")  [inline], [explicit]
```

Explicit constructor, initializing the description and the text returned by what().

Note

The last parameter is ignored for the time being. It may be used to specify the function where the exception was thrown.

Referenced by gdcm::ParseException::ParseException().

12.120.2.2 ~Exception()

```
gdcm::Exception::~Exception () throw ( )   [inline], [override]
```

12.120.3 Member Function Documentation

12.120.3.1 GetDescription()

```
const char * gdcm::Exception::GetDescription () const  [inline]
```

Return the Description.

Referenced by gdcm::SequenceOfItems::Read().

12.120.3.2 what()

```
const char * gdcm::Exception::what () const throw ( )   [inline], [override]
```

what implementation

Referenced by gdcm::SequenceOfFragments::ReadValue().

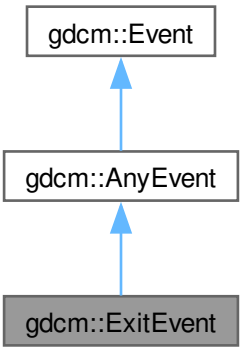
The documentation for this class was generated from the following file:

- gdcmException.h

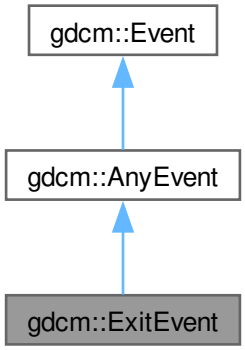
12.121 gdcm::ExitEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::ExitEvent:



Collaboration diagram for gdcm::ExitEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

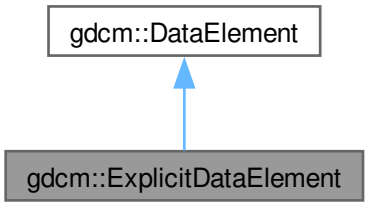
- gdcmEvent.h

12.122 gdcm::ExplicitDataElement Class Reference

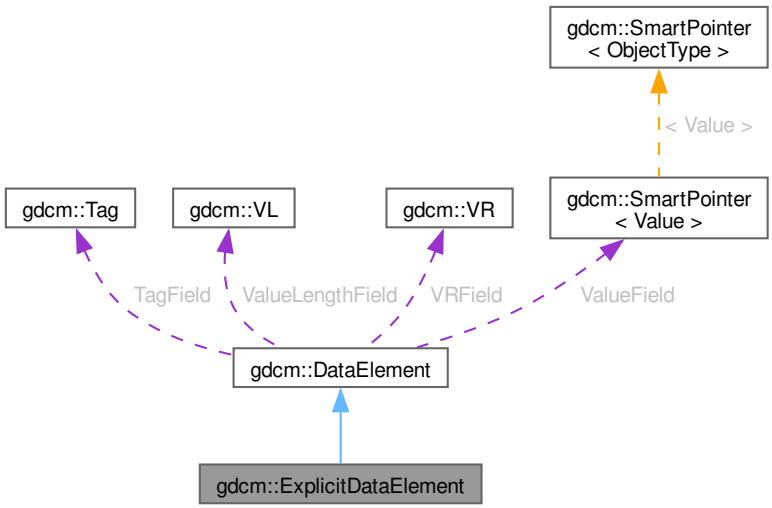
Class to read/write a DataElement as Explicit Data Element.

```
#include <gdcmExplicitDataElement.h>
```

Inheritance diagram for gdcm::ExplicitDataElement:



Collaboration diagram for gdcm::ExplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- template<typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag + VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.122.1 Detailed Description

Class to read/write a DataElement as Explicit Data Element.

Note

bla

Examples

DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, and ReadAndDumpDICOMDIR2.cxx.

12.122.2 Member Function Documentation

12.122.2.1 GetLength()

```
VL gdcm::ExplicitDataElement::GetLength () const
```

12.122.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::ExplicitDataElement::Read (
             std::istream & is)
```

12.122.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::ExplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.122.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::ExplicitDataElement::ReadValue (
             std::istream & is,
             bool readvalues = true)
```

12.122.2.5 ReadWithLength()

```
template<typename TSwap>
std::istream & gdcm::ExplicitDataElement::ReadWithLength (
             std::istream & is,
             VL & length)
```

12.122.2.6 Write()

```
template<typename TSwap>
const std::ostream & gdcm::ExplicitDataElement::Write (
             std::ostream & os) const
```

The documentation for this class was generated from the following file:

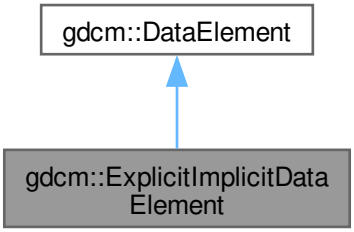
- gdcmExplicitDataElement.h

12.123 gdcm::ExplicitImplicitDataElement Class Reference

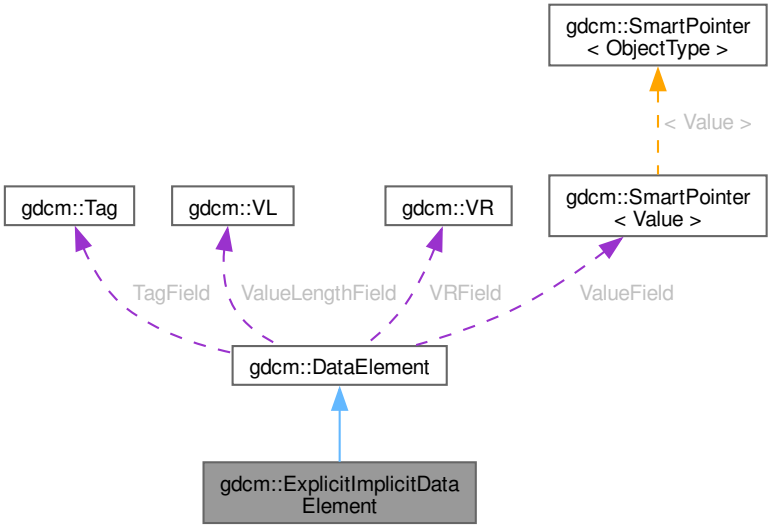
Class to read/write a DataElement as ExplicitImplicit Data Element.

```
#include <gdcmExplicitImplicitDataElement.h>
```

Inheritance diagram for gdcm::ExplicitImplicitDataElement:



Collaboration diagram for gdcm::ExplicitImplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag + VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.123.1 Detailed Description

Class to read/write a DataElement as ExplicitImplicit Data Element.

Note

This only happen for some Philips images Should I derive from ExplicitDataElement instead ? This is the class that is the closest the GDCM1.x parser. At each element we try first to read it as explicit, if this fails, then we try again as an implicit element.

12.123.2 Member Function Documentation

12.123.2.1 GetLength()

```
VL gdcm::ExplicitImplicitDataElement::GetLength () const
```

12.123.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::ExplicitImplicitDataElement::Read (
            std::istream & is)
```

Referenced by ReadWithLength().

12.123.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::ExplicitImplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.123.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::ExplicitImplicitDataElement::ReadValue (
             std::istream & is,
             bool readvalues = true)
```

12.123.2.5 ReadWithLength()

```
template<typename TSwap>
std::istream & gdcm::ExplicitImplicitDataElement::ReadWithLength (
             std::istream & is,
             VL & length)  [inline]
```

References Read().

The documentation for this class was generated from the following file:

- gdcmExplicitImplicitDataElement.h

12.124 gdcm::Fiducials Class Reference

Fiducials.

```
#include <gdcmFiducials.h>
```

Public Member Functions

- Fiducials ()=default

12.124.1 Detailed Description

Fiducials.

12.124.2 Constructor & Destructor Documentation

12.124.2.1 Fiducials()

```
gdcm::Fiducials::Fiducials () [default]
```

The documentation for this class was generated from the following file:

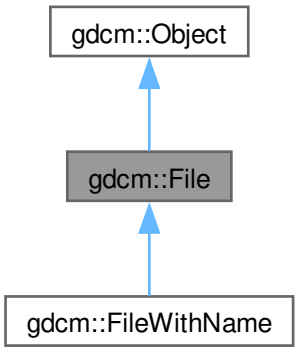
- gdcmFiducials.h

12.125 gdcm::File Class Reference

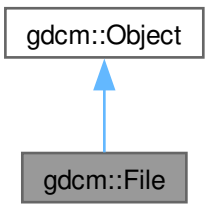
a DICOM File

```
#include <gdcmFile.h>
```

Inheritance diagram for gdcm::File:



Collaboration diagram for gdcm::File:



Public Member Functions

- File ()
- ~File () override
- DataSet & GetDataSet ()

  Get Data Set.
- const DataSet & GetDataSet () const

  Get Data Set.
- FileMetaInformation & GetHeader ()

  Get File Meta Information.
- const FileMetaInformation & GetHeader () const

  Get File Meta Information.
- std::istream & Read (std::istream &is)

  Read.
- void SetDataSet (const DataSet &ds)

  Set Data Set.
- void SetHeader (const FileMetaInformation &fmi)

  Set File Meta Information.
- std::ostream const & Write (std::ostream &os) const

  Write.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Friends

- std::ostream & operator<< (std::ostream &os, const File &val)

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.125.1 Detailed Description

a DICOM File

See PS 3.10 File: A File is an ordered string of zero or more bytes, where the first byte is at the beginning of the file and the last byte at the end of the File. Files are identified by a unique File ID and may by written, read and/or deleted.

See also

Reader Writer

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, DiffFile.cxx, DumpCSA.cs, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cx FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, MpegVideoInfo.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndPrintAttributes.cxx, ReadGEMSSDO.cxx, SimplePrint.cs, SimplePrintPatientName.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, and iU22tomultisc.cxx.

12.125.2 Constructor & Destructor Documentation

12.125.2.1 File()

```
gdcm::File::File ()
```

Referenced by gdcm::FileWithName::FileWithName(), ~File(), and operator<<.

12.125.2.2 ~File()

```
gdcm::File::~File ()  [override]
```

References File(), and operator<<.

12.125.3 Member Function Documentation

12.125.3.1 GetDataSet() [1/2]

```
DataSet & gdcm::File::GetDataSet ()  [inline]
```

Get Data Set.

12.125.3.2 GetDataSet() [2/2]

```
const DataSet & gdcm::File::GetDataSet () const  [inline]
```

Get Data Set.

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DecompressImage.cs, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MergeTwoFiles.cxx, MrProtocol.cxx, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, SimplePrint.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.125.3.3 GetHeader() [1/2]

```
FileMetaInformation & gdcm::File::GetHeader ()  [inline]
```

Get File Meta Information.

12.125.3.4 GetHeader() [2/2]

```
const FileMetaInformation & gdcm::File::GetHeader () const  [inline]
```

Get File Meta Information.

Examples

CreateJPIPDataSet.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixJAIBugJPEGLS.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GetJPEGSamplePrecision.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReformatFile.cs, StandardizeFiles.cs, StreamImageReaderTest.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

Referenced by operator<<.

12.125.3.5 Read()

```
std::istream & gdcm::File::Read (
            std::istream & is)
```

Read.

12.125.3.6 SetDataSet()

```
void gdcm::File::SetDataSet (
            const DataSet & ds)  [inline]
```

Set Data Set.

12.125.3.7 SetHeader()

```
void gdcm::File::SetHeader (
            const FileMetaInformation & fmi)  [inline]
```

Set File Meta Information.

12.125.3.8 Write()

```
std::ostream const & gdcm::File::Write (
            std::ostream & os) const
```

Write.

12.125.4 Friends And Related Symbol Documentation

12.125.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const File & val)  [friend]
```

References File(), gdcm_assert, GetHeader(), and operator<<.

Referenced by ~File(), and operator<<.

The documentation for this class was generated from the following file:

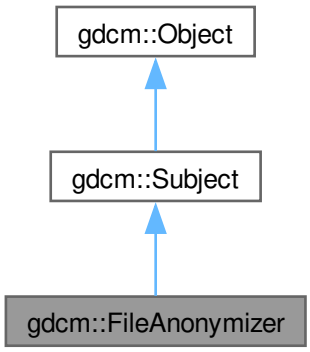
- gdcmFile.h

12.126 gdcm::FileAnonymizer Class Reference

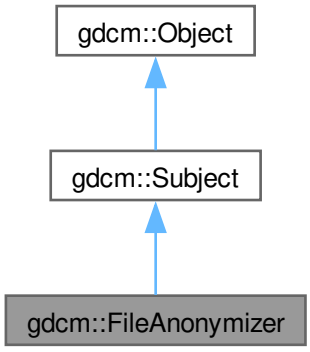
FileAnonymizer.

`#include <gdcmFileAnonymizer.h>`

Inheritance diagram for gdcm::FileAnonymizer:



Collaboration diagram for gdcm::FileAnonymizer:



Public Member Functions

- FileAnonymizer ()
- ~FileAnonymizer () override
- void Empty (Tag const &t)
- void Remove (Tag const &t)

  remove a tag (even a SQ can be removed)
- void Replace (Tag const &t, const char *value_data, VL const &vl)
- void Replace (Tag const &t, const char *value_str)
- void SetInputFileName (const char *filename_native)

  Set input filename.
- void SetOutputFileName (const char *filename_native)

  Set output filename.
- bool Write ()

  Write the output file.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.126.1 Detailed Description

FileAnonymizer.

This Anonymizer is a file-based Anonymizer. It requires a valid DICOM file and will use the Value Length to skip over any information.

It will not load the DICOM dataset taken from SetInputFileName() into memory and should consume much less memory than Anonymizer.

Warning

: Each time you call Replace() with a value. This value will copied, and stored in memory. The behavior is not ideal for extremely large data (larger than memory size). This class is really meant to take a large DICOM input file and then only changed some small attribute.

caveats:

- This class will NOT work with unordered attributes in a DICOM File,
- This class does neither recompute nor update the Group Length element,
- This class currently does not update the File Meta Information header.
- Only strict inplace Replace operation is supported when input and output file are the same.

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

12.126.2 Constructor & Destructor Documentation

12.126.2.1 FileAnonymizer()

```
gdcm::FileAnonymizer::FileAnonymizer ()
```

12.126.2.2 ~FileAnonymizer()

```
gdcm::FileAnonymizer::~FileAnonymizer ()  [override]
```

12.126.3 Member Function Documentation

12.126.3.1 Empty()

```
void gdcm::FileAnonymizer::Empty (
            Tag const & t)
```

Make Tag t empty Warning: does not handle SQ element

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

12.126.3.2 Remove()

```
void gdcm::FileAnonymizer::Remove (
            Tag const & t)
```

remove a tag (even a SQ can be removed)

Examples

FileAnonymize.cs.

12.126.3.3 Replace() [1/2]

```
void gdcm::FileAnonymizer::Replace (
            Tag const & t,
            const char * value_data,
            VL const & vl)
```

when the value contains \0, it is a good idea to specify the length. This function is required when dealing with VRBINARY tag

12.126.3.4 Replace() [2/2]

```
void gdcm::FileAnonymizer::Replace (
            Tag const & t,
            const char * value_str)
```

Replace tag with another value, if tag is not found it will be created: WARNING: this function can only execute if tag is a VRASCII WARNING: Do not ever try to write a value in a SQ Data Element !

Examples

FileAnonymize.cs.

12.126.3.5 SetInputFileName()

```
void gdcm::FileAnonymizer::SetInputFileName (
            const char * filename_native)
```

Set input filename.

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

12.126.3.6 SetOutputFileName()

```
void gdcm::FileAnonymizer::SetOutputFileName (
            const char * filename_native)
```

Set output filename.

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

12.126.3.7 Write()

```
bool gdcm::FileAnonymizer::Write ()
```

Write the output file.

Examples

FileAnonymize.cs, and MakeTemplate.cxx.

The documentation for this class was generated from the following file:

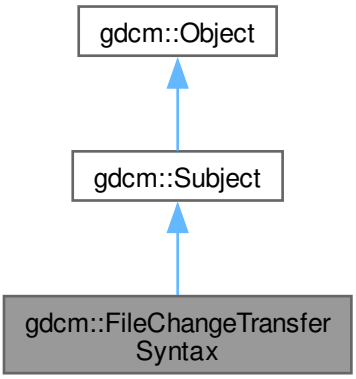
- gdcmFileAnonymizer.h

12.127 gdcm::FileChangeTransferSyntax Class Reference

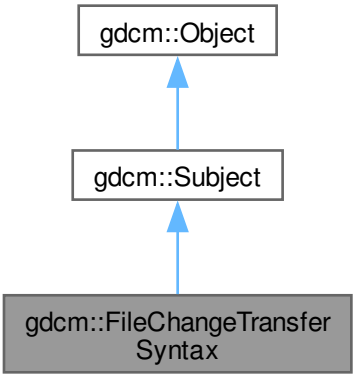
FileChangeTransferSyntax.

```
#include <gdcmFileChangeTransferSyntax.h>
```

Inheritance diagram for gdcm::FileChangeTransferSyntax:



Collaboration diagram for gdcm::FileChangeTransferSyntax:



Public Member Functions

- FileChangeTransferSyntax ()
- ~FileChangeTransferSyntax () override
- bool Change ()

  Change the transfer syntax.
- ImageCodec * GetCodec ()
- void SetInputFileName (const char *filename_native)

  Set input filename (raw DICOM).
- void SetOutputFileName (const char *filename_native)

  Set output filename (target compressed DICOM).
- void SetTransferSyntax (TransferSyntax const &ts)

  Specify the Target Transfer Syntax.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< FileChangeTransferSyntax > New ()

  for wrapped language: instantiate a reference counted object

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.127.1 Detailed Description

FileChangeTransferSyntax.

This class is a file-based (limited) replacement of the in-memory ImageChangeTransferSyntax.

This class provide a file-based compression-only mechanism. It will take in an uncompressed DICOM image file (Pixel Data element). Then produced as output a compressed DICOM file (Transfer Syntax will be updated).

Currently it supports the following transfer syntax:

- JPEGLosslessProcess14_1

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

12.127.2 Constructor & Destructor Documentation

12.127.2.1 FileChangeTransferSyntax()

```
gdcm::FileChangeTransferSyntax::FileChangeTransferSyntax ()
```

Referenced by New().

12.127.2.2 ~FileChangeTransferSyntax()

```
gdcm::FileChangeTransferSyntax::~FileChangeTransferSyntax ()  [override]
```

12.127.3 Member Function Documentation

12.127.3.1 Change()

```
bool gdcm::FileChangeTransferSyntax::Change ()
```

Change the transfer syntax.

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

12.127.3.2 GetCodec()

```
ImageCodec * gdcm::FileChangeTransferSyntax::GetCodec ()
```

Retrieve the actual codec (valid after calling SetTransferSyntax) Only advanced users should call this function.

Examples

FileChangeTSLossy.cs.

12.127.3.3 New()

```
SmartPointer< FileChangeTransferSyntax > gdcm::FileChangeTransferSyntax::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

References FileChangeTransferSyntax().

12.127.3.4 SetInputFileName()

```
void gdcm::FileChangeTransferSyntax::SetInputFileName (
            const char * filename_native)
```

Set input filename (raw DICOM).

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

12.127.3.5 SetOutputFileName()

```
void gdcm::FileChangeTransferSyntax::SetOutputFileName (
            const char * filename_native)
```

Set output filename (target compressed DICOM).

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

12.127.3.6 SetTransferSyntax()

```
void gdcm::FileChangeTransferSyntax::SetTransferSyntax (
            TransferSyntax const & ts)
```

Specify the Target Transfer Syntax.

Examples

FileChangeTS.cs, and FileChangeTSLossy.cs.

The documentation for this class was generated from the following file:

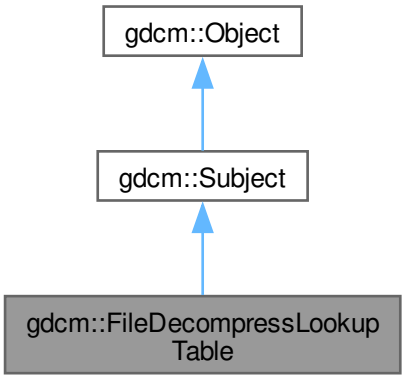
- gdcmFileChangeTransferSyntax.h

12.128 gdcm::FileDecompressLookupTable Class Reference

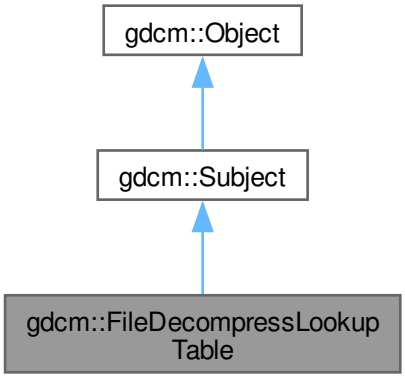
FileDecompressLookupTable class.

`#include <gdcmFileDecompressLookupTable.h>`

Inheritance diagram for gdcm::FileDecompressLookupTable:



Collaboration diagram for gdcm::FileDecompressLookupTable:



Public Member Functions

- FileDecompressLookupTable ()=default
- ~FileDecompressLookupTable () override=default
- bool Change ()

  Decompress.
- File & GetFile ()
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const
- void SetFile (const File &f)

  Set/Get File.
- void SetPixmap (Pixmap const &img)

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.128.1 Detailed Description

FileDecompressLookupTable class.

It decompress the segmented LUT into linearized one (only PALETTE_COLOR images) Output will be a PhotometricInterpretation=RGB image

12.128.2 Constructor & Destructor Documentation

12.128.2.1 FileDecompressLookupTable()

```
gdcm::FileDecompressLookupTable::FileDecompressLookupTable ()  [default]
```

12.128.2.2 ~FileDecompressLookupTable()

```
gdcm::FileDecompressLookupTable::~FileDecompressLookupTable ()  [override], [default]
```

12.128.3 Member Function Documentation

12.128.3.1 Change()

```
bool gdcm::FileDecompressLookupTable::Change ()
```

Decompress.

12.128.3.2 GetFile()

```
File & gdcm::FileDecompressLookupTable::GetFile ()  [inline]
```

12.128.3.3 GetPixmap() [1/2]

```
Pixmap & gdcm::FileDecompressLookupTable::GetPixmap ()  [inline]
```

12.128.3.4 GetPixmap() [2/2]

```
const Pixmap & gdcm::FileDecompressLookupTable::GetPixmap () const  [inline]
```

12.128.3.5 SetFile()

```
void gdcm::FileDecompressLookupTable::SetFile (
            const File & f)  [inline]
```

Set/Get File.

12.128.3.6 SetPixmap()

```
void gdcm::FileDecompressLookupTable::SetPixmap (
            Pixmap const & img)  [inline]
```

The documentation for this class was generated from the following file:

- gdcmFileDecompressLookupTable.h

12.129 gdcm::FileDerivation Class Reference

FileDerivation class.

```
#include <gdcmFileDerivation.h>
```

Public Member Functions

- FileDerivation ()
- ~FileDerivation ()
- bool AddReference (const char *referencedsopclassuid, const char *referencedsopinstanceuid)
- bool Derive ()

  Change.
- File & GetFile ()
- const File & GetFile () const
- void SetAppendDerivationHistory (bool b)
- void SetDerivationCodeSequenceCodeValue (unsigned int codevalue)

  Specify the Derivation Code Sequence Code Value. Eg 113040.
- void SetDerivationDescription (const char *dd)

  Specify the Derivation Description. Eg "lossy conversion".
- void SetFile (const File &f)

  Set/Get File.
- void SetPurposeOfReferenceCodeSequenceCodeValue (unsigned int codevalue)

  Specify the Purpose Of Reference Code Value. Eg. 121320.

Protected Member Functions

- bool AddDerivationDescription ()
- bool AddPurposeOfReferenceCodeSequence (DataSet &ds)
- bool AddSourceImageSequence ()

12.129.1 Detailed Description

FileDerivation class.

See PS 3.16 - 2008 For the list of Code Value that can be used for in Derivation Code Sequence

URL: `http://medical.nema.org/medical/dicom/2008/08_16pu.pdf`

DICOM Part 16 has two Context Groups CID 7202 and CID 7203 which contain a set of codes defining reason for a source image reference (ie. reason code for referenced image sequence) and a coded description of the deriation applied to the new image data from the original. Both these context groups are extensible.

File Derivation is compulsory when creating a lossy derived image.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

12.129.2 Constructor & Destructor Documentation

12.129.2.1 FileDerivation()

```
gdcm::FileDerivation::FileDerivation ()
```

12.129.2.2 ~FileDerivation()

```
gdcm::FileDerivation::~FileDerivation ()
```

12.129.3 Member Function Documentation

12.129.3.1 AddDerivationDescription()

```
bool gdcm::FileDerivation::AddDerivationDescription ()  [protected]
```

12.129.3.2 AddPurposeOfReferenceCodeSequence()

```
bool gdcm::FileDerivation::AddPurposeOfReferenceCodeSequence (
            DataSet & ds)  [protected]
```

12.129.3.3 AddReference()

```
bool gdcm::FileDerivation::AddReference (
            const char * referencedsopclassuid,
            const char * referencedsopinstanceuid)
```

Create the proper reference. Need to pass the original SOP Class UID and the original SOP Instance UID, so that those value can be used as Reference.

Warning

referencedsopclassuid and referencedsopinstanceuid needs to be \0 padded. This is not compatible with how ByteValue->GetPointer works.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

12.129.3.4 AddSourceImageSequence()

```
bool gdcm::FileDerivation::AddSourceImageSequence ()  [protected]
```

12.129.3.5 Derive()

```
bool gdcm::FileDerivation::Derive ()
```

Change.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

12.129.3.6 GetFile() [1/2]

```
File & gdcm::FileDerivation::GetFile ()  [inline]
```

Examples

GenFakeImage.cxx, and ReformatFile.cs.

12.129.3.7 GetFile() [2/2]

```
const File & gdcm::FileDerivation::GetFile () const  [inline]
```

12.129.3.8 SetAppendDerivationHistory()

```
void gdcm::FileDerivation::SetAppendDerivationHistory (
            bool b)
```

Specify if Derivation history should be appended (default false) When false, this is an error if input already has a derivation history When true, both Purpose of Reference Code Value and Derivation Code Sequence Code Value can have their history appended.

12.129.3.9 SetDerivationCodeSequenceCodeValue()

```
void gdcm::FileDerivation::SetDerivationCodeSequenceCodeValue (
            unsigned int codevalue)
```

Specify the Derivation Code Sequence Code Value. Eg 113040.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

12.129.3.10 SetDerivationDescription()

```
void gdcm::FileDerivation::SetDerivationDescription (
            const char * dd)
```

Specify the Derivation Description. Eg "lossy conversion".

12.129.3.11 SetFile()

```
void gdcm::FileDerivation::SetFile (
            const File & f)  [inline]
```

Set/Get File.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

12.129.3.12 SetPurposeOfReferenceCodeSequenceCodeValue()

```
void gdcm::FileDerivation::SetPurposeOfReferenceCodeSequenceCodeValue (
            unsigned int codevalue)
```

Specify the Purpose Of Reference Code Value. Eg. 121320.

Examples

DeriveSeries.cxx, GenFakeImage.cxx, and ReformatFile.cs.

The documentation for this class was generated from the following file:

- gdcmFileDerivation.h

12.130 gdcm::FileExplicitFilter Class Reference

FileExplicitFilter class.

```
#include <gdcmFileExplicitFilter.h>
```

Public Member Functions

- FileExplicitFilter ()
- ~FileExplicitFilter ()=default
- bool Change ()

  Set FMI Transfer Syntax.
- File & GetFile ()
- void SetChangePrivateTags (bool b)

  Decide whether or not to VR'ify private tags.
- void SetFile (const File &f)

  Set/Get File.
- void SetRecomputeItemLength (bool b)

  By default set Sequence & Item length to Undefined to avoid recomputing length:
- void SetRecomputeSequenceLength (bool b)
- void SetUseVRUN (bool b)

  When VR=16bits in explicit but Implicit has a 32bits length, use VR=UN.

Protected Member Functions

- bool ChangeFMI ()
- bool ProcessDataSet (DataSet &ds, Dicts const &dicts)

12.130.1 Detailed Description

FileExplicitFilter class.

After changing a file from Implicit to Explicit representation (see ImageChangeTransferSyntax) one operation is to make sure the VR of each DICOM attribute are accurate and do match the one from PS 3.6. Indeed when a file is written in Implicit representation, the VR is not stored directly in the file.

Warning

changing an implicit dataset to an explicit dataset is NOT a trivial task of simply changing the VR to the dict one:

- One has to make sure SQ is properly set
- One has to recompute the explicit length SQ
- One has to make sure that VR is valid for the encoding
- One has to make sure that VR 16bits can store the original value length

Examples

ExplicitLittleEndian.cs, GenAllVR.cxx, and LargeVRDSExplicit.cxx.

12.130.2 Constructor & Destructor Documentation

12.130.2.1 FileExplicitFilter()

```
gdcm::FileExplicitFilter::FileExplicitFilter ()  [inline]
```

12.130.2.2 ~FileExplicitFilter()

```
gdcm::FileExplicitFilter::~FileExplicitFilter ()  [default]
```

12.130.3 Member Function Documentation

12.130.3.1 Change()

```
bool gdcm::FileExplicitFilter::Change ()
```

Set FMI Transfer Syntax.

Change

Examples

ExplicitLittleEndian.cs, GenAllVR.cxx, and LargeVRDSExplicit.cxx.

12.130.3.2 ChangeFMI()

```
bool gdcm::FileExplicitFilter::ChangeFMI ()  [protected]
```

12.130.3.3 GetFile()

```
File & gdcm::FileExplicitFilter::GetFile ()  [inline]
```

Examples

ExplicitLittleEndian.cs.

12.130.3.4 ProcessDataSet()

```
bool gdcm::FileExplicitFilter::ProcessDataSet (
            DataSet & ds,
            Dicts const & dicts)  [protected]
```

12.130.3.5 SetChangePrivateTags()

```
void gdcm::FileExplicitFilter::SetChangePrivateTags (
            bool b)  [inline]
```

Decide whether or not to VR'ify private tags.

Examples

ExplicitLittleEndian.cs.

12.130.3.6 SetFile()

```
void gdcm::FileExplicitFilter::SetFile (
            const File & f)  [inline]
```

Set/Get File.

Examples

ExplicitLittleEndian.cs, GenAllVR.cxx, and LargeVRDSExplicit.cxx.

12.130.3.7 SetRecomputeItemLength()

```
void gdcm::FileExplicitFilter::SetRecomputeItemLength (
            bool b)
```

By default set Sequence & Item length to Undefined to avoid recomputing length:

12.130.3.8 SetRecomputeSequenceLength()

```
void gdcm::FileExplicitFilter::SetRecomputeSequenceLength (
            bool b)
```

12.130.3.9 SetUseVRUN()

```
void gdcm::FileExplicitFilter::SetUseVRUN (
            bool b)  [inline]
```

When VR=16bits in explicit but Implicit has a 32bits length, use VR=UN.

The documentation for this class was generated from the following file:

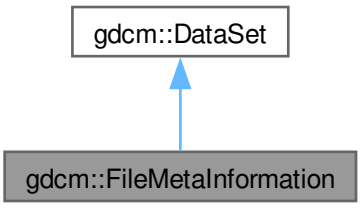
- gdcmFileExplicitFilter.h

12.131 gdcm::FileMetaInformation Class Reference

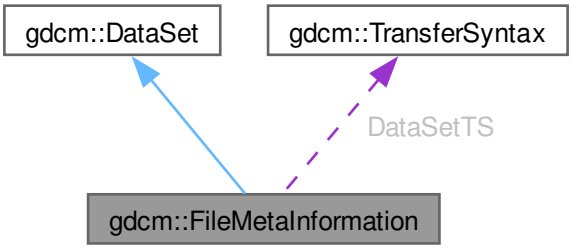
Class to represent a File Meta Information.

`#include <gdcmFileMetaInformation.h>`

Inheritance diagram for gdcm::FileMetaInformation:



Collaboration diagram for gdcm::FileMetaInformation:



Public Member Functions

- FileMetaInformation ()
- FileMetaInformation (FileMetaInformation const &fmi)=default
- ~FileMetaInformation ()
- void FillFromDataSet (DataSet const &ds)

  Construct a FileMetaInformation from an already existing DataSet:
- const TransferSyntax & GetDataSetTransferSyntax () const
- VL GetFullLength () const
- MediaStorage GetMediaStorage () const
- std::string GetMediaStorageAsString () const
- TransferSyntax::NegociatedType GetMetaInformationTS () const
- Preamble & GetPreamble ()
- const Preamble & GetPreamble () const

  Get Preamble.
- void Insert (const DataElement &de)
- bool IsValid () const
- FileMetaInformation & operator= (const FileMetaInformation &fmi)=default
- std::istream & Read (std::istream &is)

  Read.
- std::istream & ReadCompat (std::istream &is)
- void Replace (const DataElement &de)
- void SetDataSetTransferSyntax (const TransferSyntax &ts)
- void SetPreamble (const Preamble &p)
- std::ostream & Write (std::ostream &os) const

  Write.

Public Member Functions inherited from gdcm::DataSet

- Iterator Begin ()
- ConstIterator Begin () const
- void Clear ()
- template<typename TDE>
  unsigned int ComputeGroupLength (Tag const &tag) const
- Iterator End ()
- ConstIterator End () const
- bool FindDataElement (const PrivateTag &t) const

  Look up if private tag 't' is present in the dataset:
- bool FindDataElement (const Tag &t) const
- const DataElement & FindNextDataElement (const Tag &t) const
- const DataElement & GetDataElement (const PrivateTag &t) const

  Return the dataelement.
- const DataElement & GetDataElement (const Tag &t) const
- DataElementSet & GetDES ()
- const DataElementSet & GetDES () const
- template<typename TDE>
  VL GetLength () const
- MediaStorage GetMediaStorage () const
- std::string GetPrivateCreator (const Tag &t) const
- PrivateTag GetPrivateTag (const Tag &t) const

  Return the private tag of the private tag 't', private creator will be set to empty if not found.
- void Insert (const DataElement &de)
- bool IsEmpty () const

  Returns if the dataset is empty.
- const DataElement & operator() (uint16_t group, uint16_t element) const
- DataSet & operator= (DataSet const &)=default
- const DataElement & operator[ ] (const Tag &t) const
- void Print (std::ostream &os, std::string const &indent="") const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadNested (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedPrivateTags (std::istream &is, const std::set< PrivateTag > &tags, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedPrivateTagsWithLength (std::istream &is, const std::set< PrivateTag > &tags, VL &length, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedTags (std::istream &is, const std::set< Tag > &tags, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadSelectedTagsWithLength (std::istream &is, const std::set< Tag > &tags, VL &length, bool readvalues=true)
- template<typename TDE, typename TSwap>
  std::istream & ReadUpToTag (std::istream &is, const Tag &t, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadUpToTagWithLength (std::istream &is, const Tag &t, std::set< Tag > const &skiptags, VL &length)

- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- SizeType Remove (const Tag &tag)

  Completely remove a dataelement from the dataset.
- void Replace (const DataElement &de)

  Replace a dataelement with another one.
- void ReplaceEmpty (const DataElement &de)

  Only replace a DICOM attribute when it is missing or empty.
- SizeType Size () const
- template<typename TDE, typename TSwap>
  std::ostream const & Write (std::ostream &os) const

Static Public Member Functions

- static void AppendImplementationClassUID (const char *imp)
- static const char * GetImplementationClassUID ()
- static const char * GetImplementationVersionName ()
- static const char * GetSourceApplicationEntityTitle ()
- static void SetImplementationClassUID (const char *imp)

  Override the GDCM default values:
- static void SetImplementationVersionName (const char *version)
- static void SetSourceApplicationEntityTitle (const char *title)

Protected Member Functions

- void ComputeDataSetMediaStorageSOPClass ()
- void ComputeDataSetTransferSyntax ()
- void Default ()
- template<typename TSwap>
  std::istream & ReadCompatInternal (std::istream &is)

Protected Member Functions inherited from gdcm::DataSet

- Tag ComputeDataElement (const PrivateTag &t) const
- const DataElement & GetDEEnd () const
- void InsertDataElement (const DataElement &de)

Static Protected Member Functions

- static const char * GetFileMetaInformationVersion ()
- static const char * GetGDCMImplementationClassUID ()
- static const char * GetGDCMImplementationVersionName ()
- static const char * GetGDCMSourceApplicationEntityTitle ()

Protected Attributes

- MediaStorage::MSType DataSetMS
- TransferSyntax DataSetTS
- TransferSyntax::NegociatedType MetaInformationTS

Friends

- std::ostream & operator<< (std::ostream &_os, const FileMetaInformation &_val)

Additional Inherited Members

Public Types inherited from gdcm::DataSet

- typedef DataElementSet::const_iterator ConstIterator
- typedef std::set< DataElement > DataElementSet
- typedef DataElementSet::iterator Iterator
- typedef DataElementSet::size_type SizeType

12.131.1 Detailed Description

Class to represent a File Meta Information.

FileMetaInformation is a Explicit Structured Set. Whenever the file contains an ImplicitDataElement DataSet, a conversion will take place.

Definition: The File Meta Information includes identifying information on the encapsulated Data Set. This header consists of a 128 byte File Preamble, followed by a 4 byte DICOM prefix, followed by the File Meta Elements shown in Table 7.1-1. This header shall be present in every DICOM file.

See also

Writer Reader

Examples

DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ReadAndDumpDICOMDIR.cxx, ReformatFile.cs, and StandardizeFiles.cs.

12.131.2 Constructor & Destructor Documentation

12.131.2.1 FileMetaInformation() [1/2]

```
gdcm::FileMetaInformation::FileMetaInformation ()
```

Referenced by FileMetaInformation(), ~FileMetaInformation(), operator<<, and operator=().

12.131.2.2 ~FileMetaInformation()

```
gdcm::FileMetaInformation::~FileMetaInformation ()
```

References FileMetaInformation(), and operator<<.

12.131.2.3 FileMetaInformation() [2/2]

```
gdcm::FileMetaInformation::FileMetaInformation (
            FileMetaInformation const & fmi)  [default]
```

References FileMetaInformation().

12.131.3 Member Function Documentation

12.131.3.1 AppendImplementationClassUID()

```
void gdcm::FileMetaInformation::AppendImplementationClassUID (
            const char * imp)  [static]
```

12.131.3.2 ComputeDataSetMediaStorageSOPClass()

```
void gdcm::FileMetaInformation::ComputeDataSetMediaStorageSOPClass ()  [protected]
```

12.131.3.3 ComputeDataSetTransferSyntax()

```
void gdcm::FileMetaInformation::ComputeDataSetTransferSyntax ()  [protected]
```

12.131.3.4 Default()

```
void gdcm::FileMetaInformation::Default ()  [protected]
```

12.131.3.5 FillFromDataSet()

```
void gdcm::FileMetaInformation::FillFromDataSet (
            DataSet const & ds)
```

Construct a FileMetaInformation from an already existing DataSet:

12.131.3.6 GetDataSetTransferSyntax()

```
const TransferSyntax & gdcm::FileMetaInformation::GetDataSetTransferSyntax () const  [inline]
```

Examples

GetJPEGSamplePrecision.cxx, and MergeTwoFiles.cxx.

References DataSetTS.

12.131.3.7 GetFileMetaInformationVersion()

```
const char * gdcm::FileMetaInformation::GetFileMetaInformationVersion ()  [static], [protected]
```

12.131.3.8 GetFullLength()

```
VL gdcm::FileMetaInformation::GetFullLength () const  [inline]
```

References gdcm::DataSet::GetLength(), and gdcm::VL::GetLength().

12.131.3.9 GetGDCMImplementationClassUID()

```
const char * gdcm::FileMetaInformation::GetGDCMImplementationClassUID ()  [static], [protected]
```

12.131.3.10 GetGDCMImplementationVersionName()

```
const char * gdcm::FileMetaInformation::GetGDCMImplementationVersionName ()  [static], [protected]
```

12.131.3.11 GetGDCMSourceApplicationEntityTitle()

```
const char * gdcm::FileMetaInformation::GetGDCMSourceApplicationEntityTitle ()  [static], [protected]
```

12.131.3.12 GetImplementationClassUID()

```
const char * gdcm::FileMetaInformation::GetImplementationClassUID ()  [static]
```

12.131.3.13 GetImplementationVersionName()

```
const char * gdcm::FileMetaInformation::GetImplementationVersionName ()  [static]
```

12.131.3.14 GetMediaStorage()

```
MediaStorage gdcm::FileMetaInformation::GetMediaStorage () const
```

12.131.3.15 GetMediaStorageAsString()

```
std::string gdcm::FileMetaInformation::GetMediaStorageAsString () const
```

12.131.3.16 GetMetaInformationTS()

```
TransferSyntax::NegociatedType gdcm::FileMetaInformation::GetMetaInformationTS () const  [inline]
```

References MetaInformationTS.

12.131.3.17 GetPreamble() [1/2]

```
Preamble & gdcm::FileMetaInformation::GetPreamble ()  [inline]
```

12.131.3.18 GetPreamble() [2/2]

```
const Preamble & gdcm::FileMetaInformation::GetPreamble () const  [inline]
```

Get Preamble.

Referenced by operator<<.

12.131.3.19 GetSourceApplicationEntityTitle()

```
const char * gdcm::FileMetaInformation::GetSourceApplicationEntityTitle ()  [static]
```

12.131.3.20 Insert()

```
void gdcm::FileMetaInformation::Insert (
            const DataElement & de)  [inline]
```

References gdcmErrorMacro, gdcm::Tag::GetGroup(), gdcm::DataElement::GetTag(), and gdcm::DataSet::InsertDataElement().

Referenced by Replace().

12.131.3.21 IsValid()

```
bool gdcm::FileMetaInformation::IsValid () const  [inline]
```

12.131.3.22 operator=()

```
FileMetaInformation & gdcm::FileMetaInformation::operator= (
            const FileMetaInformation & fmi)  [default]
```

References FileMetaInformation().

12.131.3.23 Read()

```
std::istream & gdcm::FileMetaInformation::Read (
            std::istream & is)
```

Read.

12.131.3.24 ReadCompat()

```
std::istream & gdcm::FileMetaInformation::ReadCompat (
            std::istream & is)
```

12.131.3.25 ReadCompatInternal()

```
template<typename TSwap>
std::istream & gdcm::FileMetaInformation::ReadCompatInternal (
            std::istream & is)  [protected]
```

12.131.3.26 Replace()

```
void gdcm::FileMetaInformation::Replace (
            const DataElement & de)  [inline]
```

Examples

LargeVRDSExplicit.cxx.

References gdcm::DataElement::GetTag(), Insert(), and gdcm::DataSet::Remove().

12.131.3.27 SetDataSetTransferSyntax()

```
void gdcm::FileMetaInformation::SetDataSetTransferSyntax (
            const TransferSyntax & ts)
```

Examples

CreateJPIPDataSet.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixJAIBugJPEGLS.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, MpegVideoInfo.cs, QIDO-RS.cxx, StreamImageReaderTest.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.131.3.28 SetImplementationClassUID()

```
void gdcm::FileMetaInformation::SetImplementationClassUID (
            const char * imp)  [static]
```

Override the GDCM default values:

12.131.3.29 SetImplementationVersionName()

```
void gdcm::FileMetaInformation::SetImplementationVersionName (
            const char * version)  [static]
```

12.131.3.30 SetPreamble()

```
void gdcm::FileMetaInformation::SetPreamble (
            const Preamble & p)  [inline]
```

12.131.3.31 SetSourceApplicationEntityTitle()

```
void gdcm::FileMetaInformation::SetSourceApplicationEntityTitle (
            const char * title)  [static]
```

Examples

ExplicitLittleEndian.cs, FixJAIBugJPEGLS.cxx, GenerateDICOMDIR.cs, ReformatFile.cs, and StandardizeFiles.cs.

12.131.3.32 Write()

```
std::ostream & gdcm::FileMetaInformation::Write (
            std::ostream & os) const
```

Write.

12.131.4 Friends And Related Symbol Documentation

12.131.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const FileMetaInformation & _val)  [friend]
```

References FileMetaInformation(), GetPreamble(), operator<<, and gdcm::DataSet::Print().

Referenced by ~FileMetaInformation(), and operator<<.

12.131.5 Member Data Documentation

12.131.5.1 DataSetMS

```
MediaStorage::MSType gdcm::FileMetaInformation::DataSetMS  [protected]
```

12.131.5.2 DataSetTS

```
TransferSyntax gdcm::FileMetaInformation::DataSetTS  [protected]
```

Referenced by GetDataSetTransferSyntax().

12.131.5.3 MetaInformationTS

```
TransferSyntax::NegociatedType gdcm::FileMetaInformation::MetaInformationTS  [protected]
```

Referenced by GetMetaInformationTS().

The documentation for this class was generated from the following file:

- gdcmFileMetaInformation.h

12.132 gdcm::Filename Class Reference

Class to manipulate file name's.

`#include <gdcmFilename.h>`

Public Member Functions

- Filename (const char *filename="")
- bool EndWith (const char ending[]) const
  Does the filename ends with a particular string ?
- const char * GetExtension ()
  return only the extension part of a filename
- const char * GetFileName () const
  Return the full filename.
- const char * GetName ()
  return only the name part of a filename
- const char * GetPath ()
  Return only the path component of a filename.
- bool IsEmpty () const
  return whether the filename is empty
- bool IsIdentical (Filename const &fn) const
- operator const char * () const
- const char * ToUnixSlashes ()
  Convert backslash (windows style) to UNIX style slash.
- const char * ToWindowsSlashes ()
  Convert forward slash (UNIX style) to windows style slash.

Static Public Member Functions

- static const char * Join (const char *path, const char *filename)

12.132.1 Detailed Description

Class to manipulate file name's.

Note

OS independent representation of a filename (to query path, name and extension from a filename)

12.132.2 Constructor & Destructor Documentation

12.132.2.1 Filename()

```
gdcm::Filename::Filename (
            const char * filename = "")  [inline]
```

Referenced by IsIdentical().

12.132.3 Member Function Documentation

12.132.3.1 EndWith()

```
bool gdcm::Filename::EndWith (
            const char ending[]) const
```

Does the filename ends with a particular string ?

12.132.3.2 GetExtension()

```
const char * gdcm::Filename::GetExtension ()
```

return only the extension part of a filename

12.132.3.3 GetFileName()

```
const char * gdcm::Filename::GetFileName () const  [inline]
```

Return the full filename.

Referenced by operator const char *().

12.132.3.4 GetName()

```
const char * gdcm::Filename::GetName ()
```

return only the name part of a filename

12.132.3.5 GetPath()

```
const char * gdcm::Filename::GetPath ()
```

Return only the path component of a filename.

Examples

ClinicalTrialIdentificationWorkflow.cs.

12.132.3.6 IsEmpty()

```
bool gdcm::Filename::IsEmpty () const  [inline]
```

return whether the filename is empty

12.132.3.7 IsIdentical()

```
bool gdcm::Filename::IsIdentical (
            Filename const & fn) const
```

References Filename().

12.132.3.8 Join()

```
const char * gdcm::Filename::Join (
            const char * path,
            const char * filename)  [static]
```

Join two paths NOT THREAD SAFE

12.132.3.9 operator const char *()

```
gdcm::Filename::operator const char * () const  [inline]
```

Simple operator to allow Filename myfilename("..."); const char * s = myfilename;

References GetFileName().

12.132.3.10 ToUnixSlashes()

```
const char * gdcm::Filename::ToUnixSlashes ()
```

Convert backslash (windows style) to UNIX style slash.

12.132.3.11 ToWindowsSlashes()

```
const char * gdcm::Filename::ToWindowsSlashes ()
```

Convert forward slash (UNIX style) to windows style slash.

The documentation for this class was generated from the following file:

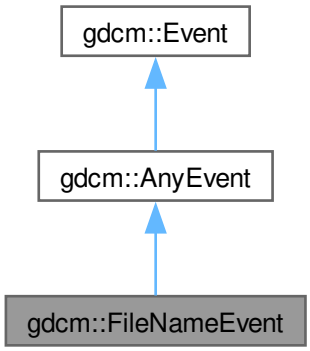
- gdcmFilename.h

12.133 gdcm::FileNameEvent Class Reference

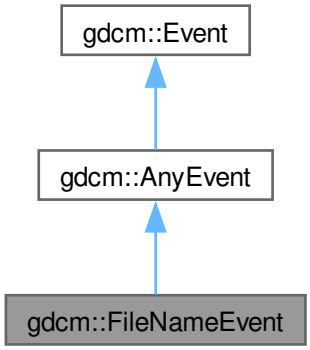
FileNameEvent.

```
#include <gdcmFileNameEvent.h>
```

Inheritance diagram for gdcm::FileNameEvent:



Collaboration diagram for gdcm::FileNameEvent:



Public Types

- typedef FileNameEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- FileNameEvent (const char *s="")
- FileNameEvent (const Self &s)
- ~FileNameEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- const char * GetEventName () const override
- const char * GetFileName () const
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete
- void SetFileName (const char *f)

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

12.133.1 Detailed Description

FileNameEvent.

Special type of event triggered during processing of FileSet

See also

AnyEvent

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

12.133.2 Member Typedef Documentation

12.133.2.1 Self

```
typedef FileNameEvent gdcm::FileNameEvent::Self
```

12.133.2.2 Superclass

```
typedef AnyEvent gdcm::FileNameEvent::Superclass
```

12.133.3 Constructor & Destructor Documentation

12.133.3.1 FileNameEvent() [1/2]

```
gdcm::FileNameEvent::FileNameEvent (
            const char * s = "")  [inline]
```

12.133.3.2 ~FileNameEvent()

```
gdcm::FileNameEvent::~FileNameEvent ()  [override], [default]
```

12.133.3.3 FileNameEvent() [2/2]

```
gdcm::FileNameEvent::FileNameEvent (
            const Self & s)  [inline]
```

12.133.4 Member Function Documentation

12.133.4.1 CheckEvent()

```
bool gdcm::FileNameEvent::CheckEvent (
            const ::gdcm::Event * e) const  [inline], [override], [virtual]
```

Check if given event matches or derives from this event.

Implements gdcm::Event.

12.133.4.2 GetEventName()

```
const char * gdcm::FileNameEvent::GetEventName () const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

12.133.4.3 GetFileName()

```
const char * gdcm::FileNameEvent::GetFileName () const  [inline]
```

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

12.133.4.4 MakeObject()

```
::gdcm::Event * gdcm::FileNameEvent::MakeObject () const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

12.133.4.5 operator=()

```
void gdcm::FileNameEvent::operator= (
            const Self & )  [delete]
```

12.133.4.6 SetFileName()

```
void gdcm::FileNameEvent::SetFileName (
            const char * f)  [inline]
```

The documentation for this class was generated from the following file:

- gdcmFileNameEvent.h

12.134 gdcm::FilenameGenerator Class Reference

FilenameGenerator.

```
#include <gdcmFilenameGenerator.h>
```

Public Types

- typedef std::vector< FilenameType > FilenamesType
- typedef std::string FilenameType
- typedef FilenamesType::size_type SizeType

Public Member Functions

- FilenameGenerator ()
- ~FilenameGenerator ()=default
- bool Generate ()

  Generate (return success).
- const char * GetFilename (SizeType n) const

  Get a particular filename (call after Generate).
- FilenamesType const & GetFilenames () const

  Return all filenames.
- SizeType GetNumberOfFilenames () const
- const char * GetPattern () const
- const char * GetPrefix () const
- void SetNumberOfFilenames (SizeType nfiles)

  Set/Get the number of filenames to generate.
- void SetPattern (const char *pattern)

  Set/Get pattern.
- void SetPrefix (const char *prefix)

  Set/Get prefix.

12.134.1 Detailed Description

FilenameGenerator.

class to generate filenames based on a pattern (C-style)

Output will be:

for i = 0, number of filenames: outfilename[i] = prefix + (pattern % i)

where pattern % i means C-style snprintf of Pattern using value 'i'

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.134.2 Member Typedef Documentation

12.134.2.1 FilenamesType

```
typedef std::vector<FilenameType> gdcm::FilenameGenerator::FilenamesType
```

12.134.2.2 FilenameType

```
typedef std::string gdcm::FilenameGenerator::FilenameType
```

12.134.2.3 SizeType

```
typedef FilenamesType::size_type gdcm::FilenameGenerator::SizeType
```

12.134.3 Constructor & Destructor Documentation

12.134.3.1 FilenameGenerator()

```
gdcm::FilenameGenerator::FilenameGenerator () [inline]
```

12.134.3.2 ~FilenameGenerator()

```
gdcm::FilenameGenerator::~FilenameGenerator () [default]
```

12.134.4 Member Function Documentation

12.134.4.1 Generate()

```
bool gdcm::FilenameGenerator::Generate ()
```

Generate (return success).

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.134.4.2 GetFilename()

```
const char * gdcm::FilenameGenerator::GetFilename (
            SizeType n) const
```

Get a particular filename (call after Generate).

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.134.4.3 GetFilenames()

```
FilenamesType const & gdcm::FilenameGenerator::GetFilenames () const  [inline]
```

Return all filenames.

References gdcm_assert.

12.134.4.4 GetNumberOfFilenames()

```
SizeType gdcm::FilenameGenerator::GetNumberOfFilenames () const
```

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.134.4.5 GetPattern()

```
const char * gdcm::FilenameGenerator::GetPattern () const  [inline]
```

12.134.4.6 GetPrefix()

```
const char * gdcm::FilenameGenerator::GetPrefix () const  [inline]
```

12.134.4.7 SetNumberOfFilenames()

```
void gdcm::FilenameGenerator::SetNumberOfFilenames (
            SizeType nfiles)
```

Set/Get the number of filenames to generate.

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.134.4.8 SetPattern()

```
void gdcm::FilenameGenerator::SetPattern (
            const char * pattern)  [inline]
```

Set/Get pattern.

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.134.4.9 SetPrefix()

```
void gdcm::FilenameGenerator::SetPrefix (
            const char * prefix)  [inline]
```

Set/Get prefix.

The documentation for this class was generated from the following file:

- gdcmFilenameGenerator.h

12.135 gdcm::FileSet Class Reference

```
#include <gdcmFileSet.h>
```

Public Types

- typedef std::vector< FileType > FilesType
- typedef std::string FileType

Public Member Functions

- FileSet ()
- bool AddFile (const char *filename)
- void AddFile (File const &)
- FilesType const & GetFiles () const
- void SetFiles (FilesType const &files)

Friends

- std::ostream & operator<< (std::ostream &_os, const FileSet &d)

12.135.1 Detailed Description

File-set: A File-set is a collection of DICOM Files (and possibly non-DICOM Files) that share a common naming space within which File IDs are unique.

12.135.2 Member Typedef Documentation

12.135.2.1 FilesType

```
typedef std::vector<FileType> gdcm::FileSet::FilesType
```

12.135.2.2 FileType

```
typedef std::string gdcm::FileSet::FileType
```

12.135.3 Constructor & Destructor Documentation

12.135.3.1 FileSet()

```
gdcm::FileSet::FileSet ()  [inline]
```

Referenced by operator<<.

12.135.4 Member Function Documentation

12.135.4.1 AddFile() [1/2]

```
bool gdcm::FileSet::AddFile (
            const char * filename)
```

Add a file 'filename' to the list of files. Return true on success, false in case filename could not be found on system.

12.135.4.2 AddFile() [2/2]

```
void gdcm::FileSet::AddFile (
            File const & )  [inline]
```

Deprecated . Does nothing

12.135.4.3 GetFiles()

```
FilesType const & gdcm::FileSet::GetFiles () const  [inline]
```

12.135.4.4 SetFiles()

```
void gdcm::FileSet::SetFiles (
            FilesType const & files)
```

12.135.5 Friends And Related Symbol Documentation

12.135.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const FileSet & d)  [friend]
```

References FileSet().

The documentation for this class was generated from the following file:

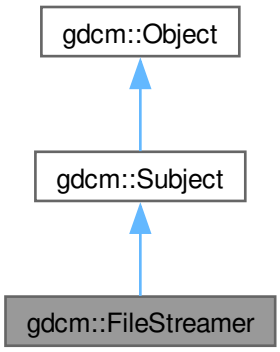
- gdcmFileSet.h

12.136 gdcm::FileStreamer Class Reference

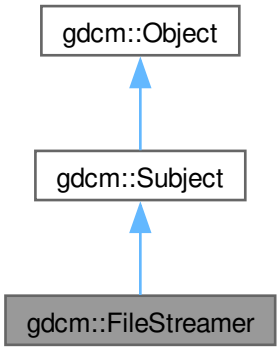
FileStreamer.

`#include <gdcmFileStreamer.h>`

Inheritance diagram for gdcm::FileStreamer:



Collaboration diagram for gdcm::FileStreamer:



Public Member Functions

- FileStreamer ()
- ~FileStreamer () override
- bool AppendToDataElement (const Tag &t, const char *array, size_t len)

  Append to previously started Tag t.
- bool AppendToGroupDataElement (const PrivateTag &pt, const char *array, size_t len)

  Append to previously started private creator.
- bool CheckDataElement (const Tag &t)
- void CheckTemplateFileName (bool check)
- bool ReserveDataElement (size_t len)
- bool ReserveGroupDataElement (unsigned short ndataelement)
- void SetOutputFileName (const char *filename_native)

  Set output filename (target file).
- void SetTemplateFileName (const char *filename_native)

  Set input DICOM template filename.
- bool StartDataElement (const Tag &t)
- bool StartGroupDataElement (const PrivateTag &pt, size_t maxsizede=0, uint8_t startoffset=0)
- bool StopDataElement (const Tag &t)

  Stop appending to tag t. This will compute the proper attribute length.
- bool StopGroupDataElement (const PrivateTag &pt)

  Stop appending to private creator.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< FileStreamer > New ()
  for wrapped language: instantiate a reference counted object

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.136.1 Detailed Description

FileStreamer.

This class let a user create a massive DICOM DataSet from a template DICOM file, by appending chunks of data.

This class support two mode of operation:

1. Creating a single DataElement by appending chunk after chunk of data.
2. Creating a set of DataElement within the same group, using a private creator for start. New DataElement are added any time the user defined maximum size for data element is reached.

Warning

any existing DataElement is removed, pick carefully which DataElement to add.

Examples

FileStreaming.cs.

12.136.2 Constructor & Destructor Documentation

12.136.2.1 FileStreamer()

```
gdcm::FileStreamer::FileStreamer ()
```

Referenced by New().

12.136.2.2 ~FileStreamer()

```
gdcm::FileStreamer::~FileStreamer ()  [override]
```

12.136.3 Member Function Documentation

12.136.3.1 AppendToDataElement()

```
bool gdcm::FileStreamer::AppendToDataElement (
            const Tag & t,
            const char * array,
            size_t len)
```

Append to previously started Tag t.

12.136.3.2 AppendToGroupDataElement()

```
bool gdcm::FileStreamer::AppendToGroupDataElement (
            const PrivateTag & pt,
            const char * array,
            size_t len)
```

Append to previously started private creator.

Examples

FileStreaming.cs.

12.136.3.3 CheckDataElement()

```
bool gdcm::FileStreamer::CheckDataElement (
            const Tag & t)
```

Decide to check the Data Element to be written (default: off) The implementation has default strategy for checking validity of DataElement. Currently it only support checking for the following tags:

- (7fe0,0010) Pixel Data

12.136.3.4 CheckTemplateFileName()

```
void gdcm::FileStreamer::CheckTemplateFileName (
            bool check)
```

Instead of simply blindly copying the input DICOM Template file, GDCM will be used to check the input file, and correct any issues recognized within the file. Only use if you do not have control over the input template file.

12.136.3.5 New()

```
SmartPointer< FileStreamer > gdcm::FileStreamer::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References FileStreamer().

12.136.3.6 ReserveDataElement()

```
bool gdcm::FileStreamer::ReserveDataElement (
            size_t len)
```

Add a hint on the final size of the dataelement. When optimally chosen, this reduce the number of file in-place copying. Should be called before StartDataElement

12.136.3.7 ReserveGroupDataElement()

```
bool gdcm::FileStreamer::ReserveGroupDataElement (
            unsigned short ndataelement)
```

Optimisation: pre-allocate the number of dataelement within the private group (ndataelement <= 256). Should be called before StartGroupDataElement

12.136.3.8 SetOutputFileName()

```
void gdcm::FileStreamer::SetOutputFileName (
            const char * filename_native)
```

Set output filename (target file).

Examples

FileStreaming.cs.

12.136.3.9 SetTemplateFileName()

```
void gdcm::FileStreamer::SetTemplateFileName (
            const char * filename_native)
```

Set input DICOM template filename.

Examples

FileStreaming.cs.

12.136.3.10 StartDataElement()

```
bool gdcm::FileStreamer::StartDataElement (
            const Tag & t)
```

Start Single Data Element Operation This will delete any existing Tag t. Need to call it only once.

12.136.3.11 StartGroupDataElement()

```
bool gdcm::FileStreamer::StartGroupDataElement (
            const PrivateTag & pt,
            size_t maxsizede = 0,
            uint8_t startoffset = 0)
```

Start Private Group (multiple DataElement) Operation. Each newly added DataElement will have a length lower than

Parameters

maxsizede	. When not specified, maxsizede is set to maximum size allowed by DICOM (= 2^32). startoffset can be used to specify the very first element you want to start with (instead of the first possible). Value should be in [0x0, 0xff] This will find the first available private creator.

Bug maxsizede should be a value lower than the actual total size of the buffer to be copied

Examples

FileStreaming.cs.

12.136.3.12 StopDataElement()

```
bool gdcm::FileStreamer::StopDataElement (
            const Tag & t)
```

Stop appending to tag t. This will compute the proper attribute length.

12.136.3.13 StopGroupDataElement()

```
bool gdcm::FileStreamer::StopGroupDataElement (
            const PrivateTag & pt)
```

Stop appending to private creator.

Examples

FileStreaming.cs.

The documentation for this class was generated from the following file:

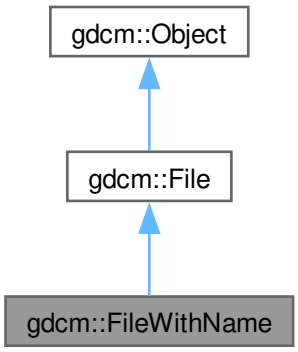
- gdcmFileStreamer.h

12.137 gdcm::FileWithName Class Reference

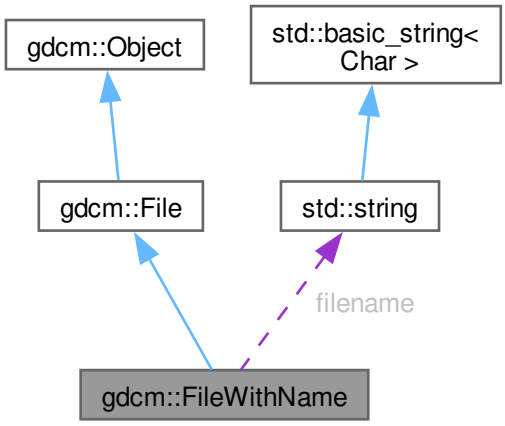
FileWithName.

```
#include <gdcmSerieHelper.h>
```

Inheritance diagram for gdcm::FileWithName:



Collaboration diagram for gdcm::FileWithName:



Public Member Functions

- FileWithName (File &f)

Public Member Functions inherited from gdcm::File

- File ()
- ~File () override
- DataSet & GetDataSet ()

  Get Data Set.
- const DataSet & GetDataSet () const

  Get Data Set.
- FileMetaInformation & GetHeader ()

  Get File Meta Information.
- const FileMetaInformation & GetHeader () const

  Get File Meta Information.
- std::istream & Read (std::istream &is)

  Read.
- void SetDataSet (const DataSet &ds)

  Set Data Set.
- void SetHeader (const FileMetaInformation &fmi)

  Set File Meta Information.
- std::ostream const & Write (std::ostream &os) const

  Write.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Public Attributes

- std::string filename

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.137.1 Detailed Description

FileWithName.

Backward only class do not use in newer code

12.137.2 Constructor & Destructor Documentation

12.137.2.1 FileWithName()

```
gdcm::FileWithName::FileWithName (
            File & f)  [inline]
```

References gdcm::File::File(), and filename.

12.137.3 Member Data Documentation

12.137.3.1 filename

```
std::string gdcm::FileWithName::filename
```

Referenced by FileWithName().

The documentation for this class was generated from the following file:

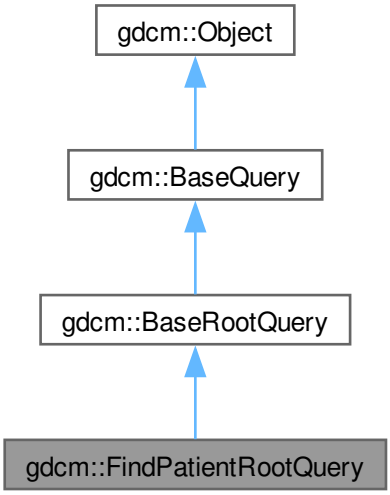
- gdcmSerieHelper.h

12.138 gdcm::FindPatientRootQuery Class Reference

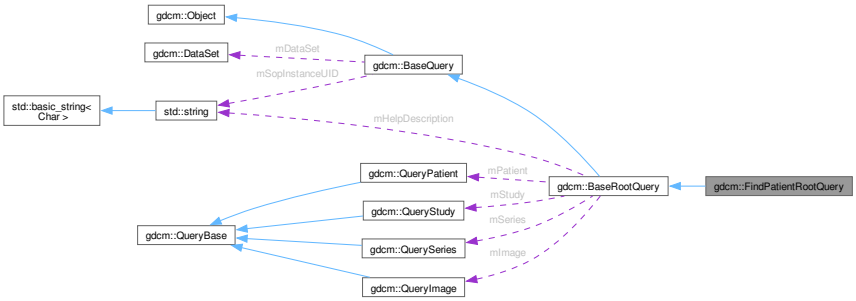
PatientRootQuery.

```
#include <gdcmFindPatientRootQuery.h>
```

Inheritance diagram for gdcm::FindPatientRootQuery:



Collaboration diagram for gdcm::FindPatientRootQuery:



Public Member Functions

- FindPatientRootQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.138.1 Detailed Description

PatientRootQuery.

contains: the class which will produce a dataset for c-find with patient root

12.138.2 Constructor & Destructor Documentation

12.138.2.1 FindPatientRootQuery()

```
gdcm::FindPatientRootQuery::FindPatientRootQuery ()
```

12.138.3 Member Function Documentation

12.138.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::FindPatientRootQuery::GetAbstractSyntaxUID () const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.138.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::FindPatientRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

12.138.3.3 InitializeDataSet()

```
void gdcm::FindPatientRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

12.138.3.4 ValidateQuery()

```
bool gdcm::FindPatientRootQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseRootQuery.

12.138.4 Friends And Related Symbol Documentation

12.138.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

The documentation for this class was generated from the following file:

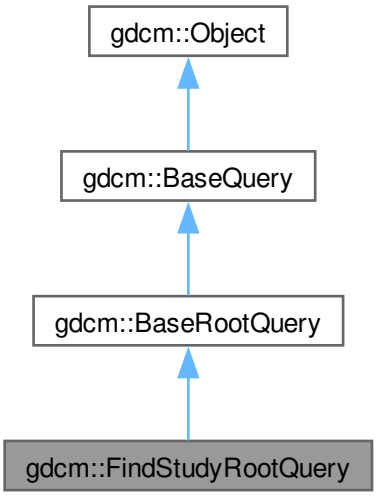
- gdcmFindPatientRootQuery.h

12.139 gdcm::FindStudyRootQuery Class Reference

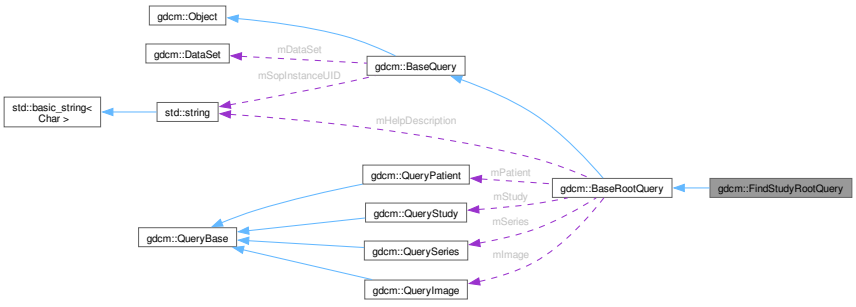
FindStudyRootQuery.

`#include <gdcmFindStudyRootQuery.h>`

Inheritance diagram for gdcm::FindStudyRootQuery:



Collaboration diagram for gdcm::FindStudyRootQuery:



Public Member Functions

- FindStudyRootQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.139.1 Detailed Description

FindStudyRootQuery.

contains: the class which will produce a dataset for C-FIND with study root

12.139.2 Constructor & Destructor Documentation

12.139.2.1 FindStudyRootQuery()

```
gdcm::FindStudyRootQuery::FindStudyRootQuery ()
```

12.139.3 Member Function Documentation

12.139.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::FindStudyRootQuery::GetAbstractSyntaxUID () const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.139.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::FindStudyRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

12.139.3.3 InitializeDataSet()

```
void gdcm::FindStudyRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

12.139.3.4 ValidateQuery()

```
bool gdcm::FindStudyRootQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

have to be able to ensure that (0008,0052) is set that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional)

Implements gdcm::BaseRootQuery.

12.139.4 Friends And Related Symbol Documentation

12.139.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

The documentation for this class was generated from the following file:

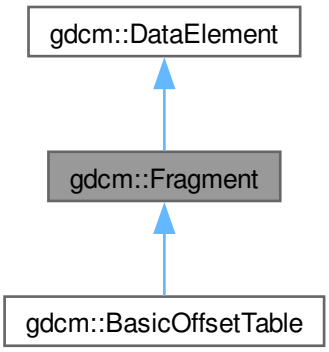
- gdcmFindStudyRootQuery.h

12.140 gdcm::Fragment Class Reference

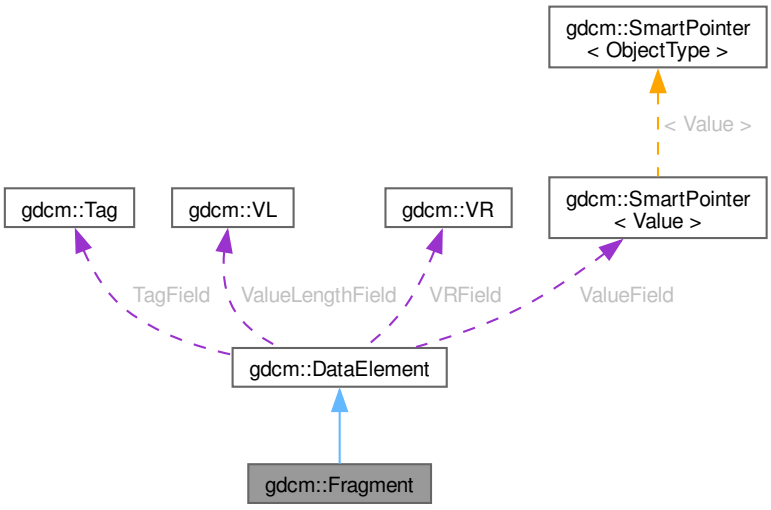
Class to represent a Fragment.

`#include <gdcmFragment.h>`

Inheritance diagram for gdcm::Fragment:



Collaboration diagram for gdcm::Fragment:



Public Member Functions

- Fragment ()
- VL ComputeLength () const
- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadBacktrack (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is)
- template<typename TSwap>
  std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag + VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)

- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &os, const Fragment &val)

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.140.1 Detailed Description

Class to represent a Fragment.

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, and MpegVideoInfo.cs.

12.140.2 Constructor & Destructor Documentation

12.140.2.1 Fragment()

```
gdcm::Fragment::Fragment ()  [inline]
```

References gdcm::DataElement::DataElement().

Referenced by gdcm::BasicOffsetTable::BasicOffsetTable(), and operator<<.

12.140.3 Member Function Documentation

12.140.3.1 ComputeLength()

```
VL gdcm::Fragment::ComputeLength () const
```

12.140.3.2 GetLength()

```
VL gdcm::Fragment::GetLength () const
```

12.140.3.3 Read()

```
template<typename TSwap>
std::istream & gdcm::Fragment::Read (
             std::istream & is)  [inline]
```

References ReadPreValue(), and ReadValue().

Referenced by gdcm::SequenceOfFragments::ReadValue().

12.140.3.4 ReadBacktrack()

```
template<typename TSwap>
std::istream & gdcm::Fragment::ReadBacktrack (
             std::istream & is)  [inline]
```

References gdcm_assert, gdcmErrorMacro, gdcmWarningMacro, gdcm::ParseException::SetLastElement(), gdcm::DataElement::TagField, gdcm::DataElement::ValueField, and gdcm::DataElement::ValueLengthField.

Referenced by gdcm::SequenceOfFragments::ReadValue().

12.140.3.5 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::Fragment::ReadPreValue (
             std::istream & is)  [inline]
```

References gdcm::DataElement::TagField, and gdcm::DataElement::ValueLengthField.

Referenced by Read().

12.140.3.6 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::Fragment::ReadValue (
             std::istream & is)  [inline]
```

References gdcmWarningMacro, gdcm::ParseException::SetLastElement(), gdcm::DataElement::ValueField, and gdcm::DataElement::ValueLengthField.

Referenced by Read().

12.140.3.7 Write()

```
template<typename TSwap>
std::ostream & gdcm::Fragment::Write (
             std::ostream & os) const  [inline]
```

References gdcm::ByteValue::ComputeLength(), gdcm_assert, gdcm::DataElement::GetByteValue(), gdcm::ByteValue::GetLength(), gdcm::DataElement::IsEmpty(), gdcm::DataElement::TagField, gdcm::DataElement::ValueLengthField, gdcm::ByteValue::Write(), and gdcm::VL::Write().

12.140.4 Friends And Related Symbol Documentation

12.140.4.1 operator<<

```
std::ostream & operator<< (
             std::ostream & os,
             const Fragment & val)  [friend]
```

References Fragment(), operator<<, gdcm::DataElement::TagField, gdcm::DataElement::ValueField, and gdcm::DataElement::ValueLeng

Referenced by operator<<.

The documentation for this class was generated from the following file:

- gdcmFragment.h

12.141 gdcm::Global Class Reference

Global.

`#include <gdcmGlobal.h>`

Public Member Functions

- Global ()
- Global (const Global &_val)=delete
- ~Global ()
- bool Append (const char *path)
- Defs const & GetDefs () const
- Dicts & GetDicts ()
- Dicts const & GetDicts () const
- bool LoadResourcesFiles ()
- Global & operator= (const Global &_val)=delete
- bool Prepend (const char *path)

Static Public Member Functions

- static Global & GetInstance ()

  return the singleton instance

Protected Member Functions

- const char * Locate (const char *resfile) const

  Locate a resource file.

Friends

- std::ostream & operator<< (std::ostream &_os, const Global &g)

12.141.1 Detailed Description

Global.

Note

Global should be included in any translation unit that will use Dict or that implements the singleton pattern. It makes sure that the Dict singleton is created before and destroyed after all other singletons in GDCM.

Examples

BasicAnonymizer.cs, Cleaner.cs, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenerateStandardSOPClasses.cxx, PublicDict.cxx, ReadAndPrintAttributes.cxx, and TraverseModules.cxx.

12.141.2 Constructor & Destructor Documentation

12.141.2.1 Global() [1/2]

```
gdcm::Global::Global ()
```

Referenced by Global(), GetInstance(), operator<<, and operator=().

12.141.2.2 ~Global()

```
gdcm::Global::~Global ()
```

12.141.2.3 Global() [2/2]

```
gdcm::Global::Global (
            const Global & _val)  [delete]
```

References Global().

12.141.3 Member Function Documentation

12.141.3.1 Append()

```
bool gdcm::Global::Append (
            const char * path)
```

Append path at the end of the path list

Warning

not thread safe !

12.141.3.2 GetDefs()

```
Defs const & gdcm::Global::GetDefs () const
```

retrieve the default/internal (Part 3) You need to explicitly call LoadResourcesFiles before

Examples

GenerateStandardSOPClasses.cxx, and TraverseModules.cxx.

12.141.3.3 GetDicts() [1/2]

```
Dicts & gdcm::Global::GetDicts ()
```

12.141.3.4 GetDicts() [2/2]

```
Dicts const & gdcm::Global::GetDicts () const
```

retrieve the default/internal dicts (Part 6) This dict is filled up at load time

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, MrProtocol.cxx, PublicDict.cxx, ReadAndPrintAttributes.cxx, and TraverseModules.cxx.

12.141.3.5 GetInstance()

```
Global & gdcm::Global::GetInstance ()  [static]
```

return the singleton instance

Examples

BasicAnonymizer.cs, Cleaner.cs, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenerateStandardSOPClasses.cxx, MrProtocol.cxx, PublicDict.cxx, ReadAndPrintAttributes.cxx, and TraverseModules.cxx.

References Global().

12.141.3.6 LoadResourcesFiles()

```
bool gdcm::Global::LoadResourcesFiles ()
```

Load all internal XML files, resource path need to have been set before calling this member function (see Append/↩ Prepend members func)

Warning

not thread safe !

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, GenerateStandardSOPClasses.cxx, and TraverseModules.cxx.

12.141.3.7 Locate()

```
const char * gdcm::Global::Locate (
            const char * resfile) const  [protected]
```

Locate a resource file.

12.141.3.8 operator=()

```
Global & gdcm::Global::operator= (
            const Global & _val)  [delete]
```

References Global().

12.141.3.9 Prepend()

```
bool gdcm::Global::Prepend (
            const char * path)
```

Prepend path at the beginning of the path list

Warning

not thread safe !

12.141.4 Friends And Related Symbol Documentation

12.141.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Global & g)  [friend]
```

References Global().

The documentation for this class was generated from the following file:

- gdcmGlobal.h

12.142 gdcm::GroupDict Class Reference

Class to represent the mapping from group number to its abbreviation and name.

```
#include <gdcmGroupDict.h>
```

Public Types

- typedef std::vector< std::string > GroupStringVector

Public Member Functions

- GroupDict ()
- ~GroupDict ()=default
- std::string const & GetAbbreviation (uint16_t num) const
- std::string const & GetName (uint16_t num) const
- size_t Size () const

Protected Member Functions

- void Add (std::string const &abbreviation, std::string const &name)
- void Insert (uint16_t num, std::string const &abbreviation, std::string const &name)

Friends

- std::ostream & operator<< (std::ostream &_os, const GroupDict &_val)

12.142.1 Detailed Description

Class to represent the mapping from group number to its abbreviation and name.

Note

Should I rewrite this class to use a std::map instead of std::vector for problem of memory consumption ?

12.142.2 Member Typedef Documentation

12.142.2.1 GroupStringVector

```
typedef std::vector<std::string> gdcm::GroupDict::GroupStringVector
```

12.142.3 Constructor & Destructor Documentation

12.142.3.1 GroupDict()

```
gdcm::GroupDict::GroupDict () [inline]
```

Referenced by ~GroupDict(), Insert(), and operator<<.

12.142.3.2 ~GroupDict()

```
gdcm::GroupDict::~GroupDict ()  [default]
```

References GroupDict(), and operator<<.

12.142.4 Member Function Documentation

12.142.4.1 Add()

```
void gdcm::GroupDict::Add (
            std::string const & abbreviation,
            std::string const & name)  [protected]
```

12.142.4.2 GetAbbreviation()

```
std::string const & gdcm::GroupDict::GetAbbreviation (
            uint16_t num) const
```

Referenced by operator<<.

12.142.4.3 GetName()

```
std::string const & gdcm::GroupDict::GetName (
            uint16_t num) const
```

Referenced by operator<<.

12.142.4.4 Insert()

```
void gdcm::GroupDict::Insert (
            uint16_t num,
            std::string const & abbreviation,
            std::string const & name)  [protected]
```

References GroupDict().

12.142.4.5 Size()

```
size_t gdcm::GroupDict::Size () const  [inline]
```

References gdcm_assert.

Referenced by operator<<.

12.142.5 Friends And Related Symbol Documentation

12.142.5.1 operator<<

```
std::ostream & operator<< (
             std::ostream & _os,
             const GroupDict & _val)  [friend]
```

References GroupDict(), GetAbbreviation(), GetName(), and Size().

Referenced by ~GroupDict().

The documentation for this class was generated from the following file:

- gdcmGroupDict.h

12.143 gdcm::IconImageFilter Class Reference

IconImageFilter.

```
#include <gdcmIconImageFilter.h>
```

Public Member Functions

- IconImageFilter ()
- ~IconImageFilter ()
- bool Extract ()

  Extract all Icon found in File.
- File & GetFile ()
- const File & GetFile () const
- IconImage & GetIconImage (unsigned int i) const
- unsigned int GetNumberOfIconImages () const

  Retrieve extract IconImage (need to call Extract first).
- void SetFile (const File &f)

  Set/Get File.

Protected Member Functions

- void ExtractIconImages ()
- void ExtractVeproIconImages ()

12.143.1 Detailed Description

IconImageFilter.

This filter will extract icons from a File This filter will loop over all known sequence (public and private) that may contains an IconImage and retrieve them. The filter will fails with a value of false if no icon can be found Since it handle both public and private icon type, one should not assume the icon is in uncompress form, some private vendor store private icon in JPEG8/JPEG12

Implementation details: This filter supports the following Icons:

- (0088,0200) Icon Image Sequence
- (0009,10,GEIIS) GE IIS Thumbnail Sequence
- (6003,10,GEMS_Ultrasound_ImageGroup_001) GEMS Image Thumbnail Sequence
- (0055,30,VEPRO VIF 3.0 DATA) Icon Data
- (0055,30,VEPRO VIM 5.0 DATA) ICONDATA2

Warning

the icon stored in those private attribute do not conform to definition of Icon Image Sequence (do not simply copy/paste). For example some private icon can be expressed as 12bits pixel, while the DICOM standard only allow 8bits icons.

See also

ImageReader

Examples

ExtractIconFromFile.cxx.

12.143.2 Constructor & Destructor Documentation

12.143.2.1 IconImageFilter()

```
gdcm::IconImageFilter::IconImageFilter ()
```

12.143.2.2 ~IconImageFilter()

```
gdcm::IconImageFilter::~IconImageFilter ()
```

12.143.3 Member Function Documentation

12.143.3.1 Extract()

```
bool gdcm::IconImageFilter::Extract ()
```

Extract all Icon found in File.

Examples

ExtractIconFromFile.cxx.

12.143.3.2 ExtractIconImages()

```
void gdcm::IconImageFilter::ExtractIconImages ()  [protected]
```

12.143.3.3 ExtractVeproIconImages()

```
void gdcm::IconImageFilter::ExtractVeproIconImages ()  [protected]
```

12.143.3.4 GetFile() [1/2]

```
File & gdcm::IconImageFilter::GetFile ()  [inline]
```

12.143.3.5 GetFile() [2/2]

```
const File & gdcm::IconImageFilter::GetFile () const  [inline]
```

12.143.3.6 GetIconImage()

```
IconImage & gdcm::IconImageFilter::GetIconImage (
            unsigned int i) const
```

Examples

ExtractIconFromFile.cxx.

12.143.3.7 GetNumberOfIconImages()

```
unsigned int gdcm::IconImageFilter::GetNumberOfIconImages () const
```

Retrieve extract IconImage (need to call Extract first).

Examples

ExtractIconFromFile.cxx.

12.143.3.8 SetFile()

```
void gdcm::IconImageFilter::SetFile (
            const File & f)  [inline]
```

Set/Get File.

Examples

ExtractIconFromFile.cxx.

The documentation for this class was generated from the following file:

- gdcmIconImageFilter.h

12.144 gdcm::IconImageGenerator Class Reference

IconImageGenerator.

```
#include <gdcmIconImageGenerator.h>
```

Public Member Functions

- IconImageGenerator ()
- ~IconImageGenerator ()
- void AutoPixelMinMax (bool b)
- void ConvertRGBToPaletteColor (bool b)
- bool Generate ()

  Generate Icon.
- const IconImage & GetIconImage () const

  Retrieve generated Icon.
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const
- void SetOutputDimensions (const unsigned int dims[2])

  Set Target dimension of output Icon.
- void SetOutsideValuePixel (double v)
- void SetPixelMinMax (double min, double max)
- void SetPixmap (const Pixmap &p)

  Set/Get File.

12.144.1 Detailed Description

IconImageGenerator.

This filter will generate a valid Icon from the Pixel Data element (an instance of Pixmap). To generate a valid Icon, one is only allowed the following Photometric Interpretation:

- MONOCHROME1
- MONOCHROME2
- PALETTE_COLOR

The Pixel Bits Allocated is restricted to 8bits, therefore 16 bits image needs to be rescaled. By default the filter will use the full scalar range of 16bits image to rescale to unsigned 8bits. This may not be ideal for some situation, in which case the API SetPixelMinMax can be used to overwrite the default min,max interval used.

See also

ImageReader

Examples

ExtractIconFromFile.cxx.

12.144.2 Constructor & Destructor Documentation

12.144.2.1 IconImageGenerator()

```
gdcm::IconImageGenerator::IconImageGenerator ()
```

12.144.2.2 ~IconImageGenerator()

```
gdcm::IconImageGenerator::~IconImageGenerator ()
```

12.144.3 Member Function Documentation

12.144.3.1 AutoPixelMinMax()

```
void gdcm::IconImageGenerator::AutoPixelMinMax (
            bool b)
```

Instead of explicitly specifying the min/max value for the rescale operation, let the internal mechanism compute the min/max of icon and rescale to best appropriate.

Examples

ExtractIconFromFile.cxx.

12.144.3.2 ConvertRGBToPaletteColor()

```
void gdcm::IconImageGenerator::ConvertRGBToPaletteColor (
            bool b)
```

Converting from RGB to PALETTE_COLOR can be a slow operation. However DICOM standard requires that color icon be described as palette. Set this boolean to false only if you understand the consequences. default value is true, false generates invalid Icon Image Sequence

12.144.3.3 Generate()

```
bool gdcm::IconImageGenerator::Generate ()
```

Generate Icon.

Examples

ExtractIconFromFile.cxx.

12.144.3.4 GetIconImage()

```
const IconImage & gdcm::IconImageGenerator::GetIconImage () const  [inline]
```

Retrieve generated Icon.

Examples

ExtractIconFromFile.cxx.

12.144.3.5 GetPixmap() [1/2]

```
Pixmap & gdcm::IconImageGenerator::GetPixmap ()  [inline]
```

12.144.3.6 GetPixmap() [2/2]

```
const Pixmap & gdcm::IconImageGenerator::GetPixmap () const  [inline]
```

12.144.3.7 SetOutputDimensions()

```
void gdcm::IconImageGenerator::SetOutputDimensions (
            const unsigned int dims[2])
```

Set Target dimension of output Icon.

Examples

ExtractIconFromFile.cxx.

12.144.3.8 SetOutsideValuePixel()

```
void gdcm::IconImageGenerator::SetOutsideValuePixel (
            double v)
```

Set a pixel value that should be discarded. This happen typically for CT image, where a pixel has been used to pad outside the image (see Pixel Padding Value). Requires AutoPixelMinMax(true)

12.144.3.9 SetPixelMinMax()

```
void gdcm::IconImageGenerator::SetPixelMinMax (
            double min,
            double max)
```

Override default min/max to compute best rescale for 16bits -> 8bits downscale. Typically those value can be read from the SmallestImagePixelValue LargestImagePixelValue DICOM attribute.

12.144.3.10 SetPixmap()

```
void gdcm::IconImageGenerator::SetPixmap (
            const Pixmap & p)  [inline]
```

Set/Get File.

Examples

ExtractIconFromFile.cxx.

The documentation for this class was generated from the following file:

- gdcmIconImageGenerator.h

12.145 gdcm::ignore_char Struct Reference

```
#include <gdcmElement.h>
```

Public Member Functions

- ignore_char (char c)

Public Attributes

- char m_char

12.145.1 Constructor & Destructor Documentation

12.145.1.1 ignore_char()

```
gdcm::ignore_char::ignore_char (
            char c)  [inline]
```

References m_char.

12.145.2 Member Data Documentation

12.145.2.1 m_char

```
char gdcm::ignore_char::m_char
```

Referenced by ignore_char(), and gdcm::operator>>().

The documentation for this struct was generated from the following file:

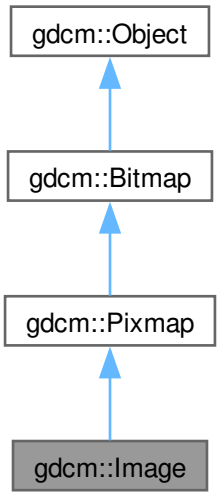
- gdcmElement.h

12.146 gdcm::Image Class Reference

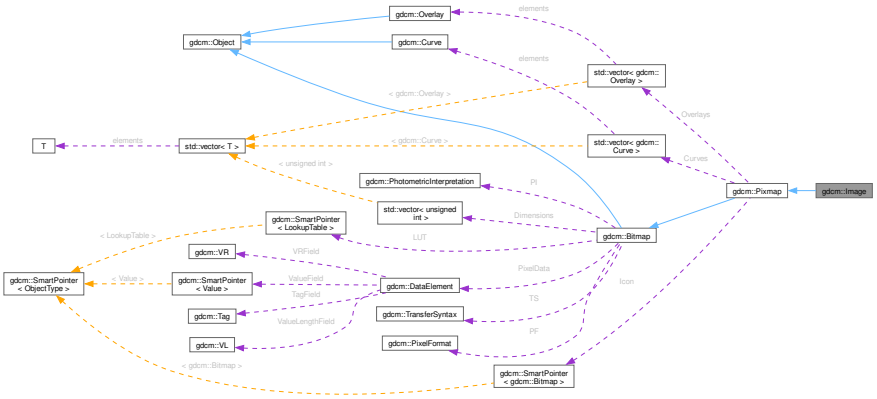
Image.

```
#include <gdcmImage.h>
```

Inheritance diagram for gdcm::Image:



Collaboration diagram for gdcm::Image:



Public Member Functions

- Image ()
- ~Image () override=default
- const double * GetDirectionCosines () const
- double GetDirectionCosines (unsigned int idx) const
- double GetIntercept () const
- const double * GetOrigin () const
- double GetOrigin (unsigned int idx) const
- double GetSlope () const
- const double * GetSpacing () const
- double GetSpacing (unsigned int idx) const
- void Print (std::ostream &os) const override

  print
- void SetDirectionCosines (const double dircos[6])
- void SetDirectionCosines (const float dircos[6])
- void SetDirectionCosines (unsigned int idx, double dircos)
- void SetIntercept (double intercept)

  intercept
- void SetOrigin (const double origin[3])
- void SetOrigin (const float origin[3])
- void SetOrigin (unsigned int idx, double ori)
- void SetSlope (double slope)

  slope
- void SetSpacing (const double spacing[3])
- void SetSpacing (unsigned int idx, double spacing)

Public Member Functions inherited from gdcm::Pixmap

- Pixmap ()
- ~Pixmap () override
- bool AreOverlaysInPixelData () const override

  returns if Overlays are stored in the unused bit of the pixel data:
- Curve & GetCurve (size_t i=0)

  Curve: group 50xx.
- const Curve & GetCurve (size_t i=0) const
- IconImage & GetIconImage ()
- const IconImage & GetIconImage () const

  Set/Get Icon Image.
- size_t GetNumberOfCurves () const
- size_t GetNumberOfOverlays () const
- Overlay & GetOverlay (size_t i=0)

  Overlay: group 60xx.
- const Overlay & GetOverlay (size_t i=0) const
- void Print (std::ostream &) const override
- void RemoveOverlay (size_t i)
- void SetIconImage (IconImage const &ii)
- void SetNumberOfCurves (size_t n)
- void SetNumberOfOverlays (size_t n)
- bool UnusedBitsPresentInPixelData () const override

  returns if there are unused bits in the pixel data

Public Member Functions inherited from gdcm::Bitmap

- Bitmap ()
- ~Bitmap () override
- void Clear ()
- bool GetBuffer (char *buffer) const

  Access the raw data.
- unsigned long GetBufferLength () const
- unsigned int GetColumns () const
- DataElement & GetDataElement ()
- const DataElement & GetDataElement () const
- unsigned int GetDimension (unsigned int idx) const
- const unsigned int * GetDimensions () const

  Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...
- LookupTable & GetLUT ()
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const

  INTERNAL do not use.
- unsigned int GetNumberOfDimensions () const

  Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.
- const PhotometricInterpretation & GetPhotometricInterpretation () const

  return the photometric interpretation
- PixelFormat & GetPixelFormat ()

- const PixelFormat & GetPixelFormat () const

  Get/Set PixelFormat.
- unsigned int GetPlanarConfiguration () const

  return the planar configuration
- unsigned int GetRows () const
- const TransferSyntax & GetTransferSyntax () const
- bool IsEmpty () const
- bool IsLossy () const

  Return whether or not the image was compressed using a lossy compressor or not.
- bool IsTransferSyntaxCompatible (TransferSyntax const &ts) const
- void SetColumns (unsigned int col)
- void SetDataElement (DataElement const &de)
- void SetDimension (unsigned int idx, unsigned int dim)
- void SetDimensions (const unsigned int dims[3])
- void SetLossyFlag (bool f)

  Specifically set that the image was compressed using a lossy compression mechanism.
- void SetLUT (LookupTable const &lut)

  Set/Get LUT.
- void SetNeedByteSwap (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)
- void SetRows (unsigned int rows)
- void SetTransferSyntax (TransferSyntax const &ts)

  Transfer syntax.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Additional Inherited Members

Protected Types inherited from gdcm::Bitmap

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::Bitmap

- bool ComputeLossyFlag ()
- bool GetBuffer2 (std::ostream &os) const
- bool TryJPEG2000Codec (char *buffer, bool &lossyflag) const
- bool TryJPEG2000Codec2 (std::ostream &os) const
- bool TryJPEGCodec (char *buffer, bool &lossyflag) const
- bool TryJPEGCodec2 (std::ostream &os) const
- bool TryJPEGLSCodec (char *buffer, bool &lossyflag) const
- bool TryKAKADUCodec (char *buffer, bool &lossyflag) const
- bool TryPVRGCodec (char *buffer, bool &lossyflag) const
- bool TryRAWCodec (char *buffer, bool &lossyflag) const
- bool TryRLECodec (char *buffer, bool &lossyflag) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::Pixmap

- std::vector< Curve > Curves
- SmartPointer< IconImage > Icon
- std::vector< Overlay > Overlays

Protected Attributes inherited from gdcm::Bitmap

- std::vector< unsigned int > Dimensions
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- DataElement PixelData
- unsigned int PlanarConfiguration
- TransferSyntax TS

12.146.1 Detailed Description

Image.

This is the container for an Image in the general sense. From this container you should be able to request information like:

- Origin
- Dimension
- PixelFormat ... But also to retrieve the image as a raw buffer (char *) Since we have to deal with both RAW data and JPEG stream (which internally encode all the above information) this API might seems redundant. One way to solve that would be to subclass Image with JPEGImage which would from the stream extract the header info and fill it to please Image...well except origin for instance

Basically you can see it as a storage for the Pixel Data element (7fe0,0010).

Warning

This class does some heuristics to guess the Spacing but is not compatible with DICOM CP-586. In case of doubt use PixmapReader instead

See also

ImageReader PixmapReader

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, ExtractIconFromFile.cxx, FixJAIBugJPEGLS.cxx, GenFakeImage.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, MpegVideoInfo.cs, PatchFile.cxx, PrintLUT.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, TemplateEmptyImage.cxx, csa2img.cxx, iU22tomultisc.cxx, and threadgdcm.cxx.

12.146.2 Constructor & Destructor Documentation

12.146.2.1 Image()

```
gdcm::Image::Image () [inline]
```

12.146.2.2 ~Image()

```
gdcm::Image::~Image () [override], [default]
```

12.146.3 Member Function Documentation

12.146.3.1 GetDirectionCosines() [1/2]

```
const double * gdcm::Image::GetDirectionCosines () const
```

Return a 6-tuples specifying the direction cosines A default value of (1,0,0,0,1,0) will be return when the direction cosines was not specified.

12.146.3.2 GetDirectionCosines() [2/2]

```
double gdcm::Image::GetDirectionCosines (
            unsigned int idx) const
```

12.146.3.3 GetIntercept()

```
double gdcm::Image::GetIntercept () const  [inline]
```

12.146.3.4 GetOrigin() [1/2]

```
const double * gdcm::Image::GetOrigin () const
```

Return a 3-tuples specifying the origin Will return (0,0,0) if the origin was not specified.

Examples

HelloVizWorld.cxx.

12.146.3.5 GetOrigin() [2/2]

```
double gdcm::Image::GetOrigin (
            unsigned int idx) const
```

12.146.3.6 GetSlope()

```
double gdcm::Image::GetSlope () const  [inline]
```

12.146.3.7 GetSpacing() [1/2]

```
const double * gdcm::Image::GetSpacing () const
```

Return a 3-tuples specifying the spacing NOTE: 3rd value can be an arbitrary 1 value when the spacing was not specified (ex. 2D image). WARNING: when the spacing is not specifier, a default value of 1 will be returned

12.146.3.8 GetSpacing() [2/2]

```
double gdcm::Image::GetSpacing (
            unsigned int idx) const
```

12.146.3.9 Print()

```
void gdcm::Image::Print (
            std::ostream & os) const  [override], [virtual]
```

print

Reimplemented from gdcm::Bitmap.

Examples

CompressImage.cxx, and PatchFile.cxx.

12.146.3.10 SetDirectionCosines() [1/3]

```
void gdcm::Image::SetDirectionCosines (
            const double dircos[6])
```

12.146.3.11 SetDirectionCosines() [2/3]

```
void gdcm::Image::SetDirectionCosines (
            const float dircos[6])
```

12.146.3.12 SetDirectionCosines() [3/3]

```
void gdcm::Image::SetDirectionCosines (
            unsigned int idx,
            double dircos)
```

12.146.3.13 SetIntercept()

```
void gdcm::Image::SetIntercept (
            double intercept)  [inline]
```

intercept

Examples

TemplateEmptyImage.cxx.

12.146.3.14 SetOrigin() [1/3]

```
void gdcm::Image::SetOrigin (
            const double origin[3])
```

12.146.3.15 SetOrigin() [2/3]

```
void gdcm::Image::SetOrigin (
            const float origin[3])
```

12.146.3.16 SetOrigin() [3/3]

```
void gdcm::Image::SetOrigin (
            unsigned int idx,
            double ori)
```

12.146.3.17 SetSlope()

```
void gdcm::Image::SetSlope (
            double slope)  [inline]
```

slope

Examples

TemplateEmptyImage.cxx.

12.146.3.18 SetSpacing() [1/2]

```
void gdcm::Image::SetSpacing (
            const double spacing[3])
```

Examples

csa2img.cxx, and iU22tomultisc.cxx.

12.146.3.19 SetSpacing() [2/2]

```
void gdcm::Image::SetSpacing (
            unsigned int idx,
            double spacing)
```

The documentation for this class was generated from the following file:

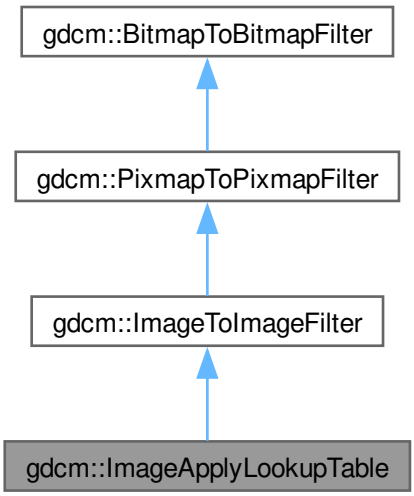
- gdcmImage.h

12.147 gdcm::ImageApplyLookupTable Class Reference

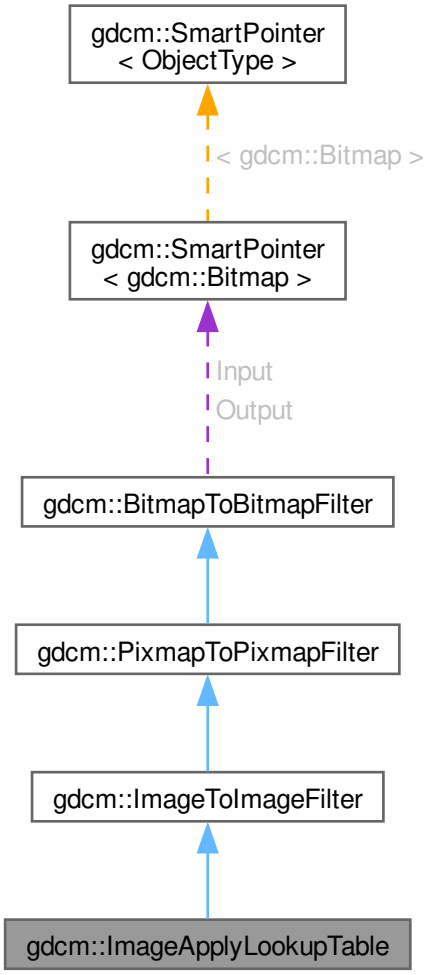
ImageApplyLookupTable class.

```
#include <gdcmImageApplyLookupTable.h>
```

Inheritance diagram for gdcm::ImageApplyLookupTable:



Collaboration diagram for gdcm::ImageApplyLookupTable:



Public Member Functions

- ImageApplyLookupTable ()
- ~ImageApplyLookupTable ()
- bool Apply ()

  Apply.
- void SetRGB8 (bool b)

  RGB8 ?

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.147.1 Detailed Description

ImageApplyLookupTable class.

It applies the LUT the PixelData (only PALETTE_COLOR images) Output will be a PhotometricInterpretation=RGB image

12.147.2 Constructor & Destructor Documentation

12.147.2.1 ImageApplyLookupTable()

```
gdcm::ImageApplyLookupTable::ImageApplyLookupTable ()
```

12.147.2.2 ~ImageApplyLookupTable()

```
gdcm::ImageApplyLookupTable::~ImageApplyLookupTable ()
```

12.147.3 Member Function Documentation

12.147.3.1 Apply()

```
bool gdcm::ImageApplyLookupTable::Apply ()
```

Apply.

12.147.3.2 SetRGB8()

```
void gdcm::ImageApplyLookupTable::SetRGB8 (
            bool b)
```

RGB8 ?

The documentation for this class was generated from the following file:

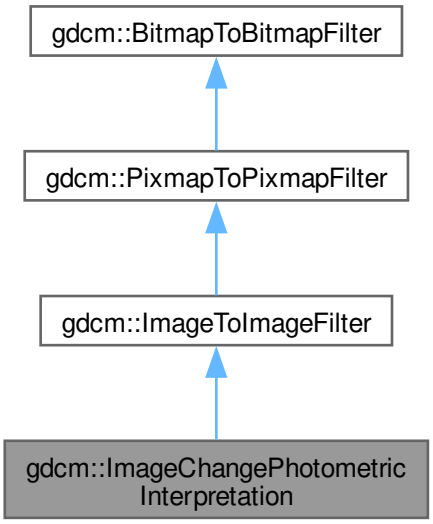
- gdcmImageApplyLookupTable.h

12.148 gdcm::ImageChangePhotometricInterpretation Class Reference

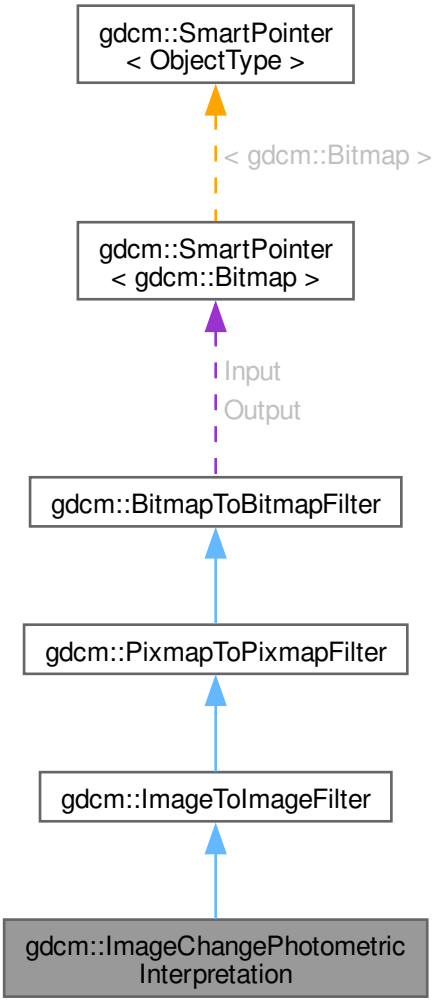
ImageChangePhotometricInterpretation class.

`#include <gdcmImageChangePhotometricInterpretation.h>`

Inheritance diagram for gdcm::ImageChangePhotometricInterpretation:



Collaboration diagram for gdcm::ImageChangePhotometricInterpretation:



Public Member Functions

- ImageChangePhotometricInterpretation ()
- ~ImageChangePhotometricInterpretation ()=default
- bool Change ()

  Change.
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)

  Set/Get requested PhotometricInterpretation.

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Static Public Member Functions

- template<typename T>
  static void RGB2YBR (T ybr[3], const T rgb[3], unsigned short storedbits=8)
- template<typename T>
  static void YBR2RGB (T rgb[3], const T ybr[3], unsigned short storedbits=8)

Protected Member Functions

- bool ChangeMonochrome ()
- bool ChangeRGB2YBR ()
- bool ChangeYBR2RGB ()

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.148.1 Detailed Description

ImageChangePhotometricInterpretation class.

Class to change the Photometric Interpretation of an input DICOM

12.148.2 Constructor & Destructor Documentation

12.148.2.1 ImageChangePhotometricInterpretation()

```
gdcm::ImageChangePhotometricInterpretation::ImageChangePhotometricInterpretation () [inline]
```

12.148.2.2 ~ImageChangePhotometricInterpretation()

```
gdcm::ImageChangePhotometricInterpretation::~ImageChangePhotometricInterpretation () [default]
```

12.148.3 Member Function Documentation

12.148.3.1 Change()

```
bool gdcm::ImageChangePhotometricInterpretation::Change ()
```

Change.

References RGB2YBR(), and YBR2RGB().

12.148.3.2 ChangeMonochrome()

```
bool gdcm::ImageChangePhotometricInterpretation::ChangeMonochrome () [protected]
```

12.148.3.3 ChangeRGB2YBR()

```
bool gdcm::ImageChangePhotometricInterpretation::ChangeRGB2YBR () [protected]
```

12.148.3.4 ChangeYBR2RGB()

```
bool gdcm::ImageChangePhotometricInterpretation::ChangeYBR2RGB () [protected]
```

12.148.3.5 GetPhotometricInterpretation()

```
const PhotometricInterpretation & gdcm::ImageChangePhotometricInterpretation::GetPhotometric↩
Interpretation () const  [inline]
```

12.148.3.6 RGB2YBR()

```
template<typename T>
void gdcm::ImageChangePhotometricInterpretation::RGB2YBR (
             T ybr[3],
             const T rgb[3],
             unsigned short storedbits = 8)  [static]
```

colorspace conversion (based on CCIR Recommendation 601-2) -> T.871

References gdcm::Clamp(), gdcm_assert, and gdcm::Round().

Referenced by Change().

12.148.3.7 SetPhotometricInterpretation()

```
void gdcm::ImageChangePhotometricInterpretation::SetPhotometricInterpretation (
             PhotometricInterpretation const & pi)  [inline]
```

Set/Get requested PhotometricInterpretation.

12.148.3.8 YBR2RGB()

```
template<typename T>
void gdcm::ImageChangePhotometricInterpretation::YBR2RGB (
             T rgb[3],
             const T ybr[3],
             unsigned short storedbits = 8)  [static]
```

References gdcm::Clamp(), gdcm_assert, and gdcm::Round().

Referenced by Change().

The documentation for this class was generated from the following file:

- gdcmImageChangePhotometricInterpretation.h

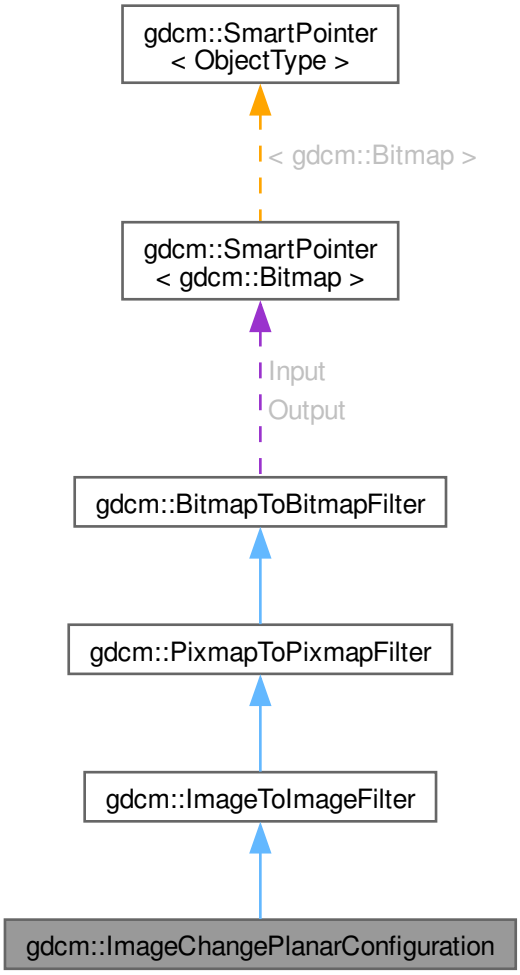
12.149 gdcm::ImageChangePlanarConfiguration Class Reference

ImageChangePlanarConfiguration class.

`#include <gdcmImageChangePlanarConfiguration.h>`

Inheritance diagram for gdcm::ImageChangePlanarConfiguration:

Collaboration diagram for gdcm::ImageChangePlanarConfiguration:



Public Member Functions

- ImageChangePlanarConfiguration ()
- ~ImageChangePlanarConfiguration ()=default
- bool Change ()

  Change.
- unsigned int GetPlanarConfiguration () const
- void SetPlanarConfiguration (unsigned int pc)

  Set/Get requested PlanarConfigation.

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Static Public Member Functions

- template<typename T>
  static size_t RGBPixelsToRGBPlanes (T *r, T *g, T *b, const T *rgb, size_t s)
- template<typename T>
  static size_t RGBPlanesToRGBPixels (T *out, const T *r, const T *g, const T *b, size_t s)

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.149.1 Detailed Description

ImageChangePlanarConfiguration class.

Class to change the Planar configuration of an input DICOM By default it will change into the more usual representation: PlanarConfiguration = 0

12.149.2 Constructor & Destructor Documentation

12.149.2.1 ImageChangePlanarConfiguration()

```
gdcm::ImageChangePlanarConfiguration::ImageChangePlanarConfiguration ()  [inline]
```

12.149.2.2 ~ImageChangePlanarConfiguration()

```
gdcm::ImageChangePlanarConfiguration::~ImageChangePlanarConfiguration ()  [default]
```

12.149.3 Member Function Documentation

12.149.3.1 Change()

```
bool gdcm::ImageChangePlanarConfiguration::Change ()
```

Change.

12.149.3.2 GetPlanarConfiguration()

```
unsigned int gdcm::ImageChangePlanarConfiguration::GetPlanarConfiguration () const  [inline]
```

12.149.3.3 RGBPixelsToRGBPlanes()

```
template<typename T>
size_t gdcm::ImageChangePlanarConfiguration::RGBPixelsToRGBPlanes (
            T * r,
            T * g,
            T * b,
            const T * rgb,
            size_t s)  [static]
```

Convert a regular RGB pixel image (R,G,B,R,G,B...) into a planar R,G,B image (R,R..,G,G...B,B)

Warning

this works on a frame basis, you need to loop over all frames in multiple frames image to apply this function

References gdcm_assert.

12.149.3.4 RGBPlanesToRGBPixels()

```
template<typename T>
size_t gdcm::ImageChangePlanarConfiguration::RGBPlanesToRGBPixels (
              T * out,
              const T * r,
              const T * g,
              const T * b,
              size_t s)  [static]
```

s is the size of one plane (r,g or b). Thus the output buffer needs to be at least 3∗s bytes long s can be seen as the number of RGB pixels in the output

References gdcm_assert.

12.149.3.5 SetPlanarConfiguration()

```
void gdcm::ImageChangePlanarConfiguration::SetPlanarConfiguration (
              unsigned int pc)  [inline]
```

Set/Get requested PlanarConfigation.

The documentation for this class was generated from the following file:

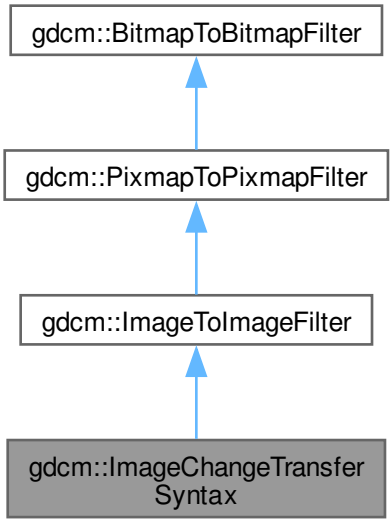
- gdcmImageChangePlanarConfiguration.h

12.150 gdcm::ImageChangeTransferSyntax Class Reference

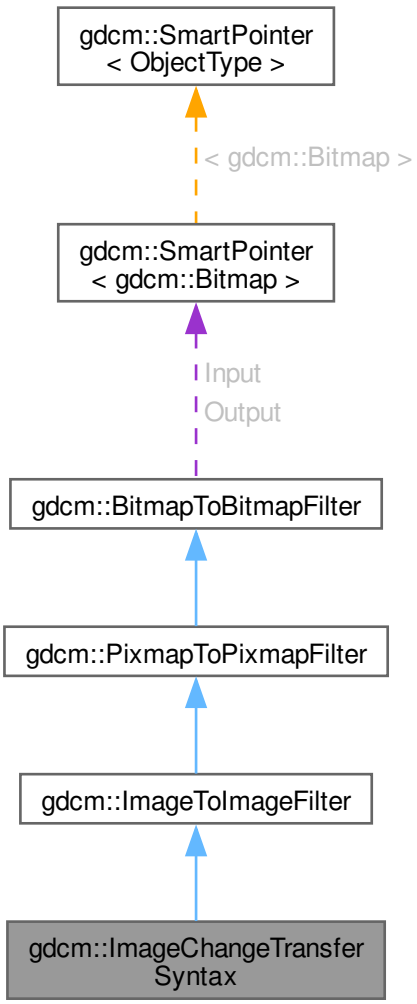
ImageChangeTransferSyntax class.

```
#include <gdcmImageChangeTransferSyntax.h>
```

Inheritance diagram for gdcm::ImageChangeTransferSyntax:



Collaboration diagram for gdcm::ImageChangeTransferSyntax:



Public Member Functions

- ImageChangeTransferSyntax ()
- ~ImageChangeTransferSyntax ()=default
- bool Change ()

  Change.
- const TransferSyntax & GetTransferSyntax () const

  Get Transfer Syntax.
- void SetCompressIconImage (bool b)
- void SetForce (bool f)

- void SetTransferSyntax (const TransferSyntax &ts)

  Set target Transfer Syntax.
- void SetUserCodec (ImageCodec *ic)

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Protected Member Functions

- bool TryJPEG2000Codec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)
- bool TryJPEGCodec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)
- bool TryJPEGLSCodec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)
- bool TryRAWCodec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)
- bool TryRLECodec (const DataElement &pixelde, Bitmap const &input, Bitmap &output)

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.150.1 Detailed Description

ImageChangeTransferSyntax class.

Class to change the transfer syntax of an input DICOM

If only Force param is set but no input TransferSyntax is set, it is assumed that user only wants to inspect encapsulated stream (advanced dev. option).

When using UserCodec it is very important that the TransferSyntax (as set in SetTransferSyntax) is actually understood by UserCodec (ie. UserCodec->CanCode(TransferSyntax)). Otherwise the behavior is to use a default codec.

See also

JPEGCodec JPEGLSCodec JPEG2000Codec

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, ExplicitLittleEndian.cs, and StandardizeFiles.cs.

12.150.2 Constructor & Destructor Documentation

12.150.2.1 ImageChangeTransferSyntax()

```
gdcm::ImageChangeTransferSyntax::ImageChangeTransferSyntax () [inline]
```

12.150.2.2 ~ImageChangeTransferSyntax()

```
gdcm::ImageChangeTransferSyntax::~ImageChangeTransferSyntax () [default]
```

12.150.3 Member Function Documentation

12.150.3.1 Change()

```
bool gdcm::ImageChangeTransferSyntax::Change ()
```

Change.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, ExplicitLittleEndian.cs, and StandardizeFiles.cs.

12.150.3.2 GetTransferSyntax()

```
const TransferSyntax & gdcm::ImageChangeTransferSyntax::GetTransferSyntax () const  [inline]
```

Get Transfer Syntax.

12.150.3.3 SetCompressIconImage()

```
void gdcm::ImageChangeTransferSyntax::SetCompressIconImage (
            bool b)  [inline]
```

Decide whether or not to also compress the Icon Image using the same Transfer Syntax. Default is to simply decompress icon image

Examples

StandardizeFiles.cs.

12.150.3.4 SetForce()

```
void gdcm::ImageChangeTransferSyntax::SetForce (
            bool f)  [inline]
```

When target Transfer Syntax is identical to input target syntax, no operation is actually done. This is an issue when someone wants to re-compress using GDCM internal implementation a JPEG (for example) image

Examples

ExplicitLittleEndian.cs, and StandardizeFiles.cs.

12.150.3.5 SetTransferSyntax()

```
void gdcm::ImageChangeTransferSyntax::SetTransferSyntax (
            const TransferSyntax & ts)  [inline]
```

Set target Transfer Syntax.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, ExplicitLittleEndian.cs, and StandardizeFiles.cs.

12.150.3.6 SetUserCodec()

```
void gdcm::ImageChangeTransferSyntax::SetUserCodec (
            ImageCodec * ic)  [inline]
```

Allow user to specify exactly which codec to use. this is needed to specify special qualities or compression option.

Warning

if the codec 'ic' is not compatible with the TransferSyntax requested, it will not be used. It is the user responsibility to check that UserCodec->CanCode(TransferSyntax)

Examples

CompressLossyJPEG.cs.

12.150.3.7 TryJPEG2000Codec()

```
bool gdcm::ImageChangeTransferSyntax::TryJPEG2000Codec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output)  [protected]
```

12.150.3.8 TryJPEGCodec()

```
bool gdcm::ImageChangeTransferSyntax::TryJPEGCodec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output)  [protected]
```

12.150.3.9 TryJPEGLSCodec()

```
bool gdcm::ImageChangeTransferSyntax::TryJPEGLSCodec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output)  [protected]
```

12.150.3.10 TryRAWCodec()

```
bool gdcm::ImageChangeTransferSyntax::TryRAWCodec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output)  [protected]
```

12.150.3.11 TryRLECodec()

```
bool gdcm::ImageChangeTransferSyntax::TryRLECodec (
            const DataElement & pixelde,
            Bitmap const & input,
            Bitmap & output)  [protected]
```

The documentation for this class was generated from the following file:

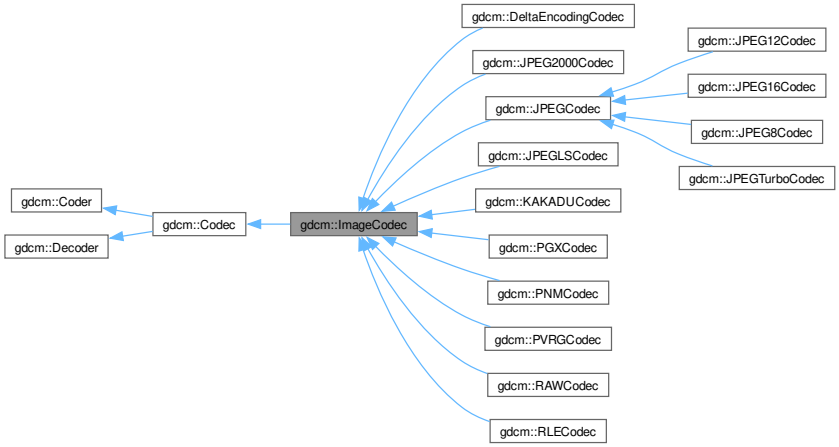
- gdcmImageChangeTransferSyntax.h

12.151 gdcm::ImageCodec Class Reference

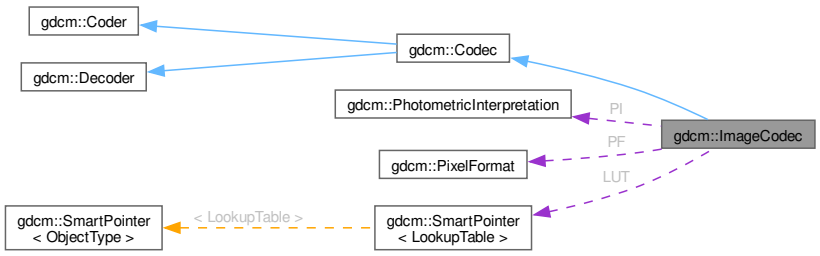
ImageCodec.

`#include <gdcmImageCodec.h>`

Inheritance diagram for gdcm::ImageCodec:



Collaboration diagram for gdcm::ImageCodec:



Public Member Functions

- ImageCodec ()
- ~ImageCodec () override
- bool CanCode (TransferSyntax const &) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &) const override

  Return whether this decoder support this transfer syntax (can decode it).
- bool CleanupUnusedBits (char *data, size_t datalen)
- virtual ImageCodec * Clone () const =0
- bool Decode (DataElement const &is_, DataElement &os) override

  Decode.
- const unsigned int * GetDimensions () const
- virtual bool GetHeaderInfo (std::istream &is_, TransferSyntax &ts)
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Types

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

Friends

- class FileChangeTransferSyntax
- class ImageChangePhotometricInterpretation

12.151.1 Detailed Description

ImageCodec.

Note

Main codec, this is a central place for all implementation

Examples

FileChangeTSLossy.cs.

12.151.2 Member Typedef Documentation

12.151.2.1 LUTPtr

```
typedef SmartPointer<LookupTable> gdcm::ImageCodec::LUTPtr  [protected]
```

12.151.3 Constructor & Destructor Documentation

12.151.3.1 ImageCodec()

```
gdcm::ImageCodec::ImageCodec ()
```

Referenced by Clone(), gdcm::JPEG2000Codec::Clone(), gdcm::JPEGCodec::Clone(), gdcm::JPEGLSCodec::Clone(), gdcm::KAKADUCodec::Clone(), gdcm::PGXCodec::Clone(), gdcm::PNMCodec::Clone(), gdcm::PVRGCodec::Clone(), gdcm::RAWCodec::Clone(), and gdcm::RLECodec::Clone().

12.151.3.2 ~ImageCodec()

```
gdcm::ImageCodec::~ImageCodec ()  [override]
```

12.151.4 Member Function Documentation

12.151.4.1 AppendFrameEncode()

```
virtual bool gdcm::ImageCodec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

12.151.4.2 AppendRowEncode()

```
virtual bool gdcm::ImageCodec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

12.151.4.3 CanCode()

```
bool gdcm::ImageCodec::CanCode (
            TransferSyntax const & ) const  [inline], [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Implements gdcm::Coder.

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.151.4.4 CanDecode()

```
bool gdcm::ImageCodec::CanDecode (
            TransferSyntax const & ) const  [inline], [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Implements gdcm::Decoder.

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.151.4.5 CleanupUnusedBits()

```
bool gdcm::ImageCodec::CleanupUnusedBits (
            char * data,
            size_t datalen)
```

12.151.4.6 Clone()

```
virtual ImageCodec * gdcm::ImageCodec::Clone () const  [pure virtual]
```

Implemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

References ImageCodec().

12.151.4.7 Decode()

```
bool gdcm::ImageCodec::Decode (
            DataElement const & is_,
            DataElement & os)  [override], [virtual]
```

Decode.

Reimplemented from gdcm::Decoder.

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::KAKADUCodec, gdcm::PVRGCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.151.4.8 DecodeByStreams()

```
bool gdcm::ImageCodec::DecodeByStreams (
            std::istream & is_,
            std::ostream & os)  [override], [protected], [virtual]
```

Reimplemented from gdcm::Decoder.

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, gdcm::JPEG2000Codec, gdcm::JPEG8Codec, gdcm::JPEGCodec, gdcm::JPEGTurboCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.151.4.9 DoByteSwap()

```
bool gdcm::ImageCodec::DoByteSwap (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.10 DoInvertMonochrome()

```
bool gdcm::ImageCodec::DoInvertMonochrome (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.11 DoOverlayCleanup()

```
bool gdcm::ImageCodec::DoOverlayCleanup (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.12 DoPaddedCompositePixelCode()

```
bool gdcm::ImageCodec::DoPaddedCompositePixelCode (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.13 DoPlanarConfiguration()

```
bool gdcm::ImageCodec::DoPlanarConfiguration (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.14 DoSimpleCopy()

```
bool gdcm::ImageCodec::DoSimpleCopy (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.15 DoYBR()

```
bool gdcm::ImageCodec::DoYBR (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.16 DoYBRFull422()

```
bool gdcm::ImageCodec::DoYBRFull422 (
            std::istream & is_,
            std::ostream & os)  [protected]
```

12.151.4.17 GetDimensions()

```
const unsigned int * gdcm::ImageCodec::GetDimensions () const  [inline]
```

References Dimensions.

12.151.4.18 GetHeaderInfo()

```
virtual bool gdcm::ImageCodec::GetHeaderInfo (
            std::istream & is_,
            TransferSyntax & ts)  [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, gdcm::JPEG2000Codec, gdcm::JPEG8Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, gdcm::JPEGTurboCodec, gdcm::PGXCodec, gdcm::PNMCodec, gdcm::RAWCodec, and gdcm::RLECodec.

12.151.4.19 GetLossyFlag()

```
bool gdcm::ImageCodec::GetLossyFlag () const
```

12.151.4.20 GetLUT()

```
const LookupTable & gdcm::ImageCodec::GetLUT () const  [inline]
```

References LUT.

12.151.4.21 GetNeedByteSwap()

```
bool gdcm::ImageCodec::GetNeedByteSwap () const  [inline]
```

References NeedByteSwap.

12.151.4.22 GetNumberOfDimensions()

```
unsigned int gdcm::ImageCodec::GetNumberOfDimensions () const
```

12.151.4.23 GetPhotometricInterpretation()

```
const PhotometricInterpretation & gdcm::ImageCodec::GetPhotometricInterpretation () const
```

12.151.4.24 GetPixelFormat() [1/2]

```
PixelFormat & gdcm::ImageCodec::GetPixelFormat ()  [inline]
```

Examples

GetJPEGSamplePrecision.cxx.

References PF.

12.151.4.25 GetPixelFormat() [2/2]

```
const PixelFormat & gdcm::ImageCodec::GetPixelFormat () const  [inline]
```

References PF.

12.151.4.26 GetPlanarConfiguration()

```
unsigned int gdcm::ImageCodec::GetPlanarConfiguration () const  [inline]
```

References PlanarConfiguration.

12.151.4.27 IsFrameEncoder()

```
virtual bool gdcm::ImageCodec::IsFrameEncoder ()  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

12.151.4.28 IsLossy()

```
bool gdcm::ImageCodec::IsLossy () const
```

12.151.4.29 IsRowEncoder()

```
virtual bool gdcm::ImageCodec::IsRowEncoder ()  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

12.151.4.30 IsValid()

```
virtual bool gdcm::ImageCodec::IsValid (
            PhotometricInterpretation const & pi)  [protected], [virtual]
```

Reimplemented in gdcm::JPEGCodec.

12.151.4.31 SetDimensions() [1/2]

```
void gdcm::ImageCodec::SetDimensions (
            const std::vector< unsigned int > & d)
```

12.151.4.32 SetDimensions() [2/2]

```
void gdcm::ImageCodec::SetDimensions (
            const unsigned int d[3])
```

Examples

ExtractIconFromFile.cxx.

12.151.4.33 SetLossyFlag()

```
void gdcm::ImageCodec::SetLossyFlag (
            bool l)
```

12.151.4.34 SetLUT()

```
void gdcm::ImageCodec::SetLUT (
            LookupTable const & lut)  [inline]
```

Examples

ExtractIconFromFile.cxx.

References LUT.

12.151.4.35 SetNeedByteSwap()

```
void gdcm::ImageCodec::SetNeedByteSwap (
            bool b)  [inline]
```

References NeedByteSwap.

12.151.4.36 SetNeedOverlayCleanup()

```
void gdcm::ImageCodec::SetNeedOverlayCleanup (
            bool b)  [inline]
```

References NeedOverlayCleanup.

12.151.4.37 SetNumberOfDimensions()

```
void gdcm::ImageCodec::SetNumberOfDimensions (
            unsigned int dim)
```

12.151.4.38 SetPhotometricInterpretation()

```
void gdcm::ImageCodec::SetPhotometricInterpretation (
            PhotometricInterpretation const & pi)
```

Examples

ExtractIconFromFile.cxx.

12.151.4.39 SetPixelFormat()

```
virtual void gdcm::ImageCodec::SetPixelFormat (
            PixelFormat const & pf)  [inline], [virtual]
```

Reimplemented in gdcm::JPEGCodec.

Examples

ExtractIconFromFile.cxx.

References PF.

12.151.4.40 SetPlanarConfiguration()

```
void gdcm::ImageCodec::SetPlanarConfiguration (
            unsigned int pc)  [inline]
```

References gdcm_assert, and PlanarConfiguration.

12.151.4.41 StartEncode()

```
virtual bool gdcm::ImageCodec::StartEncode (
            std::ostream & os)  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

12.151.4.42 StopEncode()

```
virtual bool gdcm::ImageCodec::StopEncode (
            std::ostream & os)  [protected], [virtual]
```

Reimplemented in gdcm::JPEG2000Codec, gdcm::JPEGCodec, gdcm::JPEGLSCodec, and gdcm::RLECodec.

12.151.5 Friends And Related Symbol Documentation

12.151.5.1 FileChangeTransferSyntax

```
friend class FileChangeTransferSyntax  [friend]
```

This is a high level API to encode in a streaming fashion. Each plugin will handle differently the caching mechanism so that a limited memory is used when compressing dataset. Codec will fall into two categories:

- Full row encoder: only a single scanline (row) of data is needed to be loaded at a time;
- Full frame encoder (default): a complete frame (row x col) is needed to be loaded at a time

References FileChangeTransferSyntax.

Referenced by FileChangeTransferSyntax.

12.151.5.2 ImageChangePhotometricInterpretation

```
friend class ImageChangePhotometricInterpretation  [friend]
```

References ImageChangePhotometricInterpretation.

Referenced by ImageChangePhotometricInterpretation.

12.151.6 Member Data Documentation

12.151.6.1 Dimensions

```
unsigned int gdcm::ImageCodec::Dimensions[3]  [protected]
```

Referenced by GetDimensions().

12.151.6.2 LossyFlag

```
bool gdcm::ImageCodec::LossyFlag  [protected]
```

12.151.6.3 LUT

```
LUTPtr gdcm::ImageCodec::LUT  [protected]
```

Referenced by GetLUT(), and SetLUT().

12.151.6.4 NeedByteSwap

```
bool gdcm::ImageCodec::NeedByteSwap  [protected]
```

Referenced by GetNeedByteSwap(), and SetNeedByteSwap().

12.151.6.5 NeedOverlayCleanup

```
bool gdcm::ImageCodec::NeedOverlayCleanup  [protected]
```

Referenced by SetNeedOverlayCleanup().

12.151.6.6 NumberOfDimensions

```
unsigned int gdcm::ImageCodec::NumberOfDimensions  [protected]
```

12.151.6.7 PF

```
PixelFormat gdcm::ImageCodec::PF  [protected]
```

Referenced by GetPixelFormat(), GetPixelFormat(), and SetPixelFormat().

12.151.6.8 PI

```
PhotometricInterpretation gdcm::ImageCodec::PI  [protected]
```

12.151.6.9 PlanarConfiguration

```
unsigned int gdcm::ImageCodec::PlanarConfiguration  [protected]
```

Referenced by GetPlanarConfiguration(), and SetPlanarConfiguration().

12.151.6.10 RequestPaddedCompositePixelCode

```
bool gdcm::ImageCodec::RequestPaddedCompositePixelCode  [protected]
```

12.151.6.11 RequestPlanarConfiguration

```
bool gdcm::ImageCodec::RequestPlanarConfiguration  [protected]
```

The documentation for this class was generated from the following file:

- gdcmImageCodec.h

12.152 gdcm::ImageConverter Class Reference

Image Converter.

```
#include <gdcmImageConverter.h>
```

Public Member Functions

- ImageConverter ()
- ~ImageConverter ()
- void Convert ()
- const Image & GetOuput () const
- void SetInput (Image const &input)

12.152.1 Detailed Description

Image Converter.

Note

This is the class used to convert from on Image to another This is typically used to convert let say YBR JPEG compressed Image to a RAW RGB Image. So that the buffer can be directly pass to third party application. This filter is application level and not integrated directly in GDCM

12.152.2 Constructor & Destructor Documentation

12.152.2.1 ImageConverter()

```
gdcm::ImageConverter::ImageConverter ()
```

12.152.2.2 ~ImageConverter()

```
gdcm::ImageConverter::~ImageConverter ()
```

12.152.3 Member Function Documentation

12.152.3.1 Convert()

```
void gdcm::ImageConverter::Convert ()
```

12.152.3.2 GetOuput()

```
const Image & gdcm::ImageConverter::GetOuput () const
```

12.152.3.3 SetInput()

```
void gdcm::ImageConverter::SetInput (
            Image const & input)
```

The documentation for this class was generated from the following file:

- gdcmImageConverter.h

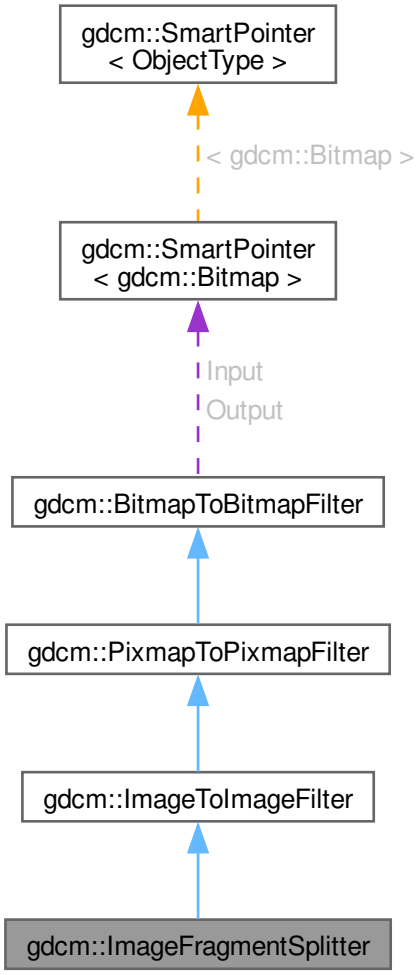
12.153 gdcm::ImageFragmentSplitter Class Reference

ImageFragmentSplitter class.

```
#include <gdcmImageFragmentSplitter.h>
```

Inheritance diagram for gdcm::ImageFragmentSplitter:

Collaboration diagram for gdcm::ImageFragmentSplitter:



Public Member Functions

- ImageFragmentSplitter ()
- ~ImageFragmentSplitter ()=default
- unsigned int GetFragmentSizeMax () const
- void SetForce (bool f)
- void SetFragmentSizeMax (unsigned int fragsize)

  FragmentSizeMax needs to be an even number.
- bool Split ()

  Split.

Public Member Functions inherited from gdcm::ImageToImageFilter

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.153.1 Detailed Description

ImageFragmentSplitter class.

For single frame image, DICOM standard allow splitting the frame into multiple fragments

12.153.2 Constructor & Destructor Documentation

12.153.2.1 ImageFragmentSplitter()

```
gdcm::ImageFragmentSplitter::ImageFragmentSplitter () [inline]
```

12.153.2.2 ~ImageFragmentSplitter()

```
gdcm::ImageFragmentSplitter::~ImageFragmentSplitter ()  [default]
```

12.153.3 Member Function Documentation

12.153.3.1 GetFragmentSizeMax()

```
unsigned int gdcm::ImageFragmentSplitter::GetFragmentSizeMax () const  [inline]
```

12.153.3.2 SetForce()

```
void gdcm::ImageFragmentSplitter::SetForce (
            bool f)  [inline]
```

When file already has all it's segment < FragmentSizeMax there is not need to run the filter. Unless the user explicitly say 'force' recomputation !

12.153.3.3 SetFragmentSizeMax()

```
void gdcm::ImageFragmentSplitter::SetFragmentSizeMax (
            unsigned int fragsize)
```

FragmentSizeMax needs to be an even number.

12.153.3.4 Split()

```
bool gdcm::ImageFragmentSplitter::Split ()
```

Split.

The documentation for this class was generated from the following file:

- gdcmImageFragmentSplitter.h

12.154 gdcm::ImageHelper Class Reference

ImageHelper (internal class, not intended for user level).

```
#include <gdcmImageHelper.h>
```

Static Public Member Functions

- static MediaStorage ComputeMediaStorageFromModality (const char *modality, unsigned int dimension=2, PixelFormat const &pf=PixelFormat(), PhotometricInterpretation const &pi=PhotometricInterpretation(), double rescaleintercept=0, double rescaleslope=1)

  Moved from MediaStorage here, since we need extra info stored in PixelFormat & PhotometricInterpretation.
- static bool ComputeSpacingFromImagePositionPatient (const std::vector< double > &imageposition, std::vector< double > &spacing)

  DO NOT USE.
- static std::vector< unsigned int > GetDimensionsValue (const File &f)
- static bool GetDirectionCosinesFromDataSet (DataSet const &ds, std::vector< double > &dircos)
- static std::vector< double > GetDirectionCosinesValue (File const &f)
- static bool GetForcePixelSpacing ()
- static bool GetForceRescaleInterceptSlope ()
- static SmartPointer< LookupTable > GetLUT (File const &f)

  returns the lookup table of an image file
- static std::vector< double > GetOriginValue (File const &f)

  Set/Get Origin (IPP) from/to a file.
- static PhotometricInterpretation GetPhotometricInterpretationValue (File const &f)
- static PixelFormat GetPixelFormatValue (const File &f)
- static unsigned int GetPlanarConfigurationValue (const File &f)
- static bool GetPMSRescaleInterceptSlope ()
- static const ByteValue * GetPointerFromElement (Tag const &tag, File const &f)
- static bool GetRealWorldValueMappingContent (File const &f, RealWorldValueMappingContent &rwvmc)
- static std::vector< double > GetRescaleInterceptSlopeValue (File const &f)
- static bool GetSecondaryCaptureImagePlaneModule ()
- static std::vector< double > GetSpacingValue (File const &f)

  Set/Get Spacing from/to a File.
- static void SetDimensionsValue (File &f, const Pixmap &img)
- static void SetDirectionCosinesValue (DataSet &ds, const std::vector< double > &dircos)
- static void SetForcePixelSpacing (bool)
- static void SetForceRescaleInterceptSlope (bool)
- static void SetOriginValue (DataSet &ds, const Image &img)
- static void SetPMSRescaleInterceptSlope (bool)
- static void SetRescaleInterceptSlopeValue (File &f, const Image &img)
- static void SetSecondaryCaptureImagePlaneModule (bool)
- static void SetSpacingValue (DataSet &ds, const std::vector< double > &spacing)

Static Protected Member Functions

- static Tag GetSpacingTagFromMediaStorage (MediaStorage const &ms)
- static Tag GetZSpacingTagFromMediaStorage (MediaStorage const &ms)

12.154.1 Detailed Description

ImageHelper (internal class, not intended for user level).

Helper for writing World images in DICOM. DICOM has a 'template' approach to image where MR Image Storage are distinct object from Enhanced MR Image Storage. For example the Pixel Spacing in one object is not at the same position (ie Tag) as in the other this class is the central (read: fragile) place where all the dispatching is done from a unified view of a world image (typically VTK or ITK point of view) down to the low level DICOM point of view.

Warning

: do not expect the API of this class to be maintained at any point, since as Modalities are added the API might have to be augmented or behavior changed to cope with new modalities.

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, and ExtractOneFrame.cs.

12.154.2 Member Function Documentation

12.154.2.1 ComputeMediaStorageFromModality()

```
MediaStorage gdcm::ImageHelper::ComputeMediaStorageFromModality (
            const char * modality,
            unsigned int dimension = 2,
            PixelFormat const & pf = PixelFormat(),
            PhotometricInterpretation const & pi = PhotometricInterpretation(),
            double rescaleintercept = 0,
            double rescaleslope = 1)  [static]
```

Moved from MediaStorage here, since we need extra info stored in PixelFormat & PhotometricInterpretation.

12.154.2.2 ComputeSpacingFromImagePositionPatient()

```
bool gdcm::ImageHelper::ComputeSpacingFromImagePositionPatient (
            const std::vector< double > & imageposition,
            std::vector< double > & spacing)  [static]
```

DO NOT USE.

12.154.2.3 GetDimensionsValue()

```
std::vector< unsigned int > gdcm::ImageHelper::GetDimensionsValue (
            const File & f)  [static]
```

This function checks tags (0x0028, 0x0010) and (0x0028, 0x0011) for the rows and columns of the image in pixels (as opposed to actual distances). The output is {col , row}

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.154.2.4 GetDirectionCosinesFromDataSet()

```
bool gdcm::ImageHelper::GetDirectionCosinesFromDataSet (
            DataSet const & ds,
            std::vector< double > & dircos)  [static]
```

12.154.2.5 GetDirectionCosinesValue()

```
std::vector< double > gdcm::ImageHelper::GetDirectionCosinesValue (
            File const & f)  [static]
```

Get Direction Cosines (IOP) from/to a file Requires a file because mediastorage must be known

12.154.2.6 GetForcePixelSpacing()

```
bool gdcm::ImageHelper::GetForcePixelSpacing ()  [static]
```

12.154.2.7 GetForceRescaleInterceptSlope()

```
bool gdcm::ImageHelper::GetForceRescaleInterceptSlope ()  [static]
```

12.154.2.8 GetLUT()

```
SmartPointer< LookupTable > gdcm::ImageHelper::GetLUT (
            File const & f)  [static]
```

returns the lookup table of an image file

12.154.2.9 GetOriginValue()

```
std::vector< double > gdcm::ImageHelper::GetOriginValue (
            File const & f)  [static]
```

Set/Get Origin (IPP) from/to a file.

12.154.2.10 GetPhotometricInterpretationValue()

```
PhotometricInterpretation gdcm::ImageHelper::GetPhotometricInterpretationValue (
            File const & f)  [static]
```

Examples

ExtractImageRegion.cs.

12.154.2.11 GetPixelFormatValue()

```
PixelFormat gdcm::ImageHelper::GetPixelFormatValue (
            const File & f)  [static]
```

This function returns pixel information about an image from its dataset That includes samples per pixel and bit depth (in that order)

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, and ExtractOneFrame.cs.

12.154.2.12 GetPlanarConfigurationValue()

```
unsigned int gdcm::ImageHelper::GetPlanarConfigurationValue (
            const File & f)  [static]
```

12.154.2.13 GetPMSRescaleInterceptSlope()

```
bool gdcm::ImageHelper::GetPMSRescaleInterceptSlope ()  [static]
```

12.154.2.14 GetPointerFromElement()

```
const ByteValue * gdcm::ImageHelper::GetPointerFromElement (
            Tag const & tag,
            File const & f)  [static]
```

12.154.2.15 GetRealWorldValueMappingContent()

```
bool gdcm::ImageHelper::GetRealWorldValueMappingContent (
            File const & f,
            RealWorldValueMappingContent & rwvmc)  [static]
```

12.154.2.16 GetRescaleInterceptSlopeValue()

```
std::vector< double > gdcm::ImageHelper::GetRescaleInterceptSlopeValue (
            File const & f)  [static]
```

Set/Get shift/scale from/to a file

Warning

this function reads/sets the Slope/Intercept in appropriate class storage, but also Grid Scaling in RT Dose Storage Can't take a dataset because the mediastorage of the file must be known

12.154.2.17 GetSecondaryCaptureImagePlaneModule()

```
bool gdcm::ImageHelper::GetSecondaryCaptureImagePlaneModule ()  [static]
```

12.154.2.18 GetSpacingTagFromMediaStorage()

```
Tag gdcm::ImageHelper::GetSpacingTagFromMediaStorage (
            MediaStorage const & ms)  [static], [protected]
```

12.154.2.19 GetSpacingValue()

```
std::vector< double > gdcm::ImageHelper::GetSpacingValue (
            File const & f)  [static]
```

Set/Get Spacing from/to a File.

12.154.2.20 GetZSpacingTagFromMediaStorage()

```
Tag gdcm::ImageHelper::GetZSpacingTagFromMediaStorage (
            MediaStorage const & ms)  [static], [protected]
```

12.154.2.21 SetDimensionsValue()

```
void gdcm::ImageHelper::SetDimensionsValue (
            File & f,
            const Pixmap & img)  [static]
```

12.154.2.22 SetDirectionCosinesValue()

```
void gdcm::ImageHelper::SetDirectionCosinesValue (
            DataSet & ds,
            const std::vector< double > & dircos)  [static]
```

Set Direction Cosines (IOP) from/to a file When IOD does not defines what is IOP (eg. typically Secondary Capture Image Storage) this call will simply remove the IOP attribute. Else in case of MR/CT image storage, this call will properly lookup the correct attribute to store the IOP.

12.154.2.23 SetForcePixelSpacing()

```
void gdcm::ImageHelper::SetForcePixelSpacing (
            bool )  [static]
```

GDCM 1.x compatibility issue: When using ReWrite an MR Image Storage would be rewritten as Secondary Capture Object while still having a Pixel Spacing tag (0028,0030). If you have deal with those files, use this very special flag to handle them Unless explicitly set elsewhere by the standard, it will use value from 0028,0030 / 0018,0088 for the Pixel Spacing of the Image

12.154.2.24 SetForceRescaleInterceptSlope()

```
void gdcm::ImageHelper::SetForceRescaleInterceptSlope (
            bool )  [static]
```

GDCM 1.x compatibility issue: Do not use anymore. This hack was used for some MR Image Storage generated by Philips Modality. When "Combine MR Rescaling" is set to TRUE, rescaling is removed. But when set to FALSE, the Modality LUT was exported. Internally GDCM now handles this gracefully.

12.154.2.25 SetOriginValue()

```
void gdcm::ImageHelper::SetOriginValue (
            DataSet & ds,
            const Image & img)  [static]
```

12.154.2.26 SetPMSRescaleInterceptSlope()

```
void gdcm::ImageHelper::SetPMSRescaleInterceptSlope (
            bool )  [static]
```

Since GDCM 2.6.1 Philips Medical System are read using the Private Field For Rescale Slope/Intercept by default. This mechanism can be deactivated using the following API: This option has no effect when ForceRescaleInterceptSlope is set to true GDCM will only read those private attribute but never write them out.

12.154.2.27 SetRescaleInterceptSlopeValue()

```
void gdcm::ImageHelper::SetRescaleInterceptSlopeValue (
            File & f,
            const Image & img)  [static]
```

12.154.2.28 SetSecondaryCaptureImagePlaneModule()

```
void gdcm::ImageHelper::SetSecondaryCaptureImagePlaneModule (
            bool )  [static]
```

Opt into Image Plane Module for Secondary Capture Image Storage Enable reading Image Position Patient (IPP), Image Orientation Patient (IOP) and Pixel Spacing (0028,0030) This is a custom extension for some existing dataset (academic)

12.154.2.29 SetSpacingValue()

```
void gdcm::ImageHelper::SetSpacingValue (
            DataSet & ds,
            const std::vector< double > & spacing)  [static]
```

Warning

You need to call SetSpacingValue after SetOriginValue / SetDirectionCosinesValue

The documentation for this class was generated from the following file:

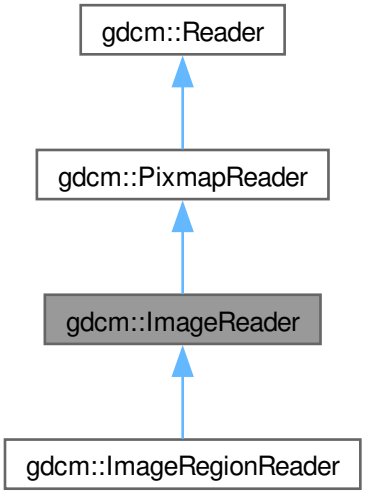
- gdcmImageHelper.h

12.155 gdcm::ImageReader Class Reference

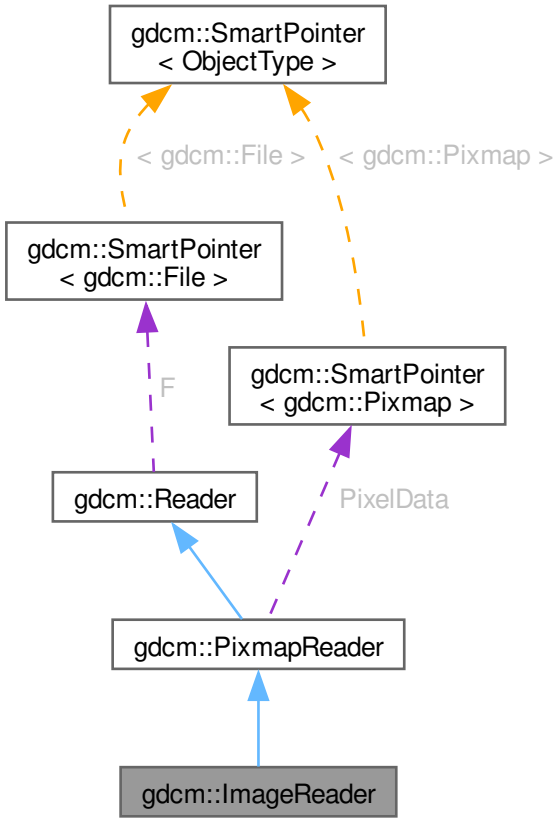
ImageReader.

```
#include <gdcmImageReader.h>
```

Inheritance diagram for gdcm::ImageReader:



Collaboration diagram for gdcm::ImageReader:



Public Member Functions

- ImageReader ()
- ~ImageReader () override
- Image & GetImage ()
- const Image & GetImage () const

  Return the read image.
- bool Read () override

Public Member Functions inherited from gdcm::PixmapReader

- PixmapReader ()
- ~PixmapReader () override
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const

  Return the read image (need to call Read() first).
- bool Read () override

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- bool ReadACRNEMAImage () override
- bool ReadImage (MediaStorage const &ms) override

Protected Member Functions inherited from gdcm::PixmapReader

- bool ReadImageInternal (MediaStorage const &ms, bool handlepixeldata=true)

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Additional Inherited Members

Protected Attributes inherited from gdcm::PixmapReader

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

12.155.1 Detailed Description

ImageReader.

Note

its role is to convert the DICOM DataSet into a Image representation Image is different from Pixmap has it has a position and a direction in Space.

See also

Image

Examples

BasicImageAnonymizer.cs, CheckBigEndianBug.cxx, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, DecompressImage.cs, ExplicitLittleEndian.cs, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, MrProtocol.cxx, PatchFile.cxx, PrintLUT.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, and threadgdcm.cxx.

12.155.2 Constructor & Destructor Documentation

12.155.2.1 ImageReader()

```
gdcm::ImageReader::ImageReader ()
```

12.155.2.2 ~ImageReader()

```
gdcm::ImageReader::~ImageReader ()  [override]
```

12.155.3 Member Function Documentation

12.155.3.1 GetImage() [1/2]

```
Image & gdcm::ImageReader::GetImage ()
```

12.155.3.2 GetImage() [2/2]

```
const Image & gdcm::ImageReader::GetImage () const
```

Return the read image.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, DecompressImage.cs, ExplicitLittleEndian.cs, ExtractIconFromFile.cxx, ExtractImageRegionWithLUT.cs, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, PatchFile.cxx, PrintLUT.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, TemplateEmptyImage.cxx, and threadgdcm.cxx.

12.155.3.3 Read()

```
bool gdcm::ImageReader::Read ()  [override], [virtual]
```

Read the DICOM image. There are two reason for failure:

1. The input filename is not DICOM
2. The input DICOM file does not contains an Image.

Reimplemented from gdcm::Reader.

Reimplemented in gdcm::ImageRegionReader.

Examples

BasicImageAnonymizer.cs, CheckBigEndianBug.cxx, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, DecompressImage.cs, ExplicitLittleEndian.cs, ExtractIconFromFile.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MrProtocol.cxx, PatchFile.cxx, PrintLUT.cxx, ReadMultiTimesException.cxx, RescaleImage.cs, and threadgdcm.cxx.

12.155.3.4 ReadACRNEMAImage()

```
bool gdcm::ImageReader::ReadACRNEMAImage ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::PixmapReader.

12.155.3.5 ReadImage()

```
bool gdcm::ImageReader::ReadImage (
            MediaStorage const & ms)  [override], [protected], [virtual]
```

Reimplemented from gdcm::PixmapReader.

The documentation for this class was generated from the following file:

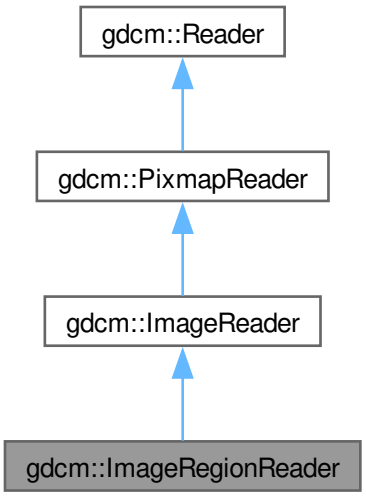
- gdcmImageReader.h

12.156 gdcm::ImageRegionReader Class Reference

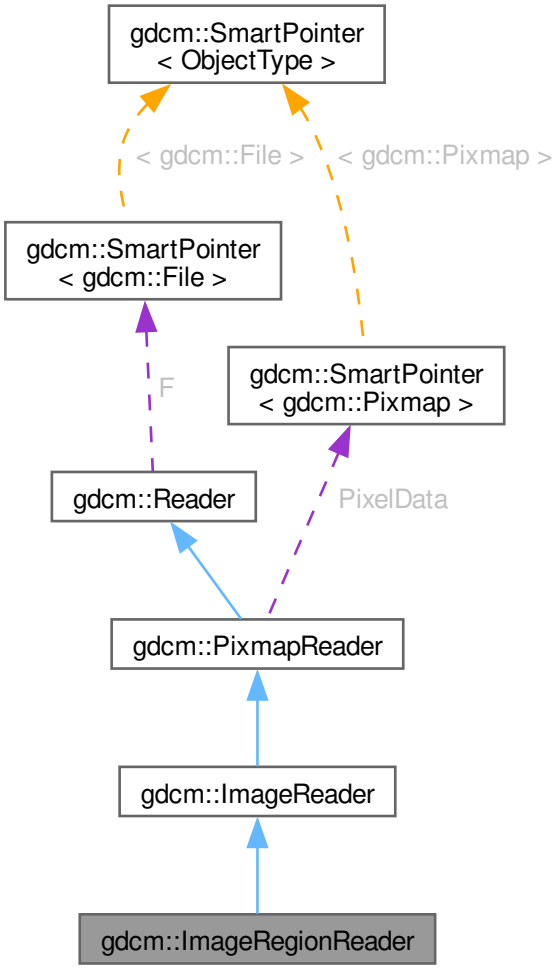
ImageRegionReader.

`#include <gdcmImageRegionReader.h>`

Inheritance diagram for gdcm::ImageRegionReader:



Collaboration diagram for gdcm::ImageRegionReader:



Public Member Functions

- ImageRegionReader ()
- ~ImageRegionReader () override
- size_t ComputeBufferLength () const
- Region const & GetRegion () const
- bool ReadInformation ()
- bool ReadIntoBuffer (char *inreadbuffer, size_t buflen)
- void SetRegion (Region const &region)

  Set/Get Region to be read.

Public Member Functions inherited from gdcm::ImageReader

- ImageReader ()
- ~ImageReader () override
- Image & GetImage ()
- const Image & GetImage () const

  Return the read image.

Public Member Functions inherited from gdcm::PixmapReader

- PixmapReader ()
- ~PixmapReader () override
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const

  Return the read image (need to call Read() first).
- bool Read () override

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- bool Read () override

  To prevent user from calling super class Read() function.

Protected Member Functions inherited from gdcm::ImageReader

- bool ReadACRNEMAImage () override
- bool ReadImage (MediaStorage const &ms) override

Protected Member Functions inherited from gdcm::PixmapReader

- bool ReadImageInternal (MediaStorage const &ms, bool handlepixeldata=true)

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Additional Inherited Members

Protected Attributes inherited from gdcm::PixmapReader

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

12.156.1 Detailed Description

ImageRegionReader.

This class is able to read a region from a DICOM file containing an image. This implementation requires that the information stored in the DICOM header are consistent with what is in the encapsulated Pixel Data. This is technically not required by DICOM standard, which makes this implementation illegal with regards to the famous JPEG note: `http://dicom.nema.org/medical/dicom/current/output/chtml/part05/sect_8.2.html#para_4bcb841e-c6bf-4e26-82a5-3fad3c942da0`

See also

ImageReader

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, and TemplateEmptyImage.cxx.

12.156.2 Constructor & Destructor Documentation

12.156.2.1 ImageRegionReader()

```
gdcm::ImageRegionReader::ImageRegionReader ()
```

12.156.2.2 ~ImageRegionReader()

```
gdcm::ImageRegionReader::~ImageRegionReader ()  [override]
```

12.156.3 Member Function Documentation

12.156.3.1 ComputeBufferLength()

```
size_t gdcm::ImageRegionReader::ComputeBufferLength () const
```

Explicit call which will compute the minimal buffer length that can hold the whole uncompressed image as defined by Region `region`.

Returns

0 upon error

12.156.3.2 GetRegion()

```
Region const & gdcm::ImageRegionReader::GetRegion () const
```

12.156.3.3 Read()

```
bool gdcm::ImageRegionReader::Read ()  [override], [protected], [virtual]
```

To prevent user from calling super class Read() function.

Reimplemented from gdcm::ImageReader.

12.156.3.4 ReadInformation()

```
bool gdcm::ImageRegionReader::ReadInformation ()
```

Read meta information (not Pixel Data) from the DICOM file.

Returns

false upon error

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, and TemplateEmptyImage.cxx.

12.156.3.5 ReadIntoBuffer()

```
bool gdcm::ImageRegionReader::ReadIntoBuffer (
            char * inreadbuffer,
            size_t buflen)
```

Read into buffer: For Python, the `buflen` param is deduced directly from the input bytearray passed as parameter (function only takes one param).

Returns

false upon error

Examples

ExtractImageRegion.cs, and ExtractImageRegionWithLUT.cs.

12.156.3.6 SetRegion()

```
void gdcm::ImageRegionReader::SetRegion (
            Region const & region)
```

Set/Get Region to be read.

Examples

ExtractImageRegion.cs, and ExtractImageRegionWithLUT.cs.

The documentation for this class was generated from the following file:

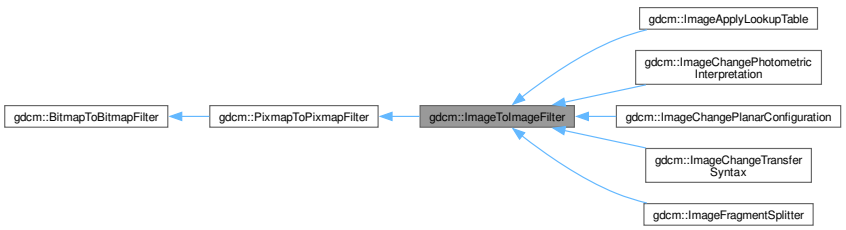
- gdcmImageRegionReader.h

12.157 gdcm::ImageToImageFilter Class Reference

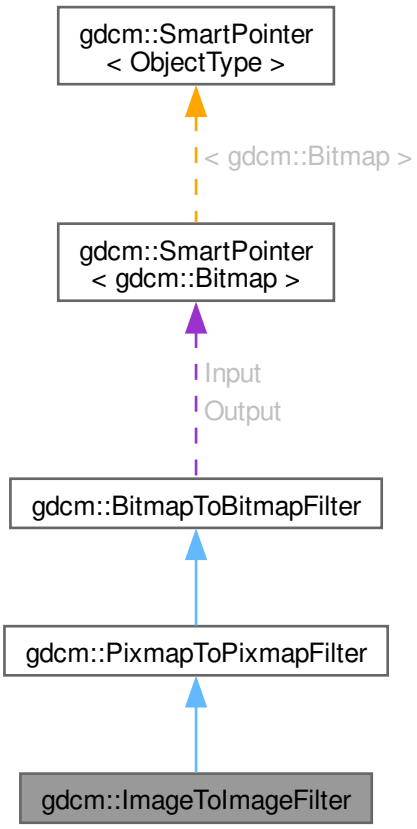
ImageToImageFilter class.

`#include <gdcmImageToImageFilter.h>`

Inheritance diagram for gdcm::ImageToImageFilter:



Collaboration diagram for gdcm::ImageToImageFilter:



Public Member Functions

- ImageToImageFilter ()
- ~ImageToImageFilter ()=default
- Image & GetInput ()
- const Image & GetOutput () const

  Get Output image.

Public Member Functions inherited from gdcm::PixmapToPixmapFilter

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.157.1 Detailed Description

ImageToImageFilter class.

Super class for all filter taking an image and producing an output image

12.157.2 Constructor & Destructor Documentation

12.157.2.1 ImageToImageFilter()

```
gdcm::ImageToImageFilter::ImageToImageFilter ()
```

12.157.2.2 ~ImageToImageFilter()

```
gdcm::ImageToImageFilter::~ImageToImageFilter ()  [default]
```

12.157.3 Member Function Documentation

12.157.3.1 GetInput()

```
Image & gdcm::ImageToImageFilter::GetInput ()
```

12.157.3.2 GetOutput()

```
const Image & gdcm::ImageToImageFilter::GetOutput () const
```

Get Output image.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, and ExplicitLittleEndian.cs.

The documentation for this class was generated from the following file:

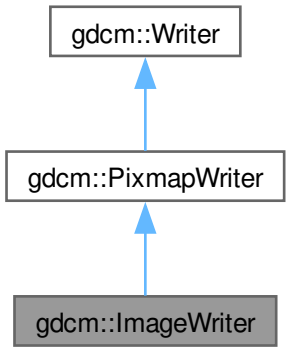
- gdcmImageToImageFilter.h

12.158 gdcm::ImageWriter Class Reference

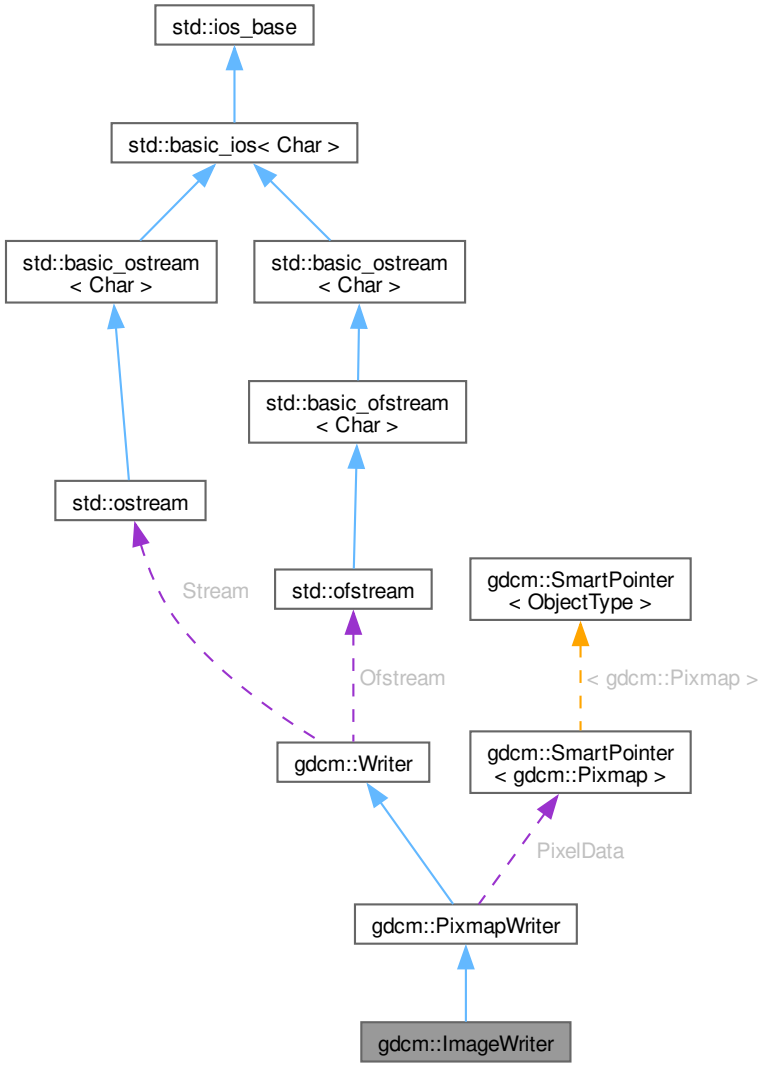
ImageWriter.

```
#include <gdcmImageWriter.h>
```

Inheritance diagram for gdcm::ImageWriter:



Collaboration diagram for gdcm::ImageWriter:



Public Member Functions

- ImageWriter ()
- ~ImageWriter () override
- MediaStorage ComputeTargetMediaStorage ()
- const Image & GetImage () const override
- Image & GetImage () override
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::PixmapWriter

- PixmapWriter ()
- ~PixmapWriter () override
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const
- virtual void SetImage (Pixmap const &img)
- void SetPixmap (Pixmap const &img)
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::Writer

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default).
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header).
- void SetFileName (const char *filename_native)

  Set the filename of DICOM file to write:
- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

Additional Inherited Members

Protected Member Functions inherited from gdcm::PixmapWriter

- void DoIconImage (DataSet &ds, Pixmap const &image)
- bool PrepareWrite (MediaStorage const &refms)

Protected Member Functions inherited from gdcm::Writer

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes inherited from gdcm::PixmapWriter

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Writer

- std::ofstream * Ofstream
- std::ostream * Stream

12.158.1 Detailed Description

ImageWriter.

This is an extended version of the PixmapWriter. Pay attention that:

1. It will populate missing attribute for Secondary Capture Image Storage instances,
2. It may also change an input MR Image Storage instance into a pseudo Enhanced MR Image Storage instance whenever Modality LUT is required.
3. Some DataElement related to gdcm::Image may be slightly altered.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, ExplicitLittleEndian.cs, GenFakeImage.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, TemplateEmptyImage.cxx, csa2img.cxx, and iU22tomultisc.cxx.

12.158.2 Constructor & Destructor Documentation

12.158.2.1 ImageWriter()

```
gdcm::ImageWriter::ImageWriter ()
```

12.158.2.2 ~ImageWriter()

```
gdcm::ImageWriter::~ImageWriter ()  [override]
```

12.158.3 Member Function Documentation

12.158.3.1 ComputeTargetMediaStorage()

```
MediaStorage gdcm::ImageWriter::ComputeTargetMediaStorage ()
```

internal function used to compute a target MediaStorage the most appropriate User may want to call this function ahead of time (before Write)

Examples

TemplateEmptyImage.cxx.

12.158.3.2 GetImage() [1/2]

```
const Image & gdcm::ImageWriter::GetImage () const  [inline], [override], [virtual]
```

Set/Get Image to be written It will overwrite anything Image infos found in DataSet (see parent class to see how to pass dataset)

Reimplemented from gdcm::PixmapWriter.

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, csa2img.cxx, and iU22tomultisc.cxx.

12.158.3.3 GetImage() [2/2]

```
Image & gdcm::ImageWriter::GetImage ()  [inline], [override], [virtual]
```

Reimplemented from gdcm::PixmapWriter.

12.158.3.4 Write()

```
bool gdcm::ImageWriter::Write ()  [override], [virtual]
```

Write.

Reimplemented from gdcm::Writer.

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, GenFakeImage.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, TemplateEmptyImage.cxx, csa2img.cxx, and iU22tomultisc.cxx.

The documentation for this class was generated from the following file:

- gdcmImageWriter.h

12.159 gdcm::network::ImplementationClassUIDSub Class Reference

ImplementationClassUIDSub.

```
#include <gdcmImplementationClassUIDSub.h>
```

Public Member Functions

- ImplementationClassUIDSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.159.1 Detailed Description

ImplementationClassUIDSub.

PS 3.7 Table D.3-1 IMPLEMENTATION CLASS UID SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

12.159.2 Constructor & Destructor Documentation

12.159.2.1 ImplementationClassUIDSub()

```
gdcm::network::ImplementationClassUIDSub::ImplementationClassUIDSub ()
```

12.159.3 Member Function Documentation

12.159.3.1 Print()

```
void gdcm::network::ImplementationClassUIDSub::Print (
            std::ostream & os) const
```

12.159.3.2 Read()

```
std::istream & gdcm::network::ImplementationClassUIDSub::Read (
            std::istream & is)
```

12.159.3.3 Size()

```
size_t gdcm::network::ImplementationClassUIDSub::Size () const
```

12.159.3.4 Write()

```
const std::ostream & gdcm::network::ImplementationClassUIDSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmImplementationClassUIDSub.h

12.160 gdcm::network::ImplementationUIDSub Class Reference

ImplementationUIDSub.

```
#include <gdcmImplementationUIDSub.h>
```

Public Member Functions

- ImplementationUIDSub ()
- const std::ostream & Write (std::ostream &os) const

12.160.1 Detailed Description

ImplementationUIDSub.

Table D.3-2 IMPLEMENTATION UID SUB-ITEM FIELDS (A-ASSOCIATE-AC)

12.160.2 Constructor & Destructor Documentation

12.160.2.1 ImplementationUIDSub()

```
gdcm::network::ImplementationUIDSub::ImplementationUIDSub ()
```

12.160.3 Member Function Documentation

12.160.3.1 Write()

```
const std::ostream & gdcm::network::ImplementationUIDSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmImplementationUIDSub.h

12.161 gdcm::network::ImplementationVersionNameSub Class Reference

ImplementationVersionNameSub.

```
#include <gdcmImplementationVersionNameSub.h>
```

Public Member Functions

- ImplementationVersionNameSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.161.1 Detailed Description

ImplementationVersionNameSub.

Table D.3-3 IMPLEMENTATION VERSION NAME SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

12.161.2 Constructor & Destructor Documentation

12.161.2.1 ImplementationVersionNameSub()

```
gdcm::network::ImplementationVersionNameSub::ImplementationVersionNameSub ()
```

12.161.3 Member Function Documentation

12.161.3.1 Print()

```
void gdcm::network::ImplementationVersionNameSub::Print (
            std::ostream & os) const
```

12.161.3.2 Read()

```
std::istream & gdcm::network::ImplementationVersionNameSub::Read (
            std::istream & is)
```

12.161.3.3 Size()

```
size_t gdcm::network::ImplementationVersionNameSub::Size () const
```

12.161.3.4 Write()

```
const std::ostream & gdcm::network::ImplementationVersionNameSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

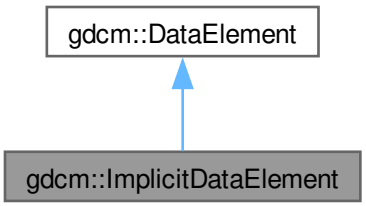
- gdcmImplementationVersionNameSub.h

12.162 gdcm::ImplicitDataElement Class Reference

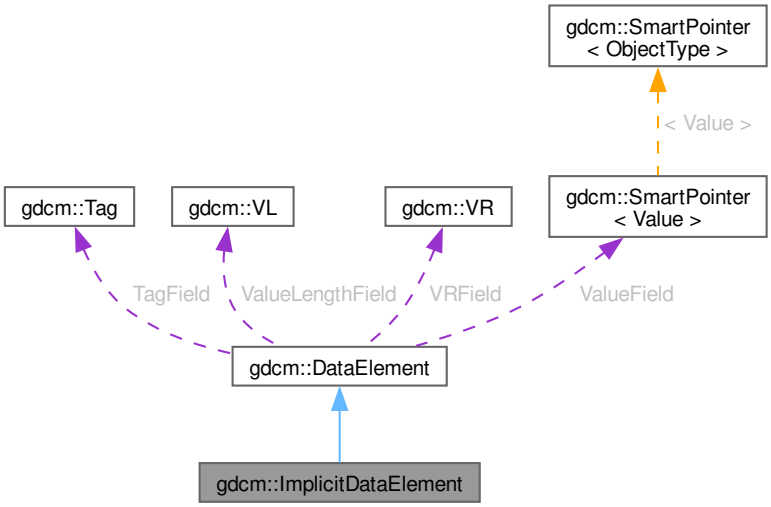
Class to represent an *Implicit VR* Data Element.

`#include <gdcmImplicitDataElement.h>`

Inheritance diagram for gdcm::ImplicitDataElement:



Collaboration diagram for gdcm::ImplicitDataElement:



Public Member Functions

- VL GetLength () const

- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length, bool readvalues=true)
- template<typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag + VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)

- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.162.1 Detailed Description

Class to represent an *Implicit VR* Data Element.

Note

bla

Examples

ReadExplicitLengthSQIVR.cxx.

12.162.2 Member Function Documentation

12.162.2.1 GetLength()

```
VL gdcm::ImplicitDataElement::GetLength () const
```

12.162.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::ImplicitDataElement::Read (
             std::istream & is)
```

12.162.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::ImplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.162.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::ImplicitDataElement::ReadValue (
             std::istream & is,
             bool readvalues = true)
```

12.162.2.5 ReadValueWithLength()

```
template<typename TSwap>
std::istream & gdcm::ImplicitDataElement::ReadValueWithLength (
             std::istream & is,
             VL & length,
             bool readvalues = true)
```

12.162.2.6 ReadWithLength()

```
template<typename TSwap>
std::istream & gdcm::ImplicitDataElement::ReadWithLength (
             std::istream & is,
             VL & length,
             bool readvalues = true)
```

12.162.2.7 Write()

```
template<typename TSwap>
const std::ostream & gdcm::ImplicitDataElement::Write (
             std::ostream & os) const
```

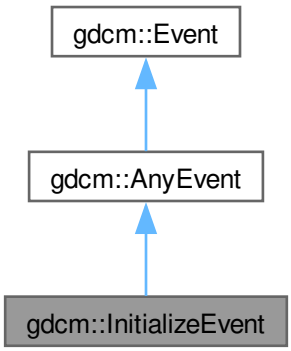
The documentation for this class was generated from the following file:

- gdcmImplicitDataElement.h

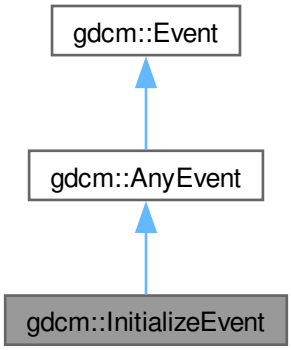
12.163 gdcm::InitializeEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::InitializeEvent:



Collaboration diagram for gdcm::InitializeEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.164 gdcm::IOD Class Reference

Class for representing a IOD.

`#include <gdcmIOD.h>`

Public Types

- typedef std::vector< IODEntry > MapIODEntry
- typedef MapIODEntry::size_type SizeType

Public Member Functions

- IOD ()=default
- void AddIODEntry (const IODEntry &iode)
- void Clear ()
- const IODEntry & GetIODEntry (SizeType idx) const
- SizeType GetNumberOfIODs () const
- Type GetTypeFromTag (const Defs &defs, const Tag &tag) const

Friends

- std::ostream & operator<< (std::ostream &_os, const IOD &_val)

12.164.1 Detailed Description

Class for representing a IOD.

Note

bla

See also

Dict

Examples

TraverseModules.cxx.

12.164.2 Member Typedef Documentation

12.164.2.1 MapIODEntry

```
typedef std::vector<IODEntry> gdcm::IOD::MapIODEntry
```

12.164.2.2 SizeType

```
typedef MapIODEntry::size_type gdcm::IOD::SizeType
```

12.164.3 Constructor & Destructor Documentation

12.164.3.1 IOD()

```
gdcm::IOD::IOD ()  [default]
```

References IOD(), and operator<<.

Referenced by IOD(), and operator<<.

12.164.4 Member Function Documentation

12.164.4.1 AddIODEntry()

```
void gdcm::IOD::AddIODEntry (
            const IODEntry & iode)  [inline]
```

12.164.4.2 Clear()

```
void gdcm::IOD::Clear ()  [inline]
```

12.164.4.3 GetIODEntry()

```
const IODEntry & gdcm::IOD::GetIODEntry (
            SizeType idx) const  [inline]
```

Examples

TraverseModules.cxx.

12.164.4.4 GetNumberOfIODs()

```
SizeType gdcm::IOD::GetNumberOfIODs () const  [inline]
```

Examples

TraverseModules.cxx.

12.164.4.5 GetTypeFromTag()

```
Type gdcm::IOD::GetTypeFromTag (
            const Defs & defs,
            const Tag & tag) const
```

12.164.5 Friends And Related Symbol Documentation

12.164.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const IOD & _val)  [friend]
```

References IOD().

Referenced by IOD().

The documentation for this class was generated from the following file:

- gdcmIOD.h

12.165 gdcm::IODEntry Class Reference

Class for representing a IODEntry.

```
#include <gdcmIODEntry.h>
```

Public Member Functions

- IODEntry (const char *name="", const char *ref="", const char *inUsage="")
- const char * GetIE () const
- const char * GetName () const
- const char * GetRef () const
- const char * GetUsage () const
- Usage::UsageType GetUsageType () const
- void SetIE (const char *ie)
- void SetName (const char *name)
- void SetRef (const char *ref)
- void SetUsage (const char *inUsage)

Friends

- std::ostream & operator<< (std::ostream &_os, const IODEntry &_val)

12.165.1 Detailed Description

Class for representing a IODEntry.

Note

A.1.3 IOD Module Table and Functional Group Macro Table This Section of each IOD defines in a tabular form the Modules comprising the IOD. The following information must be specified for each Module in the table:

- The name of the Module or Functional Group
- A reference to the Section in Annex C which defines the Module or Functional Group
- The usage of the Module or Functional Group; whether it is:
- Mandatory (see A.1.3.1) , abbreviated M
- Conditional (see A.1.3.2) , abbreviated C
- User Option (see A.1.3.3) , abbreviated U The Modules referenced are defined in Annex C. A.1.3.1 MANDATORY MODULES For each IOD, Mandatory Modules shall be supported per the definitions, semantics and requirements defined in Annex C. PS 3.3 - 2008 Page 96
- Standard - A.1.3.2 CONDITIONAL MODULES Conditional Modules are Mandatory Modules if specific conditions are met. If the specified conditions are not met, this Module shall not be supported; that is, no information defined in that Module shall be sent. A.1.3.3 USER OPTION MODULES User Option Modules may or may not be supported. If an optional Module is supported, the Attribute Types specified in the Modules in Annex C shall be supported.

See also

DictEntry

Examples

TraverseModules.cxx.

12.165.2 Constructor & Destructor Documentation

12.165.2.1 IODEntry()

```
gdcm::IODEntry::IODEntry (
            const char * name = "",
            const char * ref = "",
            const char * inUsage = "")  [inline]
```

Referenced by operator<<.

12.165.3 Member Function Documentation

12.165.3.1 GetIE()

```
const char * gdcm::IODEntry::GetIE () const  [inline]
```

12.165.3.2 GetName()

```
const char * gdcm::IODEntry::GetName () const  [inline]
```

12.165.3.3 GetRef()

```
const char * gdcm::IODEntry::GetRef () const  [inline]
```

Examples

TraverseModules.cxx.

12.165.3.4 GetUsage()

```
const char * gdcm::IODEntry::GetUsage () const  [inline]
```

12.165.3.5 GetUsageType()

```
Usage::UsageType gdcm::IODEntry::GetUsageType () const
```

12.165.3.6 SetIE()

```
void gdcm::IODEntry::SetIE (
            const char * ie)  [inline]
```

12.165.3.7 SetName()

```
void gdcm::IODEntry::SetName (
            const char * name)  [inline]
```

12.165.3.8 SetRef()

```
void gdcm::IODEntry::SetRef (
            const char * ref)  [inline]
```

12.165.3.9 SetUsage()

```
void gdcm::IODEntry::SetUsage (
            const char * inUsage)  [inline]
```

12.165.4 Friends And Related Symbol Documentation

12.165.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const IODEntry & _val)  [friend]
```

References IODEntry().

The documentation for this class was generated from the following file:

- gdcmIODEntry.h

12.166 gdcm::IODs Class Reference

Class for representing a IODs.

`#include <gdcmIODs.h>`

Public Types

- typedef std::map< IODName, IOD > IODMapType
- typedef IODMapType::const_iterator IODMapTypeConstIterator
- typedef std::string IODName

Public Member Functions

- IODs ()=default
- void AddIOD (const char *name, const IOD &module)
- IODMapTypeConstIterator Begin () const
- void Clear ()
- IODMapTypeConstIterator End () const
- const IOD & GetIOD (const char *name) const

Friends

- std::ostream & operator<< (std::ostream &_os, const IODs &_val)

12.166.1 Detailed Description

Class for representing a IODs.

Note

bla

See also

IOD

Examples

TraverseModules.cxx.

12.166.2 Member Typedef Documentation

12.166.2.1 IODMapType

```
typedef std::map<IODName, IOD> gdcm::IODs::IODMapType
```

12.166.2.2 IODMapTypeConstIterator

```
typedef IODMapType::const_iterator gdcm::IODs::IODMapTypeConstIterator
```

Examples

TraverseModules.cxx.

12.166.2.3 IODName

```
typedef std::string gdcm::IODs::IODName
```

Examples

TraverseModules.cxx.

12.166.3 Constructor & Destructor Documentation

12.166.3.1 IODs()

```
gdcm::IODs::IODs () [default]
```

References IODs(), and operator<<.

Referenced by IODs(), and operator<<.

12.166.4 Member Function Documentation

12.166.4.1 AddIOD()

```
void gdcm::IODs::AddIOD (
            const char * name,
            const IOD & module)  [inline]
```

12.166.4.2 Begin()

```
IODMapTypeConstIterator gdcm::IODs::Begin () const  [inline]
```

Examples

TraverseModules.cxx.

12.166.4.3 Clear()

```
void gdcm::IODs::Clear ()  [inline]
```

12.166.4.4 End()

```
IODMapTypeConstIterator gdcm::IODs::End () const  [inline]
```

Examples

TraverseModules.cxx.

12.166.4.5 GetIOD()

```
const IOD & gdcm::IODs::GetIOD (
            const char * name) const  [inline]
```

References gdcm_assert.

12.166.5 Friends And Related Symbol Documentation

12.166.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const IODs & _val)  [friend]
```

References IODs().

Referenced by IODs().

The documentation for this class was generated from the following file:

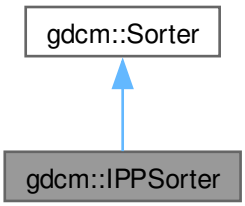
- gdcmIODs.h

12.167 gdcm::IPPSorter Class Reference

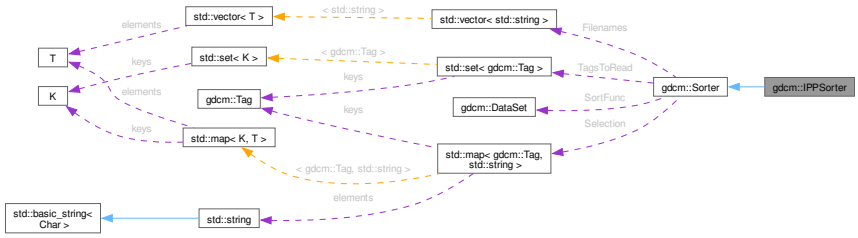
IPPSorter.

`#include <gdcmIPPSorter.h>`

Inheritance diagram for gdcm::IPPSorter:



Collaboration diagram for gdcm::IPPSorter:



Public Member Functions

- IPPSorter ()
- double GetDirectionCosinesTolerance () const
- double GetZSpacing () const
- double GetZSpacingTolerance () const
- void SetComputeZSpacing (bool b)
- void SetDirectionCosinesTolerance (double tol)
- void SetDropDuplicatePositions (bool b)
- void SetZSpacingTolerance (double tol)
- bool Sort (std::vector< std::string > const &filenames) override

Public Member Functions inherited from gdcm::Sorter

- Sorter ()
- virtual ~Sorter ()
- bool AddSelect (Tag const &tag, const char *value)

  UNSUPPORTED FOR NOW.
- const std::vector< std::string > & GetFilenames () const
- void Print (std::ostream &os) const

  Print.
- void SetSortFunction (SortFunction f)
- void SetTagsToRead (std::set< Tag > const &tags)
- virtual bool StableSort (std::vector< std::string > const &filenames)

Protected Attributes

- bool ComputeZSpacing
- double DirCosTolerance
- bool DropDuplicatePositions
- double ZSpacing
- double ZTolerance

Protected Attributes inherited from gdcm::Sorter

- std::vector< std::string > Filenames
- std::map< Tag, std::string > Selection
- SortFunction SortFunc
- std::set< Tag > TagsToRead

Additional Inherited Members

Public Types inherited from gdcm::Sorter

- typedef bool(* SortFunction) (DataSet const &, DataSet const &)

  Set the sort function which compares one dataset to the other.

Protected Types inherited from gdcm::Sorter

- typedef std::map< Tag, std::string > SelectionMap

12.167.1 Detailed Description

IPPSorter.

Implement a simple Image Position (Patient) sorter, along the Image Orientation (Patient) direction. This algorithm does NOT support duplicate and will FAIL in case of duplicate IPP.

Warning

See special note for SetZSpacingTolerance when computing the ZSpacing from the IPP of each DICOM files (default tolerance for consistent spacing is: 1e-6mm)

For more information on Spacing, and how it is defined in DICOM, advanced users may refers to:

`http://gdcm.sourceforge.net/wiki/index.php/Imager_Pixel_Spacing`

Bug There are currently a couple of bugs in this implementation:

- Gantry Tilt is not considered (always an error)
- Application programmer should only sort valid DataSet (eg. MRImageStorage, CTImageStorage, PETImage↩ Storage)

Examples

Compute3DSpacing.cxx, VolumeSorter.cxx, and gdcmorthoplanes.cxx.

12.167.2 Constructor & Destructor Documentation

12.167.2.1 IPPSorter()

```
gdcm::IPPSorter::IPPSorter ()
```

12.167.3 Member Function Documentation

12.167.3.1 GetDirectionCosinesTolerance()

```
double gdcm::IPPSorter::GetDirectionCosinesTolerance () const  [inline]
```

References DirCosTolerance.

12.167.3.2 GetZSpacing()

```
double gdcm::IPPSorter::GetZSpacing () const  [inline]
```

Read-only function to provide access to the computed value for the Z-Spacing The ComputeZSpacing must have been set to true before execution of sort algorithm. Call this function *after* calling Sort(); Z-Spacing will be 0 on 2 occasions:

- Sorting simply failed, potentially duplicate IPP => ZSpacing = 0
- ZSpacing could not be computed (Z-Spacing is not constant, or ZTolerance is too low)

Examples

Compute3DSpacing.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

References ZSpacing.

12.167.3.3 GetZSpacingTolerance()

```
double gdcm::IPPSorter::GetZSpacingTolerance () const  [inline]
```

References ZTolerance.

12.167.3.4 SetComputeZSpacing()

```
void gdcm::IPPSorter::SetComputeZSpacing (
            bool b)  [inline]
```

Functions related to Z-Spacing computation Set to true when sort algorithm should also perform a regular Z-Spacing computation using the Image Position (Patient) Potential reason for failure:

1. ALL slices are taken into account, if one slice if missing then ZSpacing will be set to 0 since the spacing will not be found to be regular along the Series

Examples

Compute3DSpacing.cxx, VolumeSorter.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

References ComputeZSpacing.

12.167.3.5 SetDirectionCosinesTolerance()

```
void gdcm::IPPSorter::SetDirectionCosinesTolerance (
            double tol)  [inline]
```

Sometimes IOP along a series is slightly changing for example: "0.999081\\0.0426953\\0.00369272\\-0.0419025\\0.↩
955059\\0.293439", "0.999081\\0.0426953\\0.00369275\\-0.0419025\\0.955059\\0.293439", "0.999081\\0.0426952\\0.↩
00369272\\-0.0419025\\0.955059\\0.293439", We need an API to define the tolerance which is allowed. Internally the cross vector of each direction cosines is computed. The tolerance then define the distance in between 1.0 to the dot product of those cross vectors. In a perfect world this dot product is of course 1.0 which imply a DirectionCosines tolerance of exactly 0.0 (default).

References DirCosTolerance.

12.167.3.6 SetDropDuplicatePositions()

```
void gdcm::IPPSorter::SetDropDuplicatePositions (
            bool b)  [inline]
```

Makes the IPPSorter ignore multiple images located at the same position. Only the first occurrence will be kept. Drop↩
DuplicatePositions defaults to false.

References DropDuplicatePositions.

12.167.3.7 SetZSpacingTolerance()

```
void gdcm::IPPSorter::SetZSpacingTolerance (
            double tol)  [inline]
```

1. Another reason for failure is that that Z-Spacing is only slightly changing (eg 1e-3) along the series, a human can determine that this is ok and change the tolerance from its default value: 1e-6

Examples

Compute3DSpacing.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

References ZTolerance.

12.167.3.8 Sort()

```
bool gdcm::IPPSorter::Sort (
            std::vector< std::string > const & filenames)  [override], [virtual]
```

Main entry point to the sorter. It will execute the filter, option should be set before running this function (SetZSpacing↩
Tolerance, ...) Return value indicate if sorting could be achieved,. Warning this does *NOT* imply that spacing is consistent, it only means the file are sorted according to IPP You should check if ZSpacing is 0 or not to deduce if file are actually a 3D volume

Reimplemented from gdcm::Sorter.

Examples

Compute3DSpacing.cxx, VolumeSorter.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

12.167.4 Member Data Documentation

12.167.4.1 ComputeZSpacing

```
bool gdcm::IPPSorter::ComputeZSpacing  [protected]
```

Referenced by SetComputeZSpacing().

12.167.4.2 DirCosTolerance

```
double gdcm::IPPSorter::DirCosTolerance  [protected]
```

Referenced by GetDirectionCosinesTolerance(), and SetDirectionCosinesTolerance().

12.167.4.3 DropDuplicatePositions

```
bool gdcm::IPPSorter::DropDuplicatePositions  [protected]
```

Referenced by SetDropDuplicatePositions().

12.167.4.4 ZSpacing

```
double gdcm::IPPSorter::ZSpacing  [protected]
```

Referenced by GetZSpacing().

12.167.4.5 ZTolerance

```
double gdcm::IPPSorter::ZTolerance  [protected]
```

Referenced by GetZSpacingTolerance(), and SetZSpacingTolerance().

The documentation for this class was generated from the following file:

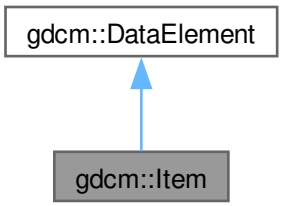
- gdcmIPPSorter.h

12.168 gdcm::Item Class Reference

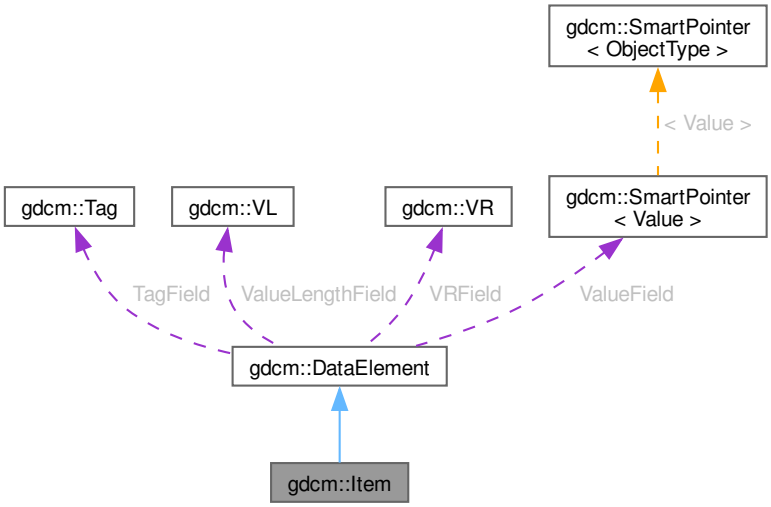
Class to represent an Item.

`#include <gdcmItem.h>`

Inheritance diagram for gdcm::Item:



Collaboration diagram for gdcm::Item:



Public Member Functions

- Item ()

- Item (Item const &val)
- void Clear ()
- bool FindDataElement (const Tag &t) const
- const DataElement & GetDataElement (const Tag &t) const
- template<typename TDE>
  VL GetLength () const
- DataSet & GetNestedDataSet ()
- const DataSet & GetNestedDataSet () const
- void InsertDataElement (const DataElement &de)
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- void SetNestedDataSet (const DataSet &nested)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag + VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)

- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &os, const Item &val)

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.168.1 Detailed Description

Class to represent an Item.

A component of the value of a Data Element that is of Value Representation Sequence of Items. An Item contains a Data Set . See PS 3.5 7.5.1 Item Encoding Rules Each Item of a Data Element of VR SQ shall be encoded as a DICOM Standard Data Element with a specific Data Element Tag of Value (FFFE,E000). The Item Tag is followed by a 4 byte Item Length field encoded in one of the following two ways Explicit/ Implicit

Note

ITEM: A component of the Value of a Data Element that is of Value Representation Sequence of Items. An Item contains a Data Set.

Examples

ChangeSequenceUltrasound.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, NewSequence.cs, SimplePrint.cs, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.168.2 Constructor & Destructor Documentation

12.168.2.1 Item() [1/2]

```
gdcm::Item::Item ()  [inline]
```

References gdcm::DataElement::DataElement().

Referenced by Item(), and operator<<.

12.168.2.2 Item() [2/2]

```
gdcm::Item::Item (
            Item const & val)  [inline]
```

References gdcm::DataElement::DataElement(), and Item().

12.168.3 Member Function Documentation

12.168.3.1 Clear()

```
void gdcm::Item::Clear ()  [inline]
```

References gdcm::DataElement::Clear().

Referenced by gdcm::SequenceOfItems::Read().

12.168.3.2 FindDataElement()

```
bool gdcm::Item::FindDataElement (
            const Tag & t) const  [inline]
```

12.168.3.3 GetDataElement()

```
const DataElement & gdcm::Item::GetDataElement (
            const Tag & t) const  [inline]
```

References gdcm::DataElement::DataElement().

12.168.3.4 GetLength()

```
template<typename TDE>
VL gdcm::Item::GetLength () const
```

12.168.3.5 GetNestedDataSet() [1/2]

```
DataSet & gdcm::Item::GetNestedDataSet ()  [inline]
```

12.168.3.6 GetNestedDataSet() [2/2]

```
const DataSet & gdcm::Item::GetNestedDataSet () const  [inline]
```

Examples

ChangeSequenceUltrasound.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, NewSequence.cs, SimplePrint.cs, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

Referenced by gdcm::SequenceOfItems::Read().

12.168.3.7 InsertDataElement()

```
void gdcm::Item::InsertDataElement (
            const DataElement & de)  [inline]
```

References gdcm::DataElement::DataElement(), gdcm_assert, and gdcm::DataElement::IsUndefinedLength().

12.168.3.8 Read()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::Item::Read (
             std::istream & is)  [inline]
```

References gdcm::ByteSwapFilter::ByteSwap(), gdcm::DataSet::Clear(), gdcm_assert, gdcmDebugMacro, gdcmErrorMacro, gdcmWarningMacro, gdcm::DataSet::IsEmpty(), gdcm::DataElement::ReadWithLength(), gdcm::ByteSwapFilter::SetByteSwapTag(), gdcm::SwapperDoOp::Swap(), gdcm::DataElement::TagField, and gdcm::DataElement::ValueLengthField.

Referenced by gdcm::SequenceOfItems::Read().

12.168.3.9 SetNestedDataSet()

```
void gdcm::Item::SetNestedDataSet (
             const DataSet & nested)  [inline]
```

12.168.3.10 Write()

```
template<typename TDE, typename TSwap>
const std::ostream & gdcm::Item::Write (
             std::ostream & os) const  [inline]
```

References gdcm_assert, gdcmWarningMacro, gdcm::VL::GetLength(), gdcm::DataElement::TagField, gdcm::DataElement::ValueLengthF
gdcm::Tag::Write(), and gdcm::VL::Write().

12.168.4 Friends And Related Symbol Documentation

12.168.4.1 operator<<

```
std::ostream & operator<< (
             std::ostream & os,
             const Item & val)  [friend]
```

References Item(), operator<<, gdcm::DataSet::Print(), gdcm::DataElement::TagField, and gdcm::DataElement::ValueLengthField.

Referenced by operator<<.

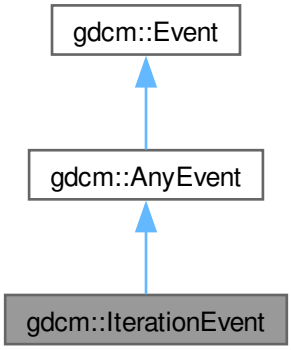
The documentation for this class was generated from the following file:

- gdcmItem.h

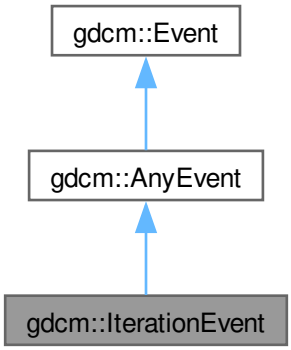
12.169 gdcm::IterationEvent Class Reference

`#include <gdcmEvent.h>`

Inheritance diagram for gdcm::IterationEvent:



Collaboration diagram for gdcm::IterationEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()

- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

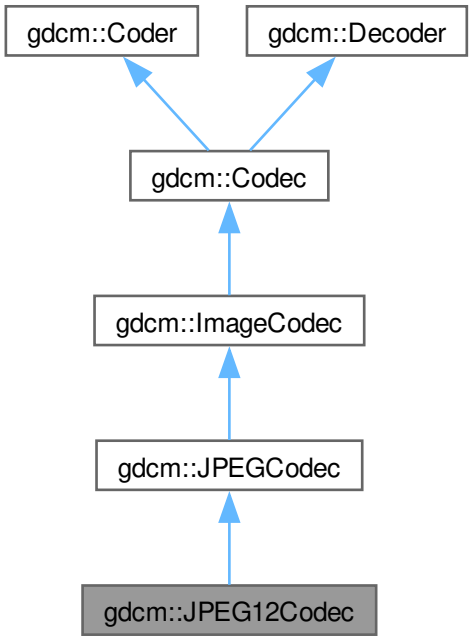
- gdcmEvent.h

12.170 gdcm::JPEG12Codec Class Reference

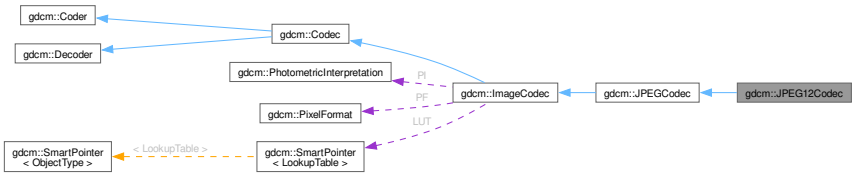
Class to do JPEG 12bits (lossy & lossless).

`#include <gdcmJPEG12Codec.h>`

Inheritance diagram for gdcm::JPEG12Codec:



Collaboration diagram for gdcm::JPEG12Codec:



Public Member Functions

- JPEG12Codec ()
- ~JPEG12Codec () override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool InternalCode (const char *input, unsigned long len, std::ostream &os) override

Public Member Functions inherited from gdcm::JPEGCodec

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool EncodeBuffer (std::ostream &os, const char *data, size_t datalen) override
- bool IsStateSuspension () const override

Protected Member Functions inherited from gdcm::JPEGCodec

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::JPEGCodec

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.170.1 Detailed Description

Class to do JPEG 12bits (lossy & lossless).

Note

internal class

12.170.2 Constructor & Destructor Documentation

12.170.2.1 JPEG12Codec()

```
gdcm::JPEG12Codec::JPEG12Codec ()
```

12.170.2.2 ~JPEG12Codec()

```
gdcm::JPEG12Codec::~JPEG12Codec ()  [override]
```

12.170.3 Member Function Documentation

12.170.3.1 DecodeByStreams()

```
bool gdcm::JPEG12Codec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.170.3.2 EncodeBuffer()

```
bool gdcm::JPEG12Codec::EncodeBuffer (
            std::ostream & os,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

12.170.3.3 GetHeaderInfo()

```
bool gdcm::JPEG12Codec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.170.3.4 InternalCode()

```
bool gdcm::JPEG12Codec::InternalCode (
            const char * input,
            unsigned long len,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::Coder.

12.170.3.5 IsStateSuspension()

```
bool gdcm::JPEG12Codec::IsStateSuspension () const  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

The documentation for this class was generated from the following file:

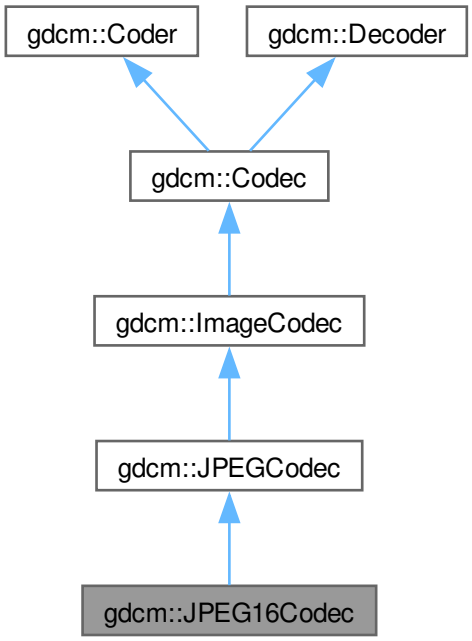
- gdcmJPEG12Codec.h

12.171 gdcm::JPEG16Codec Class Reference

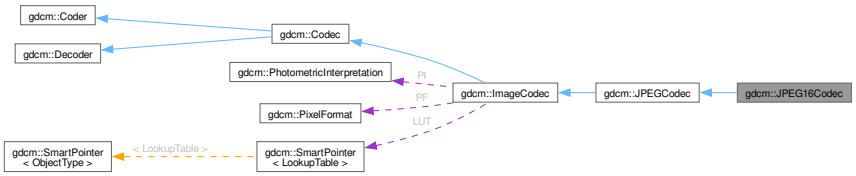
Class to do JPEG 16bits (lossless).

```
#include <gdcmJPEG16Codec.h>
```

Inheritance diagram for gdcm::JPEG16Codec:



Collaboration diagram for gdcm::JPEG16Codec:



Public Member Functions

- JPEG16Codec ()
- ~JPEG16Codec () override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool InternalCode (const char *input, unsigned long len, std::ostream &os) override

Public Member Functions inherited from gdcm::JPEGCodec

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool EncodeBuffer (std::ostream &os, const char *data, size_t datalen) override
- bool IsStateSuspension () const override

Protected Member Functions inherited from gdcm::JPEGCodec

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::JPEGCodec

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.171.1 Detailed Description

Class to do JPEG 16bits (lossless).

Note

internal class

12.171.2 Constructor & Destructor Documentation

12.171.2.1 JPEG16Codec()

```
gdcm::JPEG16Codec::JPEG16Codec ()
```

12.171.2.2 ~JPEG16Codec()

```
gdcm::JPEG16Codec::~JPEG16Codec ()  [override]
```

12.171.3 Member Function Documentation

12.171.3.1 DecodeByStreams()

```
bool gdcm::JPEG16Codec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.171.3.2 EncodeBuffer()

```
bool gdcm::JPEG16Codec::EncodeBuffer (
            std::ostream & os,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

12.171.3.3 GetHeaderInfo()

```
bool gdcm::JPEG16Codec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.171.3.4 InternalCode()

```
bool gdcm::JPEG16Codec::InternalCode (
            const char * input,
            unsigned long len,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::Coder.

12.171.3.5 IsStateSuspension()

```
bool gdcm::JPEG16Codec::IsStateSuspension () const  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

The documentation for this class was generated from the following file:

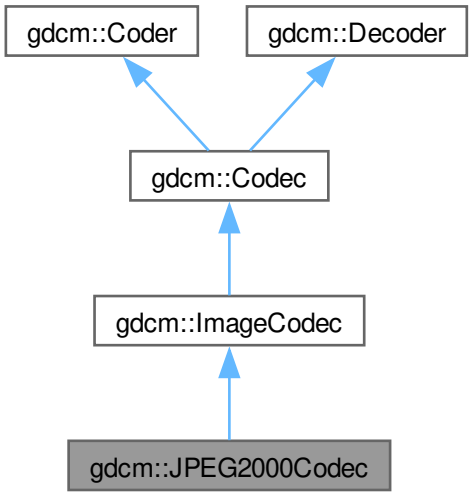
- gdcmJPEG16Codec.h

12.172 gdcm::JPEG2000Codec Class Reference

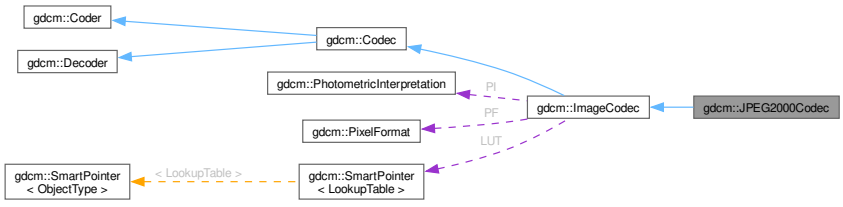
Class to do JPEG 2000.

```
#include <gdcmJPEG2000Codec.h>
```

Inheritance diagram for gdcm::JPEG2000Codec:



Collaboration diagram for gdcm::JPEG2000Codec:



Public Member Functions

- JPEG2000Codec ()
- ~JPEG2000Codec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- double GetQuality (unsigned int idx=0) const
- double GetRate (unsigned int idx=0) const
- void SetMCT (unsigned int mct)
- void SetNumberOfResolutions (unsigned int nres)
- void SetNumberOfThreadsForDecompression (int nThreads)
- void SetQuality (unsigned int idx, double q)
- void SetRate (unsigned int idx, double rate)
- void SetReversible (bool res)
- void SetTileSize (unsigned int tx, unsigned int ty)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsValid (PhotometricInterpretation const &pi)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Friends

- class Bitmap
- class ImageRegionReader

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.172.1 Detailed Description

Class to do JPEG 2000.

Note

the class will produce JPC (JPEG 2000 codestream), since some private implementor are using full jp2 file the decoder tolerate jp2 input this is an implementation of an ImageCodec

12.172.2 Constructor & Destructor Documentation

12.172.2.1 JPEG2000Codec()

```
gdcm::JPEG2000Codec::JPEG2000Codec ()
```

12.172.2.2 ~JPEG2000Codec()

```
gdcm::JPEG2000Codec::~JPEG2000Codec ()  [override]
```

12.172.3 Member Function Documentation

12.172.3.1 AppendFrameEncode()

```
bool gdcm::JPEG2000Codec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.172.3.2 AppendRowEncode()

```
bool gdcm::JPEG2000Codec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.172.3.3 CanCode()

```
bool gdcm::JPEG2000Codec::CanCode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.172.3.4 CanDecode()

```
bool gdcm::JPEG2000Codec::CanDecode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.172.3.5 Clone()

```
ImageCodec * gdcm::JPEG2000Codec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.172.3.6 Code()

```
bool gdcm::JPEG2000Codec::Code (
            DataElement const & in_,
            DataElement & out_)  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

12.172.3.7 Decode()

```
bool gdcm::JPEG2000Codec::Decode (
            DataElement const & is_,
            DataElement & os)  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

12.172.3.8 DecodeByStreams()

```
bool gdcm::JPEG2000Codec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.172.3.9 DecodeExtent()

```
bool gdcm::JPEG2000Codec::DecodeExtent (
            char * buffer,
            unsigned int xmin,
            unsigned int xmax,
            unsigned int ymin,
            unsigned int ymax,
            unsigned int zmin,
            unsigned int zmax,
            std::istream & is)  [protected]
```

12.172.3.10 GetHeaderInfo()

```
bool gdcm::JPEG2000Codec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

Referenced by StopEncode().

12.172.3.11 GetQuality()

```
double gdcm::JPEG2000Codec::GetQuality (
            unsigned int idx = 0) const
```

12.172.3.12 GetRate()

```
double gdcm::JPEG2000Codec::GetRate (
            unsigned int idx = 0) const
```

12.172.3.13 IsFrameEncoder()

```
bool gdcm::JPEG2000Codec::IsFrameEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.172.3.14 IsRowEncoder()

```
bool gdcm::JPEG2000Codec::IsRowEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.172.3.15 SetMCT()

```
void gdcm::JPEG2000Codec::SetMCT (
            unsigned int mct)
```

12.172.3.16 SetNumberOfResolutions()

```
void gdcm::JPEG2000Codec::SetNumberOfResolutions (
            unsigned int nres)
```

12.172.3.17 SetNumberOfThreadsForDecompression()

```
void gdcm::JPEG2000Codec::SetNumberOfThreadsForDecompression (
            int nThreads)
```

Set Number of threads

Parameters

nThreads	: number of threads for decompression codec, if 0 or 1 decompression is done in current thread, if negative value is set determine how many virtual threads are available

12.172.3.18 SetQuality()

```
void gdcm::JPEG2000Codec::SetQuality (
            unsigned int idx,
            double q)
```

12.172.3.19 SetRate()

```
void gdcm::JPEG2000Codec::SetRate (
            unsigned int idx,
            double rate)
```

12.172.3.20 SetReversible()

```
void gdcm::JPEG2000Codec::SetReversible (
            bool res)
```

12.172.3.21 SetTileSize()

```
void gdcm::JPEG2000Codec::SetTileSize (
            unsigned int tx,
            unsigned int ty)
```

12.172.3.22 StartEncode()

```
bool gdcm::JPEG2000Codec::StartEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.172.3.23 StopEncode()

```
bool gdcm::JPEG2000Codec::StopEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

References GetHeaderInfo().

12.172.4 Friends And Related Symbol Documentation

12.172.4.1 Bitmap

```
friend class Bitmap  [friend]
```

References Bitmap.

Referenced by Bitmap.

12.172.4.2 ImageRegionReader

```
friend class ImageRegionReader  [friend]
```

References ImageRegionReader.

Referenced by ImageRegionReader.

The documentation for this class was generated from the following file:

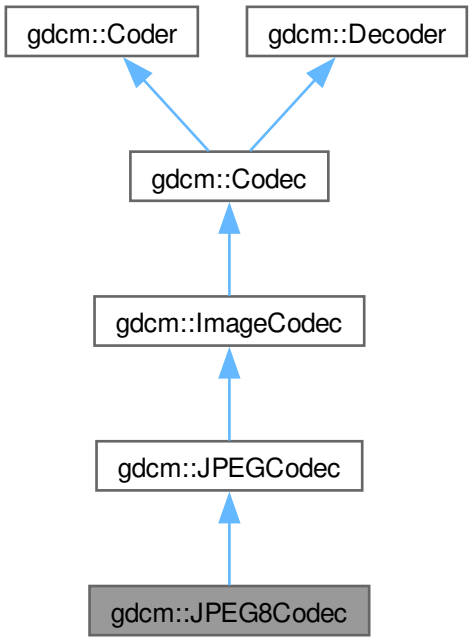
- gdcmJPEG2000Codec.h

12.173 gdcm::JPEG8Codec Class Reference

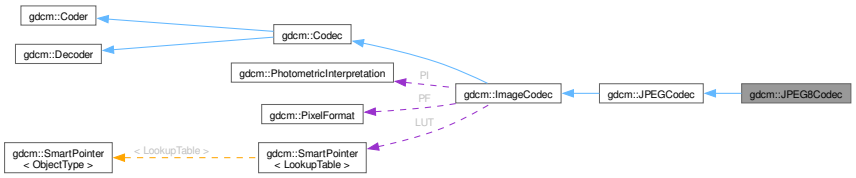
Class to do JPEG 8bits (lossy & lossless).

```
#include <gdcmJPEG8Codec.h>
```

Inheritance diagram for gdcm::JPEG8Codec:



Collaboration diagram for gdcm::JPEG8Codec:



Public Member Functions

- JPEG8Codec ()
- ~JPEG8Codec () override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool InternalCode (const char *input, unsigned long len, std::ostream &os) override

Public Member Functions inherited from gdcm::JPEGCodec

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool EncodeBuffer (std::ostream &os, const char *data, size_t datalen) override
- bool IsStateSuspension () const override

Protected Member Functions inherited from gdcm::JPEGCodec

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::JPEGCodec

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.173.1 Detailed Description

Class to do JPEG 8bits (lossy & lossless).

Note

internal class

12.173.2 Constructor & Destructor Documentation

12.173.2.1 JPEG8Codec()

```
gdcm::JPEG8Codec::JPEG8Codec ()
```

12.173.2.2 ~JPEG8Codec()

```
gdcm::JPEG8Codec::~JPEG8Codec ()  [override]
```

12.173.3 Member Function Documentation

12.173.3.1 DecodeByStreams()

```
bool gdcm::JPEG8Codec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.173.3.2 EncodeBuffer()

```
bool gdcm::JPEG8Codec::EncodeBuffer (
            std::ostream & os,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

12.173.3.3 GetHeaderInfo()

```
bool gdcm::JPEG8Codec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.173.3.4 InternalCode()

```
bool gdcm::JPEG8Codec::InternalCode (
            const char * input,
            unsigned long len,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::Coder.

12.173.3.5 IsStateSuspension()

```
bool gdcm::JPEG8Codec::IsStateSuspension () const  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

The documentation for this class was generated from the following file:

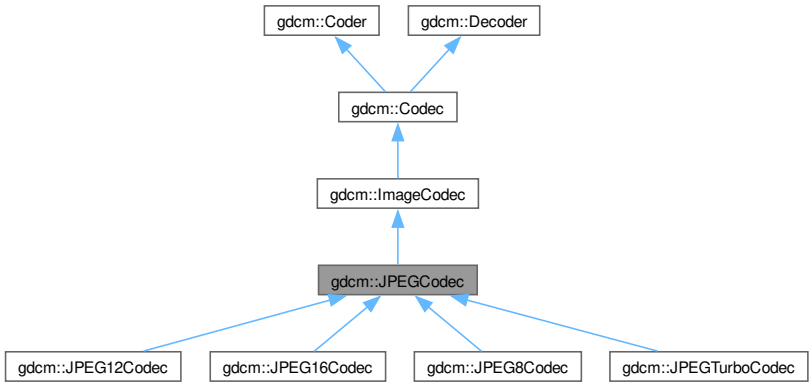
- gdcmJPEG8Codec.h

12.174 gdcm::JPEGCodec Class Reference

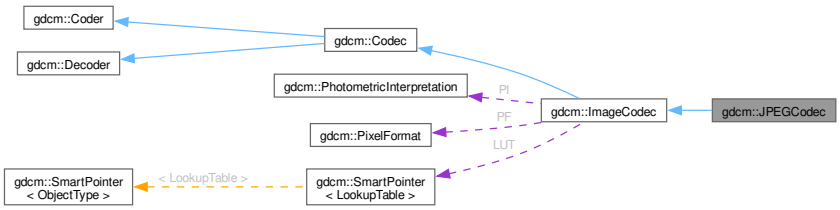
JPEG codec.

```
#include <gdcmJPEGCodec.h>
```

Inheritance diagram for gdcm::JPEGCodec:



Collaboration diagram for gdcm::JPEGCodec:



Public Member Functions

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- virtual bool EncodeBuffer (std::ostream &out, const char *inbuffer, size_t inlen)
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- virtual bool IsStateSuspension () const
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

Friends

- class ImageRegionReader

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

12.174.1 Detailed Description

JPEG codec.

Class to do JPEG (8bits, 12bits, 16bits lossy & lossless). It redispatch in between the different codec implementation: JPEG8Codec, JPEG12Codec & JPEG16Codec It also support inconsistency in between DICOM header and JPEG compressed stream ImageCodec implementation for the JPEG case

Note

Things you should know if you ever want to dive into DICOM/JPEG world (among other):

- `http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/↩ 625e46919f2080e1`
- `http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/↩ 75fdfccc65a6243`
- `http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/↩ 2d525ef6a2f093ed`
- `http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/↩ 6b93af410f8c921f`

Examples

CompressLossyJPEG.cs, FileChangeTSLossy.cs, and GetJPEGSamplePrecision.cxx.

12.174.2 Constructor & Destructor Documentation

12.174.2.1 JPEGCodec()

```
gdcm::JPEGCodec::JPEGCodec ()
```

12.174.2.2 ~JPEGCodec()

```
gdcm::JPEGCodec::~JPEGCodec ()  [override]
```

12.174.3 Member Function Documentation

12.174.3.1 AppendFrameEncode()

```
bool gdcm::JPEGCodec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.2 AppendRowEncode()

```
bool gdcm::JPEGCodec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.3 CanCode()

```
bool gdcm::JPEGCodec::CanCode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

Examples

CompressLossyJPEG.cs.

12.174.3.4 CanDecode()

```
bool gdcm::JPEGCodec::CanDecode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.174.3.5 Clone()

```
ImageCodec * gdcm::JPEGCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.174.3.6 Code()

```
bool gdcm::JPEGCodec::Code (
            DataElement const & in,
            DataElement & out)  [override], [virtual]
```

Compress into JPEG.

Reimplemented from gdcm::Coder.

12.174.3.7 ComputeOffsetTable()

```
void gdcm::JPEGCodec::ComputeOffsetTable (
            bool b)
```

Compute the offset table:

12.174.3.8 Decode()

```
bool gdcm::JPEGCodec::Decode (
            DataElement const & is_,
            DataElement & os)  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

12.174.3.9 DecodeByStreams()

```
bool gdcm::JPEGCodec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

Reimplemented in gdcm::JPEGTurboCodec.

12.174.3.10 DecodeExtent()

```
bool gdcm::JPEGCodec::DecodeExtent (
            char * buffer,
            unsigned int xmin,
            unsigned int xmax,
            unsigned int ymin,
            unsigned int ymax,
            unsigned int zmin,
            unsigned int zmax,
            std::istream & is)  [protected]
```

12.174.3.11 EncodeBuffer()

```
virtual bool gdcm::JPEGCodec::EncodeBuffer (
            std::ostream & out,
            const char * inbuffer,
            size_t inlen)  [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, gdcm::JPEG8Codec, and gdcm::JPEGTurboCodec.

12.174.3.12 GetHeaderInfo()

```
bool gdcm::JPEGCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

Reimplemented in gdcm::JPEGTurboCodec.

Examples

GetJPEGSamplePrecision.cxx.

12.174.3.13 GetLossless()

```
bool gdcm::JPEGCodec::GetLossless () const
```

12.174.3.14 GetQuality()

```
double gdcm::JPEGCodec::GetQuality () const
```

12.174.3.15 IsFrameEncoder()

```
bool gdcm::JPEGCodec::IsFrameEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.16 IsRowEncoder()

```
bool gdcm::JPEGCodec::IsRowEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.17 IsStateSuspension()

```
virtual bool gdcm::JPEGCodec::IsStateSuspension () const  [protected], [virtual]
```

Reimplemented in gdcm::JPEG12Codec, gdcm::JPEG16Codec, gdcm::JPEG8Codec, and gdcm::JPEGTurboCodec.

12.174.3.18 IsValid()

```
bool gdcm::JPEGCodec::IsValid (
            PhotometricInterpretation const & pi)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.19 SetBitSample()

```
void gdcm::JPEGCodec::SetBitSample (
            int bit)  [protected]
```

12.174.3.20 SetLossless()

```
void gdcm::JPEGCodec::SetLossless (
            bool l)
```

Examples

CompressLossyJPEG.cs, and FileChangeTSLossy.cs.

12.174.3.21 SetPixelFormat()

```
void gdcm::JPEGCodec::SetPixelFormat (
            PixelFormat const & pf)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

Examples

GetJPEGSamplePrecision.cxx.

12.174.3.22 SetQuality()

```
void gdcm::JPEGCodec::SetQuality (
            double q)
```

Examples

CompressLossyJPEG.cs, and FileChangeTSLossy.cs.

12.174.3.23 StartEncode()

```
bool gdcm::JPEGCodec::StartEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.3.24 StopEncode()

```
bool gdcm::JPEGCodec::StopEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.174.4 Friends And Related Symbol Documentation

12.174.4.1 ImageRegionReader

```
friend class ImageRegionReader  [friend]
```

References ImageRegionReader.

Referenced by ImageRegionReader.

12.174.5 Member Data Documentation

12.174.5.1 BitSample

```
int gdcm::JPEGCodec::BitSample  [protected]
```

12.174.5.2 Quality

```
int gdcm::JPEGCodec::Quality  [protected]
```

The documentation for this class was generated from the following file:

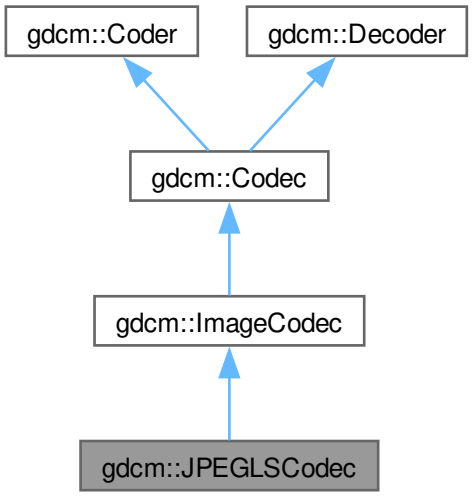
- gdcmJPEGCodec.h

12.175 gdcm::JPEGLSCodec Class Reference

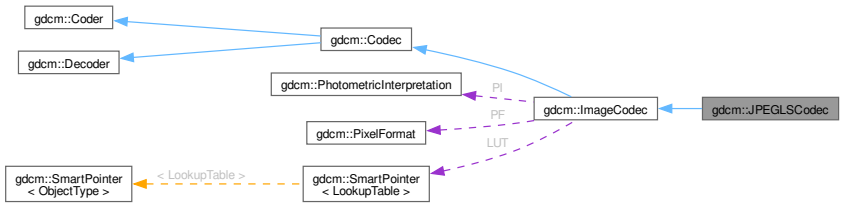
JPEG-LS.

```
#include <gdcmJPEGLSCodec.h>
```

Inheritance diagram for gdcm::JPEGLSCodec:



Collaboration diagram for gdcm::JPEGLSCodec:



Public Member Functions

- JPEGLSCodec ()
- ~JPEGLSCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &in, char *outBuffer, size_t inBufferLength, uint32_t inXMin, uint32_t inXMax, uint32_t inYMin, uint32_t inYMax, uint32_t inZMin, uint32_t inZMax)
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- unsigned long GetBufferLength () const
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool GetLossless () const
- void SetBufferLength (unsigned long l)
- void SetLossless (bool l)
- void SetLossyError (int error)

  [0-3] generally

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const

- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsValid (PhotometricInterpretation const &pi)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Friends

- class ImageRegionReader

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.175.1 Detailed Description

JPEG-LS.

Note

codec that implement the JPEG-LS compression this is an implementation of ImageCodec for JPEG-LS

It uses the CharLS JPEG-LS implementation `https://github.com/team-charls/charls`

12.175.2 Constructor & Destructor Documentation

12.175.2.1 JPEGLSCodec()

```
gdcm::JPEGLSCodec::JPEGLSCodec ()
```

12.175.2.2 ~JPEGLSCodec()

```
gdcm::JPEGLSCodec::~JPEGLSCodec ()  [override]
```

12.175.3 Member Function Documentation

12.175.3.1 AppendFrameEncode()

```
bool gdcm::JPEGLSCodec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.3.2 AppendRowEncode()

```
bool gdcm::JPEGLSCodec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.3.3 CanCode()

```
bool gdcm::JPEGLSCodec::CanCode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.175.3.4 CanDecode()

```
bool gdcm::JPEGLSCodec::CanDecode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.175.3.5 Clone()

```
ImageCodec * gdcm::JPEGLSCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.175.3.6 Code()

```
bool gdcm::JPEGLSCodec::Code (
            DataElement const & in_,
            DataElement & out_)  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

12.175.3.7 Decode() [1/2]

```
bool gdcm::JPEGLSCodec::Decode (
            DataElement const & in,
            char * outBuffer,
            size_t inBufferLength,
            uint32_t inXMin,
            uint32_t inXMax,
            uint32_t inYMin,
            uint32_t inYMax,
            uint32_t inZMin,
            uint32_t inZMax)
```

12.175.3.8 Decode() [2/2]

```
bool gdcm::JPEGLSCodec::Decode (
            DataElement const & is_,
            DataElement & os)  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

12.175.3.9 DecodeExtent()

```
bool gdcm::JPEGLSCodec::DecodeExtent (
            char * buffer,
            unsigned int xmin,
            unsigned int xmax,
            unsigned int ymin,
            unsigned int ymax,
            unsigned int zmin,
            unsigned int zmax,
            std::istream & is)  [protected]
```

12.175.3.10 GetBufferLength()

```
unsigned long gdcm::JPEGLSCodec::GetBufferLength () const  [inline]
```

12.175.3.11 GetHeaderInfo()

```
bool gdcm::JPEGLSCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.3.12 GetLossless()

```
bool gdcm::JPEGLSCodec::GetLossless () const
```

12.175.3.13 IsFrameEncoder()

```
bool gdcm::JPEGLSCodec::IsFrameEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.3.14 IsRowEncoder()

```
bool gdcm::JPEGLSCodec::IsRowEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.3.15 SetBufferLength()

```
void gdcm::JPEGLSCodec::SetBufferLength (
            unsigned long l)  [inline]
```

12.175.3.16 SetLossless()

```
void gdcm::JPEGLSCodec::SetLossless (
            bool l)
```

12.175.3.17 SetLossyError()

```
void gdcm::JPEGLSCodec::SetLossyError (
            int error)
```

[0-3] generally

12.175.3.18 StartEncode()

```
bool gdcm::JPEGLSCodec::StartEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.3.19 StopEncode()

```
bool gdcm::JPEGLSCodec::StopEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.175.4 Friends And Related Symbol Documentation

12.175.4.1 ImageRegionReader

```
friend class ImageRegionReader  [friend]
```

References ImageRegionReader.

Referenced by ImageRegionReader.

The documentation for this class was generated from the following file:

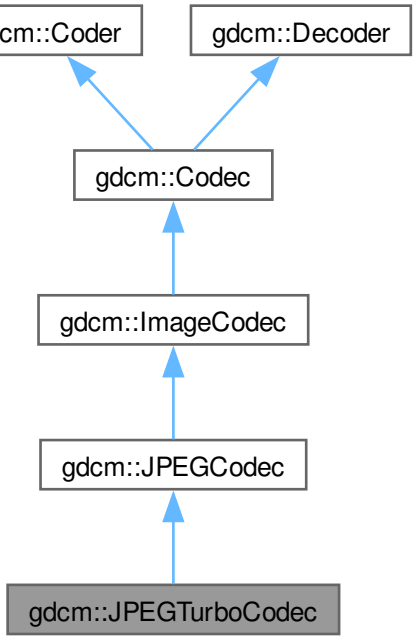
- gdcmJPEGLSCodec.h

12.176 gdcm::JPEGTurboCodec Class Reference

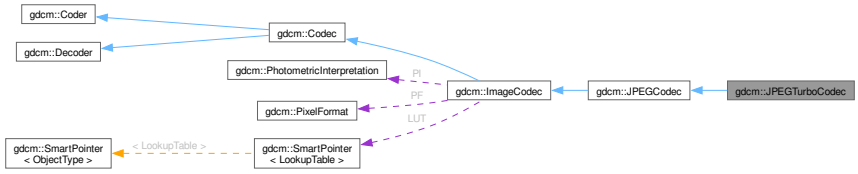
Class to do JPEG using libjpeg-turbo (8/12/16 bits, lossy & lossless).

```
#include <gdcmJPEGTurboCodec.h>
```

Inheritance diagram for gdcm::JPEGTurboCodec:



Collaboration diagram for gdcm::JPEGTurboCodec:



Public Member Functions

- JPEGTurboCodec ()
- ~JPEGTurboCodec () override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool InternalCode (const char *input, unsigned long len, std::ostream &os) override

Public Member Functions inherited from gdcm::JPEGCodec

- JPEGCodec ()
- ~JPEGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Compress into JPEG.
- void ComputeOffsetTable (bool b)

  Compute the offset table:
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool GetLossless () const
- double GetQuality () const
- void SetLossless (bool l)
- void SetPixelFormat (PixelFormat const &pf) override
- void SetQuality (double q)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool EncodeBuffer (std::ostream &os, const char *data, size_t datalen) override
- bool IsStateSuspension () const override

Protected Member Functions inherited from gdcm::JPEGCodec

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeExtent (char *buffer, unsigned int xmin, unsigned int xmax, unsigned int ymin, unsigned int ymax, unsigned int zmin, unsigned int zmax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool IsValid (PhotometricInterpretation const &pi) override
- void SetBitSample (int bit)
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::JPEGCodec

- int BitSample
- int Quality

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.176.1 Detailed Description

Class to do JPEG using libjpeg-turbo (8/12/16 bits, lossy & lossless).

Note

internal class — single codec replaces JPEG8Codec/JPEG12Codec/JPEG16Codec

12.176.2 Constructor & Destructor Documentation

12.176.2.1 JPEGTurboCodec()

```
gdcm::JPEGTurboCodec::JPEGTurboCodec ()
```

12.176.2.2 ~JPEGTurboCodec()

```
gdcm::JPEGTurboCodec::~JPEGTurboCodec ()  [override]
```

12.176.3 Member Function Documentation

12.176.3.1 DecodeByStreams()

```
bool gdcm::JPEGTurboCodec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

12.176.3.2 EncodeBuffer()

```
bool gdcm::JPEGTurboCodec::EncodeBuffer (
            std::ostream & os,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

12.176.3.3 GetHeaderInfo()

```
bool gdcm::JPEGTurboCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

12.176.3.4 InternalCode()

```
bool gdcm::JPEGTurboCodec::InternalCode (
            const char * input,
            unsigned long len,
            std::ostream & os)  [override], [virtual]
```

Reimplemented from gdcm::Coder.

12.176.3.5 IsStateSuspension()

```
bool gdcm::JPEGTurboCodec::IsStateSuspension () const  [override], [protected], [virtual]
```

Reimplemented from gdcm::JPEGCodec.

The documentation for this class was generated from the following file:

- gdcmJPEGTurboCodec.h

12.177 gdcm::JSON Class Reference

```
#include <gdcmJSON.h>
```

Public Member Functions

- JSON ()
- ~JSON ()
- bool Code (DataSet const &in, std::ostream &os)
- bool Decode (std::istream &is, DataSet &out)
- bool GetPrettyPrint () const
- void PrettyPrintOff ()
- void PrettyPrintOn ()
- void SetPrettyPrint (bool onoff)

12.177.1 Detailed Description

Examples

QIDO-RS.cxx.

12.177.2 Constructor & Destructor Documentation

12.177.2.1 JSON()

```
gdcm::JSON::JSON ()
```

12.177.2.2 ~JSON()

```
gdcm::JSON::~JSON ()
```

12.177.3 Member Function Documentation

12.177.3.1 Code()

```
bool gdcm::JSON::Code (
            DataSet const & in,
            std::ostream & os)
```

Examples

QIDO-RS.cxx.

12.177.3.2 Decode()

```
bool gdcm::JSON::Decode (
            std::istream & is,
            DataSet & out)
```

Examples

QIDO-RS.cxx.

12.177.3.3 GetPrettyPrint()

```
bool gdcm::JSON::GetPrettyPrint () const
```

12.177.3.4 PrettyPrintOff()

```
void gdcm::JSON::PrettyPrintOff ()
```

12.177.3.5 PrettyPrintOn()

```
void gdcm::JSON::PrettyPrintOn ()
```

Examples

QIDO-RS.cxx.

12.177.3.6 SetPrettyPrint()

```
void gdcm::JSON::SetPrettyPrint (
            bool onoff)
```

The documentation for this class was generated from the following file:

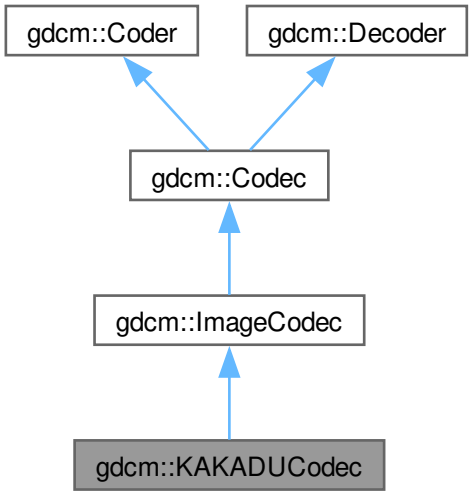
- gdcmJSON.h

12.178 gdcm::KAKADUCodec Class Reference

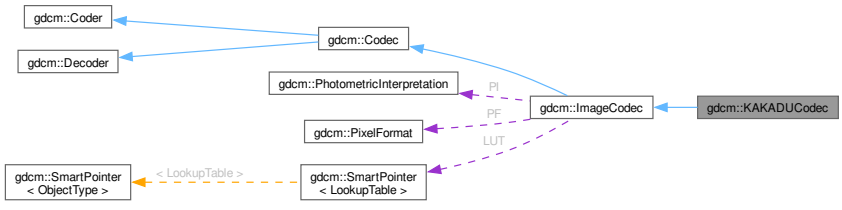
KAKADUCodec.

`#include <gdcmKAKADUCodec.h>`

Inheritance diagram for gdcm::KAKADUCodec:



Collaboration diagram for gdcm::KAKADUCodec:



Public Member Functions

- KAKADUCodec ()
- ~KAKADUCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).

- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- virtual bool GetHeaderInfo (std::istream &is_, TransferSyntax &ts)
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.178.1 Detailed Description

KAKADUCodec.

12.178.2 Constructor & Destructor Documentation

12.178.2.1 KAKADUCodec()

```
gdcm::KAKADUCodec::KAKADUCodec ()
```

12.178.2.2 ~KAKADUCodec()

```
gdcm::KAKADUCodec::~KAKADUCodec ()  [override]
```

12.178.3 Member Function Documentation

12.178.3.1 CanCode()

```
bool gdcm::KAKADUCodec::CanCode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.178.3.2 CanDecode()

```
bool gdcm::KAKADUCodec::CanDecode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.178.3.3 Clone()

```
ImageCodec * gdcm::KAKADUCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.178.3.4 Code()

```
bool gdcm::KAKADUCodec::Code (
            DataElement const & in_,
            DataElement & out_)  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

12.178.3.5 Decode()

```
bool gdcm::KAKADUCodec::Decode (
             DataElement const & is_,
             DataElement & os)  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

The documentation for this class was generated from the following file:

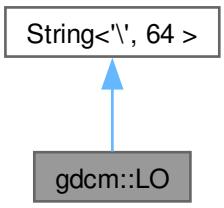
- gdcmKAKADUCodec.h

12.179 gdcm::LO Class Reference

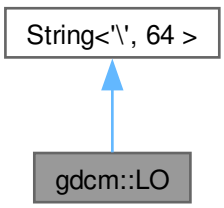
LO.

`#include <gdcmLO.h>`

Inheritance diagram for gdcm::LO:



Collaboration diagram for gdcm::LO:



Public Types

- typedef Superclass::const_iterator const_iterator
- typedef Superclass::const_reference const_reference
- typedef Superclass::const_reverse_iterator const_reverse_iterator
- typedef Superclass::difference_type difference_type
- typedef Superclass::iterator iterator
- typedef Superclass::pointer pointer
- typedef Superclass::reference reference
- typedef Superclass::reverse_iterator reverse_iterator
- typedef Superclass::size_type size_type
- typedef String<'\\', 64 > Superclass
- typedef Superclass::value_type value_type

Public Member Functions

- LO ()
- LO (const Superclass &s, size_type pos=0, size_type n=npos)
- LO (const value_type *s)
- LO (const value_type *s, size_type n)
- bool IsValid () const

12.179.1 Detailed Description

LO.

Note

TODO

12.179.2 Member Typedef Documentation

12.179.2.1 const_iterator

```
typedef Superclass::const_iterator gdcm::LO::const_iterator
```

12.179.2.2 const_reference

```
typedef Superclass::const_reference gdcm::LO::const_reference
```

12.179.2.3 const_reverse_iterator

```
typedef Superclass::const_reverse_iterator gdcm::LO::const_reverse_iterator
```

12.179.2.4 difference_type

```
typedef Superclass::difference_type gdcm::LO::difference_type
```

12.179.2.5 iterator

```
typedef Superclass::iterator gdcm::LO::iterator
```

12.179.2.6 pointer

```
typedef Superclass::pointer gdcm::LO::pointer
```

12.179.2.7 reference

```
typedef Superclass::reference gdcm::LO::reference
```

12.179.2.8 reverse_iterator

```
typedef Superclass::reverse_iterator gdcm::LO::reverse_iterator
```

12.179.2.9 size_type

```
typedef Superclass::size_type gdcm::LO::size_type
```

12.179.2.10 Superclass

```
typedef String<'\\',64> gdcm::LO::Superclass
```

12.179.2.11 value_type

```
typedef Superclass::value_type gdcm::LO::value_type
```

12.179.3 Constructor & Destructor Documentation

12.179.3.1 LO() [1/4]

```
gdcm::LO::LO ()  [inline]
```

12.179.3.2 LO() [2/4]

```
gdcm::LO::LO (
            const value_type * s)  [inline]
```

12.179.3.3 LO() [3/4]

```
gdcm::LO::LO (
            const value_type * s,
            size_type n)  [inline]
```

12.179.3.4 LO() [4/4]

```
gdcm::LO::LO (
            const Superclass & s,
            size_type pos = 0,
            size_type n = npos)  [inline]
```

12.179.4 Member Function Documentation

12.179.4.1 IsValid()

```
bool gdcm::LO::IsValid () const  [inline]
```

References gdcm::String<'\\', 64 >::IsValid().

The documentation for this class was generated from the following file:

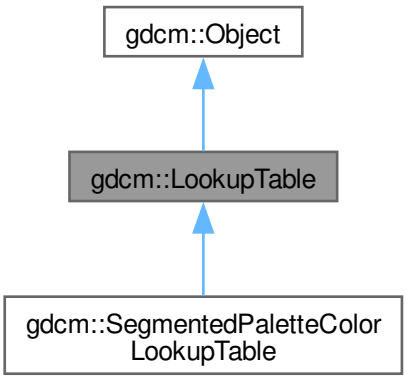
- gdcmLO.h

12.180 gdcm::LookupTable Class Reference

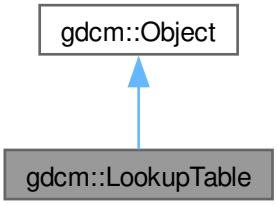
LookupTable class.

```
#include <gdcmLookupTable.h>
```

Inheritance diagram for gdcm::LookupTable:



Collaboration diagram for gdcm::LookupTable:



Public Types

- enum LookupTableType {
  RED = 0 ,
  GREEN ,
  BLUE ,
  GRAY ,
  UNKNOWN }

Public Member Functions

- LookupTable ()

- LookupTable (LookupTable const &lut)
- ~LookupTable () override
- void Allocate (unsigned short bitsample=8)

  Allocate the LUT.
- void Clear ()

  Clear the LUT.
- bool Decode (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const
- void Decode (std::istream &is, std::ostream &os) const

  Decode the LUT.
- bool Decode8 (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const

  Decode into RGB 8 bits space.
- unsigned short GetBitSample () const

  return the bit sample
- bool GetBufferAsRGBA (unsigned char *rgba) const

  return the LUT as RGBA buffer
- void GetLUT (LookupTableType type, unsigned char *array, unsigned int &length) const
- void GetLUTDescriptor (LookupTableType type, unsigned short &length, unsigned short &subscript, unsigned short &bitsize) const
- unsigned int GetLUTLength (LookupTableType type) const
- const unsigned char * GetPointer () const

  return a raw pointer to the LUT
- void InitializeBlueLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)
- bool Initialized () const

  return whether the LUT has been initialized
- void InitializeGreenLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)
- void InitializeLUT (LookupTableType type, unsigned short length, unsigned short subscript, unsigned short bitsize)

  Generic interface:
- void InitializeRedLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)

  RED / GREEN / BLUE specific:
- bool IsRGB8 () const

  Return whether 16 bits LUT is in RGB 8 bits space.
- void Print (std::ostream &) const override
- void SetBlueLUT (const unsigned char *blue, unsigned int length)
- void SetGreenLUT (const unsigned char *green, unsigned int length)
- virtual void SetLUT (LookupTableType type, const unsigned char *array, unsigned int length)
- void SetRedLUT (const unsigned char *red, unsigned int length)
- bool WriteBufferAsRGBA (const unsigned char *rgba)

  Write the LUT as RGBA.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Attributes

- unsigned short BitSample
- bool IncompleteLUT:1
- LookupTableInternal * Internal

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.180.1 Detailed Description

LookupTable class.

Examples

ExtractImageRegionWithLUT.cs, and PrintLUT.cxx.

12.180.2 Member Enumeration Documentation

12.180.2.1 LookupTableType

```
enum gdcm::LookupTable::LookupTableType
```

Enumerator

RED	
GREEN	
BLUE	
GRAY	
UNKNOWN	

12.180.3 Constructor & Destructor Documentation

12.180.3.1 LookupTable() [1/2]

```
gdcm::LookupTable::LookupTable ()
```

Referenced by LookupTable().

12.180.3.2 ~LookupTable()

```
gdcm::LookupTable::~LookupTable ()  [override]
```

12.180.3.3 LookupTable() [2/2]

```
gdcm::LookupTable::LookupTable (
            LookupTable const & lut)  [inline]
```

References LookupTable(), gdcm::Object::Object(), BitSample, gdcm_assert, IncompleteLUT, and Internal.

12.180.4 Member Function Documentation

12.180.4.1 Allocate()

```
void gdcm::LookupTable::Allocate (
            unsigned short bitsample = 8)
```

Allocate the LUT.

12.180.4.2 Clear()

```
void gdcm::LookupTable::Clear ()
```

Clear the LUT.

12.180.4.3 Decode() [1/2]

```
bool gdcm::LookupTable::Decode (
            char * outputbuffer,
            size_t outlen,
            const char * inputbuffer,
            size_t inlen) const
```

Decode the LUT outputbuffer will contains the RGB decoded PALETTE COLOR input image of size inlen the outputbuffer should be at least 3 times the size of inlen

12.180.4.4 Decode() [2/2]

```
void gdcm::LookupTable::Decode (
            std::istream & is,
            std::ostream & os) const
```

Decode the LUT.

Examples

ExtractImageRegionWithLUT.cs.

12.180.4.5 Decode8()

```
bool gdcm::LookupTable::Decode8 (
            char * outputbuffer,
            size_t outlen,
            const char * inputbuffer,
            size_t inlen) const
```

Decode into RGB 8 bits space.

12.180.4.6 GetBitSample()

```
unsigned short gdcm::LookupTable::GetBitSample () const  [inline]
```

return the bit sample

References BitSample.

12.180.4.7 GetBufferAsRGBA()

```
bool gdcm::LookupTable::GetBufferAsRGBA (
            unsigned char * rgba) const
```

return the LUT as RGBA buffer

12.180.4.8 GetLUT()

```
void gdcm::LookupTable::GetLUT (
            LookupTableType type,
            unsigned char * array,
            unsigned int & length) const
```

12.180.4.9 GetLUTDescriptor()

```
void gdcm::LookupTable::GetLUTDescriptor (
            LookupTableType type,
            unsigned short & length,
            unsigned short & subscript,
            unsigned short & bitsize) const
```

12.180.4.10 GetLUTLength()

```
unsigned int gdcm::LookupTable::GetLUTLength (
            LookupTableType type) const
```

12.180.4.11 GetPointer()

```
const unsigned char * gdcm::LookupTable::GetPointer () const
```

return a raw pointer to the LUT

12.180.4.12 InitializeBlueLUT()

```
void gdcm::LookupTable::InitializeBlueLUT (
            unsigned short length,
            unsigned short subscript,
            unsigned short bitsize)
```

12.180.4.13 Initialized()

```
bool gdcm::LookupTable::Initialized () const
```

return whether the LUT has been initialized

12.180.4.14 InitializeGreenLUT()

```
void gdcm::LookupTable::InitializeGreenLUT (
            unsigned short length,
            unsigned short subscript,
            unsigned short bitsize)
```

12.180.4.15 InitializeLUT()

```
void gdcm::LookupTable::InitializeLUT (
            LookupTableType type,
            unsigned short length,
            unsigned short subscript,
            unsigned short bitsize)
```

Generic interface:

12.180.4.16 InitializeRedLUT()

```
void gdcm::LookupTable::InitializeRedLUT (
            unsigned short length,
            unsigned short subscript,
            unsigned short bitsize)
```

RED / GREEN / BLUE specific:

12.180.4.17 IsRGB8()

```
bool gdcm::LookupTable::IsRGB8 () const
```

Return whether 16 bits LUT is in RGB 8 bits space.

12.180.4.18 Print()

```
void gdcm::LookupTable::Print (
            std::ostream & ) const  [override], [virtual]
```

Reimplemented from gdcm::Object.

Reimplemented in gdcm::SegmentedPaletteColorLookupTable.

Examples

PrintLUT.cxx.

12.180.4.19 SetBlueLUT()

```
void gdcm::LookupTable::SetBlueLUT (
            const unsigned char * blue,
            unsigned int length)
```

12.180.4.20 SetGreenLUT()

```
void gdcm::LookupTable::SetGreenLUT (
            const unsigned char * green,
            unsigned int length)
```

12.180.4.21 SetLUT()

```
virtual void gdcm::LookupTable::SetLUT (
            LookupTableType type,
            const unsigned char * array,
            unsigned int length)  [virtual]
```

Reimplemented in gdcm::SegmentedPaletteColorLookupTable.

12.180.4.22 SetRedLUT()

```
void gdcm::LookupTable::SetRedLUT (
            const unsigned char * red,
            unsigned int length)
```

12.180.4.23 WriteBufferAsRGBA()

```
bool gdcm::LookupTable::WriteBufferAsRGBA (
            const unsigned char * rgba)
```

Write the LUT as RGBA.

12.180.5 Member Data Documentation

12.180.5.1 BitSample

```
unsigned short gdcm::LookupTable::BitSample  [protected]
```

Referenced by LookupTable(), and GetBitSample().

12.180.5.2 IncompleteLUT

```
bool gdcm::LookupTable::IncompleteLUT  [protected]
```

Referenced by LookupTable().

12.180.5.3 Internal

```
LookupTableInternal* gdcm::LookupTable::Internal  [protected]
```

Referenced by LookupTable().

The documentation for this class was generated from the following file:

- gdcmLookupTable.h

12.181 gdcm::Scanner2::ltstr Struct Reference

```
#include <gdcmScanner2.h>
```

Public Member Functions

- bool operator() (const char *s1, const char *s2) const

12.181.1 Member Function Documentation

12.181.1.1 operator()()

```
bool gdcm::Scanner2::ltstr::operator() (
            const char * s1,
            const char * s2) const  [inline]
```

References gdcm_assert.

The documentation for this struct was generated from the following file:

- gdcmScanner2.h

12.182 gdcm::Scanner::ltstr Struct Reference

```
#include <gdcmScanner.h>
```

Public Member Functions

- bool operator() (const char *s1, const char *s2) const

12.182.1 Member Function Documentation

12.182.1.1 operator()()

```
bool gdcm::Scanner::ltstr::operator() (
            const char * s1,
            const char * s2) const  [inline]
```

References gdcm_assert.

The documentation for this struct was generated from the following file:

- gdcmScanner.h

12.183 gdcm::StrictScanner2::ltstr Struct Reference

```
#include <gdcmStrictScanner2.h>
```

Public Member Functions

- bool operator() (const char *s1, const char *s2) const

12.183.1 Member Function Documentation

12.183.1.1 operator()()

```
bool gdcm::StrictScanner2::ltstr::operator() (
            const char * s1,
            const char * s2) const  [inline]
```

References gdcm_assert.

The documentation for this struct was generated from the following file:

- gdcmStrictScanner2.h

12.184 gdcm::StrictScanner::ltstr Struct Reference

```
#include <gdcmStrictScanner.h>
```

Public Member Functions

- bool operator() (const char *s1, const char *s2) const

12.184.1 Member Function Documentation

12.184.1.1 operator()()

```
bool gdcm::StrictScanner::ltstr::operator() (
            const char * s1,
            const char * s2) const  [inline]
```

References gdcm_assert.

The documentation for this struct was generated from the following file:

- gdcmStrictScanner.h

12.185 gdcm::Macro Class Reference

Class for representing a Macro.

`#include <gdcmMacro.h>`

Public Types

- typedef std::vector< std::string > ArrayIncludeMacrosType
- typedef std::map< Tag, MacroEntry > MapModuleEntry

Public Member Functions

- Macro ()=default
- void AddMacroEntry (const Tag &tag, const MacroEntry &module)

  Will add a ModuleEntry directly at root-level. See Macro for nested-included level.
- void Clear ()
- bool FindMacroEntry (const Tag &tag) const
- const MacroEntry & GetMacroEntry (const Tag &tag) const
- const char * GetName () const
- void SetName (const char *name)
- bool Verify (const DataSet &ds, Usage const &usage) const

Friends

- std::ostream & operator<< (std::ostream &_os, const Macro &_val)

12.185.1 Detailed Description

Class for representing a Macro.

Note

Attribute Macro: a set of Attributes that are described in a single table that is referenced by multiple Module or other tables.

See also

Module

12.185.2 Member Typedef Documentation

12.185.2.1 ArrayIncludeMacrosType

`typedef std::vector<std::string> gdcm::Macro::ArrayIncludeMacrosType`

12.185.2.2 MapModuleEntry

```
typedef std::map<Tag, MacroEntry> gdcm::Macro::MapModuleEntry
```

12.185.3 Constructor & Destructor Documentation

12.185.3.1 Macro()

```
gdcm::Macro::Macro ()  [default]
```

References Macro(), and operator<<.

Referenced by Macro(), and operator<<.

12.185.4 Member Function Documentation

12.185.4.1 AddMacroEntry()

```
void gdcm::Macro::AddMacroEntry (
            const Tag & tag,
            const MacroEntry & module)  [inline]
```

Will add a ModuleEntry directly at root-level. See Macro for nested-included level.

12.185.4.2 Clear()

```
void gdcm::Macro::Clear ()  [inline]
```

12.185.4.3 FindMacroEntry()

```
bool gdcm::Macro::FindMacroEntry (
            const Tag & tag) const
```

Find or Get a ModuleEntry. ModuleEntry are either search are root-level or within nested-macro included in module.

12.185.4.4 GetMacroEntry()

```
const MacroEntry & gdcm::Macro::GetMacroEntry (
            const Tag & tag) const
```

12.185.4.5 GetName()

```
const char * gdcm::Macro::GetName () const  [inline]
```

12.185.4.6 SetName()

```
void gdcm::Macro::SetName (
            const char * name)  [inline]
```

12.185.4.7 Verify()

```
bool gdcm::Macro::Verify (
            const DataSet & ds,
            Usage const & usage) const
```

12.185.5 Friends And Related Symbol Documentation

12.185.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Macro & _val)  [friend]
```

References Macro().

Referenced by Macro().

The documentation for this class was generated from the following file:

- gdcmMacro.h

12.186 gdcm::Macros Class Reference

Class for representing a Modules.

```
#include <gdcmMacros.h>
```

Public Types

- typedef std::map< std::string, Macro > ModuleMapType

Public Member Functions

- Macros ()=default
- void AddMacro (const char *ref, const Macro &module)
- void Clear ()
- const Macro & GetMacro (const char *name) const
- bool IsEmpty () const

Friends

- std::ostream & operator<< (std::ostream &_os, const Macros &_val)

12.186.1 Detailed Description

Class for representing a Modules.

Note

bla

See also

Module

Examples

TraverseModules.cxx.

12.186.2 Member Typedef Documentation

12.186.2.1 ModuleMapType

```
typedef std::map<std::string, Macro> gdcm::Macros::ModuleMapType
```

12.186.3 Constructor & Destructor Documentation

12.186.3.1 Macros()

```
gdcm::Macros::Macros ()  [default]
```

References Macros(), and operator<<.

Referenced by Macros(), and operator<<.

12.186.4 Member Function Documentation

12.186.4.1 AddMacro()

```
void gdcm::Macros::AddMacro (
            const char * ref,
            const Macro & module)  [inline]
```

References gdcm_assert.

12.186.4.2 Clear()

```
void gdcm::Macros::Clear ()  [inline]
```

12.186.4.3 GetMacro()

```
const Macro & gdcm::Macros::GetMacro (
            const char * name) const  [inline]
```

References gdcm_assert.

12.186.4.4 IsEmpty()

```
bool gdcm::Macros::IsEmpty () const  [inline]
```

12.186.5 Friends And Related Symbol Documentation

12.186.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Macros & _val)  [friend]
```

References Macros().

Referenced by Macros().

The documentation for this class was generated from the following file:

- gdcmMacros.h

12.187 gdcm::network::MaximumLengthSub Class Reference

MaximumLengthSub.

```
#include <gdcmMaximumLengthSub.h>
```

Public Member Functions

- MaximumLengthSub ()
- uint32_t GetMaximumLength () const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetMaximumLength (uint32_t maximumlength)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.187.1 Detailed Description

MaximumLengthSub.

Annex D Table D.1-1 MAXIMUM LENGTH SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

or

Table D.1-2 Maximum length sub-item fields (A-ASSOCIATE-AC)

12.187.2 Constructor & Destructor Documentation

12.187.2.1 MaximumLengthSub()

```
gdcm::network::MaximumLengthSub::MaximumLengthSub ()
```

12.187.3 Member Function Documentation

12.187.3.1 GetMaximumLength()

```
uint32_t gdcm::network::MaximumLengthSub::GetMaximumLength () const  [inline]
```

12.187.3.2 Print()

```
void gdcm::network::MaximumLengthSub::Print (
            std::ostream & os) const
```

12.187.3.3 Read()

```
std::istream & gdcm::network::MaximumLengthSub::Read (
            std::istream & is)
```

12.187.3.4 SetMaximumLength()

```
void gdcm::network::MaximumLengthSub::SetMaximumLength (
            uint32_t maximumlength)
```

12.187.3.5 Size()

```
size_t gdcm::network::MaximumLengthSub::Size () const
```

12.187.3.6 Write()

```
const std::ostream & gdcm::network::MaximumLengthSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmMaximumLengthSub.h

12.188 gdcm::MD5 Class Reference

Class for MD5.

```
#include <gdcmMD5.h>
```

Static Public Member Functions

- static bool Compute (const char *buffer, size_t buf_len, char digest_str[33])
- static bool ComputeFile (const char *filename, char digest_str[33])

  Compute md5 from a file `filename`.

12.188.1 Detailed Description

Class for MD5.

Warning

this class is able to pick from two implementations:

1. a lightweight md5 implementation (when GDCM_BUILD_TESTING is turned ON)
2. the one from OpenSSL (when GDCM_USE_SYSTEM_OPENSSL is turned ON)

In all other cases it will return an error

12.188.2 Member Function Documentation

12.188.2.1 Compute()

```
bool gdcm::MD5::Compute (
            const char * buffer,
            size_t buf_len,
            char digest_str[33])  [static]
```

12.188.2.2 ComputeFile()

```
bool gdcm::MD5::ComputeFile (
            const char * filename,
            char digest_str[33])  [static]
```

Compute md5 from a file `filename`.

The documentation for this class was generated from the following file:

- gdcmMD5.h

12.189 gdcm::MEC_MR3 Class Reference

Class for MEC_MR3.

`#include <gdcmMEC_MR3.h>`

Static Public Member Functions

- static const PrivateTag & GetCanonMECMR3Tag ()
- static const PrivateTag & GetPMTFInformationDataTag ()
- static const PrivateTag & GetToshibaMECMR3Tag ()
- static bool Print (const char *src, size_t srclen)

12.189.1 Detailed Description

Class for MEC_MR3.

12.189.2 Member Function Documentation

12.189.2.1 GetCanonMECMR3Tag()

```
const PrivateTag & gdcm::MEC_MR3::GetCanonMECMR3Tag ()  [static]
```

Return the private tag used by CANON to store the MEC_MR3 data This is: PrivateTag(0x0029,0x90,"CANON_MEC↩
_MR3");

12.189.2.2 GetPMTFInformationDataTag()

```
const PrivateTag & gdcm::MEC_MR3::GetPMTFInformationDataTag ()  [static]
```

Return the private tag used by PMTF to store the MEC_MR3 data This is: PrivateTag(0x0029,0x90,"PMTF INFORMATION DATA");

12.189.2.3 GetToshibaMECMR3Tag()

```
const PrivateTag & gdcm::MEC_MR3::GetToshibaMECMR3Tag ()  [static]
```

Return the private tag used by TOSHIBA to store the MEC_MR3 data This is: PrivateTag(0x0029,0x90,"TOSHIBA_↩ MEC_MR3");

12.189.2.4 Print()

```
bool gdcm::MEC_MR3::Print (
            const char * src,
            size_t srclen)  [static]
```

The documentation for this class was generated from the following file:

- gdcmMEC_MR3.h

12.190 gdcm::MediaStorage Class Reference

MediaStorage.

```
#include <gdcmMediaStorage.h>
```

Public Types

- enum MSType {
  MediaStorageDirectoryStorage = 0 ,
  ComputedRadiographyImageStorage ,
  DigitalXRayImageStorageForPresentation ,
  DigitalXRayImageStorageForProcessing ,
  DigitalMammographyImageStorageForPresentation ,
  DigitalMammographyImageStorageForProcessing ,
  DigitalIntraoralXrayImageStorageForPresentation ,
  DigitalIntraoralXRayImageStorageForProcessing ,
  CTImageStorage ,
  EnhancedCTImageStorage ,
  UltrasoundImageStorageRetired ,
  UltrasoundImageStorage ,
  UltrasoundMultiFrameImageStorageRetired ,
  UltrasoundMultiFrameImageStorage ,
  MRImageStorage ,
  EnhancedMRImageStorage ,
  MRSpectroscopyStorage ,
  NuclearMedicineImageStorageRetired ,
  SecondaryCaptureImageStorage ,
  MultiframeSingleBitSecondaryCaptureImageStorage ,
  MultiframeGrayscaleByteSecondaryCaptureImageStorage ,
  MultiframeGrayscaleWordSecondaryCaptureImageStorage ,

MultiframeTrueColorSecondaryCaptureImageStorage ,
StandaloneOverlayStorage ,
StandaloneCurveStorage ,
LeadECGWaveformStorage ,
GeneralECGWaveformStorage ,
AmbulatoryECGWaveformStorage ,
HemodynamicWaveformStorage ,
CardiacElectrophysiologyWaveformStorage ,
BasicVoiceAudioWaveformStorage ,
StandaloneModalityLUTStorage ,
StandaloneVOILUTStorage ,
GrayscaleSoftcopyPresentationStateStorageSOPClass ,
XRayAngiographicImageStorage ,
XRayRadiofluoroscopingImageStorage ,
XRayAngiographicBiPlaneImageStorageRetired ,
NuclearMedicineImageStorage ,
RawDataStorage ,
SpacialRegistrationStorage ,
SpacialFiducialsStorage ,
PETImageStorage ,
RTImageStorage ,
RTDoseStorage ,
RTStructureSetStorage ,
RTPlanStorage ,
CSANonImageStorage ,
Philips3D ,
EnhancedSR ,
BasicTextSR ,
HardcopyGrayscaleImageStorage ,
ComprehensiveSR ,
DetachedStudyManagementSOPClass ,
EncapsulatedPDFStorage ,
EncapsulatedCDAStorage ,
StudyComponentManagementSOPClass ,
DetachedVisitManagementSOPClass ,
DetachedPatientManagementSOPClass ,
VideoEndoscopicImageStorage ,
GeneralElectricMagneticResonanceImageStorage ,
GEPrivate3DModelStorage ,
ToshibaPrivateDataStorage ,
MammographyCADSR ,
KeyObjectSelectionDocument ,
HangingProtocolStorage ,
ModalityPerformedProcedureStepSOPClass ,
PhilipsPrivateMRSyntheticImageStorage ,
VLPhotographicImageStorage ,
SegmentationStorage ,
RTIonPlanStorage ,
XRay3DAngiographicImageStorage ,
EnhancedXAImageStorage ,
RTIonBeamsTreatmentRecordStorage ,
SurfaceSegmentationStorage ,
VLWholeSlideMicroscopyImageStorage ,
RTTreatmentSummaryRecordStorage ,

EnhancedUSVolumeStorage ,
XRayRadiationDoseSR ,
VLEndoscopicImageStorage ,
BreastTomosynthesisImageStorage ,
FujiPrivateCRImageStorage ,
OphthalmicPhotography8BitImageStorage ,
OphthalmicTomographyImageStorage ,
VLMicroscopicImageStorage ,
EnhancedPETImageStorage ,
VideoPhotographicImageStorage ,
XRay3DCraniofacialImageStorage ,
IVOCTForPresentation ,
IVOCTForProcessing ,
LegacyConvertedEnhancedCTImageStorage ,
LegacyConvertedEnhancedMRImageStorage ,
LegacyConvertedEnhancedPETImageStorage ,
BreastProjectionXRayImageStorageForPresentation ,
BreastProjectionXRayImageStorageForProcessing ,
HardcopyColorImageStorage ,
EnhancedMRColorImageStorage ,
FujiPrivateMammoCRImageStorage ,
OphthalmicPhotography16BitImageStorage ,
VideoMicroscopicImageStorage ,
MS_END }

- enum ObjectType {
  NoObject = 0 ,
  Video ,
  Waveform ,
  Audio ,
  PDF ,
  URI ,
  Segmentation ,
  ObjectEnd }

Public Member Functions

- MediaStorage (MSType type=MS_END)
- const char * GetModality () const
- unsigned int GetModalityDimension () const
- const char * GetString () const

  Return the Media String of the object.
- void GuessFromModality (const char *modality, unsigned int dimension=2)
- bool IsUndefined () const
- operator MSType () const
- bool SetFromDataSet (DataSet const &ds)
- bool SetFromFile (File const &file)
- bool SetFromHeader (FileMetaInformation const &fmi)
- bool SetFromModality (DataSet const &ds)

Static Public Member Functions

- static const char * GetMSString (MSType ts)

  Return the Media String associated. Will return NULL for MS_END.
- static MSType GetMSType (const char *str)
- static unsigned int GetNumberOfModality ()
- static unsigned int GetNumberOfMSString ()
- static unsigned int GetNumberOfMSType ()
- static bool IsImage (MSType ts)

Protected Member Functions

- void SetFromSourceImageSequence (DataSet const &ds)

Friends

- std::ostream & operator<< (std::ostream &os, const MediaStorage &ms)

12.190.1 Detailed Description

MediaStorage.

Note

FIXME There should not be any notion of Image and/or PDF at that point Only the codec can answer yes I support this Media Storage or not... For instance an ImageCodec will answer yes to most of them while a PDFCodec will answer only for the Encapsulated PDF

See also

UIDs

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer
GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenerateStandardSOPClasses.cxx, GetSubSequenceData.cxx,
MpegVideoInfo.cs, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, StreamImageReaderTest.cxx,
TemplateEmptyImage.cxx, TestReader.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, and iU22tomultisc.cxx.

12.190.2 Member Enumeration Documentation

12.190.2.1 MSType

enum gdcm::MediaStorage::MSType

Enumerator

MediaStorageDirectoryStorage	
ComputedRadiographyImageStorage	
DigitalXRayImageStorageForPresentation	
DigitalXRayImageStorageForProcessing	
DigitalMammographyImageStorageForPresentation	
DigitalMammographyImageStorageForProcessing	
DigitalIntraoralXrayImageStorageForPresentation	
DigitalIntraoralXRayImageStorageForProcessing	
CTImageStorage	
EnhancedCTImageStorage	
UltrasoundImageStorageRetired	
UltrasoundImageStorage	
UltrasoundMultiFrameImageStorageRetired	
UltrasoundMultiFrameImageStorage	
MRImageStorage	
EnhancedMRImageStorage	
MRSpectroscopyStorage	
NuclearMedicineImageStorageRetired	
SecondaryCaptureImageStorage	
MultiframeSingleBitSecondaryCaptureImageStorage	
MultiframeGrayscaleByteSecondaryCaptureImageStorage	
MultiframeGrayscaleWordSecondaryCaptureImageStorage	
MultiframeTrueColorSecondaryCaptureImageStorage	
StandaloneOverlayStorage	
StandaloneCurveStorage	
LeadECGWaveformStorage	
GeneralECGWaveformStorage	
AmbulatoryECGWaveformStorage	
HemodynamicWaveformStorage	
CardiacElectrophysiologyWaveformStorage	
BasicVoiceAudioWaveformStorage	
StandaloneModalityLUTStorage	
StandaloneVOILUTStorage	

GrayscaleSoftcopyPresentationStateStorageSOPClass	
XRayAngiographicImageStorage	
XRayRadiofluoroscopingImageStorage	
XRayAngiographicBiPlaneImageStorageRetired	
NuclearMedicineImageStorage	
RawDataStorage	
SpacialRegistrationStorage	
SpacialFiducialsStorage	
PETImageStorage	
RTImageStorage	
RTDoseStorage	
RTStructureSetStorage	
RTPlanStorage	
CSANonImageStorage	
Philips3D	
EnhancedSR	
BasicTextSR	
HardcopyGrayscaleImageStorage	
ComprehensiveSR	
DetachedStudyManagementSOPClass	
EncapsulatedPDFStorage	
EncapsulatedCDAStorage	
StudyComponentManagementSOPClass	
DetachedVisitManagementSOPClass	
DetachedPatientManagementSOPClass	
VideoEndoscopicImageStorage	
GeneralElectricMagneticResonanceImageStorage	
GEPrivate3DModelStorage	
ToshibaPrivateDataStorage	
MammographyCADSR	
KeyObjectSelectionDocument	
HangingProtocolStorage	
ModalityPerformedProcedureStepSOPClass	
PhilipsPrivateMRSyntheticImageStorage	
VLPhotographicImageStorage	
SegmentationStorage	
RTIonPlanStorage	
XRay3DAngiographicImageStorage	
EnhancedXAImageStorage	

RTIonBeamsTreatmentRecordStorage	
SurfaceSegmentationStorage	
VLWholeSlideMicroscopyImageStorage	
RTTreatmentSummaryRecordStorage	
EnhancedUSVolumeStorage	
XRayRadiationDoseSR	
VLEndoscopicImageStorage	
BreastTomosynthesisImageStorage	
FujiPrivateCRImageStorage	
OphthalmicPhotography8BitImageStorage	
OphthalmicTomographyImageStorage	
VLMicroscopicImageStorage	
EnhancedPETImageStorage	
VideoPhotographicImageStorage	
XRay3DCraniofacialImageStorage	
IVOCTForPresentation	
IVOCTForProcessing	
LegacyConvertedEnhancedCTImageStorage	
LegacyConvertedEnhancedMRImageStorage	
LegacyConvertedEnhancedPETImageStorage	
BreastProjectionXRayImageStorageForPresentation	
BreastProjectionXRayImageStorageForProcessing	
HardcopyColorImageStorage	
EnhancedMRColorImageStorage	
FujiPrivateMammoCRImageStorage	
OphthalmicPhotography16BitImageStorage	
VideoMicroscopicImageStorage	
MS_END	

Examples

GenerateStandardSOPClasses.cxx, and MpegVideoInfo.cs.

12.190.2.2 ObjectType

```
enum gdcm::MediaStorage::ObjectType
```

Enumerator

NoObject	

Video	
Waveform	
Audio	
PDF	
URI	
Segmentation	
ObjectEnd	

12.190.3 Constructor & Destructor Documentation

12.190.3.1 MediaStorage()

```
gdcm::MediaStorage::MediaStorage (
            MSType type = MS_END)  [inline]
```

References MS_END.

Referenced by GuessFromModality(), and operator<<.

12.190.4 Member Function Documentation

12.190.4.1 GetModality()

```
const char * gdcm::MediaStorage::GetModality () const
```

12.190.4.2 GetModalityDimension()

```
unsigned int gdcm::MediaStorage::GetModalityDimension () const
```

12.190.4.3 GetMSString()

```
const char * gdcm::MediaStorage::GetMSString (
            MSType ts)  [static]
```

Return the Media String associated. Will return NULL for MS_END.

Examples

GenerateStandardSOPClasses.cxx.

Referenced by operator<<.

12.190.4.4 GetMSType()

```
MSType gdcm::MediaStorage::GetMSType (
            const char * str)  [static]
```

Examples

MetaImageMD5Activiz.cs, and TestReader.cxx.

12.190.4.5 GetNumberOfModality()

```
unsigned int gdcm::MediaStorage::GetNumberOfModality ()  [static]
```

12.190.4.6 GetNumberOfMSString()

```
unsigned int gdcm::MediaStorage::GetNumberOfMSString ()  [static]
```

12.190.4.7 GetNumberOfMSType()

```
unsigned int gdcm::MediaStorage::GetNumberOfMSType ()  [static]
```

12.190.4.8 GetString()

```
const char * gdcm::MediaStorage::GetString () const
```

Return the Media String of the object.

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GetSubSequenceData.cxx, MpegVideoInfo.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, and iU22tomultisc.cxx.

12.190.4.9 GuessFromModality()

```
void gdcm::MediaStorage::GuessFromModality (
            const char * modality,
            unsigned int dimension = 2)
```

References MediaStorage(), and operator<<.

12.190.4.10 IsImage()

```
bool gdcm::MediaStorage::IsImage (
            MSType ts)  [static]
```

Returns whether DICOM has a Pixel Data element (7fe0,0010)

Warning

MRSpectroscopyStorage could be image but are not

Examples

MetaImageMD5Activiz.cs.

12.190.4.11 IsUndefined()

```
bool gdcm::MediaStorage::IsUndefined () const  [inline]
```

Examples

TestReader.cxx.

References MS_END.

12.190.4.12 operator MSType()

```
gdcm::MediaStorage::operator MSType () const  [inline]
```

12.190.4.13 SetFromDataSet()

```
bool gdcm::MediaStorage::SetFromDataSet (
            DataSet const & ds)
```

Advanced user only (functions should be protected level...) Those function are lower level than SetFromFile

12.190.4.14 SetFromFile()

```
bool gdcm::MediaStorage::SetFromFile (
            File const & file)
```

Attempt to set the MediaStorage from a file: WARNING: When no MediaStorage & Modality are found BUT a PixelData element is found then MediaStorage is set to the default SecondaryCaptureImageStorage (return value is false in this case)

Examples

ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, TestReader.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.190.4.15 SetFromHeader()

```
bool gdcm::MediaStorage::SetFromHeader (
            FileMetaInformation const & fmi)
```

12.190.4.16 SetFromModality()

```
bool gdcm::MediaStorage::SetFromModality (
            DataSet const & ds)
```

12.190.4.17 SetFromSourceImageSequence()

```
void gdcm::MediaStorage::SetFromSourceImageSequence (
            DataSet const & ds)  [protected]
```

12.190.5 Friends And Related Symbol Documentation

12.190.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const MediaStorage & ms)  [friend]
```

References MediaStorage(), GetMSString(), and operator<<.

Referenced by GuessFromModality(), and operator<<.

The documentation for this class was generated from the following file:

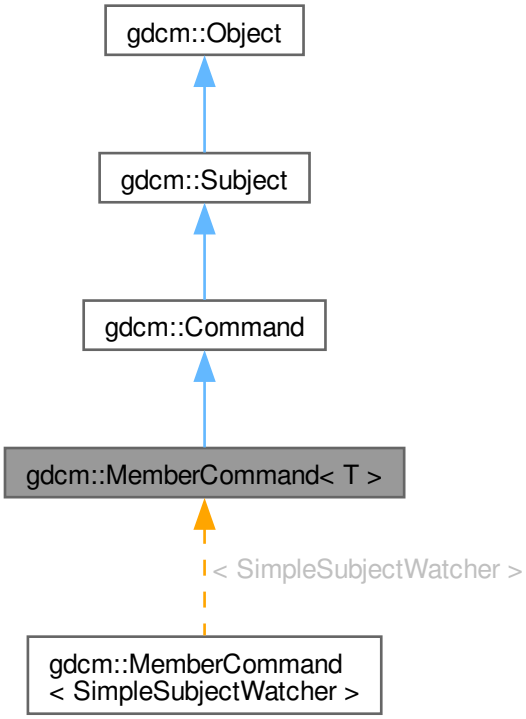
- gdcmMediaStorage.h

12.191 gdcm::MemberCommand< T > Class Template Reference

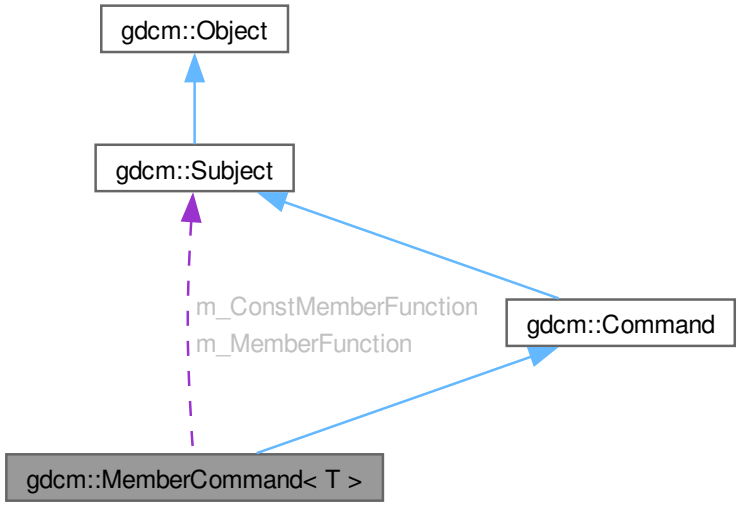
Command subclass that calls a pointer to a member function.

```
#include <gdcmCommand.h>
```

Inheritance diagram for gdcm::MemberCommand< T >:



Collaboration diagram for gdcm::MemberCommand< T >:



Public Types

- typedef MemberCommand Self
- typedef void(T::* TConstMemberFunctionPointer) (const Subject *, const Event &)
- typedef void(T::* TMemberFunctionPointer) (Subject *, const Event &)

Public Member Functions

- MemberCommand (const Self &)=delete
- void Execute (const Subject *caller, const Event &event) override
- void Execute (Subject *caller, const Event &event) override
- void operator= (const Self &)=delete
- void SetCallbackFunction (T *object, TConstMemberFunctionPointer memberFunction)
- void SetCallbackFunction (T *object, TMemberFunctionPointer memberFunction)

Public Member Functions inherited from gdcm::Command

- Command (const Command &)=delete
- void operator= (const Command &)=delete

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< MemberCommand > New ()

Protected Member Functions

- MemberCommand ()
- ~MemberCommand () override=default

Protected Member Functions inherited from gdcm::Command

- Command ()
- ~Command () override

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- TConstMemberFunctionPointer m_ConstMemberFunction
- TMemberFunctionPointer m_MemberFunction
- T * m_This

12.191.1 Detailed Description

template<class T>
class gdcm::MemberCommand< T >

Command subclass that calls a pointer to a member function.

MemberCommand calls a pointer to a member function with the same arguments as Execute on Command.

12.191.2 Member Typedef Documentation

12.191.2.1 Self

```
template<class T>
typedef MemberCommand gdcm::MemberCommand< T >::Self
```

Standard class typedefs.

12.191.2.2 TConstMemberFunctionPointer

```
template<class T>
typedef void(T::* gdcm::MemberCommand< T >::TConstMemberFunctionPointer) (const Subject *, const
Event &)
```

12.191.2.3 TMemberFunctionPointer

```
template<class T>
typedef void(T::* gdcm::MemberCommand< T >::TMemberFunctionPointer) (Subject *, const Event &)
```

pointer to a member function that takes a Subject* and the event

12.191.3 Constructor & Destructor Documentation

12.191.3.1 MemberCommand() [1/2]

```
template<class T>
gdcm::MemberCommand< T >::MemberCommand (
            const Self & )  [delete]
```

12.191.3.2 MemberCommand() [2/2]

```
template<class T>
gdcm::MemberCommand< T >::MemberCommand ()  [inline], [protected]
```

12.191.3.3 ~MemberCommand()

```
template<class T>
gdcm::MemberCommand< T >::~MemberCommand ()  [override], [protected], [default]
```

12.191.4 Member Function Documentation

12.191.4.1 Execute() [1/2]

```
template<class T>
void gdcm::MemberCommand< T >::Execute (
            const Subject * caller,
            const Event & event)  [inline], [override], [virtual]
```

Invoke the member function with a const object.

Implements gdcm::Command.

12.191.4.2 Execute() [2/2]

```
template<class T>
void gdcm::MemberCommand< T >::Execute (
            Subject * caller,
            const Event & event)  [inline], [override], [virtual]
```

Invoke the member function.

Implements gdcm::Command.

12.191.4.3 New()

```
template<class T>
SmartPointer< MemberCommand > gdcm::MemberCommand< T >::New ()  [inline], [static]
```

Method for creation through the object factory.

12.191.4.4 operator=()

```
template<class T>
void gdcm::MemberCommand< T >::operator= (
            const Self & )  [delete]
```

12.191.4.5 SetCallbackFunction() [1/2]

```
template<class T>
void gdcm::MemberCommand< T >::SetCallbackFunction (
            T * object,
            TConstMemberFunctionPointer memberFunction)  [inline]
```

12.191.4.6 SetCallbackFunction() [2/2]

```
template<class T>
void gdcm::MemberCommand< T >::SetCallbackFunction (
            T * object,
            TMemberFunctionPointer memberFunction)  [inline]
```

Run-time type information (and related methods). Set the callback function along with the object that it will be invoked on.

12.191.5 Member Data Documentation

12.191.5.1 m_ConstMemberFunction

```
template<class T>
TConstMemberFunctionPointer gdcm::MemberCommand< T >::m_ConstMemberFunction  [protected]
```

12.191.5.2 m_MemberFunction

```
template<class T>
TMemberFunctionPointer gdcm::MemberCommand< T >::m_MemberFunction  [protected]
```

12.191.5.3 m_This

```
template<class T>
T* gdcm::MemberCommand< T >::m_This  [protected]
```

The documentation for this class was generated from the following file:

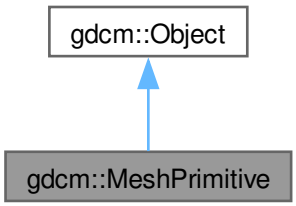
- gdcmCommand.h

12.192 gdcm::MeshPrimitive Class Reference

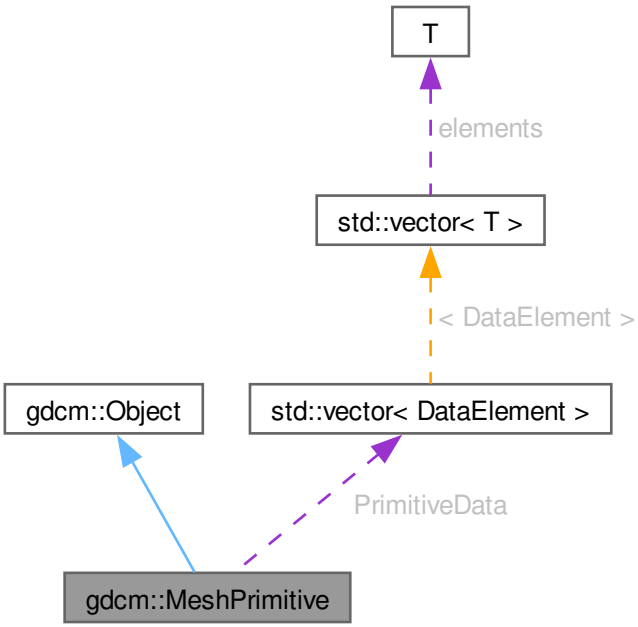
This class defines surface mesh primitives.

`#include <gdcmMeshPrimitive.h>`

Inheritance diagram for gdcm::MeshPrimitive:



Collaboration diagram for gdcm::MeshPrimitive:



Public Types

- enum MPType {
  VERTEX = 0 ,
  EDGE ,
  TRIANGLE ,
  TRIANGLE_STRIP ,
  TRIANGLE_FAN ,
  LINE ,
  FACET ,
  MPType_END }

  This enumeration defines primitive types.
- typedef std::vector< DataElement > PrimitivesData

Public Member Functions

- MeshPrimitive ()
- ~MeshPrimitive () override
- void AddPrimitiveData (DataElement const &de)
- unsigned int GetNumberOfPrimitivesData () const
- DataElement & GetPrimitiveData ()
- const DataElement & GetPrimitiveData () const
- DataElement & GetPrimitiveData (const unsigned int idx)
- const DataElement & GetPrimitiveData (const unsigned int idx) const
- PrimitivesData & GetPrimitivesData ()
- const PrimitivesData & GetPrimitivesData () const
- MPType GetPrimitiveType () const
- void SetPrimitiveData (const unsigned int idx, DataElement const &de)
- void SetPrimitiveData (DataElement const &de)
- void SetPrimitivesData (PrimitivesData const &DEs)
- void SetPrimitiveType (const MPType type)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static MPType GetMPType (const char *type)
- static const char * GetMPTypeString (const MPType type)

Protected Attributes

- PrimitivesData PrimitiveData
- MPType PrimitiveType

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.192.1 Detailed Description

This class defines surface mesh primitives.

It is designed from surface mesh primitives macro.

See also

PS 3.3 C.27.4

12.192.2 Member Typedef Documentation

12.192.2.1 PrimitivesData

```
typedef std::vector< DataElement > gdcm::MeshPrimitive::PrimitivesData
```

12.192.3 Member Enumeration Documentation

12.192.3.1 MPType

```
enum gdcm::MeshPrimitive::MPType
```

This enumeration defines primitive types.

See also

PS 3.3 C.27.4.1

Enumerator

VERTEX	
EDGE	
TRIANGLE	
TRIANGLE_STRIP	
TRIANGLE_FAN	
LINE	
FACET	
MPType_END	

12.192.4 Constructor & Destructor Documentation

12.192.4.1 MeshPrimitive()

```
gdcm::MeshPrimitive::MeshPrimitive ()
```

12.192.4.2 ~MeshPrimitive()

```
gdcm::MeshPrimitive::~MeshPrimitive ()  [override]
```

12.192.5 Member Function Documentation

12.192.5.1 AddPrimitiveData()

```
void gdcm::MeshPrimitive::AddPrimitiveData (
            DataElement const & de)
```

12.192.5.2 GetMPType()

```
MPType gdcm::MeshPrimitive::GetMPType (
            const char * type)  [static]
```

12.192.5.3 GetMPTypeString()

```
const char * gdcm::MeshPrimitive::GetMPTypeString (
            const MPType type)  [static]
```

12.192.5.4 GetNumberOfPrimitivesData()

```
unsigned int gdcm::MeshPrimitive::GetNumberOfPrimitivesData () const
```

12.192.5.5 GetPrimitiveData() [1/4]

```
DataElement & gdcm::MeshPrimitive::GetPrimitiveData ()
```

12.192.5.6 GetPrimitiveData() [2/4]

```
const DataElement & gdcm::MeshPrimitive::GetPrimitiveData () const
```

12.192.5.7 GetPrimitiveData() [3/4]

```
DataElement & gdcm::MeshPrimitive::GetPrimitiveData (
            const unsigned int idx)
```

12.192.5.8 GetPrimitiveData() [4/4]

```
const DataElement & gdcm::MeshPrimitive::GetPrimitiveData (
            const unsigned int idx) const
```

12.192.5.9 GetPrimitivesData() [1/2]

```
PrimitivesData & gdcm::MeshPrimitive::GetPrimitivesData ()
```

12.192.5.10 GetPrimitivesData() [2/2]

```
const PrimitivesData & gdcm::MeshPrimitive::GetPrimitivesData () const
```

12.192.5.11 GetPrimitiveType()

```
MPType gdcm::MeshPrimitive::GetPrimitiveType () const
```

12.192.5.12 SetPrimitiveData() [1/2]

```
void gdcm::MeshPrimitive::SetPrimitiveData (
            const unsigned int idx,
            DataElement const & de)
```

12.192.5.13 SetPrimitiveData() [2/2]

```
void gdcm::MeshPrimitive::SetPrimitiveData (
            DataElement const & de)
```

12.192.5.14 SetPrimitivesData()

```
void gdcm::MeshPrimitive::SetPrimitivesData (
            PrimitivesData const & DEs)
```

12.192.5.15 SetPrimitiveType()

```
void gdcm::MeshPrimitive::SetPrimitiveType (
            const MPType type)
```

12.192.6 Member Data Documentation

12.192.6.1 PrimitiveData

```
PrimitivesData gdcm::MeshPrimitive::PrimitiveData  [protected]
```

12.192.6.2 PrimitiveType

```
MPType gdcm::MeshPrimitive::PrimitiveType  [protected]
```

The documentation for this class was generated from the following file:

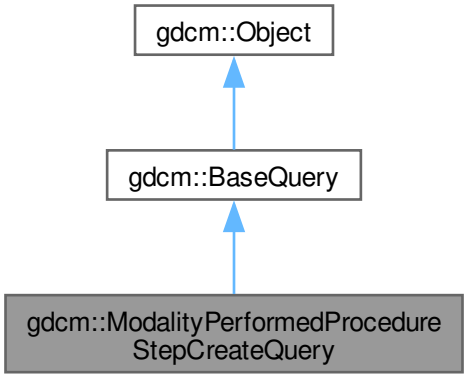
- gdcmMeshPrimitive.h

12.193 gdcm::ModalityPerformedProcedureStepCreateQuery Class Reference

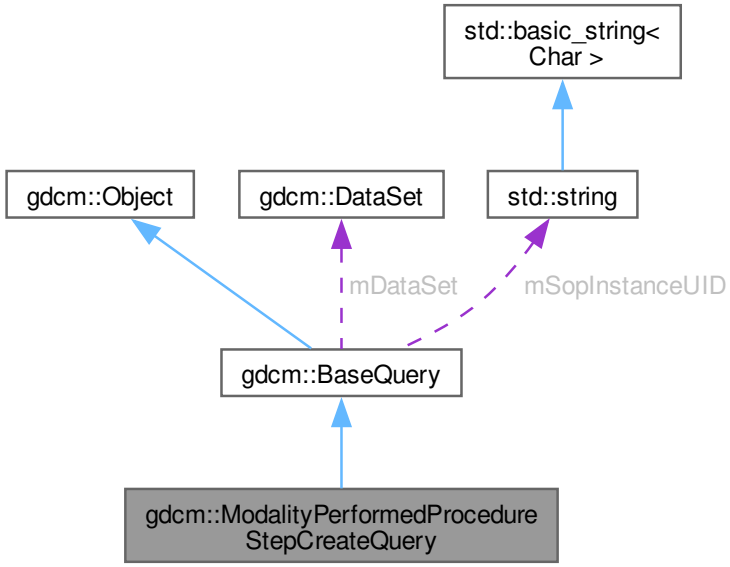
ModalityPerformedProcedureStepCreateQuery.

```
#include <gdcmModalityPerformedProcedureStepCreateQuery.h>
```

Inheritance diagram for gdcm::ModalityPerformedProcedureStepCreateQuery:



Collaboration diagram for gdcm::ModalityPerformedProcedureStepCreateQuery:



Public Member Functions

- ModalityPerformedProcedureStepCreateQuery (const std::string &iSopInstanceUID)

- UIDs::TSName GetAbstractSyntaxUID () const override
- gdcm::DataSet GetRequiredDataSet () const
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.193.1 Detailed Description

ModalityPerformedProcedureStepCreateQuery.

contains: the class which will produce a dataset for n-create for Modality Performed Procedure Step sop class

12.193.2 Constructor & Destructor Documentation

12.193.2.1 ModalityPerformedProcedureStepCreateQuery()

```
gdcm::ModalityPerformedProcedureStepCreateQuery::ModalityPerformedProcedureStepCreateQuery (
            const std::string & iSopInstanceUID)
```

12.193.3 Member Function Documentation

12.193.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::ModalityPerformedProcedureStepCreateQuery::GetAbstractSyntaxUID () const  [override],
[virtual]
```

Implements gdcm::BaseQuery.

12.193.3.2 GetRequiredDataSet()

```
gdcm::DataSet gdcm::ModalityPerformedProcedureStepCreateQuery::GetRequiredDataSet () const
```

12.193.3.3 ValidateQuery()

```
bool gdcm::ModalityPerformedProcedureStepCreateQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.193.4 Friends And Related Symbol Documentation

12.193.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

The documentation for this class was generated from the following file:

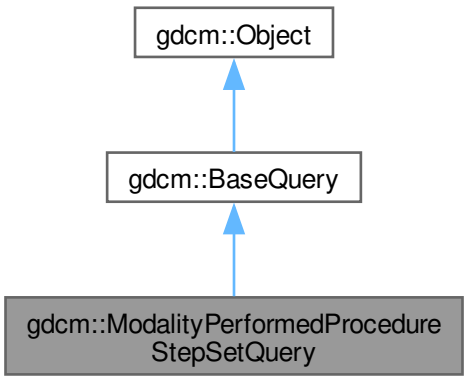
- gdcmModalityPerformedProcedureStepCreateQuery.h

12.194 gdcm::ModalityPerformedProcedureStepSetQuery Class Reference

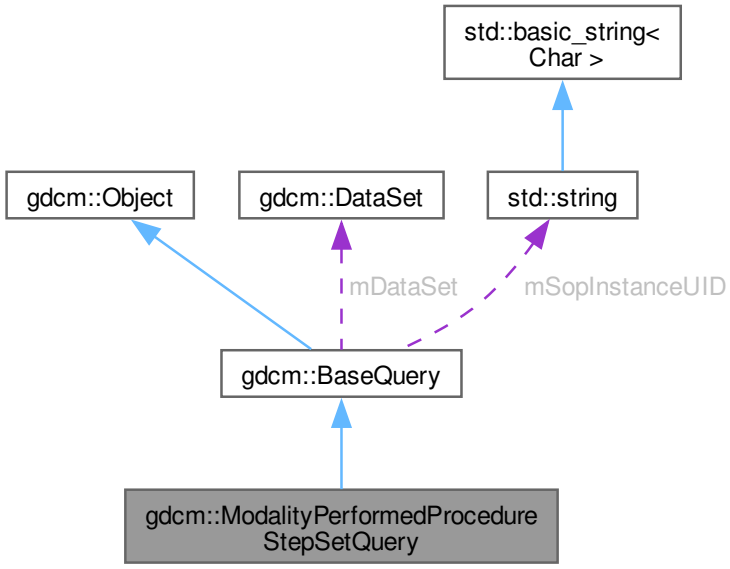
ModalityPerformedProcedureStepSetQuery.

```
#include <gdcmModalityPerformedProcedureStepSetQuery.h>
```

Inheritance diagram for gdcm::ModalityPerformedProcedureStepSetQuery:



Collaboration diagram for gdcm::ModalityPerformedProcedureStepSetQuery:



Public Member Functions

- ModalityPerformedProcedureStepSetQuery (const std::string &iSopInstanceUID)
- UIDs::TSName GetAbstractSyntaxUID () const override
- gdcm::DataSet GetRequiredDataSet () const
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.194.1 Detailed Description

ModalityPerformedProcedureStepSetQuery.

contains: the class which will produce a dataset for n-set for Modality Performed Procedure Step sop class

12.194.2 Constructor & Destructor Documentation

12.194.2.1 ModalityPerformedProcedureStepSetQuery()

```
gdcm::ModalityPerformedProcedureStepSetQuery::ModalityPerformedProcedureStepSetQuery (
            const std::string & iSopInstanceUID)
```

12.194.3 Member Function Documentation

12.194.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::ModalityPerformedProcedureStepSetQuery::GetAbstractSyntaxUID () const  [override],
[virtual]
```

Implements gdcm::BaseQuery.

12.194.3.2 GetRequiredDataSet()

```
gdcm::DataSet gdcm::ModalityPerformedProcedureStepSetQuery::GetRequiredDataSet () const
```

12.194.3.3 ValidateQuery()

```
bool gdcm::ModalityPerformedProcedureStepSetQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.194.4 Friends And Related Symbol Documentation

12.194.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

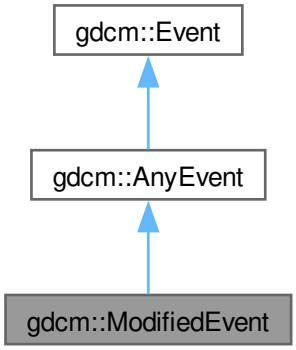
The documentation for this class was generated from the following file:

- gdcmModalityPerformedProcedureStepSetQuery.h

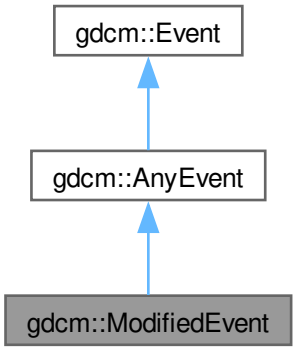
12.195 gdcm::ModifiedEvent Class Reference

`#include <gdcmEvent.h>`

Inheritance diagram for gdcm::ModifiedEvent:



Collaboration diagram for gdcm::ModifiedEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()

- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.196 gdcm::Module Class Reference

Class for representing a Module.

`#include <gdcmModule.h>`

Public Types

- typedef std::vector< std::string > ArrayIncludeMacrosType
- typedef std::map< Tag, ModuleEntry > MapModuleEntry

Public Member Functions

- Module ()=default
- void AddMacro (const char *include)
- void AddModuleEntry (const Tag &tag, const ModuleEntry &module)

  Will add a ModuleEntry directly at root-level. See Macro for nested-included level.
- void Clear ()
- bool FindModuleEntryInMacros (Macros const &macros, const Tag &tag) const
- const ModuleEntry & GetModuleEntryInMacros (Macros const &macros, const Tag &tag) const
- const char * GetName () const
- void SetName (const char *name)
- bool Verify (const DataSet &ds, Usage const &usage) const

Friends

- std::ostream & operator<< (std::ostream &_os, const Module &_val)

12.196.1 Detailed Description

Class for representing a Module.

Note

Module: A set of Attributes within an Information Entity or Normalized IOD which are logically related to each other.

See also

Macro

Examples

TraverseModules.cxx.

12.196.2 Member Typedef Documentation

12.196.2.1 ArrayIncludeMacrosType

```
typedef std::vector<std::string> gdcm::Module::ArrayIncludeMacrosType
```

12.196.2.2 MapModuleEntry

```
typedef std::map<Tag, ModuleEntry> gdcm::Module::MapModuleEntry
```

12.196.3 Constructor & Destructor Documentation

12.196.3.1 Module()

```
gdcm::Module::Module ()  [default]
```

References Module(), and operator<<.

Referenced by Module(), and operator<<.

12.196.4 Member Function Documentation

12.196.4.1 AddMacro()

```
void gdcm::Module::AddMacro (
            const char * include)  [inline]
```

12.196.4.2 AddModuleEntry()

```
void gdcm::Module::AddModuleEntry (
            const Tag & tag,
            const ModuleEntry & module)  [inline]
```

Will add a ModuleEntry directly at root-level. See Macro for nested-included level.

12.196.4.3 Clear()

```
void gdcm::Module::Clear ()  [inline]
```

12.196.4.4 FindModuleEntryInMacros()

```
bool gdcm::Module::FindModuleEntryInMacros (
            Macros const & macros,
            const Tag & tag) const
```

Find or Get a ModuleEntry. ModuleEntry are either search are root-level or within nested-macro included in module.

Examples

TraverseModules.cxx.

12.196.4.5 GetModuleEntryInMacros()

```
const ModuleEntry & gdcm::Module::GetModuleEntryInMacros (
            Macros const & macros,
            const Tag & tag) const
```

12.196.4.6 GetName()

```
const char * gdcm::Module::GetName () const  [inline]
```

12.196.4.7 SetName()

```
void gdcm::Module::SetName (
            const char * name)  [inline]
```

12.196.4.8 Verify()

```
bool gdcm::Module::Verify (
            const DataSet & ds,
            Usage const & usage) const
```

12.196.5 Friends And Related Symbol Documentation

12.196.5.1 operator<<

```
std::ostream & operator<< (
             std::ostream & _os,
             const Module & _val)  [friend]
```

References Module().

Referenced by Module().

The documentation for this class was generated from the following file:

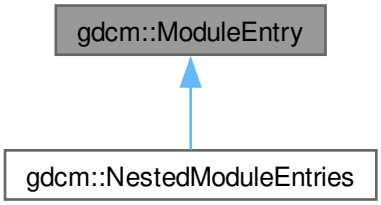
- gdcmModule.h

12.197 gdcm::ModuleEntry Class Reference

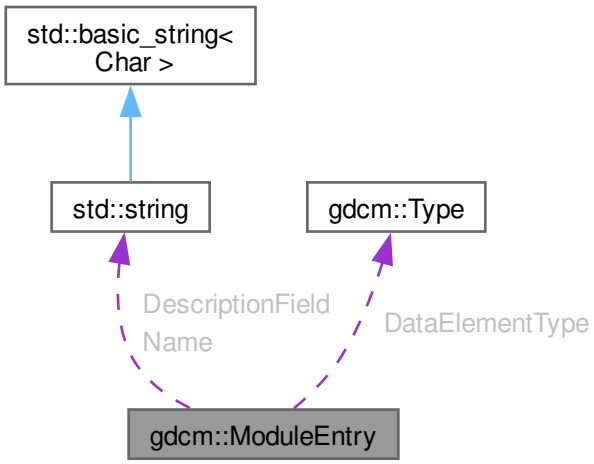
Class for representing a ModuleEntry.

`#include <gdcmModuleEntry.h>`

Inheritance diagram for gdcm::ModuleEntry:



Collaboration diagram for gdcm::ModuleEntry:



Public Types

- typedef std::string Description

Public Member Functions

- ModuleEntry (const char *name="", const char *type="3", const char *description="")
- virtual ~ModuleEntry ()=default
- const Description & GetDescription () const
- const char * GetName () const
- const Type & GetType () const
- void SetDescription (const char *d)
- void SetName (const char *name)
- void SetType (const Type &type)

Protected Attributes

- Type DataElementType
- Description DescriptionField
- std::string Name

Friends

- std::ostream & operator<< (std::ostream &_os, const ModuleEntry &_val)

12.197.1 Detailed Description

Class for representing a ModuleEntry.

Note

bla

See also

DictEntry

Examples

TraverseModules.cxx.

12.197.2 Member Typedef Documentation

12.197.2.1 Description

```
typedef std::string gdcm::ModuleEntry::Description
```

12.197.3 Constructor & Destructor Documentation

12.197.3.1 ModuleEntry()

```
gdcm::ModuleEntry::ModuleEntry (
            const char * name = "",
            const char * type = "3",
            const char * description = "")  [inline]
```

References DataElementType, DescriptionField, gdcm::Type::GetTypeType(), and Name.

Referenced by gdcm::NestedModuleEntries::NestedModuleEntries(), ~ModuleEntry(), gdcm::NestedModuleEntries::AddModuleEntry(), gdcm::NestedModuleEntries::GetModuleEntry(), gdcm::NestedModuleEntries::GetModuleEntry(), and operator<<.

12.197.3.2 ~ModuleEntry()

```
virtual gdcm::ModuleEntry::~ModuleEntry ()  [virtual], [default]
```

References ModuleEntry(), and operator<<.

12.197.4 Member Function Documentation

12.197.4.1 GetDescription()

```
const Description & gdcm::ModuleEntry::GetDescription () const  [inline]
```

References DescriptionField.

12.197.4.2 GetName()

```
const char * gdcm::ModuleEntry::GetName () const  [inline]
```

References Name.

12.197.4.3 GetType()

```
const Type & gdcm::ModuleEntry::GetType () const  [inline]
```

Examples

TraverseModules.cxx.

References DataElementType.

12.197.4.4 SetDescription()

```
void gdcm::ModuleEntry::SetDescription (
            const char * d)  [inline]
```

References DescriptionField.

12.197.4.5 SetName()

```
void gdcm::ModuleEntry::SetName (
            const char * name)  [inline]
```

References Name.

12.197.4.6 SetType()

```
void gdcm::ModuleEntry::SetType (
            const Type & type)  [inline]
```

References DataElementType.

12.197.5 Friends And Related Symbol Documentation

12.197.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const ModuleEntry & _val)  [friend]
```

References ModuleEntry(), DataElementType, DescriptionField, and Name.

Referenced by ~ModuleEntry().

12.197.6 Member Data Documentation

12.197.6.1 DataElementType

```
Type gdcm::ModuleEntry::DataElementType  [protected]
```

Referenced by ModuleEntry(), GetType(), operator<<, gdcm::NestedModuleEntries::operator<<, and SetType().

12.197.6.2 DescriptionField

```
Description gdcm::ModuleEntry::DescriptionField  [protected]
```

Referenced by ModuleEntry(), GetDescription(), operator<<, gdcm::NestedModuleEntries::operator<<, and SetDescription().

12.197.6.3 Name

```
std::string gdcm::ModuleEntry::Name  [protected]
```

Referenced by ModuleEntry(), GetName(), operator<<, gdcm::NestedModuleEntries::operator<<, and SetName().

The documentation for this class was generated from the following file:

- gdcmModuleEntry.h

12.198 gdcm::Modules Class Reference

Class for representing a Modules.

```
#include <gdcmModules.h>
```

Public Types

- typedef std::map< std::string, Module > ModuleMapType

Public Member Functions

- Modules ()=default
- void AddModule (const char *ref, const Module &module)
- void Clear ()
- const Module & GetModule (const char *name) const
- bool IsEmpty () const

Friends

- std::ostream & operator<< (std::ostream &_os, const Modules &_val)

12.198.1 Detailed Description

Class for representing a Modules.

Note

bla

See also

Module

Examples

TraverseModules.cxx.

12.198.2 Member Typedef Documentation

12.198.2.1 ModuleMapType

```
typedef std::map<std::string, Module> gdcm::Modules::ModuleMapType
```

12.198.3 Constructor & Destructor Documentation

12.198.3.1 Modules()

```
gdcm::Modules::Modules ()  [default]
```

References Modules(), and operator<<.

Referenced by Modules(), and operator<<.

12.198.4 Member Function Documentation

12.198.4.1 AddModule()

```
void gdcm::Modules::AddModule (
            const char * ref,
            const Module & module)  [inline]
```

References gdcm_assert.

12.198.4.2 Clear()

```
void gdcm::Modules::Clear ()  [inline]
```

12.198.4.3 GetModule()

```
const Module & gdcm::Modules::GetModule (
            const char * name) const  [inline]
```

Examples

TraverseModules.cxx.

References gdcm_assert.

12.198.4.4 IsEmpty()

```
bool gdcm::Modules::IsEmpty () const  [inline]
```

12.198.5 Friends And Related Symbol Documentation

12.198.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Modules & _val)  [friend]
```

References Modules().

Referenced by Modules().

The documentation for this class was generated from the following file:

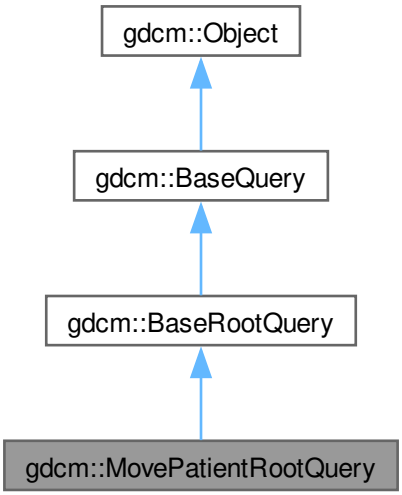
- gdcmModules.h

12.199 gdcm::MovePatientRootQuery Class Reference

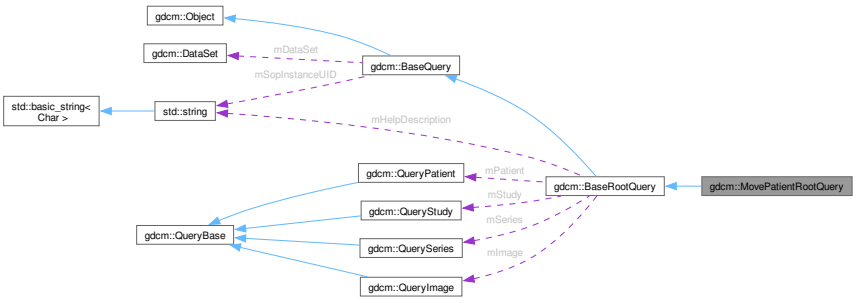
MovePatientRootQuery.

`#include <gdcmMovePatientRootQuery.h>`

Inheritance diagram for gdcm::MovePatientRootQuery:



Collaboration diagram for gdcm::MovePatientRootQuery:



Public Member Functions

- MovePatientRootQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.199.1 Detailed Description

MovePatientRootQuery.

contains: the class which will produce a dataset for c-move with patient root

12.199.2 Constructor & Destructor Documentation

12.199.2.1 MovePatientRootQuery()

```
gdcm::MovePatientRootQuery::MovePatientRootQuery ()
```

12.199.3 Member Function Documentation

12.199.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::MovePatientRootQuery::GetAbstractSyntaxUID () const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.199.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::MovePatientRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

12.199.3.3 InitializeDataSet()

```
void gdcm::MovePatientRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

12.199.3.4 ValidateQuery()

```
bool gdcm::MovePatientRootQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseRootQuery.

12.199.4 Friends And Related Symbol Documentation

12.199.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

The documentation for this class was generated from the following file:

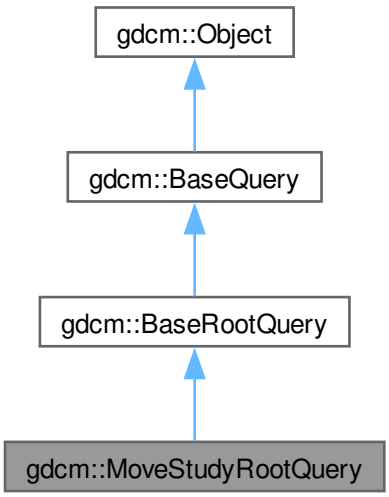
- gdcmMovePatientRootQuery.h

12.200 gdcm::MoveStudyRootQuery Class Reference

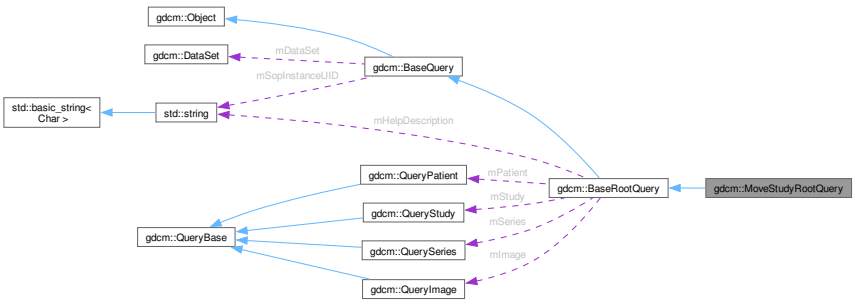
MoveStudyRootQuery.

`#include <gdcmMoveStudyRootQuery.h>`

Inheritance diagram for gdcm::MoveStudyRootQuery:



Collaboration diagram for gdcm::MoveStudyRootQuery:



Public Member Functions

- MoveStudyRootQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.200.1 Detailed Description

MoveStudyRootQuery.

contains: the class which will produce a dataset for C-MOVE with study root

12.200.2 Constructor & Destructor Documentation

12.200.2.1 MoveStudyRootQuery()

```
gdcm::MoveStudyRootQuery::MoveStudyRootQuery ()
```

12.200.3 Member Function Documentation

12.200.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::MoveStudyRootQuery::GetAbstractSyntaxUID () const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.200.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::MoveStudyRootQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

12.200.3.3 InitializeDataSet()

```
void gdcm::MoveStudyRootQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

12.200.3.4 ValidateQuery()

```
bool gdcm::MoveStudyRootQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseRootQuery.

12.200.4 Friends And Related Symbol Documentation

12.200.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

The documentation for this class was generated from the following file:

- gdcmMoveStudyRootQuery.h

12.201 gdcm::MrProtocol Class Reference

Class for MrProtocol.

`#include <gdcmMrProtocol.h>`

Classes

- struct Slice
- struct SliceArray
- struct Vector3

Public Member Functions

- MrProtocol ()
- ~MrProtocol ()
- bool FindMrProtocolByName (const char *name) const
- const char * GetMrProtocolByName (const char *name) const
- bool GetSliceArray (MrProtocol::SliceArray &sa) const
- int GetVersion () const
- bool Load (const ByteValue *bv, const char *str, int version)
- void Print (std::ostream &os) const

Friends

- std::ostream & operator<< (std::ostream &_os, const MrProtocol &d)

12.201.1 Detailed Description

Class for MrProtocol.

Examples

MrProtocol.cxx.

12.201.2 Constructor & Destructor Documentation

12.201.2.1 MrProtocol()

`gdcm::MrProtocol::MrProtocol ()`

Referenced by operator<<.

12.201.2.2 ~MrProtocol()

```
gdcm::MrProtocol::~MrProtocol ()
```

12.201.3 Member Function Documentation

12.201.3.1 FindMrProtocolByName()

```
bool gdcm::MrProtocol::FindMrProtocolByName (
            const char * name) const
```

12.201.3.2 GetMrProtocolByName()

```
const char * gdcm::MrProtocol::GetMrProtocolByName (
            const char * name) const
```

12.201.3.3 GetSliceArray()

```
bool gdcm::MrProtocol::GetSliceArray (
            MrProtocol::SliceArray & sa) const
```

12.201.3.4 GetVersion()

```
int gdcm::MrProtocol::GetVersion () const
```

12.201.3.5 Load()

```
bool gdcm::MrProtocol::Load (
            const ByteValue * bv,
            const char * str,
            int version)
```

12.201.3.6 Print()

```
void gdcm::MrProtocol::Print (
            std::ostream & os) const
```

Referenced by operator<<.

12.201.4 Friends And Related Symbol Documentation

12.201.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const MrProtocol & d)  [friend]
```

References MrProtocol(), and Print().

The documentation for this class was generated from the following file:

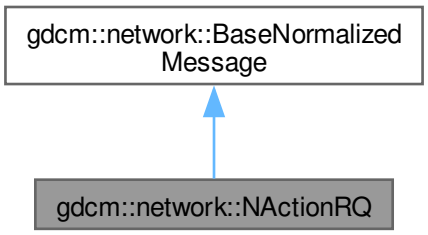
- gdcmMrProtocol.h

12.202 gdcm::network::NActionRQ Class Reference

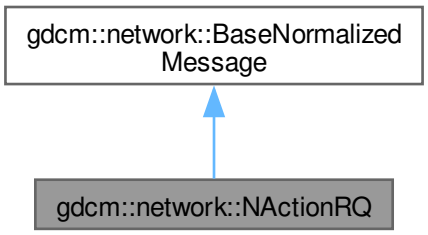
NActionRQ.

`#include <gdcmNActionMessages.h>`

Inheritance diagram for gdcm::network::NActionRQ:



Collaboration diagram for gdcm::network::NActionRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

12.202.1 Detailed Description

NActionRQ.

this file defines the messages for the NAction action

12.202.2 Member Function Documentation

12.202.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NActionRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

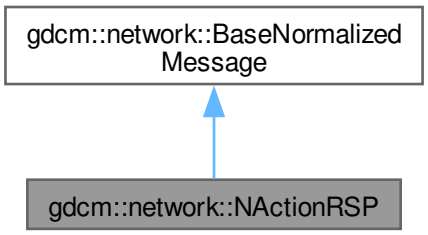
- gdcmNActionMessages.h

12.203 gdcm::network::NActionRSP Class Reference

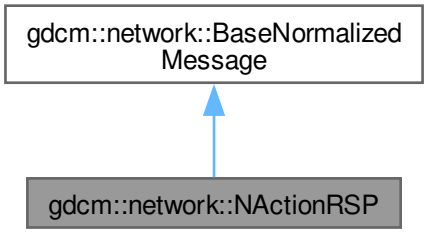
NActionRSP this file defines the messages for the NAction action.

```
#include <gdcmNActionMessages.h>
```

Inheritance diagram for gdcm::network::NActionRSP:



Collaboration diagram for gdcm::network::NActionRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.203.1 Detailed Description

NActionRSP this file defines the messages for the NAction action.

12.203.2 Member Function Documentation

12.203.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NActionRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

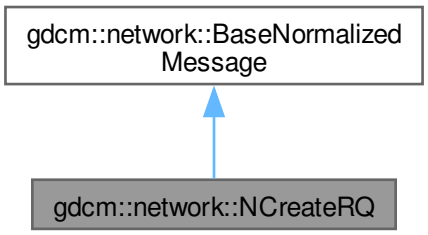
- gdcmNActionMessages.h

12.204 gdcm::network::NCreateRQ Class Reference

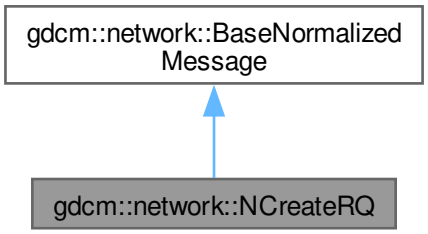
NCreateRQ.

`#include <gdcmNCreateMessages.h>`

Inheritance diagram for gdcm::network::NCreateRQ:



Collaboration diagram for gdcm::network::NCreateRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

12.204.1 Detailed Description

NCreateRQ.

this file defines the messages for the ncreate action

12.204.2 Member Function Documentation

12.204.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NCreateRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

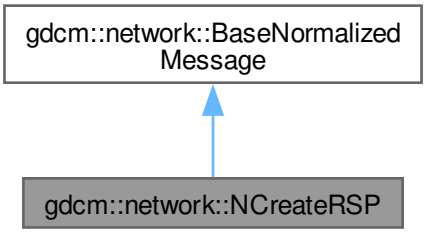
- gdcmNCreateMessages.h

12.205 gdcm::network::NCreateRSP Class Reference

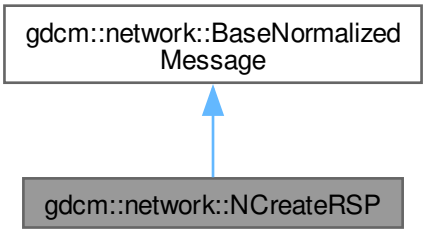
NCreateRSP this file defines the messages for the ncreate action.

```
#include <gdcmNCreateMessages.h>
```

Inheritance diagram for gdcm::network::NCreateRSP:



Collaboration diagram for gdcm::network::NCreateRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.205.1 Detailed Description

NCreateRSP this file defines the messages for the ncreate action.

12.205.2 Member Function Documentation

12.205.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NCreateRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

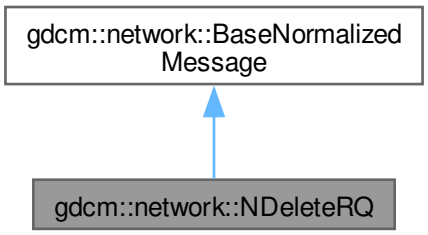
- gdcmNCreateMessages.h

12.206 gdcm::network::NDeleteRQ Class Reference

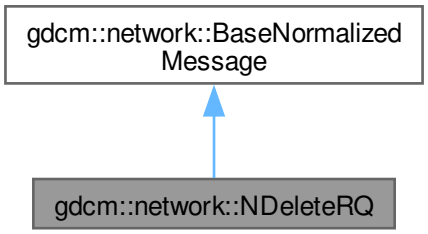
NDeleteRQ.

`#include <gdcmNDeleteMessages.h>`

Inheritance diagram for gdcm::network::NDeleteRQ:



Collaboration diagram for gdcm::network::NDeleteRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

12.206.1 Detailed Description

NDeleteRQ.

this file defines the messages for the ndelete action

12.206.2 Member Function Documentation

12.206.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NDeleteRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

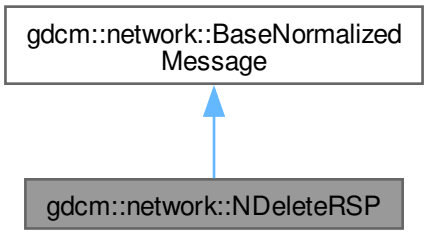
- gdcmNDeleteMessages.h

12.207 gdcm::network::NDeleteRSP Class Reference

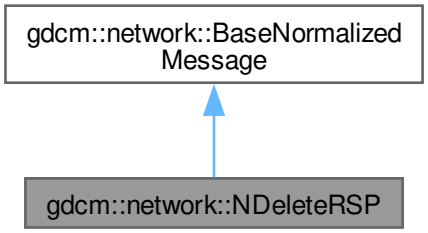
NDeleteRSP this file defines the messages for the ndelete action.

```
#include <gdcmNDeleteMessages.h>
```

Inheritance diagram for gdcm::network::NDeleteRSP:



Collaboration diagram for gdcm::network::NDeleteRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.207.1 Detailed Description

NDeleteRSP this file defines the messages for the ndelete action.

12.207.2 Member Function Documentation

12.207.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NDeleteRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

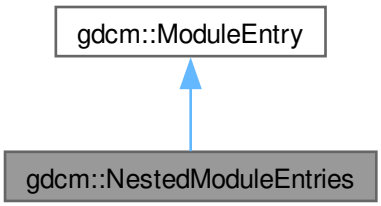
- gdcmNDeleteMessages.h

12.208 gdcm::NestedModuleEntries Class Reference

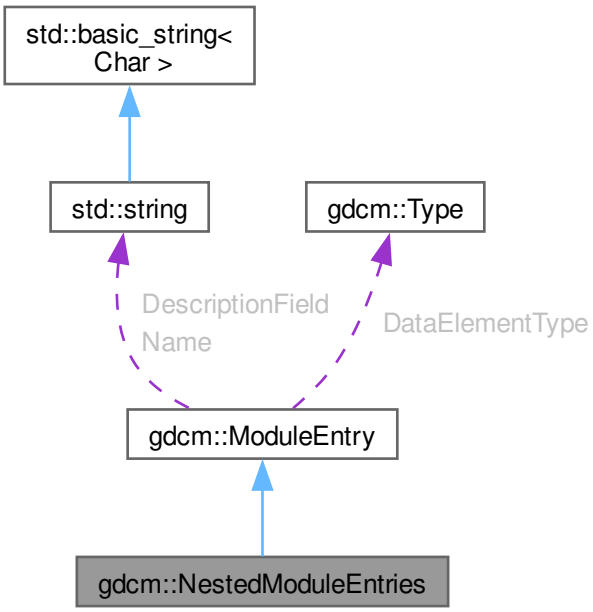
Class for representing a NestedModuleEntries.

`#include <gdcmNestedModuleEntries.h>`

Inheritance diagram for gdcm::NestedModuleEntries:



Collaboration diagram for gdcm::NestedModuleEntries:



Public Types

- typedef std::vector< ModuleEntry >::size_type SizeType

Public Types inherited from gdcm::ModuleEntry

- typedef std::string Description

Public Member Functions

- NestedModuleEntries (const char *name="", const char *type="3", const char *description="")
- void AddModuleEntry (const ModuleEntry &me)
- ModuleEntry & GetModuleEntry (SizeType idx)
- const ModuleEntry & GetModuleEntry (SizeType idx) const
- SizeType GetNumberOfModuleEntries ()

Public Member Functions inherited from gdcm::ModuleEntry

- ModuleEntry (const char *name="", const char *type="3", const char *description="")
- virtual ~ModuleEntry ()=default
- const Description & GetDescription () const
- const char * GetName () const
- const Type & GetType () const
- void SetDescription (const char *d)
- void SetName (const char *name)
- void SetType (const Type &type)

Friends

- std::ostream & operator<< (std::ostream &_os, const NestedModuleEntries &_val)

Additional Inherited Members

Protected Attributes inherited from gdcm::ModuleEntry

- Type DataElementType
- Description DescriptionField
- std::string Name

12.208.1 Detailed Description

Class for representing a NestedModuleEntries.

Note

bla

See also

ModuleEntry

12.208.2 Member Typedef Documentation

12.208.2.1 SizeType

```
typedef std::vector<ModuleEntry>::size_type gdcm::NestedModuleEntries::SizeType
```

12.208.3 Constructor & Destructor Documentation

12.208.3.1 NestedModuleEntries()

```
gdcm::NestedModuleEntries::NestedModuleEntries (
            const char * name = "",
            const char * type = "3",
            const char * description = "")  [inline]
```

References gdcm::ModuleEntry::ModuleEntry().

Referenced by operator<<.

12.208.4 Member Function Documentation

12.208.4.1 AddModuleEntry()

```
void gdcm::NestedModuleEntries::AddModuleEntry (
            const ModuleEntry & me)  [inline]
```

References gdcm::ModuleEntry::ModuleEntry().

12.208.4.2 GetModuleEntry() [1/2]

```
ModuleEntry & gdcm::NestedModuleEntries::GetModuleEntry (
            SizeType idx)  [inline]
```

References gdcm::ModuleEntry::ModuleEntry().

12.208.4.3 GetModuleEntry() [2/2]

```
const ModuleEntry & gdcm::NestedModuleEntries::GetModuleEntry (
            SizeType idx) const  [inline]
```

References gdcm::ModuleEntry::ModuleEntry().

12.208.4.4 GetNumberOfModuleEntries()

```
SizeType gdcm::NestedModuleEntries::GetNumberOfModuleEntries ()  [inline]
```

12.208.5 Friends And Related Symbol Documentation

12.208.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const NestedModuleEntries & _val)  [friend]
```

References NestedModuleEntries(), gdcm::ModuleEntry::DataElementType, gdcm::ModuleEntry::DescriptionField, and gdcm::ModuleEntry::Name.

The documentation for this class was generated from the following file:

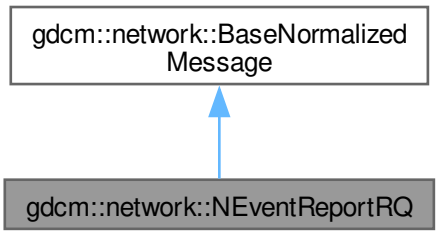
- gdcmNestedModuleEntries.h

12.209 gdcm::network::NEventReportRQ Class Reference

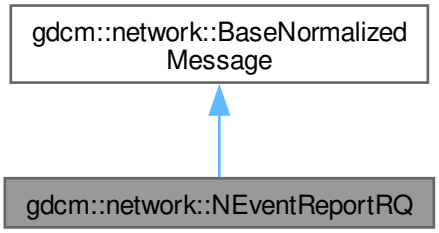
NEventReportRQ.

`#include <gdcmNEventReportMessages.h>`

Inheritance diagram for gdcm::network::NEventReportRQ:



Collaboration diagram for gdcm::network::NEventReportRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

12.209.1 Detailed Description

NEventReportRQ.

this file defines the messages for the neventreport action

12.209.2 Member Function Documentation

12.209.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NEventReportRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

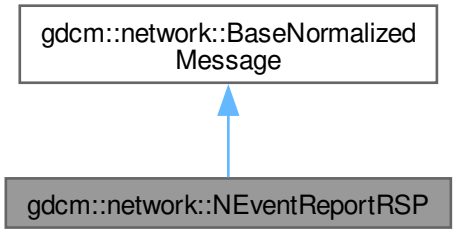
- gdcmNEventReportMessages.h

12.210 gdcm::network::NEventReportRSP Class Reference

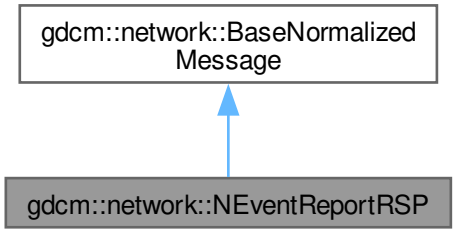
NEventReportRSP this file defines the messages for the neventreport action.

`#include <gdcmNEventReportMessages.h>`

Inheritance diagram for gdcm::network::NEventReportRSP:



Collaboration diagram for gdcm::network::NEventReportRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.210.1 Detailed Description

NEventReportRSP this file defines the messages for the neventreport action.

12.210.2 Member Function Documentation

12.210.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NEventReportRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

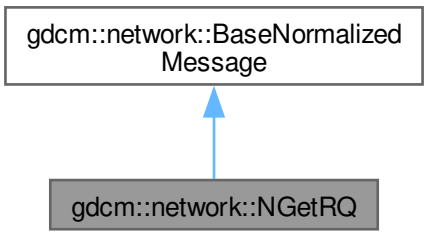
- gdcmNEventReportMessages.h

12.211 gdcm::network::NGetRQ Class Reference

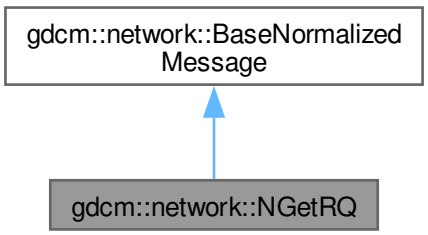
NGetRQ.

```
#include <gdcmNGetMessages.h>
```

Inheritance diagram for gdcm::network::NGetRQ:



Collaboration diagram for gdcm::network::NGetRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

12.211.1 Detailed Description

NGetRQ.

this file defines the messages for the nget action

12.211.2 Member Function Documentation

12.211.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NGetRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

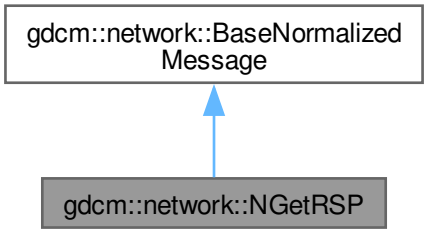
- gdcmNGetMessages.h

12.212 gdcm::network::NGetRSP Class Reference

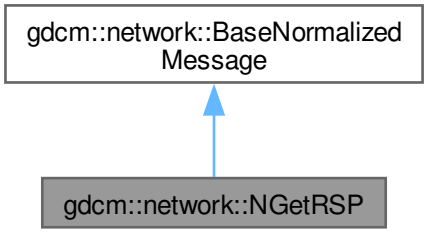
NGetRSP this file defines the messages for the nget action.

`#include <gdcmNGetMessages.h>`

Inheritance diagram for gdcm::network::NGetRSP:



Collaboration diagram for gdcm::network::NGetRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.212.1 Detailed Description

NGetRSP this file defines the messages for the nget action.

12.212.2 Member Function Documentation

12.212.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NGetRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

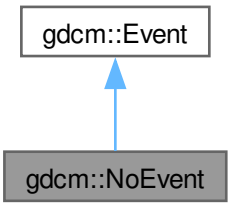
The documentation for this class was generated from the following file:

- gdcmNGetMessages.h

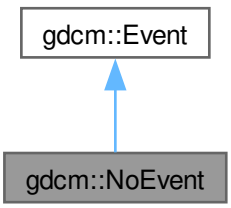
12.213 gdcm::NoEvent Class Reference

```
#include <gdcmEvent.h>
```

Inheritance diagram for gdcm::NoEvent:



Collaboration diagram for gdcm::NoEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

12.213.1 Detailed Description

Define some common GDCM events

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.214 gdcm::network::NormalizedMessageFactory Class Reference

`#include <gdcmNormalizedMessageFactory.h>`

Static Public Member Functions

- static std::vector< PresentationDataValue > ConstructNAction (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNCreate (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNDelete (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNEventReport (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNGet (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< PresentationDataValue > ConstructNSet (const ULConnection &inConnection, const BaseQuery *inQuery)

12.214.1 Member Function Documentation

12.214.1.1 ConstructNAction()

```
std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::ConstructNAction (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.214.1.2 ConstructNCreate()

```
std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::ConstructNCreate (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.214.1.3 ConstructNDelete()

```
std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::ConstructNDelete (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.214.1.4 ConstructNEventReport()

```
std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::ConstructNEvent↩
Report (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.214.1.5 ConstructNGet()

```
std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::ConstructNGet (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.214.1.6 ConstructNSet()

```
std::vector< PresentationDataValue > gdcm::network::NormalizedMessageFactory::ConstructNSet (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

The documentation for this class was generated from the following file:

- gdcmNormalizedMessageFactory.h

12.215 gdcm::NormalizedNetworkFunctions Class Reference

Normalized Network Functions.

```
#include <gdcmNormalizedNetworkFunctions.h>
```

Static Public Member Functions

- static BaseQuery * ConstructQuery (const std::string &sopInstanceUID, const DataSet &queryds, ENQueryType queryType=eCreateMMPS)
- static bool NAction (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)
- static bool NCreate (const char *remote, uint16_t portno, BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)
- static bool NDelete (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)
- static bool NEventReport (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)
- static bool NGet (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)
- static bool NSet (const char *remote, uint16_t portno, const BaseQuery *query, std::vector< DataSet > &retDataSets, const char *aetitle, const char *call)

12.215.1 Detailed Description

Normalized Network Functions.

These functions provide a generic API to the DICOM functions implemented in GDCM. Advanced users can use this code as a template for building their own versions of these functions (for instance, to provide progress bars or some other way of handling returned query information), but for most users, these functions should be sufficient to interface with a PACS to a local machine. Note that these functions are not contained within a static class or some other class-style interface, because multiple connections can be instantiated in the same program. The DICOM standard is much more function oriented rather than class oriented in this instance, so the design of this API reflects that functional approach. These functions implements the following SCU operations:

- N-EVENT-REPORT
- N-GET
- N-SET
- N-ACTION
- N-CREATE
- N-DELETE

12.215.2 Member Function Documentation

12.215.2.1 ConstructQuery()

```
BaseQuery * gdcm::NormalizedNetworkFunctions::ConstructQuery (
            const std::string & sopInstanceUID,
            const DataSet & queryds,
            ENQueryType queryType = eCreateMMPS)  [static]
```

References gdcm::eCreateMMPS.

12.215.2.2 NAction()

```
bool gdcm::NormalizedNetworkFunctions::NAction (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call)  [static]
```

12.215.2.3 NCreate()

```
bool gdcm::NormalizedNetworkFunctions::NCreate (
            const char * remote,
            uint16_t portno,
            BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call)  [static]
```

12.215.2.4 NDelete()

```
bool gdcm::NormalizedNetworkFunctions::NDelete (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call)  [static]
```

12.215.2.5 NEventReport()

```
bool gdcm::NormalizedNetworkFunctions::NEventReport (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call)  [static]
```

12.215.2.6 NGet()

```
bool gdcm::NormalizedNetworkFunctions::NGet (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call)  [static]
```

12.215.2.7 NSet()

```
bool gdcm::NormalizedNetworkFunctions::NSet (
            const char * remote,
            uint16_t portno,
            const BaseQuery * query,
            std::vector< DataSet > & retDataSets,
            const char * aetitle,
            const char * call)  [static]
```

The documentation for this class was generated from the following file:

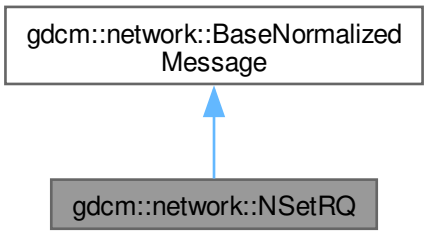
- gdcmNormalizedNetworkFunctions.h

12.216 gdcm::network::NSetRQ Class Reference

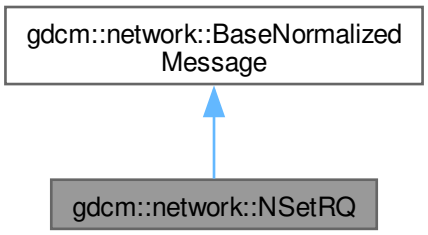
NSetRQ.

`#include <gdcmNSetMessages.h>`

Inheritance diagram for gdcm::network::NSetRQ:



Collaboration diagram for gdcm::network::NSetRQ:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery) override

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default

12.216.1 Detailed Description

NSetRQ.

this file defines the messages for the nset action

12.216.2 Member Function Documentation

12.216.2.1 ConstructPDV()

```
std::vector< PresentationDataValue > gdcm::network::NSetRQ::ConstructPDV (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [override], [virtual]
```

Implements gdcm::network::BaseNormalizedMessage.

The documentation for this class was generated from the following file:

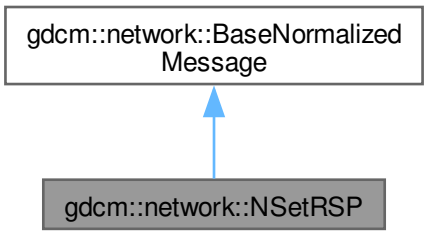
- gdcmNSetMessages.h

12.217 gdcm::network::NSetRSP Class Reference

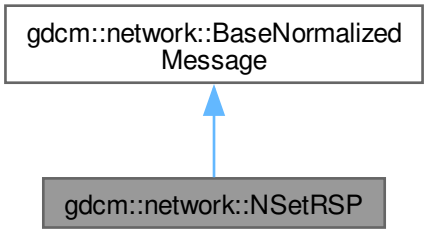
NSetRSP this file defines the messages for the nset action.

`#include <gdcmNSetMessages.h>`

Inheritance diagram for gdcm::network::NSetRSP:



Collaboration diagram for gdcm::network::NSetRSP:



Public Member Functions

- std::vector< PresentationDataValue > ConstructPDVByDataSet (const DataSet *inDataSet)

Public Member Functions inherited from gdcm::network::BaseNormalizedMessage

- virtual ~BaseNormalizedMessage ()=default
- virtual std::vector< PresentationDataValue > ConstructPDV (const ULConnection &inConnection, const BaseQuery *inQuery)=0

12.217.1 Detailed Description

NSetRSP this file defines the messages for the nset action.

12.217.2 Member Function Documentation

12.217.2.1 ConstructPDVByDataSet()

```
std::vector< PresentationDataValue > gdcm::network::NSetRSP::ConstructPDVByDataSet (
            const DataSet * inDataSet)
```

The documentation for this class was generated from the following file:

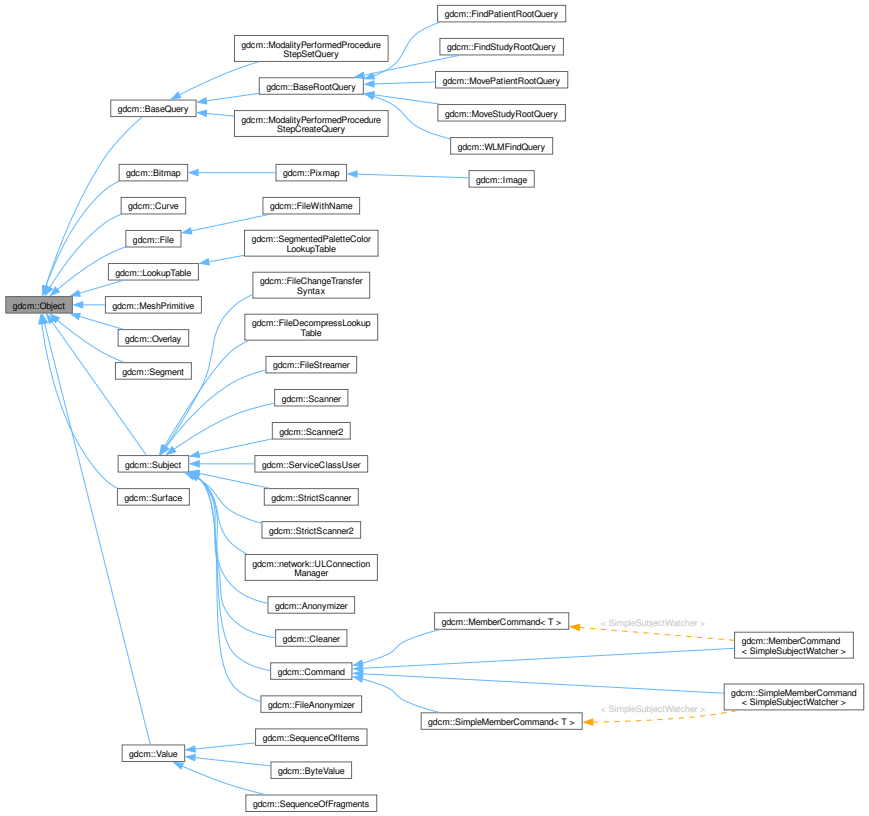
- gdcmNSetMessages.h

12.218 gdcm::Object Class Reference

Object.

`#include <gdcmObject.h>`

Inheritance diagram for gdcm::Object:



Public Member Functions

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Protected Member Functions

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &os, const Object &obj)
- template<class ObjectType>
  class SmartPointer

12.218.1 Detailed Description

Object.

Note

main superclass for object that want to use SmartPointer invasive ref counting system

See also

SmartPointer

12.218.2 Constructor & Destructor Documentation

12.218.2.1 Object() [1/2]

```
gdcm::Object::Object ()  [inline]
```

Referenced by gdcm::LookupTable::LookupTable(), Object(), operator<<, operator=(), and SmartPointer.

12.218.2.2 ~Object()

```
virtual gdcm::Object::~Object ()  [inline], [virtual]
```

References gdcm_forced_assert.

12.218.2.3 Object() [2/2]

```
gdcm::Object::Object (
            const Object & )  [inline]
```

Special requirement for copy/cstor, assignment operator.

References Object().

12.218.3 Member Function Documentation

12.218.3.1 operator=()

```
void gdcm::Object::operator= (
            const Object & )  [inline]
```

References Object().

12.218.3.2 Print()

```
virtual void gdcm::Object::Print (
            std::ostream & ) const  [inline], [virtual]
```

Reimplemented in gdcm::BaseQuery, gdcm::Bitmap, gdcm::ByteValue, gdcm::Curve, gdcm::Image, gdcm::LookupTable, gdcm::Overlay, gdcm::Pixmap, gdcm::Scanner2, gdcm::Scanner, gdcm::SegmentedPaletteColorLookupTable, gdcm::SequenceOfFragments, gdcm::SequenceOfItems, gdcm::StrictScanner2, and gdcm::StrictScanner.

Examples

ReadAndDumpDICOMDIR.cxx.

Referenced by gdcm::DataElement::operator<<, and operator<<.

12.218.3.3 Register()

```
void gdcm::Object::Register ()  [inline], [protected]
```

References gdcm_assert.

12.218.3.4 UnRegister()

```
void gdcm::Object::UnRegister ()  [inline], [protected]
```

References gdcm_assert.

12.218.4 Friends And Related Symbol Documentation

12.218.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const Object & obj)  [friend]
```

References Object(), and Print().

Referenced by SmartPointer.

12.218.4.2 SmartPointer

```
template<class ObjectType>
friend class SmartPointer  [friend]
```

References Object(), operator<<, and SmartPointer.

Referenced by gdcm::Segment::AddSurface(), gdcm::Segment::GetSurface(), gdcm::Bitmap::SetLUT(), gdcm::Surface::SetMeshPrimitive
and SmartPointer.

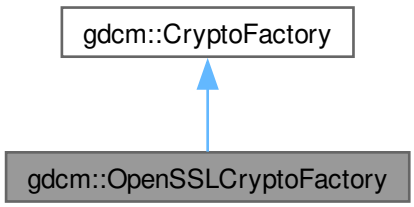
The documentation for this class was generated from the following file:

- gdcmObject.h

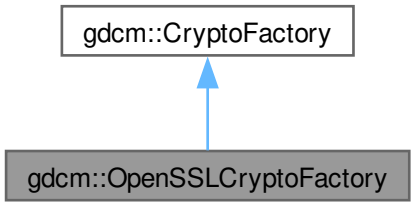
12.219 gdcm::OpenSSLCryptoFactory Class Reference

```
#include <gdcmOpenSSLCryptoFactory.h>
```

Inheritance diagram for gdcm::OpenSSLCryptoFactory:



Collaboration diagram for gdcm::OpenSSLCryptoFactory:



Public Member Functions

- OpenSSLCryptoFactory (CryptoLib id)
- CryptographicMessageSyntax * CreateCMSProvider ()

Protected Member Functions

- void InitOpenSSL ()

Protected Member Functions inherited from gdcm::CryptoFactory

- CryptoFactory ()=default
- CryptoFactory (CryptoLib id)
- ~CryptoFactory ()=default

Additional Inherited Members

Public Types inherited from gdcm::CryptoFactory

- enum CryptoLib {
  DEFAULT = 0 ,
  OPENSSL = 1 ,
  CAPI = 2 ,
  OPENSSLP7 = 3 }

Static Public Member Functions inherited from gdcm::CryptoFactory

- static CryptoFactory * GetFactoryInstance (CryptoLib id=DEFAULT)

12.219.1 Constructor & Destructor Documentation

12.219.1.1 OpenSSLCryptoFactory()

```
gdcm::OpenSSLCryptoFactory::OpenSSLCryptoFactory (
            CryptoLib id)  [inline]
```

References gdcm::CryptoFactory::CryptoFactory(), and gdcmDebugMacro.

Referenced by InitOpenSSL().

12.219.2 Member Function Documentation

12.219.2.1 CreateCMSProvider()

```
CryptographicMessageSyntax * gdcm::OpenSSLCryptoFactory::CreateCMSProvider ()  [inline], [virtual]
```

Implements gdcm::CryptoFactory.

References InitOpenSSL().

12.219.2.2 InitOpenSSL()

```
void gdcm::OpenSSLCryptoFactory::InitOpenSSL ()  [protected]
```

References OpenSSLCryptoFactory().

Referenced by CreateCMSProvider().

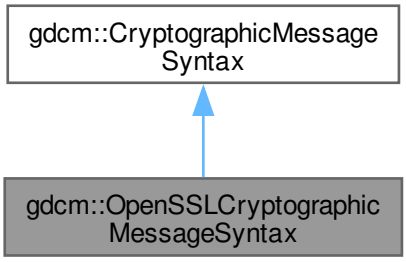
The documentation for this class was generated from the following file:

- gdcmOpenSSLCryptoFactory.h

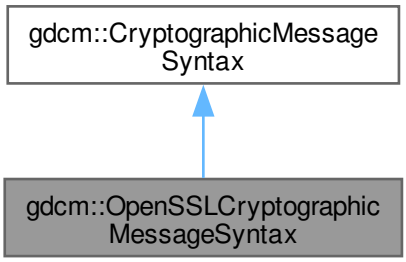
12.220 gdcm::OpenSSLCryptographicMessageSyntax Class Reference

```
#include <gdcmOpenSSLCryptographicMessageSyntax.h>
```

Inheritance diagram for gdcm::OpenSSLCryptographicMessageSyntax:



Collaboration diagram for gdcm::OpenSSLCryptographicMessageSyntax:



Public Member Functions

- OpenSSLCryptographicMessageSyntax ()
- ~OpenSSLCryptographicMessageSyntax ()
- bool Decrypt (char *output, size_t &outlen, const char *array, size_t len) const

  decrypt content from a PKCS#7 envelopedData structure
- bool Encrypt (char *output, size_t &outlen, const char *array, size_t len) const

  create a CMS envelopedData structure
- CipherTypes GetCipherType () const
- bool ParseCertificateFile (const char *filename)
- bool ParseKeyFile (const char *filename)
- void SetCipherType (CipherTypes type)
- bool SetPassword (const char *pass, size_t passLen)

Public Member Functions inherited from gdcm::CryptographicMessageSyntax

- CryptographicMessageSyntax ()=default
- CryptographicMessageSyntax (const CryptographicMessageSyntax &)=delete
- virtual ~CryptographicMessageSyntax ()=default
- void operator= (const CryptographicMessageSyntax &)=delete

Additional Inherited Members

Public Types inherited from gdcm::CryptographicMessageSyntax

- enum CipherTypes {
  DES3_CIPHER ,
  AES128_CIPHER ,
  AES192_CIPHER ,
  AES256_CIPHER }

12.220.1 Constructor & Destructor Documentation

12.220.1.1 OpenSSLCryptographicMessageSyntax()

```
gdcm::OpenSSLCryptographicMessageSyntax::OpenSSLCryptographicMessageSyntax ()
```

Referenced by Decrypt().

12.220.1.2 ~OpenSSLCryptographicMessageSyntax()

```
gdcm::OpenSSLCryptographicMessageSyntax::~OpenSSLCryptographicMessageSyntax ()
```

12.220.2 Member Function Documentation

12.220.2.1 Decrypt()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::Decrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [virtual]
```

decrypt content from a PKCS#7 envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

References OpenSSLCryptographicMessageSyntax().

12.220.2.2 Encrypt()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::Encrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [virtual]
```

create a CMS envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

12.220.2.3 GetCipherType()

```
CipherTypes gdcm::OpenSSLCryptographicMessageSyntax::GetCipherType () const  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.220.2.4 ParseCertificateFile()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::ParseCertificateFile (
            const char * filename)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.220.2.5 ParseKeyFile()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::ParseKeyFile (
            const char * filename)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.220.2.6 SetCipherType()

```
void gdcm::OpenSSLCryptographicMessageSyntax::SetCipherType (
            CipherTypes type)  [virtual]
```

Set Cipher Type. Default is: AES256_CIPHER

Implements gdcm::CryptographicMessageSyntax.

12.220.2.7 SetPassword()

```
bool gdcm::OpenSSLCryptographicMessageSyntax::SetPassword (
            const char * pass,
            size_t passLen)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

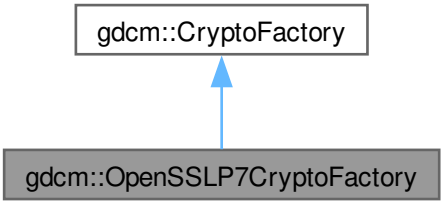
The documentation for this class was generated from the following file:

- gdcmOpenSSLCryptographicMessageSyntax.h

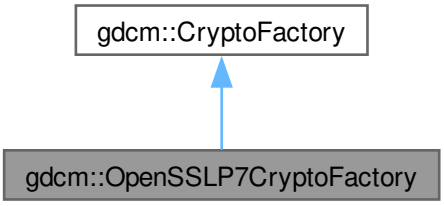
12.221 gdcm::OpenSSLP7CryptoFactory Class Reference

`#include <gdcmOpenSSLP7CryptoFactory.h>`

Inheritance diagram for gdcm::OpenSSLP7CryptoFactory:



Collaboration diagram for gdcm::OpenSSLP7CryptoFactory:



Public Member Functions

- OpenSSLP7CryptoFactory (CryptoLib id)
- CryptographicMessageSyntax * CreateCMSProvider ()

Additional Inherited Members

Public Types inherited from gdcm::CryptoFactory

- enum CryptoLib {
  DEFAULT = 0 ,
  OPENSSL = 1 ,
  CAPI = 2 ,
  OPENSSLP7 = 3 }

Static Public Member Functions inherited from gdcm::CryptoFactory

- static CryptoFactory * GetFactoryInstance (CryptoLib id=DEFAULT)

Protected Member Functions inherited from gdcm::CryptoFactory

- CryptoFactory ()=default
- CryptoFactory (CryptoLib id)
- ~CryptoFactory ()=default

12.221.1 Constructor & Destructor Documentation

12.221.1.1 OpenSSLP7CryptoFactory()

```
gdcm::OpenSSLP7CryptoFactory::OpenSSLP7CryptoFactory (
            CryptoLib id)  [inline]
```

References gdcm::CryptoFactory::CryptoFactory(), and gdcmDebugMacro.

12.221.2 Member Function Documentation

12.221.2.1 CreateCMSProvider()

```
CryptographicMessageSyntax * gdcm::OpenSSLP7CryptoFactory::CreateCMSProvider ()  [inline], [virtual]
```

Implements gdcm::CryptoFactory.

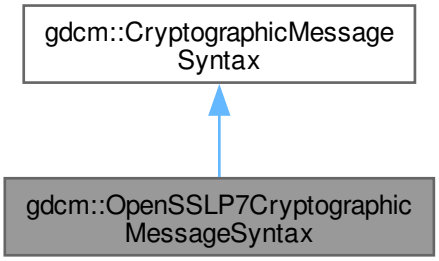
The documentation for this class was generated from the following file:

- gdcmOpenSSLP7CryptoFactory.h

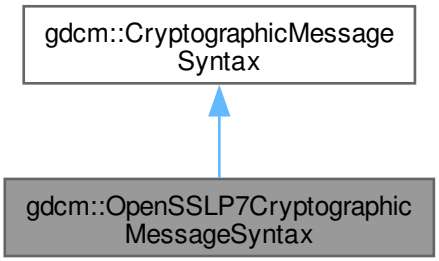
12.222 gdcm::OpenSSLP7CryptographicMessageSyntax Class Reference

`#include <gdcmOpenSSLP7CryptographicMessageSyntax.h>`

Inheritance diagram for gdcm::OpenSSLP7CryptographicMessageSyntax:



Collaboration diagram for gdcm::OpenSSLP7CryptographicMessageSyntax:



Public Member Functions

- OpenSSLP7CryptographicMessageSyntax ()
- ~OpenSSLP7CryptographicMessageSyntax ()
- bool Decrypt (char *output, size_t &outlen, const char *array, size_t len) const
  decrypt content from a PKCS#7 envelopedData structure
- bool Encrypt (char *output, size_t &outlen, const char *array, size_t len) const
  create a PKCS#7 envelopedData structure
- CipherTypes GetCipherType () const
- bool ParseCertificateFile (const char *filename)
- bool ParseKeyFile (const char *filename)
- void SetCipherType (CipherTypes type)
- bool SetPassword (const char *, size_t)

Public Member Functions inherited from gdcm::CryptographicMessageSyntax

- CryptographicMessageSyntax ()=default
- CryptographicMessageSyntax (const CryptographicMessageSyntax &)=delete
- virtual ~CryptographicMessageSyntax ()=default
- void operator= (const CryptographicMessageSyntax &)=delete

Additional Inherited Members

Public Types inherited from gdcm::CryptographicMessageSyntax

- enum CipherTypes {
  DES3_CIPHER ,
  AES128_CIPHER ,
  AES192_CIPHER ,
  AES256_CIPHER }

12.222.1 Detailed Description

Class for CryptographicMessageSyntax encryption. This is just a simple wrapper around openssl PKCS7_encrypt functionalities

See online documentation `http://www.openssl.org/docs/crypto/PKCS7_encrypt.html`

12.222.2 Constructor & Destructor Documentation

12.222.2.1 OpenSSLP7CryptographicMessageSyntax()

```
gdcm::OpenSSLP7CryptographicMessageSyntax::OpenSSLP7CryptographicMessageSyntax ()
```

Referenced by Decrypt().

12.222.2.2 ~OpenSSLP7CryptographicMessageSyntax()

```
gdcm::OpenSSLP7CryptographicMessageSyntax::~OpenSSLP7CryptographicMessageSyntax ()
```

12.222.3 Member Function Documentation

12.222.3.1 Decrypt()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::Decrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [virtual]
```

decrypt content from a PKCS#7 envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

References OpenSSLP7CryptographicMessageSyntax().

12.222.3.2 Encrypt()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::Encrypt (
            char * output,
            size_t & outlen,
            const char * array,
            size_t len) const  [virtual]
```

create a PKCS#7 envelopedData structure

Implements gdcm::CryptographicMessageSyntax.

12.222.3.3 GetCipherType()

```
CipherTypes gdcm::OpenSSLP7CryptographicMessageSyntax::GetCipherType () const  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.222.3.4 ParseCertificateFile()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::ParseCertificateFile (
            const char * filename)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.222.3.5 ParseKeyFile()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::ParseKeyFile (
            const char * filename)  [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

12.222.3.6 SetCipherType()

```
void gdcm::OpenSSLP7CryptographicMessageSyntax::SetCipherType (
            CipherTypes type)  [virtual]
```

Set Cipher Type. Default is: AES256_CIPHER

Implements gdcm::CryptographicMessageSyntax.

12.222.3.7 SetPassword()

```
bool gdcm::OpenSSLP7CryptographicMessageSyntax::SetPassword (
            const char * ,
            size_t )  [inline], [virtual]
```

Implements gdcm::CryptographicMessageSyntax.

References gdcmWarningMacro.

The documentation for this class was generated from the following file:

- gdcmOpenSSLP7CryptographicMessageSyntax.h

12.223 gdcm::Orientation Class Reference

class to handle Orientation

```
#include <gdcmOrientation.h>
```

Public Types

- enum OrientationType {
  UNKNOWN ,
  AXIAL ,
  CORONAL ,
  SAGITTAL ,
  OBLIQUE }

Public Member Functions

- Orientation ()
- ~Orientation ()=default
- void Print (std::ostream &) const

  Print.

Static Public Member Functions

- static const char * GetLabel (OrientationType type)

  Return the label of an Orientation.
- static double GetObliquityThresholdCosineValue ()
- static OrientationType GetType (const double dircos[6])
- static void SetObliquityThresholdCosineValue (double val)

  ObliquityThresholdCosineValue stuff.

Static Protected Member Functions

- static char GetMajorAxisFromPatientRelativeDirectionCosine (double x, double y, double z)

Friends

- std::ostream & operator<< (std::ostream &_os, const Orientation &o)

12.223.1 Detailed Description

class to handle Orientation

12.223.2 Member Enumeration Documentation

12.223.2.1 OrientationType

```
enum gdcm::Orientation::OrientationType
```

Enumerator

UNKNOWN	
AXIAL	
CORONAL	
SAGITTAL	
OBLIQUE	

Examples

FixOrientation.cxx.

12.223.3 Constructor & Destructor Documentation

12.223.3.1 Orientation()

```
gdcm::Orientation::Orientation ()
```

Referenced by operator<<.

12.223.3.2 ~Orientation()

```
gdcm::Orientation::~Orientation ()  [default]
```

12.223.4 Member Function Documentation

12.223.4.1 GetLabel()

```
const char * gdcm::Orientation::GetLabel (
            OrientationType type)  [static]
```

Return the label of an Orientation.

Examples

FixOrientation.cxx.

12.223.4.2 GetMajorAxisFromPatientRelativeDirectionCosine()

```
char gdcm::Orientation::GetMajorAxisFromPatientRelativeDirectionCosine (
            double x,
            double y,
            double z)  [static], [protected]
```

12.223.4.3 GetObliquityThresholdCosineValue()

```
double gdcm::Orientation::GetObliquityThresholdCosineValue ()  [static]
```

12.223.4.4 GetType()

```
OrientationType gdcm::Orientation::GetType (
            const double dircos[6])  [static]
```

Return the type of orientation from a direction cosines Input is an array of 6 double

Examples

FixOrientation.cxx.

12.223.4.5 Print()

```
void gdcm::Orientation::Print (
            std::ostream & ) const
```

Print.

Referenced by operator<<.

12.223.4.6 SetObliquityThresholdCosineValue()

```
void gdcm::Orientation::SetObliquityThresholdCosineValue (
             double val)  [static]
```

ObliquityThresholdCosineValue stuff.

12.223.5 Friends And Related Symbol Documentation

12.223.5.1 operator<<

```
std::ostream & operator<< (
             std::ostream & _os,
             const Orientation & o)  [friend]
```

References Orientation(), and Print().

The documentation for this class was generated from the following file:

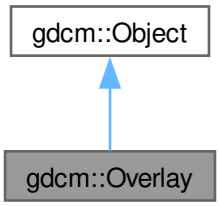
- gdcmOrientation.h

12.224 gdcm::Overlay Class Reference

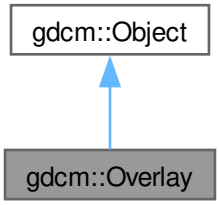
Overlay class.

```
#include <gdcmOverlay.h>
```

Inheritance diagram for gdcm::Overlay:



Collaboration diagram for gdcm::Overlay:



Public Types

- enum OverlayType {
  Invalid = 0 ,
  Graphics = 1 ,
  ROI = 2 }

Public Member Functions

- Overlay ()
- Overlay (Overlay const &ov)
- ~Overlay () override
- void Decompress (std::ostream &os) const

  Decode the internal OverlayData (packed bits) into unpacked representation.
- unsigned short GetBitPosition () const

  return bit position
- unsigned short GetBitsAllocated () const

  return bits allocated
- unsigned short GetColumns () const

  get columns
- const char * GetDescription () const

  get description
- unsigned short GetGroup () const

  Get Group number.
- const signed short * GetOrigin () const

  get origin
- const ByteValue & GetOverlayData () const
- unsigned short GetRows () const

  get rows
- const char * GetType () const

  get type
- OverlayType GetTypeAsEnum () const

- bool GetUnpackBuffer (char *buffer, size_t len) const
- size_t GetUnpackBufferLength () const
- bool GrabOverlayFromPixelData (DataSet const &ds)
- bool IsEmpty () const

  Return whether or not the Overlay is empty:
- bool IsInPixelData () const

  return if the Overlay is stored in the pixel data or not
- void IsInPixelData (bool b)

  Set whether or no the OverlayData is in the Pixel Data:
- bool IsZero () const

  return true if all bits are set to 0
- Overlay & operator= (Overlay const &ov)
- void Print (std::ostream &) const override

  Print.
- void SetBitPosition (unsigned short bitposition)

  set bit position
- void SetBitsAllocated (unsigned short bitsallocated)

  set bits allocated
- void SetColumns (unsigned short columns)

  set columns
- void SetDescription (const char *description)

  set description
- void SetFrameOrigin (unsigned short frameorigin)

  set frame origin
- void SetGroup (unsigned short group)

  Set Group number.
- void SetNumberOfFrames (unsigned int numberofframes)

  set number of frames
- void SetOrigin (const signed short origin[2])

  set origin
- void SetOverlay (const char *array, size_t length)

  set overlay from byte array + length
- void SetRows (unsigned short rows)

  set rows
- void SetType (const char *type)

  set type
- void Update (const DataElement &de)

  Update overlay from data element de:

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static const char * GetOverlayTypeAsString (OverlayType ot)
- static OverlayType GetOverlayTypeFromString (const char *)

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.224.1 Detailed Description

Overlay class.

Note

see AreOverlaysInPixelData

Todo Is there actually any way to recognize an overlay ? On images with multiple overlay I do not see any way to differentiate them (other than the group tag).

Example:

12.224.2 Member Enumeration Documentation

12.224.2.1 OverlayType

```
enum gdcm::Overlay::OverlayType
```

Enumerator

Invalid	
Graphics	
ROI	

12.224.3 Constructor & Destructor Documentation

12.224.3.1 Overlay() [1/2]

```
gdcm::Overlay::Overlay ()
```

Referenced by Overlay(), and operator=().

12.224.3.2 ~Overlay()

```
gdcm::Overlay::~Overlay ()  [override]
```

12.224.3.3 Overlay() [2/2]

```
gdcm::Overlay::Overlay (
            Overlay const & ov)
```

References Overlay().

12.224.4 Member Function Documentation

12.224.4.1 Decompress()

```
void gdcm::Overlay::Decompress (
            std::ostream & os) const
```

Decode the internal OverlayData (packed bits) into unpacked representation.

12.224.4.2 GetBitPosition()

```
unsigned short gdcm::Overlay::GetBitPosition () const
```

return bit position

12.224.4.3 GetBitsAllocated()

```
unsigned short gdcm::Overlay::GetBitsAllocated () const
```

return bits allocated

12.224.4.4 GetColumns()

```
unsigned short gdcm::Overlay::GetColumns () const
```

get columns

12.224.4.5 GetDescription()

```
const char * gdcm::Overlay::GetDescription () const
```

get description

12.224.4.6 GetGroup()

```
unsigned short gdcm::Overlay::GetGroup () const
```

Get Group number.

12.224.4.7 GetOrigin()

```
const signed short * gdcm::Overlay::GetOrigin () const
```

get origin

12.224.4.8 GetOverlayData()

```
const ByteValue & gdcm::Overlay::GetOverlayData () const
```

Return the Overlay Data as ByteValue: Not thread safe

12.224.4.9 GetOverlayTypeAsString()

```
const char * gdcm::Overlay::GetOverlayTypeAsString (
            OverlayType ot)  [static]
```

12.224.4.10 GetOverlayTypeFromString()

```
OverlayType gdcm::Overlay::GetOverlayTypeFromString (
            const char * )  [static]
```

12.224.4.11 GetRows()

```
unsigned short gdcm::Overlay::GetRows () const
```

get rows

12.224.4.12 GetType()

```
const char * gdcm::Overlay::GetType () const
```

get type

12.224.4.13 GetTypeAsEnum()

```
OverlayType gdcm::Overlay::GetTypeAsEnum () const
```

12.224.4.14 GetUnpackBuffer()

```
bool gdcm::Overlay::GetUnpackBuffer (
            char * buffer,
            size_t len) const
```

Retrieve the unpack buffer for Overlay. This is an error if the size if below GetUnpackBufferLength()

12.224.4.15 GetUnpackBufferLength()

```
size_t gdcm::Overlay::GetUnpackBufferLength () const
```

Retrieve the size of the buffer needed to hold the Overlay as specified by Col & Row parameters

12.224.4.16 GrabOverlayFromPixelData()

```
bool gdcm::Overlay::GrabOverlayFromPixelData (
            DataSet const & ds)
```

Warning

Before calling this method, you must verify the consistency between the image metadata (Image PixelFormat, Rows, Columns) and the overlay parameters. This pre-verification is required to ensure that the bit-depth is compatible and that the overlay data fits within the allocated pixel storage.

12.224.4.17 IsEmpty()

```
bool gdcm::Overlay::IsEmpty () const
```

Return whether or not the Overlay is empty:

12.224.4.18 IsInPixelData() [1/2]

```
bool gdcm::Overlay::IsInPixelData () const
```

return if the Overlay is stored in the pixel data or not

12.224.4.19 IsInPixelData() [2/2]

```
void gdcm::Overlay::IsInPixelData (
            bool b)
```

Set whether or no the OverlayData is in the Pixel Data:

12.224.4.20 IsZero()

```
bool gdcm::Overlay::IsZero () const
```

return true if all bits are set to 0

12.224.4.21 operator=()

```
Overlay & gdcm::Overlay::operator= (
            Overlay const & ov)
```

References Overlay().

12.224.4.22 Print()

```
void gdcm::Overlay::Print (
            std::ostream & ) const  [override], [virtual]
```

Print.

Reimplemented from gdcm::Object.

12.224.4.23 SetBitPosition()

```
void gdcm::Overlay::SetBitPosition (
            unsigned short bitposition)
```

set bit position

12.224.4.24 SetBitsAllocated()

```
void gdcm::Overlay::SetBitsAllocated (
            unsigned short bitsallocated)
```

set bits allocated

12.224.4.25 SetColumns()

```
void gdcm::Overlay::SetColumns (
            unsigned short columns)
```

set columns

12.224.4.26 SetDescription()

```
void gdcm::Overlay::SetDescription (
            const char * description)
```

set description

12.224.4.27 SetFrameOrigin()

```
void gdcm::Overlay::SetFrameOrigin (
            unsigned short frameorigin)
```

set frame origin

12.224.4.28 SetGroup()

```
void gdcm::Overlay::SetGroup (
            unsigned short group)
```

Set Group number.

12.224.4.29 SetNumberOfFrames()

```
void gdcm::Overlay::SetNumberOfFrames (
            unsigned int numberofframes)
```

set number of frames

12.224.4.30 SetOrigin()

```
void gdcm::Overlay::SetOrigin (
            const signed short origin[2])
```

set origin

12.224.4.31 SetOverlay()

```
void gdcm::Overlay::SetOverlay (
            const char * array,
            size_t length)
```

set overlay from byte array + length

12.224.4.32 SetRows()

```
void gdcm::Overlay::SetRows (
            unsigned short rows)
```

set rows

12.224.4.33 SetType()

```
void gdcm::Overlay::SetType (
            const char * type)
```

set type

12.224.4.34 Update()

```
void gdcm::Overlay::Update (
            const DataElement & de)
```

Update overlay from data element de:

The documentation for this class was generated from the following file:

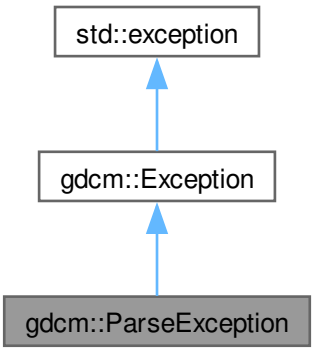
- gdcmOverlay.h

12.225 gdcm::ParseException Class Reference

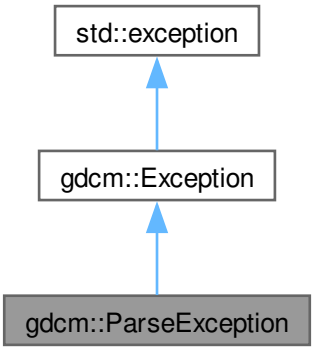
ParseException Standard exception handling object.

`#include <gdcmParseException.h>`

Inheritance diagram for gdcm::ParseException:



Collaboration diagram for gdcm::ParseException:



Public Member Functions

- ParseException ()=default
- ParseException (const ParseException &orig)
- ~ParseException () override throw ()
- const DataElement & GetLastElement () const
- ParseException & operator= (const ParseException &orig)
- void SetLastElement (const DataElement &de)

Public Member Functions inherited from gdcm::Exception

- Exception (const char *desc="None", const char *file="/build/reproducible-path/gdcm-3.2.10/Source/Common/↩ gdcmException.h", unsigned int lineNumber=76, const char *func="")
- ~Exception () override throw ()
- const char * GetDescription () const

  Return the Description.
- const char * what () const override throw ()

  what implementation

12.225.1 Detailed Description

ParseException Standard exception handling object.

12.225.2 Constructor & Destructor Documentation

12.225.2.1 ParseException() [1/2]

```
gdcm::ParseException::ParseException () [default]
```

Referenced by ParseException(), and operator=().

12.225.2.2 ~ParseException()

```
gdcm::ParseException::~ParseException () throw ( ) [inline], [override]
```

12.225.2.3 ParseException() [2/2]

```
gdcm::ParseException::ParseException (
            const ParseException & orig) [inline]
```

References gdcm::Exception::Exception(), and ParseException().

12.225.3 Member Function Documentation

12.225.3.1 GetLastElement()

```
const DataElement & gdcm::ParseException::GetLastElement () const  [inline]
```

12.225.3.2 operator=()

```
ParseException & gdcm::ParseException::operator= (
            const ParseException & orig)  [inline]
```

Assignment operator.

References ParseException().

12.225.3.3 SetLastElement()

```
void gdcm::ParseException::SetLastElement (
            const DataElement & de)  [inline]
```

Equivalence operator.

Referenced by gdcm::BasicOffsetTable::Read(), gdcm::Fragment::ReadBacktrack(), and gdcm::Fragment::ReadValue().

The documentation for this class was generated from the following file:

- gdcmParseException.h

12.226 gdcm::Parser Class Reference

Parser ala XML_Parser from expat (SAX).

```
#include <gdcmParser.h>
```

Public Types

- typedef void(∗ EndElementHandler) (void ∗userData, const Tag &name)
- enum ErrorType {
  NoError ,
  NoMemoryError ,
  SyntaxError ,
  NoElementsError ,
  TagMismatchError ,
  DuplicateAttributeError ,
  JunkAfterDocElementError ,
  UndefinedEntityError ,
  UnexpectedStateError }
- typedef void(∗ StartElementHandler) (void ∗userData, const Tag &tag, const char ∗atts[ ])

Public Member Functions

- Parser ()
- ~Parser ()
- unsigned long GetCurrentByteIndex () const
- ErrorType GetErrorCode () const
- void * GetUserData () const
- bool Parse (const char *s, int len, bool isFinal)
- void SetElementHandler (StartElementHandler start, EndElementHandler end)
- void SetUserData (void *userData)

Static Public Member Functions

- static const char * GetErrorString (ErrorType const &err)

Protected Member Functions

- char * GetBuffer (int len)
- bool ParseBuffer (int len, bool isFinal)
- ErrorType Process ()

12.226.1 Detailed Description

Parser ala XML_Parser from expat (SAX).

Detailed description here

Note

Simple API for DICOM

12.226.2 Member Typedef Documentation

12.226.2.1 EndElementHandler

```
typedef void(* gdcm::Parser::EndElementHandler) (void *userData, const Tag &name)
```

12.226.2.2 StartElementHandler

```
typedef void(* gdcm::Parser::StartElementHandler) (void *userData, const Tag &tag, const char
*atts[])
```

12.226.3 Member Enumeration Documentation

12.226.3.1 ErrorType

```
enum gdcm::Parser::ErrorType
```

Enumerator

NoError	
NoMemoryError	
SyntaxError	
NoElementsError	
TagMismatchError	
DuplicateAttributeError	
JunkAfterDocElementError	
UndefinedEntityError	
UnexpectedStateError	

12.226.4 Constructor & Destructor Documentation

12.226.4.1 Parser()

```
gdcm::Parser::Parser () [inline]
```

References NoError.

12.226.4.2 ~Parser()

```
gdcm::Parser::~Parser () [inline]
```

12.226.5 Member Function Documentation

12.226.5.1 GetBuffer()

```
char * gdcm::Parser::GetBuffer (
            int len) [protected]
```

12.226.5.2 GetCurrentByteIndex()

```
unsigned long gdcm::Parser::GetCurrentByteIndex () const
```

12.226.5.3 GetErrorCode()

```
ErrorType gdcm::Parser::GetErrorCode () const
```

12.226.5.4 GetErrorString()

```
const char * gdcm::Parser::GetErrorString (
            ErrorType const & err)  [static]
```

12.226.5.5 GetUserData()

```
void * gdcm::Parser::GetUserData () const
```

12.226.5.6 Parse()

```
bool gdcm::Parser::Parse (
            const char * s,
            int len,
            bool isFinal)
```

12.226.5.7 ParseBuffer()

```
bool gdcm::Parser::ParseBuffer (
            int len,
            bool isFinal)  [protected]
```

12.226.5.8 Process()

```
ErrorType gdcm::Parser::Process ()  [protected]
```

12.226.5.9 SetElementHandler()

```
void gdcm::Parser::SetElementHandler (
            StartElementHandler start,
            EndElementHandler end)
```

12.226.5.10 SetUserData()

```
void gdcm::Parser::SetUserData (
            void * userData)
```

The documentation for this class was generated from the following file:

- gdcmParser.h

12.227 gdcm::Patient Class Reference

See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

`#include <gdcmPatient.h>`

Public Member Functions

- Patient ()=default

12.227.1 Detailed Description

See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

12.227.2 Constructor & Destructor Documentation

12.227.2.1 Patient()

`gdcm::Patient::Patient () [default]`

The documentation for this class was generated from the following file:

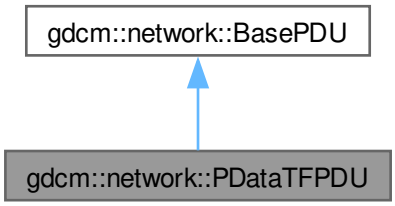
- gdcmPatient.h

12.228 gdcm::network::PDataTFPDU Class Reference

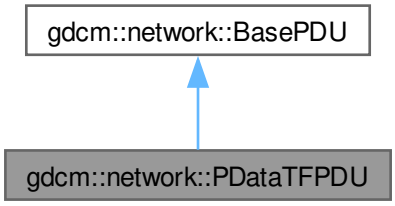
PDataTFPDU.

`#include <gdcmPDataTFPDU.h>`

Inheritance diagram for gdcm::network::PDataTFPDU:



Collaboration diagram for gdcm::network::PDataTFPDU:



Public Types

- typedef std::vector< PresentationDataValue >::size_type SizeType

Public Member Functions

- PDataTFPDU ()
- void AddPresentationDataValue (PresentationDataValue const &pdv)
- SizeType GetNumberOfPresentationDataValues () const
- PresentationDataValue const & GetPresentationDataValue (SizeType i) const
- bool IsLastFragment () const override
- void Print (std::ostream &os) const override
- std::istream & Read (std::istream &is) override
- size_t Size () const override
- const std::ostream & Write (std::ostream &os) const override

Public Member Functions inherited from gdcm::network::BasePDU

- virtual ~BasePDU ()=default

Protected Member Functions

- std::istream & ReadInto (std::istream &is, std::ostream &os)

12.228.1 Detailed Description

PDataTFPDU.

Table 9-22 P-DATA-TF PDU FIELDS

12.228.2 Member Typedef Documentation

12.228.2.1 SizeType

```
typedef std::vector<PresentationDataValue>::size_type gdcm::network::PDataTFPDU::SizeType
```

12.228.3 Constructor & Destructor Documentation

12.228.3.1 PDataTFPDU()

```
gdcm::network::PDataTFPDU::PDataTFPDU ()
```

12.228.4 Member Function Documentation

12.228.4.1 AddPresentationDataValue()

```
void gdcm::network::PDataTFPDU::AddPresentationDataValue (
            PresentationDataValue const & pdv)  [inline]
```

References gdcm_assert, and Size().

12.228.4.2 GetNumberOfPresentationDataValues()

```
SizeType gdcm::network::PDataTFPDU::GetNumberOfPresentationDataValues () const  [inline]
```

12.228.4.3 GetPresentationDataValue()

```
PresentationDataValue const & gdcm::network::PDataTFPDU::GetPresentationDataValue (
            SizeType i) const  [inline]
```

References gdcm_assert.

12.228.4.4 IsLastFragment()

```
bool gdcm::network::PDataTFPDU::IsLastFragment () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.228.4.5 Print()

```
void gdcm::network::PDataTFPDU::Print (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.228.4.6 Read()

```
std::istream & gdcm::network::PDataTFPDU::Read (
            std::istream & is)  [override], [virtual]
```

Implements gdcm::network::BasePDU.

12.228.4.7 ReadInto()

```
std::istream & gdcm::network::PDataTFPDU::ReadInto (
            std::istream & is,
            std::ostream & os)  [protected]
```

12.228.4.8 Size()

```
size_t gdcm::network::PDataTFPDU::Size () const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

Referenced by AddPresentationDataValue().

12.228.4.9 Write()

```
const std::ostream & gdcm::network::PDataTFPDU::Write (
            std::ostream & os) const  [override], [virtual]
```

Implements gdcm::network::BasePDU.

The documentation for this class was generated from the following file:

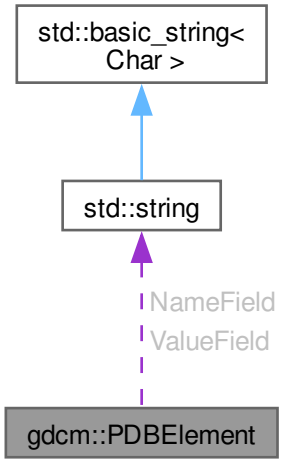
- gdcmPDataTFPDU.h

12.229 gdcm::PDBElement Class Reference

Class to represent a PDB Element.

`#include <gdcmPDBElement.h>`

Collaboration diagram for gdcm::PDBElement:



Public Member Functions

- PDBElement ()=default
- const char * GetName () const

  Set/Get Name.
- const char * GetValue () const

  Set/Get Value.
- bool operator== (const PDBElement &de) const
- void SetName (const char *name)
- void SetValue (const char *value)

Protected Attributes

- std::string NameField
- std::string ValueField

Friends

- std::ostream & operator<< (std::ostream &os, const PDBElement &val)

12.229.1 Detailed Description

Class to represent a PDB Element.

See also

PDBHeader

12.229.2 Constructor & Destructor Documentation

12.229.2.1 PDBElement()

```
gdcm::PDBElement::PDBElement ()  [default]
```

References PDBElement(), and operator<<.

Referenced by PDBElement(), operator<<, and operator==().

12.229.3 Member Function Documentation

12.229.3.1 GetName()

```
const char * gdcm::PDBElement::GetName () const  [inline]
```

Set/Get Name.

References NameField.

12.229.3.2 GetValue()

```
const char * gdcm::PDBElement::GetValue () const  [inline]
```

Set/Get Value.

References ValueField.

12.229.3.3 operator==()

```
bool gdcm::PDBElement::operator== (
            const PDBElement & de) const  [inline]
```

References PDBElement(), NameField, and ValueField.

12.229.3.4 SetName()

```
void gdcm::PDBElement::SetName (
            const char * name)  [inline]
```

References NameField.

12.229.3.5 SetValue()

```
void gdcm::PDBElement::SetValue (
            const char * value)  [inline]
```

References ValueField.

12.229.4 Friends And Related Symbol Documentation

12.229.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const PDBElement & val)  [friend]
```

References PDBElement(), NameField, and ValueField.

Referenced by PDBElement().

12.229.5 Member Data Documentation

12.229.5.1 NameField

```
std::string gdcm::PDBElement::NameField  [protected]
```

Referenced by GetName(), operator<<, operator==(), and SetName().

12.229.5.2 ValueField

```
std::string gdcm::PDBElement::ValueField  [protected]
```

Referenced by GetValue(), operator<<, operator==(), and SetValue().

The documentation for this class was generated from the following file:

- gdcmPDBElement.h

12.230 gdcm::PDBHeader Class Reference

Class for PDBHeader.

`#include <gdcmPDBHeader.h>`

Public Member Functions

- PDBHeader ()=default
- ~PDBHeader ()=default
- bool FindPDBElementByName (const char *name)

  Return true if the PDB element matching name is found or not.
- const PDBElement & GetPDBElementByName (const char *name)
- bool LoadFromDataElement (DataElement const &de)

  Load the PDB Header from a DataElement of a DataSet.
- void Print (std::ostream &os) const

  Print.

Static Public Member Functions

- static const PrivateTag & GetPDBInfoTag ()

  Return the Private Tag where the PDB header is stored within a DICOM DataSet.

Protected Member Functions

- const PDBElement & GetPDBEEnd () const

Friends

- std::ostream & operator<< (std::ostream &_os, const PDBHeader &d)

12.230.1 Detailed Description

Class for PDBHeader.

GEMS MR Image have an Attribute (0025,1b,GEMS_SERS_01) which store the Acquisition parameter of the MR Image. It is compressed and can therefore not be used as is. This class de-encapsulated the Protocol Data Block and allow users to query element by name.

Warning

Everything you do with this code is at your own risk, since decoding process was not written from specification documents.

: the API of this class might change.

: SEDESC is not always pure ASCII it can contains latin1

See also

CSAHeader

12.230.2 Constructor & Destructor Documentation

12.230.2.1 PDBHeader()

```
gdcm::PDBHeader::PDBHeader ()  [default]
```

Referenced by operator<<.

12.230.2.2 ~PDBHeader()

```
gdcm::PDBHeader::~PDBHeader ()  [default]
```

12.230.3 Member Function Documentation

12.230.3.1 FindPDBElementByName()

```
bool gdcm::PDBHeader::FindPDBElementByName (
            const char * name)
```

Return true if the PDB element matching name is found or not.

12.230.3.2 GetPDBEEnd()

```
const PDBElement & gdcm::PDBHeader::GetPDBEEnd () const  [protected]
```

12.230.3.3 GetPDBElementByName()

```
const PDBElement & gdcm::PDBHeader::GetPDBElementByName (
            const char * name)
```

Lookup in the PDB header if a PDB element match the name 'name':

Warning

Case Sensitive

12.230.3.4 GetPDBInfoTag()

```
const PrivateTag & gdcm::PDBHeader::GetPDBInfoTag ()  [static]
```

Return the Private Tag where the PDB header is stored within a DICOM DataSet.

12.230.3.5 LoadFromDataElement()

```
bool gdcm::PDBHeader::LoadFromDataElement (
            DataElement const & de)
```

Load the PDB Header from a DataElement of a DataSet.

12.230.3.6 Print()

```
void gdcm::PDBHeader::Print (
            std::ostream & os) const
```

Print.

Referenced by operator<<.

12.230.4 Friends And Related Symbol Documentation

12.230.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const PDBHeader & d)  [friend]
```

References PDBHeader(), and Print().

The documentation for this class was generated from the following file:

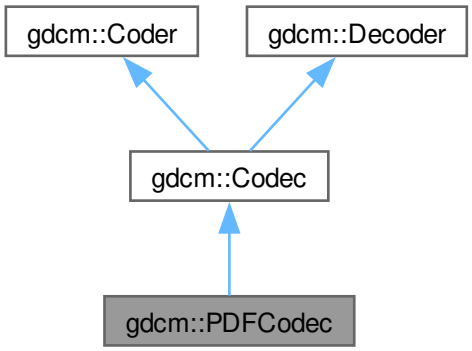
- gdcmPDBHeader.h

12.231 gdcm::PDFCodec Class Reference

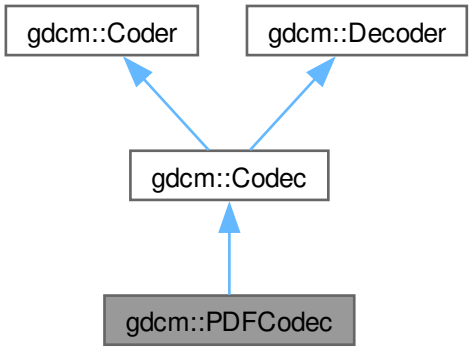
PDFCodec class.

```
#include <gdcmPDFCodec.h>
```

Inheritance diagram for gdcm::PDFCodec:



Collaboration diagram for gdcm::PDFCodec:



Public Member Functions

- PDFCodec ()
- ~PDFCodec () override
- bool CanCode (TransferSyntax const &) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &) const override

  Return whether this decoder support this transfer syntax (can decode it).
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Member Functions inherited from gdcm::Decoder

- virtual bool DecodeByStreams (std::istream &, std::ostream &)

12.231.1 Detailed Description

PDFCodec class.

12.231.2 Constructor & Destructor Documentation

12.231.2.1 PDFCodec()

```
gdcm::PDFCodec::PDFCodec ()
```

12.231.2.2 ~PDFCodec()

```
gdcm::PDFCodec::~PDFCodec ()  [override]
```

12.231.3 Member Function Documentation

12.231.3.1 CanCode()

```
bool gdcm::PDFCodec::CanCode (
            TransferSyntax const & ) const  [inline], [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Implements gdcm::Coder.

12.231.3.2 CanDecode()

```
bool gdcm::PDFCodec::CanDecode (
            TransferSyntax const & ) const  [inline], [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Implements gdcm::Decoder.

12.231.3.3 Decode()

```
bool gdcm::PDFCodec::Decode (
            DataElement const & is,
            DataElement & os)  [override], [virtual]
```

Decode.

Reimplemented from gdcm::Decoder.

The documentation for this class was generated from the following file:

- gdcmPDFCodec.h

12.232 gdcm::network::PDUFactory Class Reference

PDUFactory basically, given an initial byte, construct the.

`#include <gdcmPDUFactory.h>`

Static Public Member Functions

- static BasePDU * ConstructAbortPDU ()
- static BasePDU * ConstructPDU (uint8_t itemtype)
- static BasePDU * ConstructReleasePDU ()
- static std::vector< BasePDU * > CreateCEchoPDU (const ULConnection &inConnection)
- static std::vector< BasePDU * > CreateCFindPDU (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)
- static std::vector< BasePDU * > CreateCMovePDU (const ULConnection &inConnection, const BaseRootQuery *inRootQuery)
- static std::vector< BasePDU * > CreateCStoreRQPDU (const ULConnection &inConnection, const File &file, bool writeDataSet=true)
- static std::vector< BasePDU * > CreateCStoreRSPPDU (const DataSet *inDataSet, const BasePDU *inPC)
- static std::vector< BasePDU * > CreateNActionPDU (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< BasePDU * > CreateNCreatePDU (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< BasePDU * > CreateNDeletePDU (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< BasePDU * > CreateNEventReportPDU (const ULConnection &inConnection, const BaseQuery *inQuery)
- static std::vector< BasePDU * > CreateNGetPDU (const ULConnection &inConnection, const BaseQuery *in↩ Query)
- static std::vector< BasePDU * > CreateNSetPDU (const ULConnection &inConnection, const BaseQuery *in↩ Query)
- static EEventID DetermineEventByPDU (const BasePDU *inPDU)
- static std::vector< PresentationDataValue > GetPDVs (const std::vector< BasePDU * > &inDataPDUs)

12.232.1 Detailed Description

PDUFactory basically, given an initial byte, construct the.

appropriate PDU. This way, the event loop doesn't have to know about all the different PDU types.

12.232.2 Member Function Documentation

12.232.2.1 ConstructAbortPDU()

```
BasePDU * gdcm::network::PDUFactory::ConstructAbortPDU ()  [static]
```

12.232.2.2 ConstructPDU()

```
BasePDU * gdcm::network::PDUFactory::ConstructPDU (
            uint8_t itemtype)  [static]
```

12.232.2.3 ConstructReleasePDU()

```
BasePDU * gdcm::network::PDUFactory::ConstructReleasePDU ()  [static]
```

12.232.2.4 CreateCEchoPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCEchoPDU (
            const ULConnection & inConnection)  [static]
```

12.232.2.5 CreateCFindPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCFindPDU (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [static]
```

12.232.2.6 CreateCMovePDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCMovePDU (
            const ULConnection & inConnection,
            const BaseRootQuery * inRootQuery)  [static]
```

12.232.2.7 CreateCStoreRQPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCStoreRQPDU (
            const ULConnection & inConnection,
            const File & file,
            bool writeDataSet = true)  [static]
```

12.232.2.8 CreateCStoreRSPPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateCStoreRSPPDU (
            const DataSet * inDataSet,
            const BasePDU * inPC)  [static]
```

12.232.2.9 CreateNActionPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNActionPDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.232.2.10 CreateNCreatePDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNCreatePDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.232.2.11 CreateNDeletePDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNDeletePDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.232.2.12 CreateNEventReportPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNEventReportPDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.232.2.13 CreateNGetPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNGetPDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.232.2.14 CreateNSetPDU()

```
std::vector< BasePDU * > gdcm::network::PDUFactory::CreateNSetPDU (
            const ULConnection & inConnection,
            const BaseQuery * inQuery)  [static]
```

12.232.2.15 DetermineEventByPDU()

```
EEventID gdcm::network::PDUFactory::DetermineEventByPDU (
            const BasePDU * inPDU)  [static]
```

12.232.2.16 GetPDVs()

```
std::vector< PresentationDataValue > gdcm::network::PDUFactory::GetPDVs (
            const std::vector< BasePDU * > & inDataPDUs)  [static]
```

The documentation for this class was generated from the following file:

- gdcmPDUFactory.h

12.233 gdcm::PersonName Class Reference

PersonName class.

```
#include <gdcmPersonName.h>
```

Public Member Functions

- unsigned int GetMaxLength () const
- unsigned int GetNumberOfComponents () const
- void Print (std::ostream &os) const
- void SetBlob (const std::vector< char > &v)
- void SetComponents (const char *comp1="", const char *comp2="", const char *comp3="", const char *comp4="", const char *comp5="")
- void SetComponents (const char *components[ ])

Public Attributes

- char Component [MaxNumberOfComponents][MaxLength+1]

Static Public Attributes

- static const unsigned int MaxLength = 64
- static const unsigned int MaxNumberOfComponents = 5
- static const char Padding = ' '
- static const char Separator = '^'

12.233.1 Detailed Description

PersonName class.

12.233.2 Member Function Documentation

12.233.2.1 GetMaxLength()

```
unsigned int gdcm::PersonName::GetMaxLength () const  [inline]
```

References MaxLength.

Referenced by SetComponents().

12.233.2.2 GetNumberOfComponents()

```
unsigned int gdcm::PersonName::GetNumberOfComponents () const  [inline]
```

References Component.

12.233.2.3 Print()

```
void gdcm::PersonName::Print (
            std::ostream & os) const  [inline]
```

References Component.

12.233.2.4 SetBlob()

```
void gdcm::PersonName::SetBlob (
            const std::vector< char > & v)  [inline]
```

12.233.2.5 SetComponents() [1/2]

```
void gdcm::PersonName::SetComponents (
            const char * comp1 = "",
            const char * comp2 = "",
            const char * comp3 = "",
            const char * comp4 = "",
            const char * comp5 = "")  [inline]
```

References SetComponents().

Referenced by SetComponents().

12.233.2.6 SetComponents() [2/2]

```
void gdcm::PersonName::SetComponents (
            const char * components[])  [inline]
```

References Component, gdcm_assert, and GetMaxLength().

12.233.3 Member Data Documentation

12.233.3.1 Component

```
char gdcm::PersonName::Component[MaxNumberOfComponents][MaxLength+1]
```

Referenced by GetNumberOfComponents(), Print(), and SetComponents().

12.233.3.2 MaxLength

```
const unsigned int gdcm::PersonName::MaxLength = 64  [static]
```

Referenced by GetMaxLength().

12.233.3.3 MaxNumberOfComponents

```
const unsigned int gdcm::PersonName::MaxNumberOfComponents = 5  [static]
```

12.233.3.4 Padding

```
const char gdcm::PersonName::Padding = ' '  [static]
```

12.233.3.5 Separator

```
const char gdcm::PersonName::Separator = '^'  [static]
```

The documentation for this class was generated from the following file:

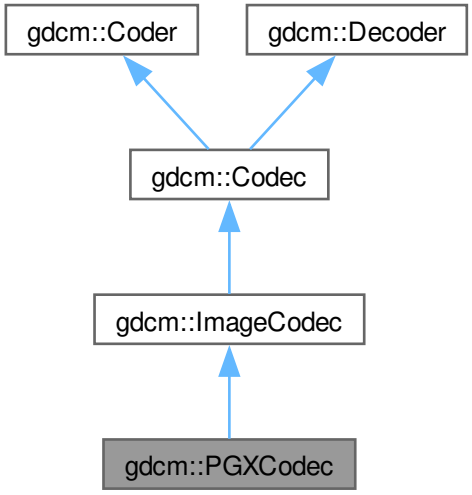
- gdcmPersonName.h

12.234 gdcm::PGXCodec Class Reference

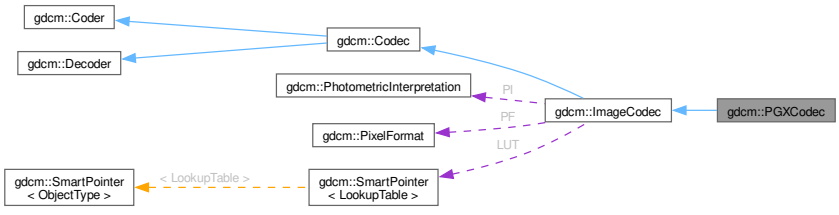
Class to do PGX.

```
#include <gdcmPGXCodec.h>
```

Inheritance diagram for gdcm::PGXCodec:



Collaboration diagram for gdcm::PGXCodec:



Public Member Functions

- PGXCodec ()
- ~PGXCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool Read (const char *filename, DataElement &out) const
- bool Write (const char *filename, const DataElement &out) const

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- bool Decode (DataElement const &is_, DataElement &os) override

  Decode.
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.234.1 Detailed Description

Class to do PGX.

See PGX as used in JPEG 2000 implementation and reference images

12.234.2 Constructor & Destructor Documentation

12.234.2.1 PGXCodec()

```
gdcm::PGXCodec::PGXCodec ()
```

12.234.2.2 ~PGXCodec()

```
gdcm::PGXCodec::~PGXCodec ()  [override]
```

12.234.3 Member Function Documentation

12.234.3.1 CanCode()

```
bool gdcm::PGXCodec::CanCode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.234.3.2 CanDecode()

```
bool gdcm::PGXCodec::CanDecode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.234.3.3 Clone()

```
ImageCodec * gdcm::PGXCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.234.3.4 GetHeaderInfo()

```
bool gdcm::PGXCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.234.3.5 Read()

```
bool gdcm::PGXCodec::Read (
            const char * filename,
            DataElement & out) const
```

12.234.3.6 Write()

```
bool gdcm::PGXCodec::Write (
            const char * filename,
            const DataElement & out) const
```

The documentation for this class was generated from the following file:

- gdcmPGXCodec.h

12.235 gdcm::PhotometricInterpretation Class Reference

Class to represent an PhotometricInterpretation.

```
#include <gdcmPhotometricInterpretation.h>
```

Public Types

- enum PIType {
  UNKNOWN = 0 ,
  MONOCHROME1 ,
  MONOCHROME2 ,
  PALETTE_COLOR ,
  RGB ,
  HSV ,
  ARGB ,
  CMYK ,
  YBR_FULL ,
  YBR_FULL_422 ,
  YBR_PARTIAL_422 ,
  YBR_PARTIAL_420 ,
  YBR_ICT ,
  YBR_RCT ,
  PI_END }

Public Member Functions

- PhotometricInterpretation (PIType pi=UNKNOWN)
- unsigned short GetSamplesPerPixel () const

  return the value for Sample Per Pixel associated with a particular Photometric Interpretation
- const char * GetString () const
- PIType GetType () const
- bool IsLossless () const
- bool IsLossy () const
- bool IsSameColorSpace (PhotometricInterpretation const &pi) const
- operator PIType () const

Static Public Member Functions

- static const char * GetPIString (PIType pi)
- static PIType GetPIType (const char *pi)
- static bool IsRetired (PIType pi)

Friends

- std::ostream & operator<< (std::ostream &os, const PhotometricInterpretation &pi)

12.235.1 Detailed Description

Class to represent an PhotometricInterpretation.

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, ExtractImageRegion.cs, FileChangeTS.cs, FileChangeTSLossy.cs, HelloVizWorld.cxx, MpegVideoInfo.cs, csa2img.cxx, and iU22tomultisc.cxx.

12.235.2 Member Enumeration Documentation

12.235.2.1 PIType

```
enum gdcm::PhotometricInterpretation::PIType
```

Enumerator

UNKNOWN	
MONOCHROME1	
MONOCHROME2	

PALETTE_COLOR	
RGB	
HSV	
ARGB	
CMYK	
YBR_FULL	
YBR_FULL_422	
YBR_PARTIAL_422	
YBR_PARTIAL_420	
YBR_ICT	
YBR_RCT	
PI_END	

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FileChangeTS.cs, FileChangeTSLossy.cs, and MpegVideoInfo.cs.

12.235.3 Constructor & Destructor Documentation

12.235.3.1 PhotometricInterpretation()

```
gdcm::PhotometricInterpretation::PhotometricInterpretation (
            PIType pi = UNKNOWN)  [inline]
```

References UNKNOWN.

Referenced by GetSamplesPerPixel(), IsSameColorSpace(), and operator<<.

12.235.4 Member Function Documentation

12.235.4.1 GetPIString()

```
const char * gdcm::PhotometricInterpretation::GetPIString (
            PIType pi)  [static]
```

Referenced by operator<<.

12.235.4.2 GetPIType()

```
PIType gdcm::PhotometricInterpretation::GetPIType (
            const char * pi)  [static]
```

12.235.4.3 GetSamplesPerPixel()

```
unsigned short gdcm::PhotometricInterpretation::GetSamplesPerPixel () const
```

return the value for Sample Per Pixel associated with a particular Photometric Interpretation

References PhotometricInterpretation(), and operator<<.

12.235.4.4 GetString()

```
const char * gdcm::PhotometricInterpretation::GetString () const
```

12.235.4.5 GetType()

```
PIType gdcm::PhotometricInterpretation::GetType () const  [inline]
```

12.235.4.6 IsLossless()

```
bool gdcm::PhotometricInterpretation::IsLossless () const
```

12.235.4.7 IsLossy()

```
bool gdcm::PhotometricInterpretation::IsLossy () const
```

12.235.4.8 IsRetired()

```
bool gdcm::PhotometricInterpretation::IsRetired (
            PIType pi)  [static]
```

12.235.4.9 IsSameColorSpace()

```
bool gdcm::PhotometricInterpretation::IsSameColorSpace (
            PhotometricInterpretation const & pi) const
```

References PhotometricInterpretation().

12.235.4.10 operator PIType()

```
gdcm::PhotometricInterpretation::operator PIType () const  [inline]
```

12.235.5 Friends And Related Symbol Documentation

12.235.5.1 operator<<

```
std::ostream & operator<< (
             std::ostream & os,
             const PhotometricInterpretation & pi)  [friend]
```

References PhotometricInterpretation(), and GetPIString().

Referenced by GetSamplesPerPixel().

The documentation for this class was generated from the following file:

- gdcmPhotometricInterpretation.h

12.236 gdcm::PixelFormat Class Reference

PixelFormat.

```
#include <gdcmPixelFormat.h>
```

Public Types

- enum ScalarType {
  UINT8 ,
  INT8 ,
  UINT12 ,
  INT12 ,
  UINT16 ,
  INT16 ,
  UINT32 ,
  INT32 ,
  UINT64 ,
  INT64 ,
  FLOAT16 ,
  FLOAT32 ,
  FLOAT64 ,
  SINGLEBIT ,
  UNKNOWN }

Public Member Functions

- PixelFormat ()
- PixelFormat (ScalarType st)
- PixelFormat (unsigned short samplesperpixel, unsigned short bitsallocated=8, unsigned short bitsstored=8, unsigned short highbit=7, unsigned short pixelrepresentation=0)
- unsigned short GetBitsAllocated () const

  BitsAllocated see Tag (0028,0100) US Bits Allocated.
- unsigned short GetBitsStored () const

  BitsStored see Tag (0028,0101) US Bits Stored.
- unsigned short GetHighBit () const

  HighBit see Tag (0028,0102) US High Bit.
- int64_t GetMax () const

  return the max possible of the pixel
- int64_t GetMin () const

  return the min possible of the pixel
- unsigned short GetPixelRepresentation () const

  PixelRepresentation: 0 or 1, see Tag (0028,0103) US Pixel Representation.
- uint8_t GetPixelSize () const
- unsigned short GetSamplesPerPixel () const
- ScalarType GetScalarType () const

  ScalarType does not take into account the sample per pixel.
- const char * GetScalarTypeAsString () const
- bool IsCompatible (const TransferSyntax &ts) const
- bool IsValid () const

  return IsValid
- operator ScalarType () const
- bool operator!= (const PixelFormat &pf) const
- bool operator!= (ScalarType st) const
- bool operator== (const PixelFormat &pf) const
- bool operator== (ScalarType st) const
- void Print (std::ostream &os) const

  Print.
- void SetBitsAllocated (unsigned short ba)
- void SetBitsStored (unsigned short bs)
- void SetHighBit (unsigned short hb)
- void SetPixelRepresentation (unsigned short pr)
- void SetSamplesPerPixel (unsigned short spp)
- void SetScalarType (ScalarType st)

Protected Member Functions

- bool Validate ()

  When image with 24/24/23 was read, need to validate.

Friends

- class Bitmap
- std::ostream & operator<< (std::ostream &_os, const PixelFormat &pf)

12.236.1 Detailed Description

PixelFormat.

By default the Pixel Type will be instantiated with the following parameters:

- SamplesPerPixel : 1
- BitsAllocated : 8
- BitsStored : 8
- HighBit : 7
- PixelRepresentation : 0

Fundamentally PixelFormat is very close to what DICOM allows. It will be very hard to extend this class for the upcoming DICOM standard where Floating 32 and 64bits will be allowed.

It is also very hard for this class to fully support 64bits integer type (see GetMin / GetMax signature restricted to 64bits signed).

Examples

CreateARGBImage.cxx, CreateCMYKImage.cxx, DecompressImage.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, FixJAIBugJPEGLS.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, MpegVideoInfo.cs, RescaleImage.cs, TemplateEmptyImage.cxx, csa2img.cxx, iU22tomultisc.cxx, and threadgdcm.cxx.

12.236.2 Member Enumeration Documentation

12.236.2.1 ScalarType

```
enum gdcm::PixelFormat::ScalarType
```

Enumerator

UINT8	
INT8	
UINT12	
INT12	
UINT16	
INT16	
UINT32	
INT32	
UINT64	

INT64	
FLOAT16	
FLOAT32	
FLOAT64	
SINGLEBIT	
UNKNOWN	

Examples

GetArray.cs.

12.236.3 Constructor & Destructor Documentation

12.236.3.1 PixelFormat() [1/3]

```
gdcm::PixelFormat::PixelFormat ()  [inline]
```

References PixelFormat().

Referenced by PixelFormat(), Bitmap, operator!=(), operator<<, and operator==().

12.236.3.2 PixelFormat() [2/3]

```
gdcm::PixelFormat::PixelFormat (
             unsigned short samplesperpixel,
             unsigned short bitsallocated = 8,
             unsigned short bitsstored = 8,
             unsigned short highbit = 7,
             unsigned short pixelrepresentation = 0)  [inline], [explicit]
```

12.236.3.3 PixelFormat() [3/3]

```
gdcm::PixelFormat::PixelFormat (
             ScalarType st)
```

12.236.4 Member Function Documentation

12.236.4.1 GetBitsAllocated()

```
unsigned short gdcm::PixelFormat::GetBitsAllocated () const  [inline]
```

BitsAllocated see Tag (0028,0100) US Bits Allocated.

Examples

GetJPEGSamplePrecision.cxx.

12.236.4.2 GetBitsStored()

```
unsigned short gdcm::PixelFormat::GetBitsStored () const  [inline]
```

BitsStored see Tag (0028,0101) US Bits Stored.

Examples

GetJPEGSamplePrecision.cxx.

References gdcm_assert.

12.236.4.3 GetHighBit()

```
unsigned short gdcm::PixelFormat::GetHighBit () const  [inline]
```

HighBit see Tag (0028,0102) US High Bit.

References gdcm_assert.

12.236.4.4 GetMax()

```
int64_t gdcm::PixelFormat::GetMax () const
```

return the max possible of the pixel

12.236.4.5 GetMin()

```
int64_t gdcm::PixelFormat::GetMin () const
```

return the min possible of the pixel

12.236.4.6 GetPixelRepresentation()

```
unsigned short gdcm::PixelFormat::GetPixelRepresentation () const  [inline]
```

PixelRepresentation: 0 or 1, see Tag (0028,0103) US Pixel Representation.

12.236.4.7 GetPixelSize()

```
uint8_t gdcm::PixelFormat::GetPixelSize () const
```

return the size of the pixel This is the number of words it would take to store one pixel

Warning

the return value takes into account the SamplesPerPixel

in the rare case when BitsAllocated == 12, the function assume word padding and value returned will be identical as if BitsAllocated == 16

Examples

ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, and threadgdcm.cxx.

12.236.4.8 GetSamplesPerPixel()

```
unsigned short gdcm::PixelFormat::GetSamplesPerPixel () const
```

Samples Per Pixel see (0028,0002) US Samples Per Pixel DICOM - only allows 1, 3 and 4 as valid value. Other value are undefined behavior.

Examples

threadgdcm.cxx.

12.236.4.9 GetScalarType()

```
ScalarType gdcm::PixelFormat::GetScalarType () const
```

ScalarType does not take into account the sample per pixel.

Examples

GetArray.cs.

Referenced by operator ScalarType(), operator!=(), and operator==().

12.236.4.10 GetScalarTypeAsString()

```
const char * gdcm::PixelFormat::GetScalarTypeAsString () const
```

Examples

GetArray.cs.

12.236.4.11 IsCompatible()

```
bool gdcm::PixelFormat::IsCompatible (
            const TransferSyntax & ts) const
```

12.236.4.12 IsValid()

```
bool gdcm::PixelFormat::IsValid () const
```

return IsValid

12.236.4.13 operator ScalarType()

```
gdcm::PixelFormat::operator ScalarType () const  [inline]
```

References GetScalarType().

12.236.4.14 operator"!=() [1/2]

```
bool gdcm::PixelFormat::operator!= (
            const PixelFormat & pf) const  [inline]
```

References PixelFormat().

12.236.4.15 operator"!=() [2/2]

```
bool gdcm::PixelFormat::operator!= (
            ScalarType st) const  [inline]
```

References GetScalarType().

12.236.4.16 operator==() [1/2]

```
bool gdcm::PixelFormat::operator== (
            const PixelFormat & pf) const  [inline]
```

References PixelFormat().

12.236.4.17 operator==() [2/2]

```
bool gdcm::PixelFormat::operator== (
            ScalarType st) const  [inline]
```

References GetScalarType().

12.236.4.18 Print()

```
void gdcm::PixelFormat::Print (
            std::ostream & os) const
```

Print.

Referenced by operator<<.

12.236.4.19 SetBitsAllocated()

```
void gdcm::PixelFormat::SetBitsAllocated (
            unsigned short ba)  [inline]
```

12.236.4.20 SetBitsStored()

```
void gdcm::PixelFormat::SetBitsStored (
            unsigned short bs)  [inline]
```

References SetHighBit().

12.236.4.21 SetHighBit()

```
void gdcm::PixelFormat::SetHighBit (
            unsigned short hb)  [inline]
```

Referenced by SetBitsStored().

12.236.4.22 SetPixelRepresentation()

```
void gdcm::PixelFormat::SetPixelRepresentation (
            unsigned short pr)  [inline]
```

Examples

TemplateEmptyImage.cxx.

12.236.4.23 SetSamplesPerPixel()

```
void gdcm::PixelFormat::SetSamplesPerPixel (
            unsigned short spp)  [inline]
```

Examples

CreateARGBImage.cxx, and CreateCMYKImage.cxx.

References gdcm_assert, and gdcmAssertMacro.

12.236.4.24 SetScalarType()

```
void gdcm::PixelFormat::SetScalarType (
            ScalarType st)
```

Set PixelFormat based only on the ScalarType

Warning

: You need to call SetScalarType *before* SetSamplesPerPixel

12.236.4.25 Validate()

```
bool gdcm::PixelFormat::Validate ()  [protected]
```

When image with 24/24/23 was read, need to validate.

12.236.5 Friends And Related Symbol Documentation

12.236.5.1 Bitmap

```
friend class Bitmap  [friend]
```

References PixelFormat(), Bitmap, and operator<<.

Referenced by Bitmap.

12.236.5.2 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const PixelFormat & pf)  [friend]
```

References PixelFormat(), and Print().

Referenced by Bitmap.

The documentation for this class was generated from the following file:

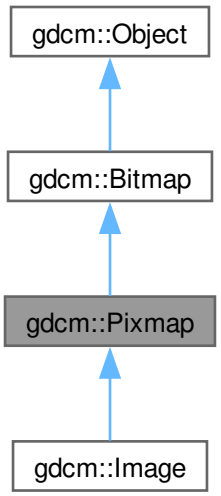
- gdcmPixelFormat.h

12.237 gdcm::Pixmap Class Reference

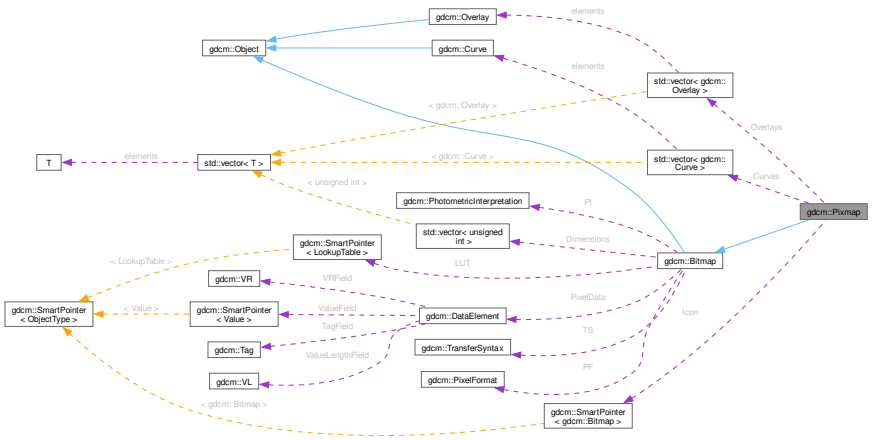
Pixmap class.

`#include <gdcmPixmap.h>`

Inheritance diagram for gdcm::Pixmap:



Collaboration diagram for gdcm::Pixmap:



Public Member Functions

- Pixmap ()
- ~Pixmap () override
- bool AreOverlaysInPixelData () const override

  returns if Overlays are stored in the unused bit of the pixel data:
- Curve & GetCurve (size_t i=0)

  Curve: group 50xx.
- const Curve & GetCurve (size_t i=0) const
- IconImage & GetIconImage ()
- const IconImage & GetIconImage () const

  Set/Get Icon Image.
- size_t GetNumberOfCurves () const
- size_t GetNumberOfOverlays () const
- Overlay & GetOverlay (size_t i=0)

  Overlay: group 60xx.
- const Overlay & GetOverlay (size_t i=0) const
- void Print (std::ostream &) const override
- void RemoveOverlay (size_t i)
- void SetIconImage (IconImage const &ii)
- void SetNumberOfCurves (size_t n)
- void SetNumberOfOverlays (size_t n)
- bool UnusedBitsPresentInPixelData () const override

  returns if there are unused bits in the pixel data

Public Member Functions inherited from gdcm::Bitmap

- Bitmap ()
- ~Bitmap () override
- void Clear ()
- bool GetBuffer (char *buffer) const

  Access the raw data.
- unsigned long GetBufferLength () const
- unsigned int GetColumns () const
- DataElement & GetDataElement ()
- const DataElement & GetDataElement () const
- unsigned int GetDimension (unsigned int idx) const
- const unsigned int * GetDimensions () const

  Return the dimension of the pixel data, first dimension (x), then 2nd (y), then 3rd (z)...
- LookupTable & GetLUT ()
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const

  INTERNAL do not use.
- unsigned int GetNumberOfDimensions () const

  Return the number of dimension of the pixel data bytes; for example 2 for a 2D matrices of values.
- const PhotometricInterpretation & GetPhotometricInterpretation () const

  return the photometric interpretation
- PixelFormat & GetPixelFormat ()

- const PixelFormat & GetPixelFormat () const

  Get/Set PixelFormat.
- unsigned int GetPlanarConfiguration () const

  return the planar configuration
- unsigned int GetRows () const
- const TransferSyntax & GetTransferSyntax () const
- bool IsEmpty () const
- bool IsLossy () const

  Return whether or not the image was compressed using a lossy compressor or not.
- bool IsTransferSyntaxCompatible (TransferSyntax const &ts) const
- void SetColumns (unsigned int col)
- void SetDataElement (DataElement const &de)
- void SetDimension (unsigned int idx, unsigned int dim)
- void SetDimensions (const unsigned int dims[3])
- void SetLossyFlag (bool f)

  Specifically set that the image was compressed using a lossy compression mechanism.
- void SetLUT (LookupTable const &lut)

  Set/Get LUT.
- void SetNeedByteSwap (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)
- void SetRows (unsigned int rows)
- void SetTransferSyntax (TransferSyntax const &ts)

  Transfer syntax.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Attributes

- std::vector< Curve > Curves
- SmartPointer< IconImage > Icon
- std::vector< Overlay > Overlays

Protected Attributes inherited from gdcm::Bitmap

- std::vector< unsigned int > Dimensions
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- DataElement PixelData
- unsigned int PlanarConfiguration
- TransferSyntax TS

Additional Inherited Members

Protected Types inherited from gdcm::Bitmap

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::Bitmap

- bool ComputeLossyFlag ()
- bool GetBuffer2 (std::ostream &os) const
- bool TryJPEG2000Codec (char *buffer, bool &lossyflag) const
- bool TryJPEG2000Codec2 (std::ostream &os) const
- bool TryJPEGCodec (char *buffer, bool &lossyflag) const
- bool TryJPEGCodec2 (std::ostream &os) const
- bool TryJPEGLSCodec (char *buffer, bool &lossyflag) const
- bool TryKAKADUCodec (char *buffer, bool &lossyflag) const
- bool TryPVRGCodec (char *buffer, bool &lossyflag) const
- bool TryRAWCodec (char *buffer, bool &lossyflag) const
- bool TryRLECodec (char *buffer, bool &lossyflag) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.237.1 Detailed Description

Pixmap class.

A bitmap based image. Used as parent for both IconImage and the main Pixel Data Image It does not contains any World Space information (IPP, IOP)

See also

PixmapReader

Examples

FileChangeTS.cs, FileChangeTSLossy.cs, and StandardizeFiles.cs.

12.237.2 Constructor & Destructor Documentation

12.237.2.1 Pixmap()

```
gdcm::Pixmap::Pixmap ()
```

12.237.2.2 ~Pixmap()

```
gdcm::Pixmap::~Pixmap ()  [override]
```

12.237.3 Member Function Documentation

12.237.3.1 AreOverlaysInPixelData()

```
bool gdcm::Pixmap::AreOverlaysInPixelData () const  [override], [virtual]
```

returns if Overlays are stored in the unused bit of the pixel data:

Reimplemented from gdcm::Bitmap.

12.237.3.2 GetCurve() [1/2]

```
Curve & gdcm::Pixmap::GetCurve (
            size_t i = 0)  [inline]
```

Curve: group 50xx.

References Curves, and gdcm_assert.

12.237.3.3 GetCurve() [2/2]

```
const Curve & gdcm::Pixmap::GetCurve (
            size_t i = 0) const  [inline]
```

References Curves, and gdcm_assert.

12.237.3.4 GetIconImage() [1/2]

```
IconImage & gdcm::Pixmap::GetIconImage ()  [inline]
```

References Icon.

12.237.3.5 GetIconImage() [2/2]

```
const IconImage & gdcm::Pixmap::GetIconImage () const  [inline]
```

Set/Get Icon Image.

References Icon.

12.237.3.6 GetNumberOfCurves()

```
size_t gdcm::Pixmap::GetNumberOfCurves () const  [inline]
```

References Curves.

12.237.3.7 GetNumberOfOverlays()

```
size_t gdcm::Pixmap::GetNumberOfOverlays () const  [inline]
```

References Overlays.

12.237.3.8 GetOverlay() [1/2]

```
Overlay & gdcm::Pixmap::GetOverlay (
            size_t i = 0)  [inline]
```

Overlay: group 60xx.

References gdcm_assert, and Overlays.

12.237.3.9 GetOverlay() [2/2]

```
const Overlay & gdcm::Pixmap::GetOverlay (
            size_t i = 0) const  [inline]
```

References gdcm_assert, and Overlays.

12.237.3.10 Print()

```
void gdcm::Pixmap::Print (
            std::ostream & ) const  [override], [virtual]
```

Reimplemented from gdcm::Bitmap.

12.237.3.11 RemoveOverlay()

```
void gdcm::Pixmap::RemoveOverlay (
            size_t i)  [inline]
```

References gdcm_assert, and Overlays.

12.237.3.12 SetIconImage()

```
void gdcm::Pixmap::SetIconImage (
            IconImage const & ii)  [inline]
```

References Icon.

12.237.3.13 SetNumberOfCurves()

```
void gdcm::Pixmap::SetNumberOfCurves (
            size_t n)  [inline]
```

References Curves.

12.237.3.14 SetNumberOfOverlays()

```
void gdcm::Pixmap::SetNumberOfOverlays (
            size_t n)  [inline]
```

References Overlays.

12.237.3.15 UnusedBitsPresentInPixelData()

```
bool gdcm::Pixmap::UnusedBitsPresentInPixelData () const  [override], [virtual]
```

returns if there are unused bits in the pixel data

Reimplemented from gdcm::Bitmap.

12.237.4 Member Data Documentation

12.237.4.1 Curves

```
std::vector<Curve> gdcm::Pixmap::Curves  [protected]
```

Referenced by GetCurve(), GetCurve(), GetNumberOfCurves(), and SetNumberOfCurves().

12.237.4.2 Icon

`SmartPointer<IconImage> gdcm::Pixmap::Icon [protected]`

Referenced by GetIconImage(), GetIconImage(), and SetIconImage().

12.237.4.3 Overlays

`std::vector<Overlay> gdcm::Pixmap::Overlays [protected]`

Referenced by GetNumberOfOverlays(), GetOverlay(), GetOverlay(), RemoveOverlay(), and SetNumberOfOverlays().

The documentation for this class was generated from the following file:

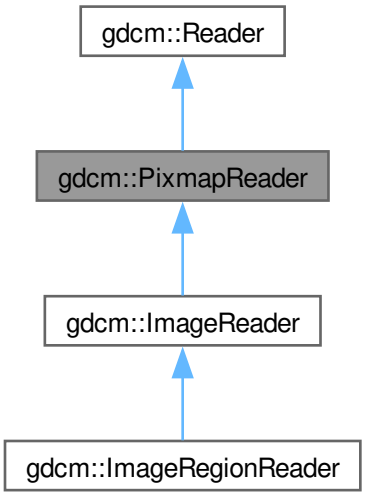
- gdcmPixmap.h

12.238 gdcm::PixmapReader Class Reference

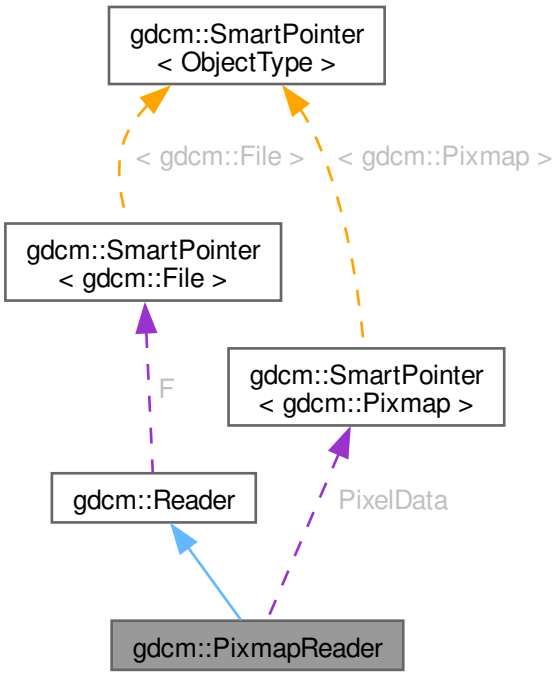
PixmapReader.

`#include <gdcmPixmapReader.h>`

Inheritance diagram for gdcm::PixmapReader:



Collaboration diagram for gdcm::PixmapReader:



Public Member Functions

- PixmapReader ()
- ~PixmapReader () override
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const

  Return the read image (need to call Read() first).
- bool Read () override

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const

- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- virtual bool ReadACRNEMAImage ()
- virtual bool ReadImage (MediaStorage const &ms)
- bool ReadImageInternal (MediaStorage const &ms, bool handlepixeldata=true)

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Protected Attributes

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

12.238.1 Detailed Description

PixmapReader.

Note

its role is to convert the DICOM DataSet into a Pixmap representation By default it is also loading the lookup table and overlay when found as they impact the rendering or the image

See PS 3.3-2008, Table C.7-11b IMAGE PIXEL MACRO ATTRIBUTES for the list of attribute that belong to what gdcm calls a 'Pixmap'

Warning

the API ReadUpToTag and ReadSelectedTag

See also

Pixmap

Examples

StandardizeFiles.cs.

12.238.2 Constructor & Destructor Documentation

12.238.2.1 PixmapReader()

```
gdcm::PixmapReader::PixmapReader ()
```

12.238.2.2 ~PixmapReader()

```
gdcm::PixmapReader::~PixmapReader ()  [override]
```

12.238.3 Member Function Documentation

12.238.3.1 GetPixmap() [1/2]

```
Pixmap & gdcm::PixmapReader::GetPixmap ()
```

12.238.3.2 GetPixmap() [2/2]

```
const Pixmap & gdcm::PixmapReader::GetPixmap () const
```

Return the read image (need to call Read() first).

Examples

StandardizeFiles.cs.

12.238.3.3 Read()

```
bool gdcm::PixmapReader::Read ()  [override], [virtual]
```

Read the DICOM image. There are two reason for failure:

1. The input filename is not DICOM
2. The input DICOM file does not contains an Pixmap.

Reimplemented from gdcm::Reader.

Examples

StandardizeFiles.cs.

12.238.3.4 ReadACRNEMAImage()

```
virtual bool gdcm::PixmapReader::ReadACRNEMAImage ()  [protected], [virtual]
```

Reimplemented in gdcm::ImageReader.

12.238.3.5 ReadImage()

```
virtual bool gdcm::PixmapReader::ReadImage (
            MediaStorage const & ms)  [protected], [virtual]
```

Reimplemented in gdcm::ImageReader.

12.238.3.6 ReadImageInternal()

```
bool gdcm::PixmapReader::ReadImageInternal (
            MediaStorage const & ms,
            bool handlepixeldata = true)  [protected]
```

12.238.4 Member Data Documentation

12.238.4.1 PixelData

```
SmartPointer<Pixmap> gdcm::PixmapReader::PixelData  [protected]
```

The documentation for this class was generated from the following file:

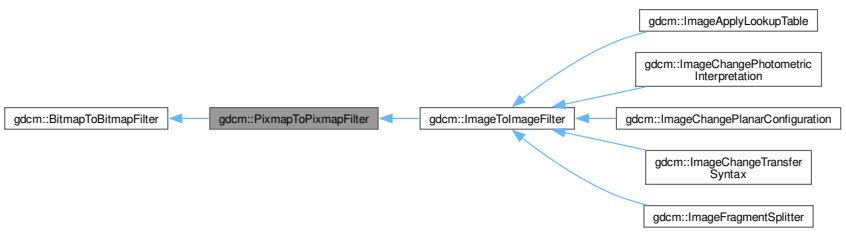
- gdcmPixmapReader.h

12.239 gdcm::PixmapToPixmapFilter Class Reference

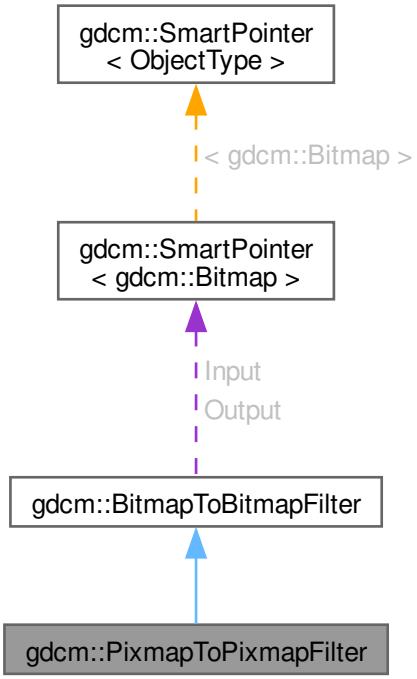
PixmapToPixmapFilter class.

```
#include <gdcmPixmapToPixmapFilter.h>
```

Inheritance diagram for gdcm::PixmapToPixmapFilter:



Collaboration diagram for gdcm::PixmapToPixmapFilter:



Public Member Functions

- PixmapToPixmapFilter ()
- ~PixmapToPixmapFilter ()=default
- Pixmap & GetInput ()
- const Pixmap & GetOutput () const

  Get Output image.
- const Pixmap & GetOutputAsPixmap () const

Public Member Functions inherited from gdcm::BitmapToBitmapFilter

- BitmapToBitmapFilter ()
- ~BitmapToBitmapFilter ()=default
- const Bitmap & GetOutput () const

  Get Output image.
- const Bitmap & GetOutputAsBitmap () const
- void SetInput (const Bitmap &image)

  Set input image.

Additional Inherited Members

Protected Attributes inherited from gdcm::BitmapToBitmapFilter

- SmartPointer< Bitmap > Input
- SmartPointer< Bitmap > Output

12.239.1 Detailed Description

PixmapToPixmapFilter class.

Super class for all filter taking an image and producing an output image

Examples

StandardizeFiles.cs.

12.239.2 Constructor & Destructor Documentation

12.239.2.1 PixmapToPixmapFilter()

```
gdcm::PixmapToPixmapFilter::PixmapToPixmapFilter ()
```

12.239.2.2 ~PixmapToPixmapFilter()

```
gdcm::PixmapToPixmapFilter::~PixmapToPixmapFilter ()  [default]
```

12.239.3 Member Function Documentation

12.239.3.1 GetInput()

```
Pixmap & gdcm::PixmapToPixmapFilter::GetInput ()
```

12.239.3.2 GetOutput()

```
const Pixmap & gdcm::PixmapToPixmapFilter::GetOutput () const
```

Get Output image.

12.239.3.3 GetOutputAsPixmap()

```
const Pixmap & gdcm::PixmapToPixmapFilter::GetOutputAsPixmap () const
```

The documentation for this class was generated from the following file:

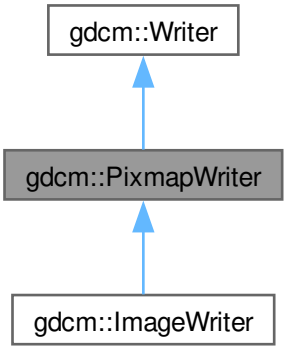
- gdcmPixmapToPixmapFilter.h

12.240 gdcm::PixmapWriter Class Reference

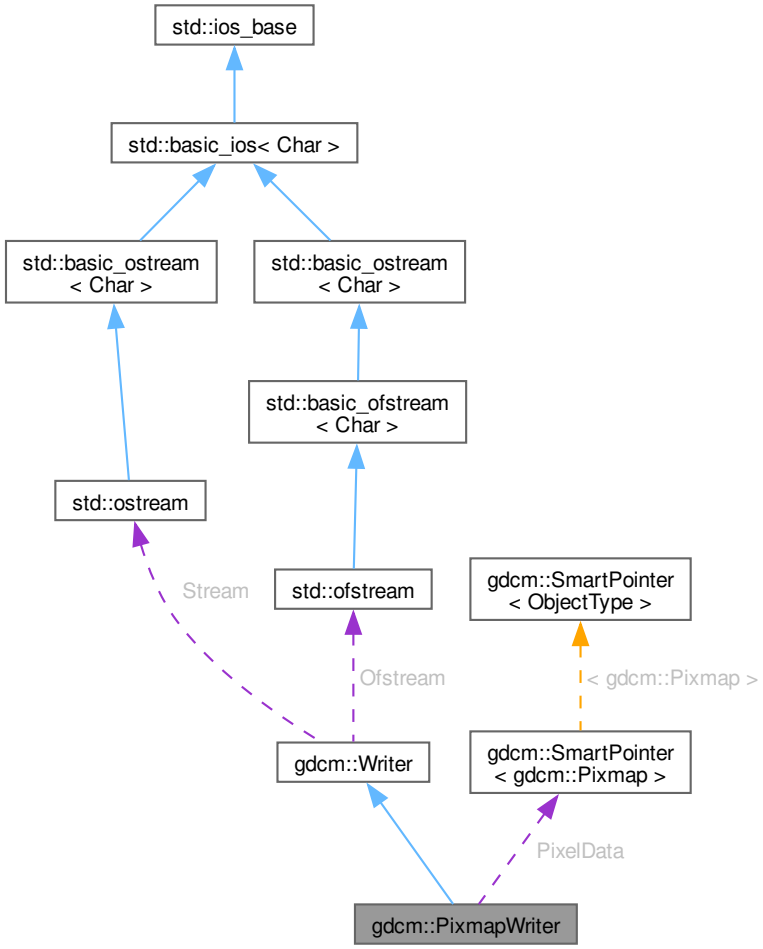
PixmapWriter.

```
#include <gdcmPixmapWriter.h>
```

Inheritance diagram for gdcm::PixmapWriter:



Collaboration diagram for gdcm::PixmapWriter:



Public Member Functions

- PixmapWriter ()
- ~PixmapWriter () override
- virtual Pixmap & GetImage ()
- virtual const Pixmap & GetImage () const
- Pixmap & GetPixmap ()
- const Pixmap & GetPixmap () const
- virtual void SetImage (Pixmap const &img)
- void SetPixmap (Pixmap const &img)
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::Writer

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default).
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header).
- void SetFileName (const char *filename_native)

  Set the filename of DICOM file to write:
- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

Protected Member Functions

- void DoIconImage (DataSet &ds, Pixmap const &image)
- bool PrepareWrite (MediaStorage const &refms)

Protected Member Functions inherited from gdcm::Writer

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes

- SmartPointer< Pixmap > PixelData

Protected Attributes inherited from gdcm::Writer

- std::ofstream * Ofstream
- std::ostream * Stream

12.240.1 Detailed Description

PixmapWriter.

This class will takes two inputs:

1. The DICOM DataSet
2. The Image input It will override any info from the Image over the DataSet.

For instance when one read in a lossy compressed image and write out as unencapsulated (ie implicitly lossless) then some attribute are definitely needed to mark this dataset as Lossy (typically 0028,2114)

Examples

StandardizeFiles.cs.

12.240.2 Constructor & Destructor Documentation

12.240.2.1 PixmapWriter()

```
gdcm::PixmapWriter::PixmapWriter ()
```

12.240.2.2 ~PixmapWriter()

```
gdcm::PixmapWriter::~PixmapWriter ()  [override]
```

12.240.3 Member Function Documentation

12.240.3.1 DoIconImage()

```
void gdcm::PixmapWriter::DoIconImage (
            DataSet & ds,
            Pixmap const & image)  [protected]
```

12.240.3.2 GetImage() [1/2]

```
virtual Pixmap & gdcm::PixmapWriter::GetImage ()  [inline], [virtual]
```

Reimplemented in gdcm::ImageWriter.

References PixelData.

12.240.3.3 GetImage() [2/2]

```
virtual const Pixmap & gdcm::PixmapWriter::GetImage () const  [inline], [virtual]
```

Set/Get Pixmap to be written It will overwrite anything Pixmap infos found in DataSet (see parent class to see how to pass dataset)

Reimplemented in gdcm::ImageWriter.

References PixelData.

12.240.3.4 GetPixmap() [1/2]

```
Pixmap & gdcm::PixmapWriter::GetPixmap ()  [inline]
```

References PixelData.

12.240.3.5 GetPixmap() [2/2]

```
const Pixmap & gdcm::PixmapWriter::GetPixmap () const  [inline]
```

References PixelData.

12.240.3.6 PrepareWrite()

```
bool gdcm::PixmapWriter::PrepareWrite (
            MediaStorage const & refms)  [protected]
```

12.240.3.7 SetImage()

```
virtual void gdcm::PixmapWriter::SetImage (
            Pixmap const & img)  [virtual]
```

Examples

BasicImageAnonymizer.cs, CompressImage.cxx, CompressLossyJPEG.cs, DecompressImage.cs, GenFakeImage.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, MergeTwoFiles.cxx, MpegVideoInfo.cs, and TemplateEmptyImage.cxx.

12.240.3.8 SetPixmap()

```
void gdcm::PixmapWriter::SetPixmap (
            Pixmap const & img)
```

Examples

StandardizeFiles.cs.

12.240.3.9 Write()

```
bool gdcm::PixmapWriter::Write ()  [override], [virtual]
```

Write.

Reimplemented from gdcm::Writer.

Examples

StandardizeFiles.cs.

12.240.4 Member Data Documentation

12.240.4.1 PixelData

```
SmartPointer<Pixmap> gdcm::PixmapWriter::PixelData  [protected]
```

Referenced by GetImage(), GetImage(), GetPixmap(), and GetPixmap().

The documentation for this class was generated from the following file:

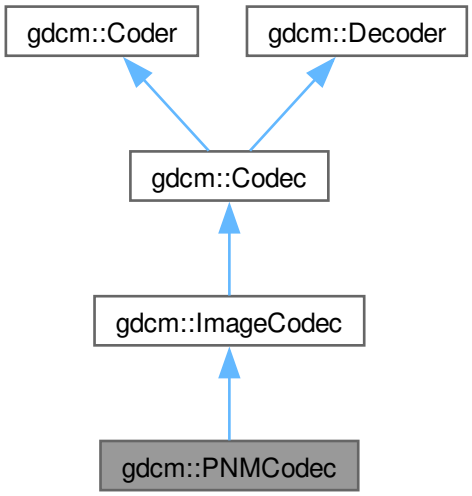
- gdcmPixmapWriter.h

12.241 gdcm::PNMCodec Class Reference

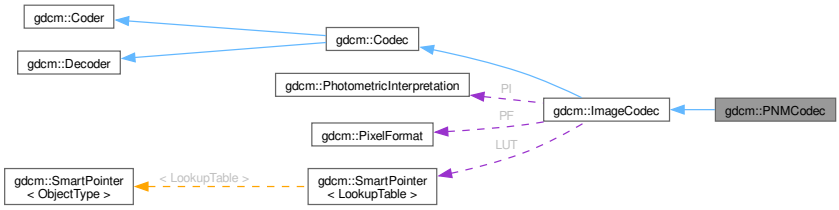
Class to do PNM.

```
#include <gdcmPNMCodec.h>
```

Inheritance diagram for gdcm::PNMCodec:



Collaboration diagram for gdcm::PNMCodec:



Public Member Functions

- PNMCodec ()
- ~PNMCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- unsigned long GetBufferLength () const
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- bool Read (const char *filename, DataElement &out) const
- void SetBufferLength (unsigned long l)
- bool Write (const char *filename, const DataElement &out) const

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- bool Decode (DataElement const &is_, DataElement &os) override

  Decode.
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)

- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default
- virtual bool Code (DataElement const &in_, DataElement &out_)

  Code.

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.241.1 Detailed Description

Class to do PNM.

PNM is the Portable anymap file format. The main web page can be found at: `http://netpbm.sourceforge.net/`

Note

Only support P5 & P6 PNM file (binary grayscale and binary rgb)

Examples

ExtractIconFromFile.cxx.

12.241.2 Constructor & Destructor Documentation

12.241.2.1 PNMCodec()

```
gdcm::PNMCodec::PNMCodec ()
```

12.241.2.2 ~PNMCodec()

```
gdcm::PNMCodec::~PNMCodec ()  [override]
```

12.241.3 Member Function Documentation

12.241.3.1 CanCode()

```
bool gdcm::PNMCodec::CanCode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.241.3.2 CanDecode()

```
bool gdcm::PNMCodec::CanDecode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.241.3.3 Clone()

```
ImageCodec * gdcm::PNMCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.241.3.4 GetBufferLength()

```
unsigned long gdcm::PNMCodec::GetBufferLength () const  [inline]
```

12.241.3.5 GetHeaderInfo()

```
bool gdcm::PNMCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.241.3.6 Read()

```
bool gdcm::PNMCodec::Read (
            const char * filename,
            DataElement & out) const
```

12.241.3.7 SetBufferLength()

```
void gdcm::PNMCodec::SetBufferLength (
            unsigned long l)  [inline]
```

12.241.3.8 Write()

```
bool gdcm::PNMCodec::Write (
            const char * filename,
            const DataElement & out) const
```

Examples

ExtractIconFromFile.cxx.

The documentation for this class was generated from the following file:

- gdcmPNMCodec.h

12.242 gdcm::Preamble Class Reference

DICOM Preamble (Part 10).

```
#include <gdcmPreamble.h>
```

Public Member Functions

- Preamble ()
- Preamble (Preamble const &)
- ~Preamble ()
- void Clear ()

  Clear.
- void Create ()
- const char * GetInternal () const

  Get internal pointer to preamble.
- VL GetLength () const

  Return size of Preamble.
- bool IsEmpty () const

  Check if Preamble is empty.
- Preamble & operator= (Preamble const &)
- void Print (std::ostream &os) const

  Print Preamble.
- std::istream & Read (std::istream &is)

  Read Preamble.
- void Remove ()
- void Valid ()

  Set Preamble to the default one.
- std::ostream const & Write (std::ostream &os) const

  Write Preamble.

Protected Member Functions

- bool IsValid () const

Friends

- std::ostream & operator<< (std::ostream &_os, const Preamble &_val)

12.242.1 Detailed Description

DICOM Preamble (Part 10).

12.242.2 Constructor & Destructor Documentation

12.242.2.1 Preamble() [1/2]

```
gdcm::Preamble::Preamble ()
```

Referenced by Preamble(), ~Preamble(), operator<<, and operator=().

12.242.2.2 ~Preamble()

```
gdcm::Preamble::~Preamble ()
```

References Preamble(), and operator<<.

12.242.2.3 Preamble() [2/2]

```
gdcm::Preamble::Preamble (
            Preamble const & )  [inline]
```

References Preamble(), and Create().

12.242.3 Member Function Documentation

12.242.3.1 Clear()

```
void gdcm::Preamble::Clear ()
```

Clear.

12.242.3.2 Create()

```
void gdcm::Preamble::Create ()
```

Referenced by Preamble(), and operator=().

12.242.3.3 GetInternal()

```
const char * gdcm::Preamble::GetInternal () const  [inline]
```

Get internal pointer to preamble.

12.242.3.4 GetLength()

```
VL gdcm::Preamble::GetLength () const  [inline]
```

Return size of Preamble.

12.242.3.5 IsEmpty()

```
bool gdcm::Preamble::IsEmpty () const  [inline]
```

Check if Preamble is empty.

12.242.3.6 IsValid()

```
bool gdcm::Preamble::IsValid () const  [inline], [protected]
```

12.242.3.7 operator=()

```
Preamble & gdcm::Preamble::operator= (
            Preamble const & )  [inline]
```

References Preamble(), and Create().

12.242.3.8 Print()

```
void gdcm::Preamble::Print (
            std::ostream & os) const
```

Print Preamble.

12.242.3.9 Read()

```
std::istream & gdcm::Preamble::Read (
            std::istream & is)
```

Read Preamble.

12.242.3.10 Remove()

```
void gdcm::Preamble::Remove ()
```

12.242.3.11 Valid()

```
void gdcm::Preamble::Valid ()
```

Set Preamble to the default one.

12.242.3.12 Write()

```
std::ostream const & gdcm::Preamble::Write (
            std::ostream & os) const
```

Write Preamble.

12.242.4 Friends And Related Symbol Documentation

12.242.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Preamble & _val)  [friend]
```

References Preamble().

Referenced by ~Preamble().

The documentation for this class was generated from the following file:

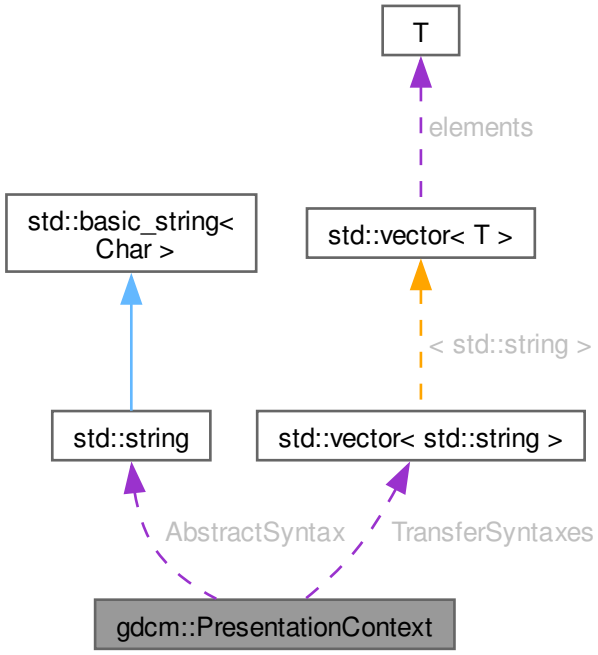
- gdcmPreamble.h

12.243 gdcm::PresentationContext Class Reference

PresentationContext.

`#include <gdcmPresentationContext.h>`

Collaboration diagram for gdcm::PresentationContext:



Public Types

- typedef TransferSyntaxArrayType::size_type SizeType
- typedef std::vector< std::string > TransferSyntaxArrayType

Public Member Functions

- PresentationContext ()
- PresentationContext (UIDs::TSName asname, UIDs::TSName tsname=UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM
- void AddTransferSyntax (const char *tsstr)
- const char * GetAbstractSyntax () const
- SizeType GetNumberOfTransferSyntaxes () const
- uint8_t GetPresentationContextID () const
- const char * GetTransferSyntax (SizeType i) const
- bool operator== (const PresentationContext &pc) const
- void Print (std::ostream &os) const
- void SetAbstractSyntax (const char *absyn)
- void SetPresentationContextID (uint8_t id)

Protected Attributes

- std::string AbstractSyntax
- uint8_t ID
- std::vector< std::string > TransferSyntaxes

12.243.1 Detailed Description

PresentationContext.

See also

PresentationContextAC PresentationContextRQ

12.243.2 Member Typedef Documentation

12.243.2.1 SizeType

```
typedef TransferSyntaxArrayType::size_type gdcm::PresentationContext::SizeType
```

12.243.2.2 TransferSyntaxArrayType

```
typedef std::vector<std::string> gdcm::PresentationContext::TransferSyntaxArrayType
```

12.243.3 Constructor & Destructor Documentation

12.243.3.1 PresentationContext() [1/2]

```
gdcm::PresentationContext::PresentationContext ()
```

Referenced by operator==().

12.243.3.2 PresentationContext() [2/2]

```
gdcm::PresentationContext::PresentationContext (
            UIDs::TSName asname,
            UIDs::TSName tsname = UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM)
```

Initialize Presentation Context with AbstractSyntax set to asname and with a single TransferSyntax set to tsname (default to Implicit VR LittleEndian when not specified).

References gdcm::UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM.

12.243.4 Member Function Documentation

12.243.4.1 AddTransferSyntax()

```
void gdcm::PresentationContext::AddTransferSyntax (
            const char * tsstr)
```

12.243.4.2 GetAbstractSyntax()

```
const char * gdcm::PresentationContext::GetAbstractSyntax () const  [inline]
```

References AbstractSyntax.

12.243.4.3 GetNumberOfTransferSyntaxes()

```
SizeType gdcm::PresentationContext::GetNumberOfTransferSyntaxes () const  [inline]
```

References TransferSyntaxes.

12.243.4.4 GetPresentationContextID()

```
uint8_t gdcm::PresentationContext::GetPresentationContextID () const
```

12.243.4.5 GetTransferSyntax()

```
const char * gdcm::PresentationContext::GetTransferSyntax (
            SizeType i) const  [inline]
```

References TransferSyntaxes.

12.243.4.6 operator==()

```
bool gdcm::PresentationContext::operator== (
            const PresentationContext & pc) const  [inline]
```

References PresentationContext(), AbstractSyntax, gdcm_assert, and TransferSyntaxes.

12.243.4.7 Print()

```
void gdcm::PresentationContext::Print (
            std::ostream & os) const
```

12.243.4.8 SetAbstractSyntax()

```
void gdcm::PresentationContext::SetAbstractSyntax (
            const char * absyn)  [inline]
```

References AbstractSyntax.

12.243.4.9 SetPresentationContextID()

```
void gdcm::PresentationContext::SetPresentationContextID (
            uint8_t id)
```

12.243.5 Member Data Documentation

12.243.5.1 AbstractSyntax

```
std::string gdcm::PresentationContext::AbstractSyntax  [protected]
```

Referenced by GetAbstractSyntax(), operator==(), and SetAbstractSyntax().

12.243.5.2 ID

```
uint8_t gdcm::PresentationContext::ID  [protected]
```

12.243.5.3 TransferSyntaxes

```
std::vector<std::string> gdcm::PresentationContext::TransferSyntaxes  [protected]
```

Referenced by GetNumberOfTransferSyntaxes(), GetTransferSyntax(), and operator==().

The documentation for this class was generated from the following file:

- gdcmPresentationContext.h

12.244 gdcm::network::PresentationContextAC Class Reference

PresentationContextAC.

```
#include <gdcmPresentationContextAC.h>
```

Public Member Functions

- PresentationContextAC ()
- uint8_t GetPresentationContextID () const
- uint8_t GetReason () const
- TransferSyntaxSub const & GetTransferSyntax () const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetPresentationContextID (uint8_t id)
- void SetReason (uint8_t r)
- void SetTransferSyntax (TransferSyntaxSub const &ts)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.244.1 Detailed Description

PresentationContextAC.

Table 9-18 PRESENTATION CONTEXT ITEM FIELDS

See also

PresentationContext

12.244.2 Constructor & Destructor Documentation

12.244.2.1 PresentationContextAC()

```
gdcm::network::PresentationContextAC::PresentationContextAC ()
```

12.244.3 Member Function Documentation

12.244.3.1 GetPresentationContextID()

```
uint8_t gdcm::network::PresentationContextAC::GetPresentationContextID () const  [inline]
```

12.244.3.2 GetReason()

```
uint8_t gdcm::network::PresentationContextAC::GetReason () const  [inline]
```

12.244.3.3 GetTransferSyntax()

```
TransferSyntaxSub const & gdcm::network::PresentationContextAC::GetTransferSyntax () const  [inline]
```

12.244.3.4 Print()

```
void gdcm::network::PresentationContextAC::Print (
            std::ostream & os) const
```

12.244.3.5 Read()

```
std::istream & gdcm::network::PresentationContextAC::Read (
            std::istream & is)
```

12.244.3.6 SetPresentationContextID()

```
void gdcm::network::PresentationContextAC::SetPresentationContextID (
            uint8_t id)
```

12.244.3.7 SetReason()

```
void gdcm::network::PresentationContextAC::SetReason (
            uint8_t r)  [inline]
```

12.244.3.8 SetTransferSyntax()

```
void gdcm::network::PresentationContextAC::SetTransferSyntax (
            TransferSyntaxSub const & ts)
```

12.244.3.9 Size()

```
size_t gdcm::network::PresentationContextAC::Size () const
```

12.244.3.10 Write()

```
const std::ostream & gdcm::network::PresentationContextAC::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmPresentationContextAC.h

12.245 gdcm::PresentationContextGenerator Class Reference

PresentationContextGenerator.

`#include <gdcmPresentationContextGenerator.h>`

Public Types

- typedef std::vector< PresentationContext > PresentationContextArrayType
- typedef PresentationContextArrayType::size_type SizeType

Public Member Functions

- PresentationContextGenerator ()
- bool AddFromFile (const File &file)
- bool GenerateFromFilenames (const Directory::FilenamesType &files)
- bool GenerateFromUID (UIDs::TSName asname)

  Generate the PresentationContext array from a UID (eg. VerificationSOPClass).
- PresentationContextArrayType const & GetPresentationContexts ()
- void SetDefaultTransferSyntax (const TransferSyntax &ts)

  Not implemented for now. GDCM internally uses Implicit Little Endian.
- void SetMergeModeToAbstractSyntax ()
- void SetMergeModeToTransferSyntax ()

Protected Member Functions

- bool AddPresentationContext (const char *absyn, const char *ts)
- const char * GetDefaultTransferSyntax () const

12.245.1 Detailed Description

PresentationContextGenerator.

This class is responsible for generating the proper PresentationContext that will be used in subsequent operation during a DICOM Query/Retrieve association. The step of the association is very sensible as special care need to be taken to explicitly define what instance are going to be send and how they are encoded.

For example a PresentationContext will express that negotiation requires that CT Image Storage are send using JPEG Lossless, while US Image Storage are sent using RLE Transfer Syntax.

Two very different API are exposed one which will always default to little endian transfer syntax see GenerateFromUID() This API is used for C-ECHO, C-FIND and C-MOVE (SCU). Another API: GenerateFromFilenames() is used for C-STORE (SCU) as it will loop over all filenames argument to detect the actual encoding. and therefore find the proper encoding to be used.

Two modes are available. The default mode (SetMergeModeToAbstractSyntax) append PresentationContext (one AbstractSyntax and one TransferSyntax), as long a they are different. Eg MR Image Storage/JPEG2000 and MR Image Storage/JPEGLossless would be considered different. the other mode SetMergeModeToTransferSyntax merge any new TransferSyntax to the already existing PresentationContext in order to re-use the same AbstractSyntax.

See also

PresentationContext

Examples

CStoreQtProgress.cxx.

12.245.2 Member Typedef Documentation

12.245.2.1 PresentationContextArrayType

```
typedef std::vector<PresentationContext> gdcm::PresentationContextGenerator::PresentationContextArrayType
```

12.245.2.2 SizeType

```
typedef PresentationContextArrayType::size_type gdcm::PresentationContextGenerator::SizeType
```

12.245.3 Constructor & Destructor Documentation

12.245.3.1 PresentationContextGenerator()

```
gdcm::PresentationContextGenerator::PresentationContextGenerator ()
```

12.245.4 Member Function Documentation

12.245.4.1 AddFromFile()

```
bool gdcm::PresentationContextGenerator::AddFromFile (
            const File & file)
```

Add a single PresentationContext from a single File. Call multiple times when dealing with multiple files.

12.245.4.2 AddPresentationContext()

```
bool gdcm::PresentationContextGenerator::AddPresentationContext (
            const char * absyn,
            const char * ts)  [protected]
```

12.245.4.3 GenerateFromFilenames()

```
bool gdcm::PresentationContextGenerator::GenerateFromFilenames (
            const Directory::FilenamesType & files)
```

Generate the PresentationContext array from a File-Set. File specified needs to be valid DICOM files. Used for C-STORE operations

Examples

CStoreQtProgress.cxx.

12.245.4.4 GenerateFromUID()

```
bool gdcm::PresentationContextGenerator::GenerateFromUID (
            UIDs::TSName asname)
```

Generate the PresentationContext array from a UID (eg. VerificationSOPClass).

12.245.4.5 GetDefaultTransferSyntax()

```
const char * gdcm::PresentationContextGenerator::GetDefaultTransferSyntax () const  [protected]
```

12.245.4.6 GetPresentationContexts()

```
PresentationContextArrayType const & gdcm::PresentationContextGenerator::GetPresentationContexts
() [inline]
```

Examples

CStoreQtProgress.cxx.

12.245.4.7 SetDefaultTransferSyntax()

```
void gdcm::PresentationContextGenerator::SetDefaultTransferSyntax (
            const TransferSyntax & ts)
```

Not implemented for now. GDCM internally uses Implicit Little Endian.

12.245.4.8 SetMergeModeToAbstractSyntax()

```
void gdcm::PresentationContextGenerator::SetMergeModeToAbstractSyntax ()
```

12.245.4.9 SetMergeModeToTransferSyntax()

```
void gdcm::PresentationContextGenerator::SetMergeModeToTransferSyntax ()
```

The documentation for this class was generated from the following file:

- gdcmPresentationContextGenerator.h

12.246 gdcm::network::PresentationContextRQ Class Reference

PresentationContextRQ.

`#include <gdcmPresentationContextRQ.h>`

Public Types

- typedef std::vector< TransferSyntaxSub >::size_type SizeType

Public Member Functions

- PresentationContextRQ ()
- PresentationContextRQ (const PresentationContext &pc)
- PresentationContextRQ (UIDs::TSName asname, UIDs::TSName tsname=UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDI
- void AddTransferSyntax (TransferSyntaxSub const &ts)
- AbstractSyntax & GetAbstractSyntax ()
- AbstractSyntax const & GetAbstractSyntax () const
- SizeType GetNumberOfTransferSyntaxes () const
- uint8_t GetPresentationContextID () const
- TransferSyntaxSub & GetTransferSyntax (SizeType i)
- TransferSyntaxSub const & GetTransferSyntax (SizeType i) const
- std::vector< TransferSyntaxSub > const & GetTransferSyntaxes () const
- bool operator== (const PresentationContextRQ &pc) const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetAbstractSyntax (AbstractSyntax const &absyn)
- void SetPresentationContextID (uint8_t id)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.246.1 Detailed Description

PresentationContextRQ.

Table 9-13 PRESENTATION CONTEXT ITEM FIELDS

See also

PresentationContextAC

12.246.2 Member Typedef Documentation

12.246.2.1 SizeType

`typedef std::vector<TransferSyntaxSub>::size_type gdcm::network::PresentationContextRQ::SizeType`

12.246.3 Constructor & Destructor Documentation

12.246.3.1 PresentationContextRQ() [1/3]

```
gdcm::network::PresentationContextRQ::PresentationContextRQ ()
```

Referenced by operator==().

12.246.3.2 PresentationContextRQ() [2/3]

```
gdcm::network::PresentationContextRQ::PresentationContextRQ (
            UIDs::TSName asname,
            UIDs::TSName tsname = UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM)
```

Initialize Presentation Context with AbstractSyntax set to asname and with a single TransferSyntax set to tsname (dfault to Implicit VR LittleEndian when not specified).

References gdcm::UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM.

12.246.3.3 PresentationContextRQ() [3/3]

```
gdcm::network::PresentationContextRQ::PresentationContextRQ (
            const PresentationContext & pc)
```

12.246.4 Member Function Documentation

12.246.4.1 AddTransferSyntax()

```
void gdcm::network::PresentationContextRQ::AddTransferSyntax (
            TransferSyntaxSub const & ts)
```

12.246.4.2 GetAbstractSyntax() [1/2]

```
AbstractSyntax & gdcm::network::PresentationContextRQ::GetAbstractSyntax ()  [inline]
```

12.246.4.3 GetAbstractSyntax() [2/2]

```
AbstractSyntax const & gdcm::network::PresentationContextRQ::GetAbstractSyntax () const  [inline]
```

12.246.4.4 GetNumberOfTransferSyntaxes()

```
SizeType gdcm::network::PresentationContextRQ::GetNumberOfTransferSyntaxes () const  [inline]
```

12.246.4.5 GetPresentationContextID()

```
uint8_t gdcm::network::PresentationContextRQ::GetPresentationContextID () const
```

12.246.4.6 GetTransferSyntax() [1/2]

```
TransferSyntaxSub & gdcm::network::PresentationContextRQ::GetTransferSyntax (
            SizeType i)  [inline]
```

12.246.4.7 GetTransferSyntax() [2/2]

```
TransferSyntaxSub const & gdcm::network::PresentationContextRQ::GetTransferSyntax (
            SizeType i) const  [inline]
```

12.246.4.8 GetTransferSyntaxes()

```
std::vector< TransferSyntaxSub > const & gdcm::network::PresentationContextRQ::GetTransfer↩
Syntaxes () const  [inline]
```

12.246.4.9 operator==()

```
bool gdcm::network::PresentationContextRQ::operator== (
            const PresentationContextRQ & pc) const  [inline]
```

References PresentationContextRQ(), and gdcm_assert.

12.246.4.10 Print()

```
void gdcm::network::PresentationContextRQ::Print (
            std::ostream & os) const
```

12.246.4.11 Read()

```
std::istream & gdcm::network::PresentationContextRQ::Read (
            std::istream & is)
```

12.246.4.12 SetAbstractSyntax()

```
void gdcm::network::PresentationContextRQ::SetAbstractSyntax (
            AbstractSyntax const & absyn)
```

12.246.4.13 SetPresentationContextID()

```
void gdcm::network::PresentationContextRQ::SetPresentationContextID (
            uint8_t id)
```

12.246.4.14 Size()

```
size_t gdcm::network::PresentationContextRQ::Size () const
```

12.246.4.15 Write()

```
const std::ostream & gdcm::network::PresentationContextRQ::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmPresentationContextRQ.h

12.247 gdcm::network::PresentationDataValue Class Reference

PresentationDataValue.

```
#include <gdcmPresentationDataValue.h>
```

Public Member Functions

- PresentationDataValue ()
- const std::string & GetBlob () const
- bool GetIsCommand () const
- bool GetIsLastFragment () const
- uint8_t GetMessageHeader () const
- uint8_t GetPresentationContextID () const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- std::istream & ReadInto (std::istream &is, std::ostream &os)
- void SetBlob (const std::string &partialblob)
- void SetCommand (bool inCommand)
- void SetDataSet (const DataSet &ds)
- void SetLastFragment (bool inLast)
- void SetMessageHeader (uint8_t messageheader)
- void SetPresentationContextID (uint8_t id)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

Static Public Member Functions

- static DataSet ConcatenatePDVBlobs (const std::vector< PresentationDataValue > &inPDVs)
- static DataSet ConcatenatePDVBlobsAsExplicit (const std::vector< PresentationDataValue > &inPDVs)

12.247.1 Detailed Description

PresentationDataValue.

Table 9-23 PRESENTATION-DATA-VALUE ITEM FIELDS

12.247.2 Constructor & Destructor Documentation

12.247.2.1 PresentationDataValue()

```
gdcm::network::PresentationDataValue::PresentationDataValue ()
```

12.247.3 Member Function Documentation

12.247.3.1 ConcatenatePDVBlobs()

```
DataSet gdcm::network::PresentationDataValue::ConcatenatePDVBlobs (
            const std::vector< PresentationDataValue > & inPDVs)  [static]
```

Warning

DataSet will be read as Implicit Little Endian TS

12.247.3.2 ConcatenatePDVBlobsAsExplicit()

```
DataSet gdcm::network::PresentationDataValue::ConcatenatePDVBlobsAsExplicit (
            const std::vector< PresentationDataValue > & inPDVs)  [static]
```

12.247.3.3 GetBlob()

```
const std::string & gdcm::network::PresentationDataValue::GetBlob () const
```

12.247.3.4 GetIsCommand()

```
bool gdcm::network::PresentationDataValue::GetIsCommand () const
```

12.247.3.5 GetIsLastFragment()

```
bool gdcm::network::PresentationDataValue::GetIsLastFragment () const
```

12.247.3.6 GetMessageHeader()

```
uint8_t gdcm::network::PresentationDataValue::GetMessageHeader () const  [inline]
```

References gdcm_assert.

12.247.3.7 GetPresentationContextID()

```
uint8_t gdcm::network::PresentationDataValue::GetPresentationContextID () const  [inline]
```

12.247.3.8 Print()

```
void gdcm::network::PresentationDataValue::Print (
            std::ostream & os) const
```

12.247.3.9 Read()

```
std::istream & gdcm::network::PresentationDataValue::Read (
            std::istream & is)
```

12.247.3.10 ReadInto()

```
std::istream & gdcm::network::PresentationDataValue::ReadInto (
            std::istream & is,
            std::ostream & os)
```

12.247.3.11 SetBlob()

```
void gdcm::network::PresentationDataValue::SetBlob (
            const std::string & partialblob)
```

12.247.3.12 SetCommand()

```
void gdcm::network::PresentationDataValue::SetCommand (
            bool inCommand)
```

12.247.3.13 SetDataSet()

```
void gdcm::network::PresentationDataValue::SetDataSet (
            const DataSet & ds)
```

Set DataSet. Write DataSet in implicit.

Warning

size of dataset should be below maxpdusize

12.247.3.14 SetLastFragment()

```
void gdcm::network::PresentationDataValue::SetLastFragment (
            bool inLast)
```

12.247.3.15 SetMessageHeader()

```
void gdcm::network::PresentationDataValue::SetMessageHeader (
            uint8_t messageheader)  [inline]
```

References gdcm_assert.

12.247.3.16 SetPresentationContextID()

```
void gdcm::network::PresentationDataValue::SetPresentationContextID (
            uint8_t id)  [inline]
```

References gdcm_assert.

12.247.3.17 Size()

```
size_t gdcm::network::PresentationDataValue::Size () const
```

12.247.3.18 Write()

```
const std::ostream & gdcm::network::PresentationDataValue::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

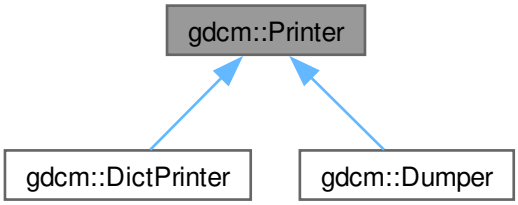
- gdcmPresentationDataValue.h

12.248 gdcm::Printer Class Reference

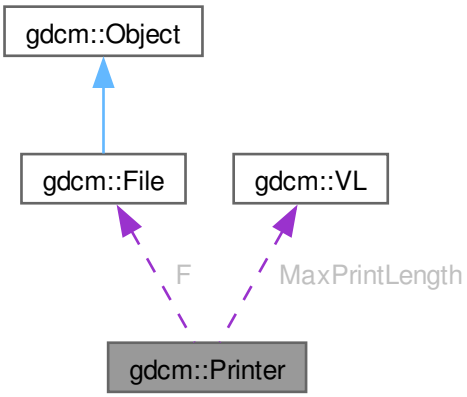
Printer class.

`#include <gdcmPrinter.h>`

Inheritance diagram for gdcm::Printer:



Collaboration diagram for gdcm::Printer:



Public Types

- enum PrintStyles {
  VERBOSE_STYLE = 0 ,
  CONDENSED_STYLE ,
  XML ,
  CXX }

Public Member Functions

- Printer ()
- ~Printer ()=default
- PrintStyles GetPrintStyle () const

  Get PrintStyle value.
- void Print (std::ostream &os)

  Print.
- void PrintDataSet (const DataSet &ds, std::ostream &os, const std::string &s="")

  Print an individual dataset.
- void SetColor (bool c)

  Set color mode or not.
- void SetFile (File const &f)

  Set file.
- void SetStyle (PrintStyles ps)

  Set PrintStyle value.

Protected Member Functions

- VR PrintDataElement (std::ostringstream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, std::ostream &out, std::string const &indent)
- void PrintSQ (const SequenceOfItems *sqi, std::ostream &os, std::string const &indent)

Protected Attributes

- const File * F
- VL MaxPrintLength
- PrintStyles PrintStyle

12.248.1 Detailed Description

Printer class.

Examples

DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, and DumpToshibaDTI2.cxx.

12.248.2 Member Enumeration Documentation

12.248.2.1 PrintStyles

```
enum gdcm::Printer::PrintStyles
```

Enumerator

VERBOSE_STYLE	
CONDENSED_STYLE	
XML	
CXX	

12.248.3 Constructor & Destructor Documentation

12.248.3.1 Printer()

```
gdcm::Printer::Printer ()
```

12.248.3.2 ~Printer()

```
gdcm::Printer::~Printer ()  [default]
```

12.248.4 Member Function Documentation

12.248.4.1 GetPrintStyle()

```
PrintStyles gdcm::Printer::GetPrintStyle () const  [inline]
```

Get PrintStyle value.

References PrintStyle.

12.248.4.2 Print()

```
void gdcm::Printer::Print (
            std::ostream & os)
```

Print.

Examples

DumpSiemensBase64.cxx.

12.248.4.3 PrintDataElement()

```
VR gdcm::Printer::PrintDataElement (
             std::ostringstream & os,
             const Dicts & dicts,
             const DataSet & ds,
             const DataElement & de,
             std::ostream & out,
             std::string const & indent)  [protected]
```

12.248.4.4 PrintDataSet()

```
void gdcm::Printer::PrintDataSet (
             const DataSet & ds,
             std::ostream & os,
             const std::string & s = "")
```

Print an individual dataset.

12.248.4.5 PrintSQ()

```
void gdcm::Printer::PrintSQ (
             const SequenceOfItems * sqi,
             std::ostream & os,
             std::string const & indent)  [protected]
```

12.248.4.6 SetColor()

```
void gdcm::Printer::SetColor (
             bool c)
```

Set color mode or not.

12.248.4.7 SetFile()

```
void gdcm::Printer::SetFile (
             File const & f)  [inline]
```

Set file.

Examples

DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, and DumpToshibaDTI2.cxx.

References F.

12.248.4.8 SetStyle()

```
void gdcm::Printer::SetStyle (
            PrintStyles ps)  [inline]
```

Set PrintStyle value.

References PrintStyle.

12.248.5 Member Data Documentation

12.248.5.1 F

```
const File* gdcm::Printer::F  [protected]
```

Referenced by SetFile().

12.248.5.2 MaxPrintLength

```
VL gdcm::Printer::MaxPrintLength  [protected]
```

12.248.5.3 PrintStyle

```
PrintStyles gdcm::Printer::PrintStyle  [protected]
```

Referenced by gdcm::Dumper::Dumper(), GetPrintStyle(), and SetStyle().

The documentation for this class was generated from the following file:

- gdcmPrinter.h

12.249 gdcm::PrivateDict Class Reference

Private Dict.

```
#include <gdcmDict.h>
```

Public Member Functions

- PrivateDict ()=default
- ~PrivateDict ()=default
- void AddDictEntry (const PrivateTag &tag, const DictEntry &de)
- bool FindDictEntry (const PrivateTag &tag) const
- const DictEntry & GetDictEntry (const PrivateTag &tag) const
- bool IsEmpty () const
- void PrintXML () const
- bool RemoveDictEntry (const PrivateTag &tag)

Protected Member Functions

- void LoadDefault ()

Friends

- class Dicts
- std::ostream & operator<< (std::ostream &os, const PrivateDict &val)

12.249.1 Detailed Description

Private Dict.

12.249.2 Constructor & Destructor Documentation

12.249.2.1 PrivateDict()

```
gdcm::PrivateDict::PrivateDict ()  [default]
```

Referenced by LoadDefault(), and operator<<.

12.249.2.2 ~PrivateDict()

```
gdcm::PrivateDict::~PrivateDict ()  [default]
```

12.249.3 Member Function Documentation

12.249.3.1 AddDictEntry()

```
void gdcm::PrivateDict::AddDictEntry (
            const PrivateTag & tag,
            const DictEntry & de)  [inline]
```

References gdcm_assert, GetDictEntry(), gdcm::DictEntry::GetVM(), gdcm::DictEntry::GetVR(), gdcm::DictEntry::SetVM(), gdcm::DictEntry::SetVR(), and gdcm::VR::UN.

12.249.3.2 FindDictEntry()

```
bool gdcm::PrivateDict::FindDictEntry (
            const PrivateTag & tag) const  [inline]
```

12.249.3.3 GetDictEntry()

```
const DictEntry & gdcm::PrivateDict::GetDictEntry (
            const PrivateTag & tag) const  [inline]
```

References gdcm_assert.

Referenced by AddDictEntry().

12.249.3.4 IsEmpty()

```
bool gdcm::PrivateDict::IsEmpty () const  [inline]
```

12.249.3.5 LoadDefault()

```
void gdcm::PrivateDict::LoadDefault ()  [protected]
```

References PrivateDict().

12.249.3.6 PrintXML()

```
void gdcm::PrivateDict::PrintXML () const  [inline]
```

References gdcm::Tag::GetElement(), gdcm::Tag::GetGroup(), gdcm::DictEntry::GetName(), gdcm::PrivateTag::GetOwner(), gdcm::DictEntry::GetVM(), and gdcm::DictEntry::GetVR().

12.249.3.7 RemoveDictEntry()

```
bool gdcm::PrivateDict::RemoveDictEntry (
            const PrivateTag & tag)  [inline]
```

Remove entry 'tag'. Return true on success (element was found and remove). return false if element was not found.

References gdcm_assert.

12.249.4 Friends And Related Symbol Documentation

12.249.4.1 Dicts

```
friend class Dicts  [friend]
```

References Dicts.

Referenced by Dicts.

12.249.4.2 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const PrivateDict & val)  [friend]
```

References PrivateDict().

The documentation for this class was generated from the following file:

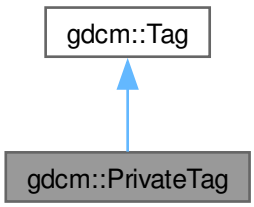
- gdcmDict.h

12.250 gdcm::PrivateTag Class Reference

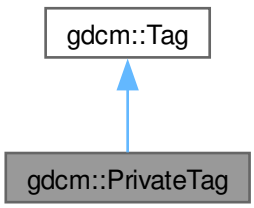
Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner).

`#include <gdcmPrivateTag.h>`

Inheritance diagram for gdcm::PrivateTag:



Collaboration diagram for gdcm::PrivateTag:



Public Member Functions

- PrivateTag (Tag const &t, const char *owner="")
- PrivateTag (uint16_t group=0, uint16_t element=0, const char *owner="")
- DataElement GetAsDataElement () const
- const char * GetOwner () const
- bool operator!= (const PrivateTag &_val) const
- bool operator!= (const Tag &_val) const
- bool operator< (const PrivateTag &_val) const
- PrivateTag & operator= (const PrivateTag &_val)
- bool operator== (const PrivateTag &_val) const
- bool operator== (const Tag &_val) const
- bool ReadFromCommaSeparatedString (const char *str)
- void SetOwner (const char *owner)

Public Member Functions inherited from gdcm::Tag

- Tag (const Tag &_val)
- Tag (uint16_t group, uint16_t element)

  *Constructor with 2*uint16_t.*
- Tag (uint32_t tag=0)

  *Constructor with 1*uint32_t Prefer the cstor that takes two uint16_t.*
- uint16_t GetElement () const

  Returns the 'Element number' of the given Tag.
- uint32_t GetElementTag () const

  Returns the full tag value of the given Tag.
- uint16_t GetGroup () const

  Returns the 'Group number' of the given Tag.
- uint32_t GetLength () const

  return the length of tag (read: size on disk)
- Tag GetPrivateCreator () const

  Return the Private Creator Data Element tag of a private data element.
- bool IsGroupLength () const

  return whether the tag correspond to a group length tag:
- bool IsGroupXX (const Tag &t) const

  e.g 6002,3000 belong to groupXX: 6000,3000
- bool IsIllegal () const

  return if the tag is considered to be an illegal tag
- bool IsPrivate () const
- bool IsPrivateCreator () const
- bool IsPublic () const
- bool operator!= (const Tag &_val) const
- bool operator< (const Tag &_val) const
- bool operator<= (const Tag &t2) const
- Tag & operator= (const Tag &_val)
- bool operator== (const Tag &_val) const
- uint16_t & operator[ ] (const unsigned int &_id)

  Returns the Group or Element of the given Tag, depending on id (0/1).

- const uint16_t & operator[ ] (const unsigned int &_id) const

  Returns the Group or Element of the given Tag, depending on id (0/1).
- std::string PrintAsContinuousString () const
- std::string PrintAsContinuousUpperCaseString () const

  Same as PrintAsContinuousString, but hexadecimal [a-f] are printed using upper case.
- std::string PrintAsPipeSeparatedString () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)

  Read a tag from binary representation.
- bool ReadFromCommaSeparatedString (const char *str)
- bool ReadFromContinuousString (const char *str)
- bool ReadFromPipeSeparatedString (const char *str)
- void SetElement (uint16_t element)

  Sets the 'Element number' of the given Tag.
- void SetElementTag (uint16_t group, uint16_t element)

  Sets the 'Group number' & 'Element number' of the given Tag.
- void SetElementTag (uint32_t tag)

  Sets the full tag value of the given Tag.
- void SetGroup (uint16_t group)

  Sets the 'Group number' of the given Tag.
- void SetPrivateCreator (Tag const &t)

  Set private creator:
- template<typename TSwap>
  const std::ostream & Write (std::ostream &os) const

  Write a tag in binary rep.

Friends

- std::ostream & operator<< (std::ostream &_os, const PrivateTag &_val)

12.250.1 Detailed Description

Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner).

Note

private tag have element value in: [0x10,0xff], for instance 0x0009,0x0000 is NOT a private tag

Examples

ChangePrivateTags.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, ELSCINT1WaveToText.cxx, FileStreaming.cs, GetSubSequenceData.cxx, MrProtocol.cxx, PublicDict.cxx, ReadGEMSSDO.cxx, csa2img.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.250.2 Constructor & Destructor Documentation

12.250.2.1 PrivateTag() [1/2]

```
gdcm::PrivateTag::PrivateTag (
            uint16_t group = 0,
            uint16_t element = 0,
            const char * owner = "")  [inline]
```

References gdcm::Tag::Tag(), and gdcm::Tag::SetElement().

Referenced by operator!=(), operator<(), operator<<, operator=(), and operator==().

12.250.2.2 PrivateTag() [2/2]

```
gdcm::PrivateTag::PrivateTag (
            Tag const & t,
            const char * owner = "")  [inline]
```

References gdcm::Tag::Tag(), gdcm::Tag::GetElement(), and gdcm::Tag::SetElement().

12.250.3 Member Function Documentation

12.250.3.1 GetAsDataElement()

```
DataElement gdcm::PrivateTag::GetAsDataElement () const
```

12.250.3.2 GetOwner()

```
const char * gdcm::PrivateTag::GetOwner () const  [inline]
```

Examples

PublicDict.cxx.

Referenced by gdcm::PrivateDict::PrintXML().

12.250.3.3 operator"!=() [1/2]

```
bool gdcm::PrivateTag::operator!= (
            const PrivateTag & _val) const  [inline]
```

References PrivateTag(), and gdcm::Tag::GetElementTag().

12.250.3.4 operator"!=() [2/2]

```
bool gdcm::PrivateTag::operator!= (
            const Tag & _val) const  [inline]
```

References gdcm::Tag::Tag(), and gdcm::Tag::GetElementTag().

12.250.3.5 operator<()

```
bool gdcm::PrivateTag::operator< (
            const PrivateTag & _val) const
```

References PrivateTag().

12.250.3.6 operator=()

```
PrivateTag & gdcm::PrivateTag::operator= (
            const PrivateTag & _val)  [inline]
```

References PrivateTag(), gdcm::Tag::GetElementTag(), and gdcm::Tag::SetElementTag().

12.250.3.7 operator==() [1/2]

```
bool gdcm::PrivateTag::operator== (
            const PrivateTag & _val) const  [inline]
```

References PrivateTag(), and gdcm::Tag::GetElementTag().

12.250.3.8 operator==() [2/2]

```
bool gdcm::PrivateTag::operator== (
            const Tag & _val) const  [inline]
```

References gdcm::Tag::Tag(), and gdcm::Tag::GetElementTag().

12.250.3.9 ReadFromCommaSeparatedString()

```
bool gdcm::PrivateTag::ReadFromCommaSeparatedString (
            const char * str)
```

Read PrivateTag from a string. Element number will be truncated to 8bits. Eg: "1234,5678,GDCM" is private tag: (1234,78,"GDCM")

12.250.3.10 SetOwner()

```
void gdcm::PrivateTag::SetOwner (
            const char * owner)  [inline]
```

References gdcm::String<'\\', 64 >::Trim().

12.250.4 Friends And Related Symbol Documentation

12.250.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const PrivateTag & _val)  [friend]
```

References PrivateTag(), and operator<<.

Referenced by operator<<.

The documentation for this class was generated from the following file:

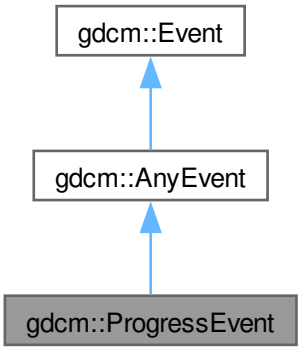
- gdcmPrivateTag.h

12.251 gdcm::ProgressEvent Class Reference

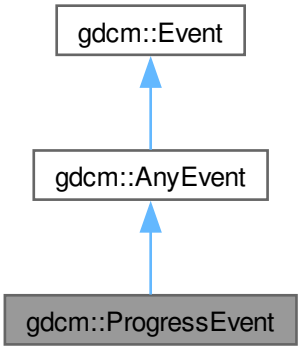
ProgressEvent.

```
#include <gdcmProgressEvent.h>
```

Inheritance diagram for gdcm::ProgressEvent:



Collaboration diagram for gdcm::ProgressEvent:



Public Types

- typedef ProgressEvent Self
- typedef AnyEvent Superclass

Public Member Functions

- ProgressEvent (const Self &s)
- ProgressEvent (double p=0)
- ~ProgressEvent () override=default
- bool CheckEvent (const ::gdcm::Event *e) const override
- const char * GetEventName () const override
- double GetProgress () const
- ::gdcm::Event * MakeObject () const override
- void operator= (const Self &)=delete
- void SetProgress (double p)

Public Member Functions inherited from gdcm::Event

- Event ()
- Event (const Event &)
- virtual ~Event ()
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

12.251.1 Detailed Description

ProgressEvent.

Special type of event triggered during

See also

AnyEvent

Examples

BasicAnonymizer.cs, Cleaner.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.251.2 Member Typedef Documentation

12.251.2.1 Self

```
typedef ProgressEvent gdcm::ProgressEvent::Self
```

12.251.2.2 Superclass

```
typedef AnyEvent gdcm::ProgressEvent::Superclass
```

12.251.3 Constructor & Destructor Documentation

12.251.3.1 ProgressEvent() [1/2]

```
gdcm::ProgressEvent::ProgressEvent (
            double p = 0)  [inline]
```

12.251.3.2 ~ProgressEvent()

```
gdcm::ProgressEvent::~ProgressEvent ()  [override], [default]
```

12.251.3.3 ProgressEvent() [2/2]

```
gdcm::ProgressEvent::ProgressEvent (
            const Self & s)  [inline]
```

12.251.4 Member Function Documentation

12.251.4.1 CheckEvent()

```
bool gdcm::ProgressEvent::CheckEvent (
            const ::gdcm::Event * e) const  [inline], [override], [virtual]
```

Check if given event matches or derives from this event.

Implements gdcm::Event.

12.251.4.2 GetEventName()

```
const char * gdcm::ProgressEvent::GetEventName () const  [inline], [override], [virtual]
```

Return the StringName associated with the event.

Implements gdcm::Event.

12.251.4.3 GetProgress()

```
double gdcm::ProgressEvent::GetProgress () const  [inline]
```

Examples

BasicAnonymizer.cs, Cleaner.cs, and ClinicalTrialIdentificationWorkflow.cs.

12.251.4.4 MakeObject()

```
::gdcm::Event * gdcm::ProgressEvent::MakeObject () const  [inline], [override], [virtual]
```

Create an Event of this type This method work as a Factory for creating events of each particular type.

Implements gdcm::Event.

12.251.4.5 operator=()

```
void gdcm::ProgressEvent::operator= (
            const Self & )  [delete]
```

12.251.4.6 SetProgress()

```
void gdcm::ProgressEvent::SetProgress (
            double p)  [inline]
```

The documentation for this class was generated from the following file:

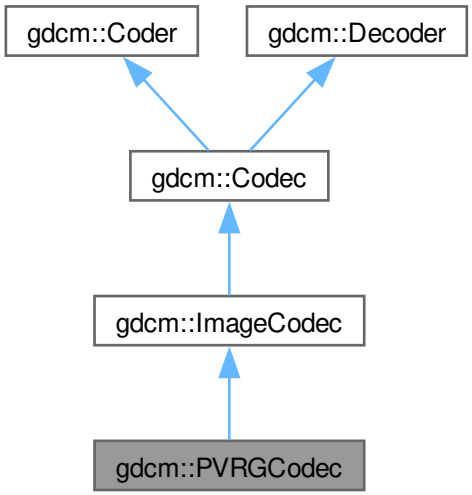
- gdcmProgressEvent.h

12.252 gdcm::PVRGCodec Class Reference

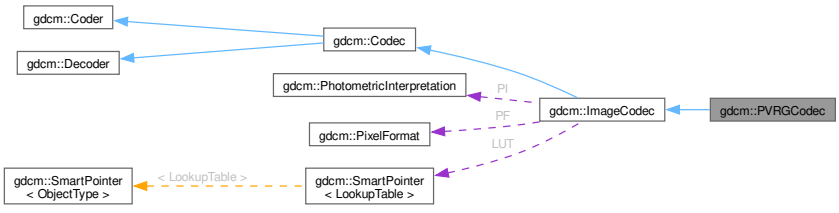
PVRGCodec.

`#include <gdcmPVRGCodec.h>`

Inheritance diagram for gdcm::PVRGCodec:



Collaboration diagram for gdcm::PVRGCodec:



Public Member Functions

- PVRGCodec ()
- ~PVRGCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- void SetLossyFlag (bool l)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- virtual bool GetHeaderInfo (std::istream &is_, TransferSyntax &ts)
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DecodeByStreams (std::istream &is_, std::ostream &os) override
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.252.1 Detailed Description

PVRGCodec.

Note

pvrg is a broken implementation of the JPEG standard. It is known to have a bug in the 16bits lossless implementation of the standard.

In an ideal world, you should not need this codec at all. But to support some broken file such as:

PHILIPS_Gyroscan-12-Jpeg_Extended_Process_2_4.dcm

we have to...

12.252.2 Constructor & Destructor Documentation

12.252.2.1 PVRGCodec()

```
gdcm::PVRGCodec::PVRGCodec ()
```

12.252.2.2 ~PVRGCodec()

```
gdcm::PVRGCodec::~PVRGCodec ()  [override]
```

12.252.3 Member Function Documentation

12.252.3.1 CanCode()

```
bool gdcm::PVRGCodec::CanCode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.252.3.2 CanDecode()

```
bool gdcm::PVRGCodec::CanDecode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.252.3.3 Clone()

```
ImageCodec * gdcm::PVRGCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.252.3.4 Code()

```
bool gdcm::PVRGCodec::Code (
            DataElement const & in_,
            DataElement & out_)  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

12.252.3.5 Decode()

```
bool gdcm::PVRGCodec::Decode (
            DataElement const & is_,
            DataElement & os)  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

12.252.3.6 SetLossyFlag()

```
void gdcm::PVRGCodec::SetLossyFlag (
            bool l)
```

The documentation for this class was generated from the following file:

- gdcmPVRGCodec.h

12.253 gdcm::PythonFilter Class Reference

PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language.

```
#include <gdcmPythonFilter.h>
```

Public Member Functions

- PythonFilter ()
- ~PythonFilter ()
- File & GetFile ()
- const File & GetFile () const
- void SetDicts (const Dicts &dicts)
- void SetFile (const File &f)
- PyObject * ToPyObject (const Tag &t) const
- void UseDictAlways (bool)

12.253.1 Detailed Description

PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language.

12.253.2 Constructor & Destructor Documentation

12.253.2.1 PythonFilter()

```
gdcm::PythonFilter::PythonFilter ()
```

12.253.2.2 ~PythonFilter()

```
gdcm::PythonFilter::~PythonFilter ()
```

12.253.3 Member Function Documentation

12.253.3.1 GetFile() [1/2]

```
File & gdcm::PythonFilter::GetFile ()
```

12.253.3.2 GetFile() [2/2]

```
const File & gdcm::PythonFilter::GetFile () const
```

12.253.3.3 SetDicts()

```
void gdcm::PythonFilter::SetDicts (
            const Dicts & dicts)
```

12.253.3.4 SetFile()

```
void gdcm::PythonFilter::SetFile (
            const File & f)
```

12.253.3.5 ToPyObject()

```
PyObject * gdcm::PythonFilter::ToPyObject (
            const Tag & t) const
```

12.253.3.6 UseDictAlways()

```
void gdcm::PythonFilter::UseDictAlways (
            bool )  [inline]
```

The documentation for this class was generated from the following file:

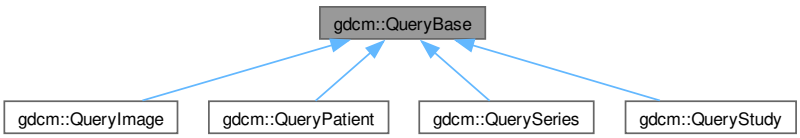
- gdcmPythonFilter.h

12.254 gdcm::QueryBase Class Reference

QueryBase.

`#include <gdcmQueryBase.h>`

Inheritance diagram for gdcm::QueryBase:



Public Member Functions

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const
- virtual std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const =0

  Return all Unique Key for a particular Query Root type (from the same level and above).
- virtual const char * GetName () const =0
- virtual std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const =0
- virtual DataElement GetQueryLevel () const =0
- virtual std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const =0
- virtual std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const =0

12.254.1 Detailed Description

QueryBase.

contains: the base class for constructing a query dataset for a C-FIND and a C-MOVE

There are four levels of C-FIND and C-MOVE query:

- Patient
- Study
- Series
- Image

Each one has its own required and optional tags. This class provides an interface for getting those tags. This is an interface class.

See 3.4 C 6.1 and 3.4 C 6.2 for the patient and study root query types. These sections define the tags allowed by a particular query. The caller must pass in which root type they want, patient or study. A third root type, Modality Worklist Query, isn't yet supported.

This class (or rather it's derived classes) will be held in the RootQuery types. These query types actually make the dataset, and will use this dataset to list the required, unique, and optional tags for each type of query. This design is somewhat overly complicated, but is kept so that if we ever wanted to try to guess the query type from the given tags, we could do so.

12.254.2 Constructor & Destructor Documentation

12.254.2.1 ~QueryBase()

```
virtual gdcm::QueryBase::~QueryBase ()  [virtual], [default]
```

12.254.3 Member Function Documentation

12.254.3.1 GetAllRequiredTags()

```
std::vector< Tag > gdcm::QueryBase::GetAllRequiredTags (
            const ERootType & inRootType) const
```

In order to validate a query dataset we need to check that there exists at least one required (or unique) key

12.254.3.2 GetAllTags()

```
std::vector< Tag > gdcm::QueryBase::GetAllTags (
            const ERootType & inRootType) const
```

In order to validate a query dataset, just check for the presence of a tag, not it's requirement level in the spec

12.254.3.3 GetHierachicalSearchTags()

```
virtual std::vector< Tag > gdcm::QueryBase::GetHierachicalSearchTags (
            const ERootType & inRootType) const  [pure virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

12.254.3.4 GetName()

```
virtual const char * gdcm::QueryBase::GetName () const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

12.254.3.5 GetOptionalTags()

```
virtual std::vector< Tag > gdcm::QueryBase::GetOptionalTags (
            const ERootType & inRootType) const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

12.254.3.6 GetQueryLevel()

```
virtual DataElement gdcm::QueryBase::GetQueryLevel () const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

12.254.3.7 GetRequiredTags()

```
virtual std::vector< Tag > gdcm::QueryBase::GetRequiredTags (
            const ERootType & inRootType) const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

12.254.3.8 GetUniqueTags()

```
virtual std::vector< Tag > gdcm::QueryBase::GetUniqueTags (
            const ERootType & inRootType) const  [pure virtual]
```

Implemented in gdcm::QueryImage, gdcm::QueryPatient, gdcm::QuerySeries, and gdcm::QueryStudy.

The documentation for this class was generated from the following file:

- gdcmQueryBase.h

12.255 gdcm::QueryFactory Class Reference

QueryFactory.h.

```
#include <gdcmQueryFactory.h>
```

Static Public Member Functions

- static ECharSet GetCharacterFromCurrentLocale ()
- static void ListCharSets (std::ostream &os)

  List all possible CharSet.
- static DataElement ProduceCharacterSetDataElement (const std::vector< ECharSet > &inCharSetType)
- static BaseQuery * ProduceQuery (const std::string &sopInstanceUID, ENQueryType inQueryType)
- static BaseRootQuery * ProduceQuery (ERootType inRootType, EQueryType inQueryType, EQueryLevel in↩ QueryLevel)

12.255.1 Detailed Description

QueryFactory.h.

contains: a class to produce a query based off of user-entered information

Essentially, this class is used to construct a query based off of user input (typically from the command line; if in code directly, the query itself could just be instantiated)

In theory, could also be used as the interface to validate incoming datasets as belonging to a particular query style

12.255.2 Member Function Documentation

12.255.2.1 GetCharacterFromCurrentLocale()

```
ECharSet gdcm::QueryFactory::GetCharacterFromCurrentLocale ()  [static]
```

This function will return the corresponding ECharSet associated with the current locale of the running system (based on the value of locale()).

12.255.2.2 ListCharSets()

```
void gdcm::QueryFactory::ListCharSets (
            std::ostream & os)  [static]
```

List all possible CharSet.

12.255.2.3 ProduceCharacterSetDataElement()

```
DataElement gdcm::QueryFactory::ProduceCharacterSetDataElement (
            const std::vector< ECharSet > & inCharSetType)  [static]
```

This function will produce the appropriate dataelement given a list of charsets. The first charset will be used directly, while the second and subsequent will be prepended with "ISO2022 ". Redundant character sets are not permitted, so if they are encountered, they will just be skipped. if UTF8 or GB18030 is used, no subsequent character sets will be used if the vector passed in is empty, then the dataelement that's passed out will be empty and Latin1 is the presumed encoding

12.255.2.4 ProduceQuery() [1/2]

```
BaseQuery * gdcm::QueryFactory::ProduceQuery (
            const std::string & sopInstanceUID,
            ENQueryType inQueryType)  [static]
```

12.255.2.5 ProduceQuery() [2/2]

```
BaseRootQuery * gdcm::QueryFactory::ProduceQuery (
            ERootType inRootType,
            EQueryType inQueryType,
            EQueryLevel inQueryLevel)  [static]
```

this function will produce a query (basically, a wrapper to a dataset that can validate whether or not the query is a valid cfind/cmove query) and the level of the query (patient, study, series, image). If the user provides an invalid instantiation (ie, study root type, query level of patient), then the result is NULL.

The documentation for this class was generated from the following file:

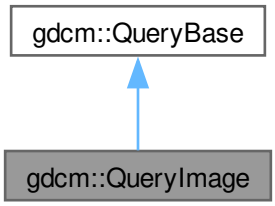
- gdcmQueryFactory.h

12.256 gdcm::QueryImage Class Reference

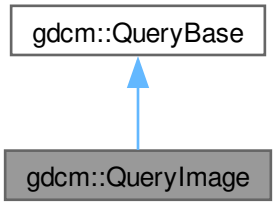
QueryImage.

`#include <gdcmQueryImage.h>`

Inheritance diagram for gdcm::QueryImage:



Collaboration diagram for gdcm::QueryImage:



Public Member Functions

- std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const override
  Return all Unique Key for a particular Query Root type (from the same level and above).
- const char * GetName () const override
- std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const override
- DataElement GetQueryLevel () const override
- std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const override
- std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const override

Public Member Functions inherited from gdcm::QueryBase

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const

12.256.1 Detailed Description

QueryImage.

contains: class to construct an image-based query for C-FIND and C-MOVE

12.256.2 Member Function Documentation

12.256.2.1 GetHierachicalSearchTags()

```
std::vector< Tag > gdcm::QueryImage::GetHierachicalSearchTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements gdcm::QueryBase.

12.256.2.2 GetName()

```
const char * gdcm::QueryImage::GetName () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.256.2.3 GetOptionalTags()

```
std::vector< Tag > gdcm::QueryImage::GetOptionalTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.256.2.4 GetQueryLevel()

```
DataElement gdcm::QueryImage::GetQueryLevel () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.256.2.5 GetRequiredTags()

```
std::vector< Tag > gdcm::QueryImage::GetRequiredTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.256.2.6 GetUniqueTags()

```
std::vector< Tag > gdcm::QueryImage::GetUniqueTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

The documentation for this class was generated from the following file:

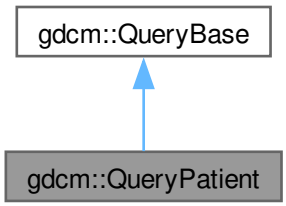
- gdcmQueryImage.h

12.257 gdcm::QueryPatient Class Reference

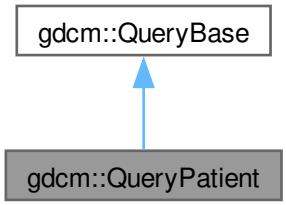
QueryPatient.

`#include <gdcmQueryPatient.h>`

Inheritance diagram for gdcm::QueryPatient:



Collaboration diagram for gdcm::QueryPatient:



Public Member Functions

- std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const override

  Return all Unique Key for a particular Query Root type (from the same level and above).
- const char * GetName () const override
- std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const override
- DataElement GetQueryLevel () const override
- std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const override
- std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const override

Public Member Functions inherited from gdcm::QueryBase

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const

12.257.1 Detailed Description

QueryPatient.

contains: class to construct a patient-based query for c-find and c-move

12.257.2 Member Function Documentation

12.257.2.1 GetHierachicalSearchTags()

```
std::vector< Tag > gdcm::QueryPatient::GetHierachicalSearchTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements gdcm::QueryBase.

12.257.2.2 GetName()

```
const char * gdcm::QueryPatient::GetName () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.257.2.3 GetOptionalTags()

```
std::vector< Tag > gdcm::QueryPatient::GetOptionalTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.257.2.4 GetQueryLevel()

```
DataElement gdcm::QueryPatient::GetQueryLevel () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.257.2.5 GetRequiredTags()

```
std::vector< Tag > gdcm::QueryPatient::GetRequiredTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.257.2.6 GetUniqueTags()

```
std::vector< Tag > gdcm::QueryPatient::GetUniqueTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

The documentation for this class was generated from the following file:

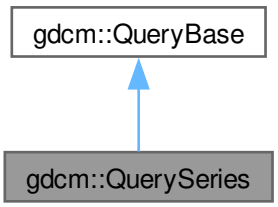
- gdcmQueryPatient.h

12.258 gdcm::QuerySeries Class Reference

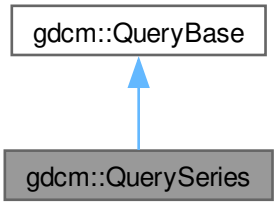
QuerySeries.

```
#include <gdcmQuerySeries.h>
```

Inheritance diagram for gdcm::QuerySeries:



Collaboration diagram for gdcm::QuerySeries:



Public Member Functions

- std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const override
  Return all Unique Key for a particular Query Root type (from the same level and above).
- const char * GetName () const override
- std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const override
- DataElement GetQueryLevel () const override
- std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const override
- std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const override

Public Member Functions inherited from gdcm::QueryBase

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const

12.258.1 Detailed Description

QuerySeries.

contains: class to construct a series-based query for c-find and c-move

12.258.2 Member Function Documentation

12.258.2.1 GetHierachicalSearchTags()

```
std::vector< Tag > gdcm::QuerySeries::GetHierachicalSearchTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements gdcm::QueryBase.

12.258.2.2 GetName()

```
const char * gdcm::QuerySeries::GetName () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.258.2.3 GetOptionalTags()

```
std::vector< Tag > gdcm::QuerySeries::GetOptionalTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.258.2.4 GetQueryLevel()

```
DataElement gdcm::QuerySeries::GetQueryLevel () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.258.2.5 GetRequiredTags()

```
std::vector< Tag > gdcm::QuerySeries::GetRequiredTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.258.2.6 GetUniqueTags()

```
std::vector< Tag > gdcm::QuerySeries::GetUniqueTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

The documentation for this class was generated from the following file:

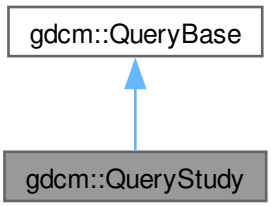
- gdcmQuerySeries.h

12.259 gdcm::QueryStudy Class Reference

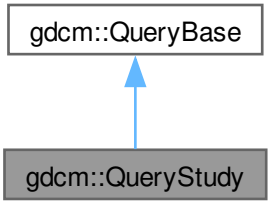
QueryStudy.h.

```
#include <gdcmQueryStudy.h>
```

Inheritance diagram for gdcm::QueryStudy:



Collaboration diagram for gdcm::QueryStudy:



Public Member Functions

- std::vector< Tag > GetHierachicalSearchTags (const ERootType &inRootType) const override

  Return all Unique Key for a particular Query Root type (from the same level and above).
- const char * GetName () const override
- std::vector< Tag > GetOptionalTags (const ERootType &inRootType) const override
- DataElement GetQueryLevel () const override
- std::vector< Tag > GetRequiredTags (const ERootType &inRootType) const override
- std::vector< Tag > GetUniqueTags (const ERootType &inRootType) const override

Public Member Functions inherited from gdcm::QueryBase

- virtual ~QueryBase ()=default
- std::vector< Tag > GetAllRequiredTags (const ERootType &inRootType) const
- std::vector< Tag > GetAllTags (const ERootType &inRootType) const

12.259.1 Detailed Description

QueryStudy.h.

contains: class to construct a study-based query for C-FIND and C-MOVE

12.259.2 Member Function Documentation

12.259.2.1 GetHierachicalSearchTags()

```
std::vector< Tag > gdcm::QueryStudy::GetHierachicalSearchTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Return all Unique Key for a particular Query Root type (from the same level and above).

Implements gdcm::QueryBase.

12.259.2.2 GetName()

```
const char * gdcm::QueryStudy::GetName () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.259.2.3 GetOptionalTags()

```
std::vector< Tag > gdcm::QueryStudy::GetOptionalTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.259.2.4 GetQueryLevel()

```
DataElement gdcm::QueryStudy::GetQueryLevel () const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.259.2.5 GetRequiredTags()

```
std::vector< Tag > gdcm::QueryStudy::GetRequiredTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

12.259.2.6 GetUniqueTags()

```
std::vector< Tag > gdcm::QueryStudy::GetUniqueTags (
            const ERootType & inRootType) const  [override], [virtual]
```

Implements gdcm::QueryBase.

The documentation for this class was generated from the following file:

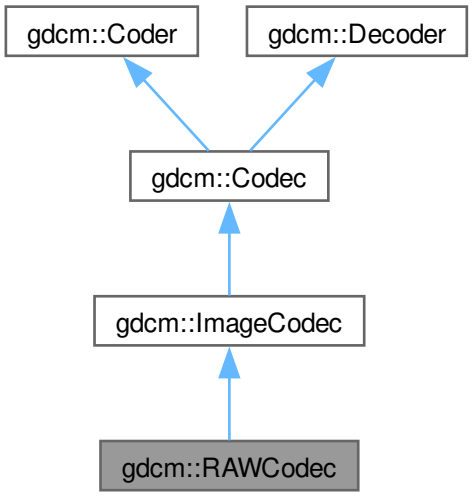
- gdcmQueryStudy.h

12.260 gdcm::RAWCodec Class Reference

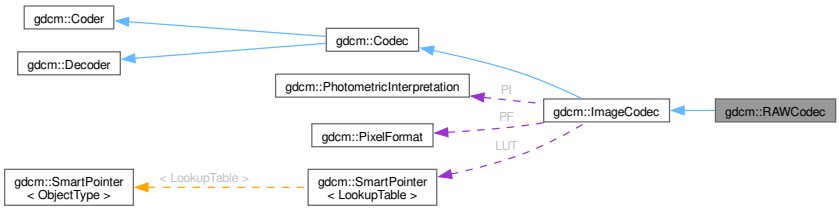
RAWCodec class.

```
#include <gdcmRAWCodec.h>
```

Inheritance diagram for gdcm::RAWCodec:



Collaboration diagram for gdcm::RAWCodec:



Public Member Functions

- RAWCodec ()
- ~RAWCodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- bool DecodeBytes (const char *inBytes, size_t inBufferLength, char *outBytes, size_t inOutBufferLength)
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])
- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)

- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool DecodeByStreams (std::istream &is, std::ostream &os) override

Protected Member Functions inherited from gdcm::ImageCodec

- virtual bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen)
- virtual bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen)
- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsFrameEncoder ()
- virtual bool IsRowEncoder ()
- virtual bool IsValid (PhotometricInterpretation const &pi)
- virtual bool StartEncode (std::ostream &os)
- virtual bool StopEncode (std::ostream &os)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.260.1 Detailed Description

RAWCodec class.

12.260.2 Constructor & Destructor Documentation

12.260.2.1 RAWCodec()

```
gdcm::RAWCodec::RAWCodec ()
```

12.260.2.2 ~RAWCodec()

```
gdcm::RAWCodec::~RAWCodec ()  [override]
```

12.260.3 Member Function Documentation

12.260.3.1 CanCode()

```
bool gdcm::RAWCodec::CanCode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.260.3.2 CanDecode()

```
bool gdcm::RAWCodec::CanDecode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.260.3.3 Clone()

```
ImageCodec * gdcm::RAWCodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.260.3.4 Code()

```
bool gdcm::RAWCodec::Code (
            DataElement const & in_,
            DataElement & out_)  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

12.260.3.5 Decode()

```
bool gdcm::RAWCodec::Decode (
            DataElement const & is_,
            DataElement & os)  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

12.260.3.6 DecodeByStreams()

```
bool gdcm::RAWCodec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.260.3.7 DecodeBytes()

```
bool gdcm::RAWCodec::DecodeBytes (
            const char * inBytes,
            size_t inBufferLength,
            char * outBytes,
            size_t inOutBufferLength)
```

Used by the ImageStreamReader– converts a read in buffer into one with the proper encodings.

12.260.3.8 GetHeaderInfo()

```
bool gdcm::RAWCodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

The documentation for this class was generated from the following file:

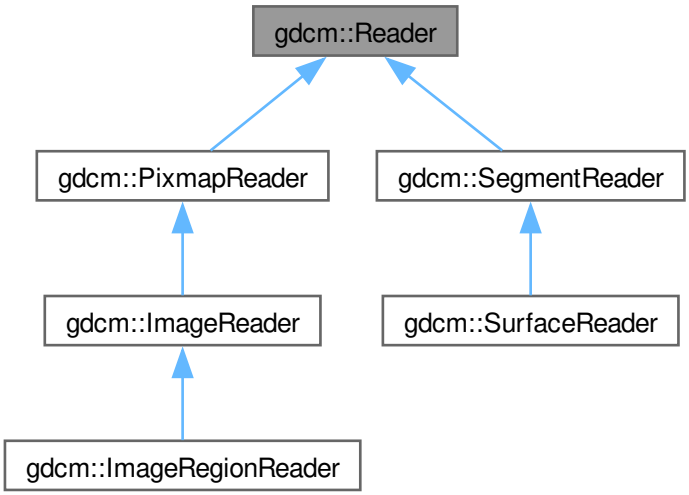
- gdcmRAWCodec.h

12.261 gdcm::Reader Class Reference

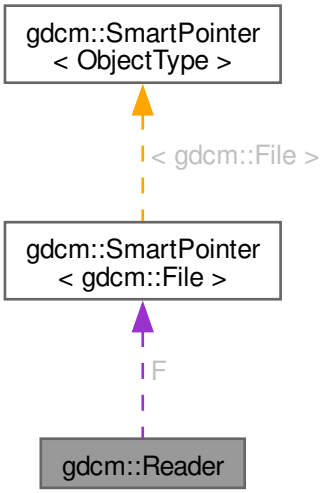
Reader ala DOM (Document Object Model).

```
#include <gdcmReader.h>
```

Inheritance diagram for gdcm::Reader:



Collaboration diagram for gdcm::Reader:



Public Member Functions

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- virtual bool Read ()

  Main function to read a file.
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Protected Attributes

- SmartPointer< File > F

Friends

- class StreamImageReader

12.261.1 Detailed Description

Reader ala DOM (Document Object Model).

This class is a non-validating reader, it will only performs well- formedness check only, and to some extent catch known error (non well-formed document).

Detailed description here

A DataSet DOES NOT contains group 0x0002 (see FileMetaInformation)

This is really a DataSet reader. This will not make sure the dataset conform to any IOD at all. This is a completely different step. The reasoning was that user could control the IOD there lib would handle and thus we would not be able to read a DataSet if the IOD was not found Instead we separate the reading from the validation.

Note

From GDCM1.x. Users will realize that one feature is missing from this DOM implementation. In GDCM 1.x user used to be able to control the size of the Value to be read. By default it was 0xfff. The main author of GDCM2 thought this was too dangerous and harmful and therefore this feature did not make it into GDCM2

Warning

GDCM will not produce warning for unorder (non-alphabetical order).

See also

Writer FileMetaInformation DataSet File

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateFakeRTDOSE.cxx, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, FixBrokenJ2K.cxx, FixOrientation.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, ReadUTF8QtDir.cxx, ReformatFile.cs, SimplePrint.cs, SimplePrintPatientName.cs, TestReader.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.261.2 Constructor & Destructor Documentation

12.261.2.1 Reader()

```
gdcm::Reader::Reader ()
```

12.261.2.2 ~Reader()

```
virtual gdcm::Reader::~Reader ()  [virtual]
```

12.261.3 Member Function Documentation

12.261.3.1 CanRead()

```
bool gdcm::Reader::CanRead () const
```

Test whether this is a DICOM file

Warning

need to call either SetFileName or SetStream first

Examples

ReadUTF8QtDir.cxx.

12.261.3.2 GetFile() [1/2]

```
File & gdcm::Reader::GetFile ()  [inline]
```

Set/Get File.

References F.

12.261.3.3 GetFile() [2/2]

```
const File & gdcm::Reader::GetFile () const  [inline]
```

Set/Get File.

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, DecompressImage.cs, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExplicitLittleEndian.cs, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, MrProtocol.cxx, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, ReformatFile.cs, SimplePrint.cs, SimplePrintPatientName.cs, StandardizeFiles.cs, TestReader.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

References F.

12.261.3.4 GetStreamCurrentPosition()

```
size_t gdcm::Reader::GetStreamCurrentPosition () const
```

For wrapped language. return type is compatible with System::FileSize return type Use native std::streampos / std::streamoff directly from the stream from C++

Examples

ExtractImageRegion.cs.

12.261.3.5 GetStreamPtr()

```
std::istream * gdcm::Reader::GetStreamPtr () const  [inline], [protected]
```

12.261.3.6 Read()

```
virtual bool gdcm::Reader::Read ()  [virtual]
```

Main function to read a file.

Reimplemented in gdcm::ImageReader, gdcm::ImageRegionReader, gdcm::PixmapReader, gdcm::SegmentReader, and gdcm::SurfaceReader.

Examples

BasicAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateFakeRTDOSE.cxx, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, FixBrokenJ2K.cxx, FixOrientation.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, ReformatFile.cs, SimplePrint.cs, SimplePrintPatientName.cs, TestReader.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.261.3.7 ReadDataSet()

```
bool gdcm::Reader::ReadDataSet ()  [protected]
```

12.261.3.8 ReadMetaInformation()

```
bool gdcm::Reader::ReadMetaInformation ()  [protected]
```

12.261.3.9 ReadPreamble()

```
bool gdcm::Reader::ReadPreamble ()  [protected]
```

12.261.3.10 ReadSelectedPrivateTags()

```
bool gdcm::Reader::ReadSelectedPrivateTags (
            std::set< PrivateTag > const & ptags,
            bool readvalues = true)
```

Will only read the specified selected private tags.

12.261.3.11 ReadSelectedTags()

```
bool gdcm::Reader::ReadSelectedTags (
            std::set< Tag > const & tags,
            bool readvalues = true)
```

Will only read the specified selected tags.

12.261.3.12 ReadUpToTag()

```
bool gdcm::Reader::ReadUpToTag (
            const Tag & tag,
            std::set< Tag > const & skiptags = std::set< Tag >())
```

Will read only up to Tag

Parameters

tag	and skipping any tag specified in
skiptags	

Examples

DumpVisusChange.cxx.

12.261.3.13 SetFile()

```
void gdcm::Reader::SetFile (
            File & file)  [inline]
```

Set/Get File.

References F.

12.261.3.14 SetFileName()

```
void gdcm::Reader::SetFileName (
            const char * filename_native)
```

Set the filename to open. This will create a std::ifstream internally See SetStream if you are dealing with different std::istream object

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, CheckBigEndianBug.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CompressImage.cxx, CompressLossyJPEG.cs, ConvertToQImage.cxx, CreateFakeRTDOSE.cxx, DecompressImage.cs, DeriveSeries.cxx, DiffFile.cxx, DumpADAC.cxx, DumpCSA.cs, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, ELSCINT1WaveToText.cxx, ExplicitLittleEndian.cs, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, ExtractIconFromFile.cxx, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetArray.cs, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, HelloVizWorld.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, MrProtocol.cxx, NewSequence.cs, PatchFile.cxx, PrintLUT.cxx, QIDO-RS.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.cxx, ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ReadGEMSSDO.cxx, ReadMultiTimesException.cxx, ReadUTF8QtDir.cxx, ReformatFile.cs, RescaleImage.cs, SimplePrint.cs, SimplePrintPatientName.cs, StandardizeFiles.cs, TemplateEmptyImage.cxx, TestReader.cxx, csa2img.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, rle2img.cxx, and threadgdcm.cxx.

12.261.3.15 SetStream()

```
void gdcm::Reader::SetStream (
            std::istream & input_stream)  [inline]
```

Set the open-ed stream directly.

Examples

ReadUTF8QtDir.cxx.

12.261.4 Friends And Related Symbol Documentation

12.261.4.1 StreamImageReader

```
friend class StreamImageReader  [friend]
```

References StreamImageReader.

Referenced by StreamImageReader.

12.261.5 Member Data Documentation

12.261.5.1 F

```
SmartPointer<File> gdcm::Reader::F  [protected]
```

Referenced by GetFile(), GetFile(), and SetFile().

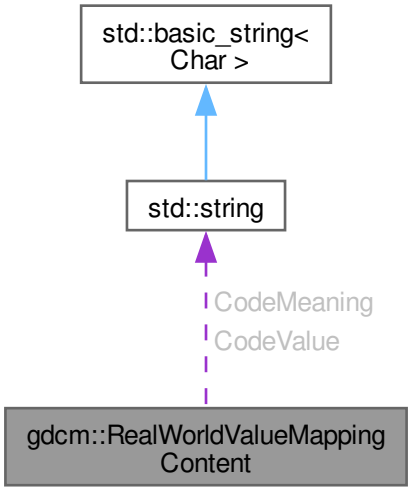
The documentation for this class was generated from the following file:

- gdcmReader.h

12.262 gdcm::RealWorldValueMappingContent Struct Reference

```
#include <gdcmImageHelper.h>
```

Collaboration diagram for gdcm::RealWorldValueMappingContent:



Public Attributes

- std::string CodeMeaning
- std::string CodeValue
- double RealWorldValueIntercept
- double RealWorldValueSlope

12.262.1 Member Data Documentation

12.262.1.1 CodeMeaning

```
std::string gdcm::RealWorldValueMappingContent::CodeMeaning
```

12.262.1.2 CodeValue

```
std::string gdcm::RealWorldValueMappingContent::CodeValue
```

12.262.1.3 RealWorldValueIntercept

```
double gdcm::RealWorldValueMappingContent::RealWorldValueIntercept
```

12.262.1.4 RealWorldValueSlope

```
double gdcm::RealWorldValueMappingContent::RealWorldValueSlope
```

The documentation for this struct was generated from the following file:

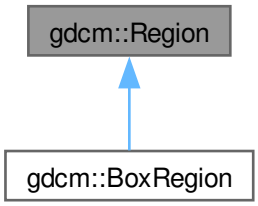
- gdcmImageHelper.h

12.263 gdcm::Region Class Reference

Class for manipulation region.

```
#include <gdcmRegion.h>
```

Inheritance diagram for gdcm::Region:



Public Member Functions

- Region ()
- virtual ~Region ()
- virtual size_t Area () const =0

  compute the area
- virtual Region * Clone () const =0
- virtual BoxRegion ComputeBoundingBox ()=0

  Return the Axis-Aligned minimum bounding box for all regions.
- virtual bool Empty () const =0

  return whether this domain is empty:
- virtual bool IsValid () const =0

  return whether this is valid domain
- virtual void Print (std::ostream &os=std::cout) const

  Print.

12.263.1 Detailed Description

Class for manipulation region.

12.263.2 Constructor & Destructor Documentation

12.263.2.1 Region()

```
gdcm::Region::Region ()
```

Referenced by gdcm::BoxRegion::Clone(), and Clone().

12.263.2.2 ~Region()

```
virtual gdcm::Region::~Region ()  [virtual]
```

12.263.3 Member Function Documentation

12.263.3.1 Area()

```
virtual size_t gdcm::Region::Area () const  [pure virtual]
```

compute the area

Implemented in gdcm::BoxRegion.

12.263.3.2 Clone()

```
virtual Region * gdcm::Region::Clone () const  [pure virtual]
```

Implemented in gdcm::BoxRegion.

References Region().

12.263.3.3 ComputeBoundingBox()

```
virtual BoxRegion gdcm::Region::ComputeBoundingBox ()  [pure virtual]
```

Return the Axis-Aligned minimum bounding box for all regions.

Implemented in gdcm::BoxRegion.

12.263.3.4 Empty()

```
virtual bool gdcm::Region::Empty () const  [pure virtual]
```

return whether this domain is empty:

Implemented in gdcm::BoxRegion.

12.263.3.5 IsValid()

```
virtual bool gdcm::Region::IsValid () const  [pure virtual]
```

return whether this is valid domain

Implemented in gdcm::BoxRegion.

12.263.3.6 Print()

```
virtual void gdcm::Region::Print (
            std::ostream & os = std::cout) const  [virtual]
```

Print.

Reimplemented in gdcm::BoxRegion.

Referenced by gdcm::operator<<().

The documentation for this class was generated from the following file:

- gdcmRegion.h

12.264 gdcm::Rescaler Class Reference

Rescale class.

`#include <gdcmRescaler.h>`

Public Member Functions

- Rescaler ()
- ~Rescaler ()=default
- PixelFormat::ScalarType ComputeInterceptSlopePixelType ()
- PixelFormat ComputePixelTypeFromMinMax ()
- double GetIntercept () const
- double GetSlope () const
- bool InverseRescale (char *out, const char *in, size_t n)

  Inverse transform.
- bool Rescale (char *out, const char *in, size_t n)

  Direct transform.
- void SetIntercept (double i)

  Set Intercept: used for both direct&inverse transformation.
- void SetMinMaxForPixelType (double min, double max)
- void SetPixelFormat (PixelFormat const &pf)

  Set Pixel Format of input data.
- void SetSlope (double s)

  Set Slope: user for both direct&inverse transformation.
- void SetTargetPixelType (PixelFormat const &targetst)
- void SetUseTargetPixelType (bool b)

  Override default behavior of Rescale.

Protected Member Functions

- template<typename TIn>
  void InverseRescaleFunctionIntoBestFit (char *out, const TIn *in, size_t n)
- template<typename TIn>
  void RescaleFunctionIntoBestFit (char *out, const TIn *in, size_t n)

12.264.1 Detailed Description

Rescale class.

This class is meant to apply the linear transform of Stored Pixel Value to Real World Value. This is mostly found in CT or PET dataset, where the value are stored using one type, but need to be converted to another scale using a linear transform. There are basically two cases: In CT: the linear transform is generally integer based. E.g. the Stored Pixel Type is unsigned short 12bits, but to get Hounsfield unit, one need to apply the linear transform:

$$RWV = 1. * SV - 1024$$

So the best scalar to store the Real World Value will be 16 bits signed type.

In PET: the linear transform is generally floating point based. Since the dynamic range can be quite high, the Rescale Slope / Rescale Intercept can be changing throughout the Series. So it is important to read all linear transform and deduce the best Pixel Type only at the end (when all the images to be read have been parsed).

Warning

Internally any time a floating point value is found either in the Rescale Slope or the Rescale Intercept it is assumed that the best matching output pixel type is FLOAT64 (in previous implementation it was FLOAT32). Because VR:DS is closer to a 64bits floating point type FLOAT64 is thus a best matching pixel type for the floating point transformation.

Example: Let say input is FLOAT64, and we want UINT16 as output, we would do:

```
Rescaler ir;
ir.SetIntercept( 0 );
ir.SetSlope( 5.6789 );
ir.SetPixelFormat( FLOAT64 );
ir.SetMinMaxForPixelType( ((PixelFormat)UINT16).GetMin(), ((PixelFormat)UINT16).GetMax() );
ir.InverseRescale(output,input,numberofbytes );
```

Note

handle floating point transformation back and forth to integer properly (no loss)

See also

Unpacker12Bits

Examples

RescaleImage.cs.

12.264.2 Constructor & Destructor Documentation

12.264.2.1 Rescaler()

```
gdcm::Rescaler::Rescaler ()  [inline]
```

12.264.2.2 ~Rescaler()

```
gdcm::Rescaler::~Rescaler ()  [default]
```

12.264.3 Member Function Documentation

12.264.3.1 ComputeInterceptSlopePixelType()

```
PixelFormat::ScalarType gdcm::Rescaler::ComputeInterceptSlopePixelType ()
```

Compute the Pixel Format of the output data Used for direct transformation

Examples

RescaleImage.cs.

12.264.3.2 ComputePixelTypeFromMinMax()

```
PixelFormat gdcm::Rescaler::ComputePixelTypeFromMinMax ()
```

Compute the Pixel Format of the output data Used for inverse transformation

12.264.3.3 GetIntercept()

```
double gdcm::Rescaler::GetIntercept () const  [inline]
```

12.264.3.4 GetSlope()

```
double gdcm::Rescaler::GetSlope () const  [inline]
```

12.264.3.5 InverseRescale()

```
bool gdcm::Rescaler::InverseRescale (
            char * out,
            const char * in,
            size_t n)
```

Inverse transform.

12.264.3.6 InverseRescaleFunctionIntoBestFit()

```
template<typename TIn>
void gdcm::Rescaler::InverseRescaleFunctionIntoBestFit (
            char * out,
            const TIn * in,
            size_t n)  [protected]
```

12.264.3.7 Rescale()

```
bool gdcm::Rescaler::Rescale (
            char * out,
            const char * in,
            size_t n)
```

Direct transform.

Examples

RescaleImage.cs.

12.264.3.8 RescaleFunctionIntoBestFit()

```
template<typename TIn>
void gdcm::Rescaler::RescaleFunctionIntoBestFit (
            char * out,
            const TIn * in,
            size_t n)  [protected]
```

12.264.3.9 SetIntercept()

```
void gdcm::Rescaler::SetIntercept (
            double i)  [inline]
```

Set Intercept: used for both direct&inverse transformation.

Examples

RescaleImage.cs.

12.264.3.10 SetMinMaxForPixelType()

```
void gdcm::Rescaler::SetMinMaxForPixelType (
            double min,
            double max)
```

Set target interval for output data. A best match will be computed (if possible) Used for inverse transformation

12.264.3.11 SetPixelFormat()

```
void gdcm::Rescaler::SetPixelFormat (
            PixelFormat const & pf)  [inline]
```

Set Pixel Format of input data.

Examples

RescaleImage.cs.

12.264.3.12 SetSlope()

```
void gdcm::Rescaler::SetSlope (
            double s)  [inline]
```

Set Slope: user for both direct&inverse transformation.

Examples

RescaleImage.cs.

12.264.3.13 SetTargetPixelType()

```
void gdcm::Rescaler::SetTargetPixelType (
            PixelFormat const & targetst)
```

By default (when UseTargetPixelType is false), a best matching Target Pixel Type is computed. However user can override this auto selection by switching UseTargetPixelType:true and also specifying the specific Target Pixel Type

12.264.3.14 SetUseTargetPixelType()

```
void gdcm::Rescaler::SetUseTargetPixelType (
            bool b)
```

Override default behavior of Rescale.

The documentation for this class was generated from the following file:

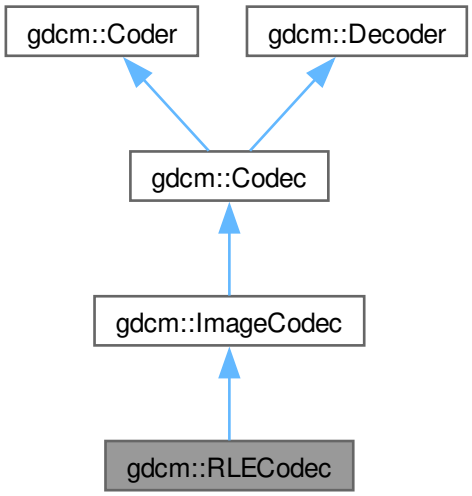
- gdcmRescaler.h

12.265 gdcm::RLECodec Class Reference

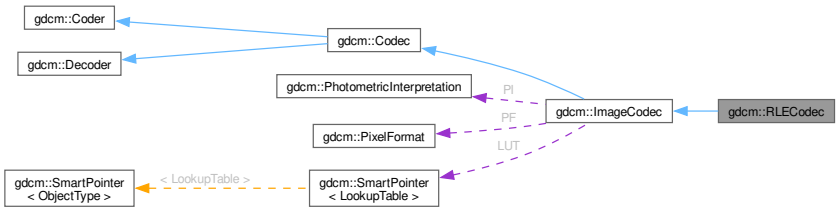
Class to do RLE.

`#include <gdcmRLECodec.h>`

Inheritance diagram for gdcm::RLECodec:



Collaboration diagram for gdcm::RLECodec:



Public Member Functions

- RLECodec ()
- ~RLECodec () override
- bool CanCode (TransferSyntax const &ts) const override

  Return whether this coder support this transfer syntax (can code it).
- bool CanDecode (TransferSyntax const &ts) const override

  Return whether this decoder support this transfer syntax (can decode it).
- ImageCodec * Clone () const override
- bool Code (DataElement const &in, DataElement &out) override

  Code.
- bool Decode (DataElement const &is, DataElement &os) override

  Decode.
- unsigned long GetBufferLength () const
- bool GetHeaderInfo (std::istream &is, TransferSyntax &ts) override
- void SetBufferLength (unsigned long l)
- void SetLength (unsigned long l)

Public Member Functions inherited from gdcm::ImageCodec

- ImageCodec ()
- ~ImageCodec () override
- bool CleanupUnusedBits (char *data, size_t datalen)
- const unsigned int * GetDimensions () const
- bool GetLossyFlag () const
- const LookupTable & GetLUT () const
- bool GetNeedByteSwap () const
- unsigned int GetNumberOfDimensions () const
- const PhotometricInterpretation & GetPhotometricInterpretation () const
- PixelFormat & GetPixelFormat ()
- const PixelFormat & GetPixelFormat () const
- unsigned int GetPlanarConfiguration () const
- bool IsLossy () const
- void SetDimensions (const std::vector< unsigned int > &d)
- void SetDimensions (const unsigned int d[3])

- void SetLossyFlag (bool l)
- void SetLUT (LookupTable const &lut)
- void SetNeedByteSwap (bool b)
- void SetNeedOverlayCleanup (bool b)
- void SetNumberOfDimensions (unsigned int dim)
- void SetPhotometricInterpretation (PhotometricInterpretation const &pi)
- virtual void SetPixelFormat (PixelFormat const &pf)
- void SetPlanarConfiguration (unsigned int pc)

Public Member Functions inherited from gdcm::Coder

- virtual ~Coder ()=default

Public Member Functions inherited from gdcm::Decoder

- virtual ~Decoder ()=default

Protected Member Functions

- bool AppendFrameEncode (std::ostream &out, const char *data, size_t datalen) override
- bool AppendRowEncode (std::ostream &out, const char *data, size_t datalen) override
- bool DecodeByStreams (std::istream &is, std::ostream &os) override
- bool DecodeExtent (char *buffer, unsigned int XMin, unsigned int XMax, unsigned int YMin, unsigned int YMax, unsigned int ZMin, unsigned int ZMax, std::istream &is)
- bool IsFrameEncoder () override
- bool IsRowEncoder () override
- bool StartEncode (std::ostream &) override
- bool StopEncode (std::ostream &) override

Protected Member Functions inherited from gdcm::ImageCodec

- bool DoByteSwap (std::istream &is_, std::ostream &os)
- bool DoInvertMonochrome (std::istream &is_, std::ostream &os)
- bool DoOverlayCleanup (std::istream &is_, std::ostream &os)
- bool DoPaddedCompositePixelCode (std::istream &is_, std::ostream &os)
- bool DoPlanarConfiguration (std::istream &is_, std::ostream &os)
- bool DoSimpleCopy (std::istream &is_, std::ostream &os)
- bool DoYBR (std::istream &is_, std::ostream &os)
- bool DoYBRFull422 (std::istream &is_, std::ostream &os)
- virtual bool IsValid (PhotometricInterpretation const &pi)

Protected Member Functions inherited from gdcm::Coder

- virtual bool InternalCode (const char *bv, unsigned long len, std::ostream &os)

Friends

- class ImageRegionReader

Additional Inherited Members

Protected Types inherited from gdcm::ImageCodec

- typedef SmartPointer< LookupTable > LUTPtr

Protected Attributes inherited from gdcm::ImageCodec

- unsigned int Dimensions [3]
- bool LossyFlag
- LUTPtr LUT
- bool NeedByteSwap
- bool NeedOverlayCleanup
- unsigned int NumberOfDimensions
- PixelFormat PF
- PhotometricInterpretation PI
- unsigned int PlanarConfiguration
- bool RequestPaddedCompositePixelCode
- bool RequestPlanarConfiguration

12.265.1 Detailed Description

Class to do RLE.

Note

ANSI X3.9 A.4.2 RLE Compression Annex G defines a RLE Compression Transfer Syntax. This transfer Syntax is identified by the UID value "1.2.840.10008.1.2.5". If the object allows multi-frame images in the pixel data field, then each frame shall be encoded separately. Each frame shall be encoded in one and only one Fragment (see PS 3.5.8.2).

12.265.2 Constructor & Destructor Documentation

12.265.2.1 RLECodec()

```
gdcm::RLECodec::RLECodec ()
```

12.265.2.2 ~RLECodec()

```
gdcm::RLECodec::~RLECodec ()  [override]
```

12.265.3 Member Function Documentation

12.265.3.1 AppendFrameEncode()

```
bool gdcm::RLECodec::AppendFrameEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.265.3.2 AppendRowEncode()

```
bool gdcm::RLECodec::AppendRowEncode (
            std::ostream & out,
            const char * data,
            size_t datalen)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.265.3.3 CanCode()

```
bool gdcm::RLECodec::CanCode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this coder support this transfer syntax (can code it).

Reimplemented from gdcm::ImageCodec.

12.265.3.4 CanDecode()

```
bool gdcm::RLECodec::CanDecode (
            TransferSyntax const & ts) const  [override], [virtual]
```

Return whether this decoder support this transfer syntax (can decode it).

Reimplemented from gdcm::ImageCodec.

12.265.3.5 Clone()

```
ImageCodec * gdcm::RLECodec::Clone () const  [override], [virtual]
```

Implements gdcm::ImageCodec.

References gdcm::ImageCodec::ImageCodec().

12.265.3.6 Code()

```
bool gdcm::RLECodec::Code (
            DataElement const & in_,
            DataElement & out_)  [override], [virtual]
```

Code.

Reimplemented from gdcm::Coder.

12.265.3.7 Decode()

```
bool gdcm::RLECodec::Decode (
            DataElement const & is_,
            DataElement & os)  [override], [virtual]
```

Decode.

Reimplemented from gdcm::ImageCodec.

12.265.3.8 DecodeByStreams()

```
bool gdcm::RLECodec::DecodeByStreams (
            std::istream & is,
            std::ostream & os)  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.265.3.9 DecodeExtent()

```
bool gdcm::RLECodec::DecodeExtent (
            char * buffer,
            unsigned int XMin,
            unsigned int XMax,
            unsigned int YMin,
            unsigned int YMax,
            unsigned int ZMin,
            unsigned int ZMax,
            std::istream & is)  [protected]
```

12.265.3.10 GetBufferLength()

```
unsigned long gdcm::RLECodec::GetBufferLength () const  [inline]
```

12.265.3.11 GetHeaderInfo()

```
bool gdcm::RLECodec::GetHeaderInfo (
            std::istream & is,
            TransferSyntax & ts)  [override], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.265.3.12 IsFrameEncoder()

```
bool gdcm::RLECodec::IsFrameEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.265.3.13 IsRowEncoder()

```
bool gdcm::RLECodec::IsRowEncoder ()  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.265.3.14 SetBufferLength()

```
void gdcm::RLECodec::SetBufferLength (
            unsigned long l)  [inline]
```

12.265.3.15 SetLength()

```
void gdcm::RLECodec::SetLength (
            unsigned long l)  [inline]
```

12.265.3.16 StartEncode()

```
bool gdcm::RLECodec::StartEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.265.3.17 StopEncode()

```
bool gdcm::RLECodec::StopEncode (
            std::ostream & )  [override], [protected], [virtual]
```

Reimplemented from gdcm::ImageCodec.

12.265.4 Friends And Related Symbol Documentation

12.265.4.1 ImageRegionReader

```
friend class ImageRegionReader  [friend]
```

References ImageRegionReader.

Referenced by ImageRegionReader.

The documentation for this class was generated from the following file:

- gdcmRLECodec.h

12.266 gdcm::network::RoleSelectionSub Class Reference

RoleSelectionSub.

```
#include <gdcmRoleSelectionSub.h>
```

Public Member Functions

- RoleSelectionSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetTuple (const char *uid, uint8_t scurole, uint8_t scprole)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.266.1 Detailed Description

RoleSelectionSub.

PS 3.7 Table D.3-9 SCP/SCU ROLE SELECTION SUB-ITEM FIELDS (A-ASSOCIATE-RQ)

12.266.2 Constructor & Destructor Documentation

12.266.2.1 RoleSelectionSub()

```
gdcm::network::RoleSelectionSub::RoleSelectionSub ()
```

12.266.3 Member Function Documentation

12.266.3.1 Print()

```
void gdcm::network::RoleSelectionSub::Print (
            std::ostream & os) const
```

12.266.3.2 Read()

```
std::istream & gdcm::network::RoleSelectionSub::Read (
            std::istream & is)
```

12.266.3.3 SetTuple()

```
void gdcm::network::RoleSelectionSub::SetTuple (
            const char * uid,
            uint8_t scurole,
            uint8_t scprole)
```

12.266.3.4 Size()

```
size_t gdcm::network::RoleSelectionSub::Size () const
```

12.266.3.5 Write()

```
const std::ostream & gdcm::network::RoleSelectionSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

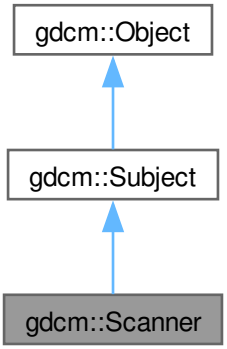
- gdcmRoleSelectionSub.h

12.267 gdcm::Scanner Class Reference

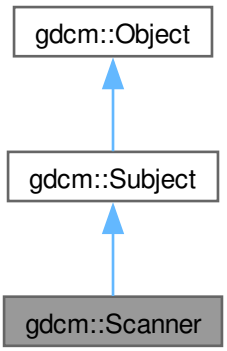
Scanner.

`#include <gdcmScanner.h>`

Inheritance diagram for gdcm::Scanner:



Collaboration diagram for gdcm::Scanner:



Classes

- struct ltstr

Public Types

- typedef MappingType::const_iterator ConstIterator
- typedef std::map< const char *, TagToValue, ltstr > MappingType
- typedef std::map< Tag, const char * > TagToValue
- typedef TagToValue::value_type TagToValueValueType
- typedef std::set< std::string > ValuesType

Public Member Functions

- Scanner ()
- ~Scanner () override
- void AddPrivateTag (PrivateTag const &t)
- void AddSkipTag (Tag const &t)

  Add a tag that will need to be skipped. Those are root level skip tags.
- void AddTag (Tag const &t)

  Add a tag that will need to be read. Those are root level tags.
- ConstIterator Begin () const
- void ClearSkipTags ()
- void ClearTags ()
- ConstIterator End () const
- Directory::FilenamesType GetAllFilenamesFromTagToValue (Tag const &t, const char *valueref) const
- const char * GetFilenameFromTagToValue (Tag const &t, const char *valueref) const
- Directory::FilenamesType const & GetFilenames () const
- Directory::FilenamesType GetKeys () const
- TagToValue const & GetMapping (const char *filename) const

  Get the std::map mapping filenames to value for file 'filename'.
- TagToValue const & GetMappingFromTagToValue (Tag const &t, const char *value) const

  See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.
- MappingType const & GetMappings () const

  Mappings are the mapping from a particular tag to the map, mapping filename to value:
- Directory::FilenamesType GetOrderedValues (Tag const &t) const
- const char * GetValue (const char *filename, Tag const &t) const
- ValuesType const & GetValues () const

  Get all the values found (in lexicographic order).
- ValuesType GetValues (Tag const &t) const

  Get all the values found (in lexicographic order) associated with Tag 't'.
- bool IsKey (const char *filename) const
- void Print (std::ostream &os) const override

  Print result.
- void PrintTable (std::ostream &os) const
- bool Scan (Directory::FilenamesType const &filenames)

  Start the scan !

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< Scanner > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- void ProcessPublicTag (StringFilter &sf, const char *filename)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &_os, const Scanner &s)

12.267.1 Detailed Description

Scanner.

This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute.

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of StringFilter

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- ProgressEvent
- StartEvent
- EndEvent

Examples

DiscriminateVolume.cxx, DumpToSQLITE3.cxx, SortImage.cxx, and VolumeSorter.cxx.

12.267.2 Member Typedef Documentation

12.267.2.1 ConstIterator

```
typedef MappingType::const_iterator gdcm::Scanner::ConstIterator
```

12.267.2.2 MappingType

```
typedef std::map<const char *,TagToValue, ltstr> gdcm::Scanner::MappingType
```

12.267.2.3 TagToValue

```
typedef std::map<Tag, const char*> gdcm::Scanner::TagToValue
```

struct to map a filename to a value Implementation note: all std::map in this class will be using const char * and not std::string since we are pointing to existing std::string (hold in a std::vector) this avoid an extra copy of the byte array. Tag are used as Tag class since sizeof(tag) <= sizeof(pointer)

12.267.2.4 TagToValueValueType

```
typedef TagToValue::value_type gdcm::Scanner::TagToValueValueType
```

12.267.2.5 ValuesType

```
typedef std::set< std::string > gdcm::Scanner::ValuesType
```

Examples

DiscriminateVolume.cxx, SortImage.cxx, and VolumeSorter.cxx.

12.267.3 Constructor & Destructor Documentation

12.267.3.1 Scanner()

```
gdcm::Scanner::Scanner () [inline]
```

Referenced by New(), and operator<<.

12.267.3.2 ~Scanner()

```
gdcm::Scanner::~Scanner () [override]
```

12.267.4 Member Function Documentation

12.267.4.1 AddPrivateTag()

```
void gdcm::Scanner::AddPrivateTag (
            PrivateTag const & t)
```

12.267.4.2 AddSkipTag()

```
void gdcm::Scanner::AddSkipTag (
            Tag const & t)
```

Add a tag that will need to be skipped. Those are root level skip tags.

12.267.4.3 AddTag()

```
void gdcm::Scanner::AddTag (
            Tag const & t)
```

Add a tag that will need to be read. Those are root level tags.

Examples

DiscriminateVolume.cxx, DumpToSQLITE3.cxx, SortImage.cxx, and VolumeSorter.cxx.

12.267.4.4 Begin()

```
ConstIterator gdcm::Scanner::Begin () const  [inline]
```

12.267.4.5 ClearSkipTags()

```
void gdcm::Scanner::ClearSkipTags ()
```

12.267.4.6 ClearTags()

```
void gdcm::Scanner::ClearTags ()
```

12.267.4.7 End()

```
ConstIterator gdcm::Scanner::End () const  [inline]
```

12.267.4.8 GetAllFilenamesFromTagToValue()

```
Directory::FilenamesType gdcm::Scanner::GetAllFilenamesFromTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valueref'

12.267.4.9 GetFilenameFromTagToValue()

```
const char * gdcm::Scanner::GetFilenameFromTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return the first file where value match the reference value 'valueref'

12.267.4.10 GetFilenames()

```
Directory::FilenamesType const & gdcm::Scanner::GetFilenames () const  [inline]
```

12.267.4.11 GetKeys()

```
Directory::FilenamesType gdcm::Scanner::GetKeys () const
```

Return the list of filename that are key in the internal map, which means those filename were properly parsed

Examples

VolumeSorter.cxx.

12.267.4.12 GetMapping()

```
TagToValue const & gdcm::Scanner::GetMapping (
            const char * filename) const
```

Get the std::map mapping filenames to value for file 'filename'.

Examples

DumpToSQLITE3.cxx.

12.267.4.13 GetMappingFromTagToValue()

```
TagToValue const & gdcm::Scanner::GetMappingFromTagToValue (
            Tag const & t,
            const char * value) const
```

See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.

12.267.4.14 GetMappings()

```
MappingType const & gdcm::Scanner::GetMappings () const  [inline]
```

Mappings are the mapping from a particular tag to the map, mapping filename to value:

12.267.4.15 GetOrderedValues()

```
Directory::FilenamesType gdcm::Scanner::GetOrderedValues (
            Tag const & t) const
```

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

12.267.4.16 GetValue()

```
const char * gdcm::Scanner::GetValue (
            const char * filename,
            Tag const & t) const
```

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via AddTag() prior to the Scan() call !

12.267.4.17 GetValues() [1/2]

```
ValuesType const & gdcm::Scanner::GetValues () const  [inline]
```

Get all the values found (in lexicographic order).

Examples

SortImage.cxx, and VolumeSorter.cxx.

12.267.4.18 GetValues() [2/2]

```
ValuesType gdcm::Scanner::GetValues (
            Tag const & t) const
```

Get all the values found (in lexicographic order) associated with Tag 't'.

12.267.4.19 IsKey()

```
bool gdcm::Scanner::IsKey (
            const char * filename) const
```

Check if filename is a key in the Mapping table. returns true only of file can be found, which means the file was indeed a DICOM file that could be processed

Examples

DumpToSQLITE3.cxx.

12.267.4.20 New()

```
SmartPointer< Scanner > gdcm::Scanner::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References Scanner().

12.267.4.21 Print()

```
void gdcm::Scanner::Print (
            std::ostream & os) const  [override], [virtual]
```

Print result.

Reimplemented from gdcm::Object.

Referenced by operator<<.

12.267.4.22 PrintTable()

```
void gdcm::Scanner::PrintTable (
            std::ostream & os) const
```

12.267.4.23 ProcessPublicTag()

```
void gdcm::Scanner::ProcessPublicTag (
            StringFilter & sf,
            const char * filename)  [protected]
```

12.267.4.24 Scan()

```
bool gdcm::Scanner::Scan (
            Directory::FilenamesType const & filenames)
```

Start the scan !

Examples

DiscriminateVolume.cxx, DumpToSQLITE3.cxx, SortImage.cxx, and VolumeSorter.cxx.

12.267.5 Friends And Related Symbol Documentation

12.267.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Scanner & s)  [friend]
```

References Scanner(), and Print().

The documentation for this class was generated from the following file:

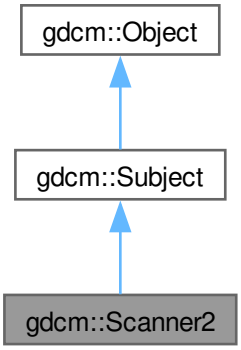
- gdcmScanner.h

12.268 gdcm::Scanner2 Class Reference

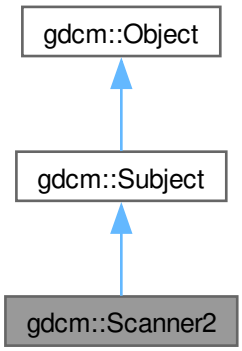
Scanner2.

```
#include <gdcmScanner2.h>
```

Inheritance diagram for gdcm::Scanner2:



Collaboration diagram for gdcm::Scanner2:



Classes

- struct ltstr

Public Types

- typedef PrivateMappingType::const_iterator PrivateConstIterator
- typedef std::map< const char *, PrivateTagToValue, ltstr > PrivateMappingType
- typedef std::map< PrivateTag, const char * > PrivateTagToValue
- typedef PrivateTagToValue::value_type PrivateTagToValueValueType
- typedef PublicMappingType::const_iterator PublicConstIterator
- typedef std::map< const char *, PublicTagToValue, ltstr > PublicMappingType
- typedef std::map< Tag, const char * > PublicTagToValue
- typedef PublicTagToValue::value_type PublicTagToValueValueType
- typedef std::set< std::string > ValuesType

Public Member Functions

- Scanner2 ()
- ~Scanner2 () override
- bool AddPrivateTag (PrivateTag const &pt)
- bool AddPublicTag (Tag const &t)

  Add a tag that will need to be read. Those are root level tags.
- bool AddSkipTag (Tag const &t)

  Add a tag that will need to be skipped. Those are root level skip tags.
- PublicConstIterator Begin () const
- void ClearPrivateTags ()
- void ClearPublicTags ()

- void ClearSkipTags ()
- PublicConstIterator End () const
- Directory::FilenamesType GetAllFilenamesFromPrivateTagToValue (PrivateTag const &pt, const char *valueref) const
- Directory::FilenamesType GetAllFilenamesFromPublicTagToValue (Tag const &t, const char *valueref) const
- const char * GetFilenameFromPrivateTagToValue (PrivateTag const &pt, const char *valueref) const
- const char * GetFilenameFromPublicTagToValue (Tag const &t, const char *valueref) const
- Directory::FilenamesType const & GetFilenames () const

  Return the list of filenames.
- Directory::FilenamesType GetKeys () const
- PrivateTagToValue const & GetMappingFromPrivateTagToValue (PrivateTag const &pt, const char *value) const
- PublicTagToValue const & GetMappingFromPublicTagToValue (Tag const &t, const char *value) const

  See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.
- PrivateTagToValue const & GetPrivateMapping (const char *filename) const
- PrivateMappingType const & GetPrivateMappings () const
- Directory::FilenamesType GetPrivateOrderedValues (PrivateTag const &pt) const
- const char * GetPrivateValue (const char *filename, PrivateTag const &t) const
- ValuesType GetPrivateValues (PrivateTag const &pt) const

  Get all the values found (in lexicographic order) associated with PrivateTag 'pt'.
- PublicTagToValue const & GetPublicMapping (const char *filename) const

  Get the std::map mapping filenames to value for file 'filename'.
- PublicMappingType const & GetPublicMappings () const

  Mappings are the mapping from a particular tag to the map, mapping filename to value:
- Directory::FilenamesType GetPublicOrderedValues (Tag const &t) const
- const char * GetPublicValue (const char *filename, Tag const &t) const
- ValuesType GetPublicValues (Tag const &t) const

  Get all the values found (in lexicographic order) associated with Tag 't'.
- ValuesType const & GetValues () const

  Get all the values found (in lexicographic order).
- bool IsKey (const char *filename) const
- void Print (std::ostream &os) const override

  Print result.
- void PrintTable (std::ostream &os, bool header=false) const

  Print result as CSV table.
- PrivateConstIterator PrivateBegin () const
- PrivateConstIterator PrivateEnd () const
- bool Scan (Directory::FilenamesType const &filenames)

  Start the scan !

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< Scanner2 > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- void ProcessPrivateTag (StringFilter &sf, const char *filename)
- void ProcessPublicTag (StringFilter &sf, const char *filename)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &_os, const Scanner2 &s)

12.268.1 Detailed Description

Scanner2.

This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute.

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of StringFilter

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- ProgressEvent
- StartEvent
- EndEvent

12.268.2 Member Typedef Documentation

12.268.2.1 PrivateConstIterator

```
typedef PrivateMappingType::const_iterator gdcm::Scanner2::PrivateConstIterator
```

12.268.2.2 PrivateMappingType

```
typedef std::map<const char *,PrivateTagToValue, ltstr> gdcm::Scanner2::PrivateMappingType
```

12.268.2.3 PrivateTagToValue

```
typedef std::map<PrivateTag, const char*> gdcm::Scanner2::PrivateTagToValue
```

12.268.2.4 PrivateTagToValueValueType

```
typedef PrivateTagToValue::value_type gdcm::Scanner2::PrivateTagToValueValueType
```

12.268.2.5 PublicConstIterator

```
typedef PublicMappingType::const_iterator gdcm::Scanner2::PublicConstIterator
```

12.268.2.6 PublicMappingType

```
typedef std::map<const char *,PublicTagToValue, ltstr> gdcm::Scanner2::PublicMappingType
```

12.268.2.7 PublicTagToValue

```
typedef std::map<Tag, const char*> gdcm::Scanner2::PublicTagToValue
```

struct to map a filename to a value Implementation note: all std::map in this class will be using const char * and not std::string since we are pointing to existing std::string (held in a std::vector) this avoid an extra copy of the byte array. Tag are used as Tag class since sizeof(tag) <= sizeof(pointer)

12.268.2.8 PublicTagToValueValueType

```
typedef PublicTagToValue::value_type gdcm::Scanner2::PublicTagToValueValueType
```

12.268.2.9 ValuesType

```
typedef std::set< std::string > gdcm::Scanner2::ValuesType
```

12.268.3 Constructor & Destructor Documentation

12.268.3.1 Scanner2()

```
gdcm::Scanner2::Scanner2 ()  [inline]
```

Referenced by New(), and operator<<.

12.268.3.2 ~Scanner2()

```
gdcm::Scanner2::~Scanner2 ()  [override]
```

12.268.4 Member Function Documentation

12.268.4.1 AddPrivateTag()

```
bool gdcm::Scanner2::AddPrivateTag (
            PrivateTag const & pt)
```

12.268.4.2 AddPublicTag()

```
bool gdcm::Scanner2::AddPublicTag (
            Tag const & t)
```

Add a tag that will need to be read. Those are root level tags.

12.268.4.3 AddSkipTag()

```
bool gdcm::Scanner2::AddSkipTag (
            Tag const & t)
```

Add a tag that will need to be skipped. Those are root level skip tags.

12.268.4.4 Begin()

```
PublicConstIterator gdcm::Scanner2::Begin () const  [inline]
```

12.268.4.5 ClearPrivateTags()

```
void gdcm::Scanner2::ClearPrivateTags ()
```

12.268.4.6 ClearPublicTags()

```
void gdcm::Scanner2::ClearPublicTags ()
```

12.268.4.7 ClearSkipTags()

```
void gdcm::Scanner2::ClearSkipTags ()
```

12.268.4.8 End()

```
PublicConstIterator gdcm::Scanner2::End () const  [inline]
```

12.268.4.9 GetAllFilenamesFromPrivateTagToValue()

```
Directory::FilenamesType gdcm::Scanner2::GetAllFilenamesFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * valueref) const
```

12.268.4.10 GetAllFilenamesFromPublicTagToValue()

```
Directory::FilenamesType gdcm::Scanner2::GetAllFilenamesFromPublicTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valueref'

12.268.4.11 GetFilenameFromPrivateTagToValue()

```
const char * gdcm::Scanner2::GetFilenameFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * valueref) const
```

12.268.4.12 GetFilenameFromPublicTagToValue()

```
const char * gdcm::Scanner2::GetFilenameFromPublicTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return the first file where value match the reference value 'valueref'

12.268.4.13 GetFilenames()

```
Directory::FilenamesType const & gdcm::Scanner2::GetFilenames () const  [inline]
```

Return the list of filenames.

12.268.4.14 GetKeys()

```
Directory::FilenamesType gdcm::Scanner2::GetKeys () const
```

Return the list of filename that are key in the internal map, which means those filename were properly parsed

12.268.4.15 GetMappingFromPrivateTagToValue()

```
PrivateTagToValue const & gdcm::Scanner2::GetMappingFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * value) const
```

12.268.4.16 GetMappingFromPublicTagToValue()

```
PublicTagToValue const & gdcm::Scanner2::GetMappingFromPublicTagToValue (
            Tag const & t,
            const char * value) const
```

See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.

12.268.4.17 GetPrivateMapping()

```
PrivateTagToValue const & gdcm::Scanner2::GetPrivateMapping (
            const char * filename) const
```

12.268.4.18 GetPrivateMappings()

```
PrivateMappingType const & gdcm::Scanner2::GetPrivateMappings () const  [inline]
```

12.268.4.19 GetPrivateOrderedValues()

```
Directory::FilenamesType gdcm::Scanner2::GetPrivateOrderedValues (
            PrivateTag const & pt) const
```

12.268.4.20 GetPrivateValue()

```
const char * gdcm::Scanner2::GetPrivateValue (
            const char * filename,
            PrivateTag const & t) const
```

12.268.4.21 GetPrivateValues()

```
ValuesType gdcm::Scanner2::GetPrivateValues (
            PrivateTag const & pt) const
```

Get all the values found (in lexicographic order) associated with PrivateTag 'pt'.

12.268.4.22 GetPublicMapping()

```
PublicTagToValue const & gdcm::Scanner2::GetPublicMapping (
            const char * filename) const
```

Get the std::map mapping filenames to value for file 'filename'.

12.268.4.23 GetPublicMappings()

```
PublicMappingType const & gdcm::Scanner2::GetPublicMappings () const  [inline]
```

Mappings are the mapping from a particular tag to the map, mapping filename to value:

12.268.4.24 GetPublicOrderedValues()

```
Directory::FilenamesType gdcm::Scanner2::GetPublicOrderedValues (
            Tag const & t) const
```

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

12.268.4.25 GetPublicValue()

```
const char * gdcm::Scanner2::GetPublicValue (
            const char * filename,
            Tag const & t) const
```

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via AddTag() prior to the Scan() call !

12.268.4.26 GetPublicValues()

```
ValuesType gdcm::Scanner2::GetPublicValues (
            Tag const & t) const
```

Get all the values found (in lexicographic order) associated with Tag 't'.

12.268.4.27 GetValues()

```
ValuesType const & gdcm::Scanner2::GetValues () const  [inline]
```

Get all the values found (in lexicographic order).

12.268.4.28 IsKey()

```
bool gdcm::Scanner2::IsKey (
            const char * filename) const
```

Check if filename is a key in the Mapping table. returns true only of file can be found, which means the file was indeed a DICOM file that could be processed

12.268.4.29 New()

```
SmartPointer< Scanner2 > gdcm::Scanner2::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References Scanner2().

12.268.4.30 Print()

```
void gdcm::Scanner2::Print (
            std::ostream & os) const  [override], [virtual]
```

Print result.

Reimplemented from gdcm::Object.

Referenced by operator<<.

12.268.4.31 PrintTable()

```
void gdcm::Scanner2::PrintTable (
            std::ostream & os,
            bool header = false) const
```

Print result as CSV table.

12.268.4.32 PrivateBegin()

```
PrivateConstIterator gdcm::Scanner2::PrivateBegin () const  [inline]
```

12.268.4.33 PrivateEnd()

```
PrivateConstIterator gdcm::Scanner2::PrivateEnd () const  [inline]
```

12.268.4.34 ProcessPrivateTag()

```
void gdcm::Scanner2::ProcessPrivateTag (
            StringFilter & sf,
            const char * filename)  [protected]
```

12.268.4.35 ProcessPublicTag()

```
void gdcm::Scanner2::ProcessPublicTag (
            StringFilter & sf,
            const char * filename)  [protected]
```

12.268.4.36 Scan()

```
bool gdcm::Scanner2::Scan (
            Directory::FilenamesType const & filenames)
```

Start the scan !

12.268.5 Friends And Related Symbol Documentation

12.268.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Scanner2 & s)  [friend]
```

References Scanner2(), and Print().

The documentation for this class was generated from the following file:

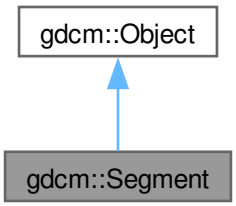
- gdcmScanner2.h

12.269 gdcm::Segment Class Reference

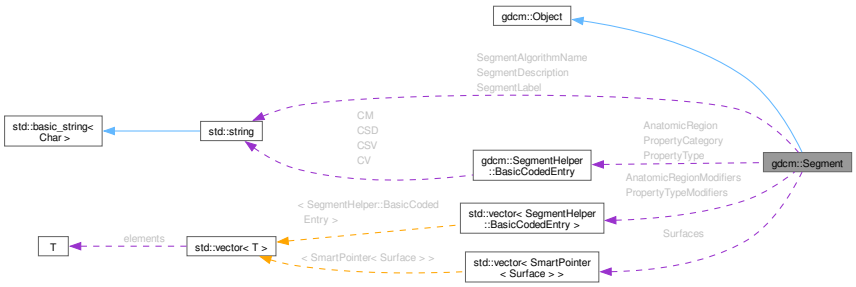
This class defines a segment.

`#include <gdcmSegment.h>`

Inheritance diagram for gdcm::Segment:



Collaboration diagram for gdcm::Segment:



Public Types

- enum ALGOType {
  AUTOMATIC = 0 ,
  SEMIAUTOMATIC ,
  MANUAL ,
  ALGOType_END }
- typedef std::vector< SegmentHelper::BasicCodedEntry > BasicCodedEntryVector
- typedef std::vector< SmartPointer< Surface > > SurfaceVector

Public Member Functions

- Segment ()
- ~Segment () override
- void AddSurface (SmartPointer< Surface > surface)
- SegmentHelper::BasicCodedEntry & GetAnatomicRegion ()
- SegmentHelper::BasicCodedEntry const & GetAnatomicRegion () const
- BasicCodedEntryVector & GetAnatomicRegionModifiers ()
- BasicCodedEntryVector const & GetAnatomicRegionModifiers () const
- SegmentHelper::BasicCodedEntry & GetPropertyCategory ()
- SegmentHelper::BasicCodedEntry const & GetPropertyCategory () const
- SegmentHelper::BasicCodedEntry & GetPropertyType ()
- SegmentHelper::BasicCodedEntry const & GetPropertyType () const
- BasicCodedEntryVector & GetPropertyTypeModifiers ()
- BasicCodedEntryVector const & GetPropertyTypeModifiers () const
- const char * GetSegmentAlgorithmName () const
- ALGOType GetSegmentAlgorithmType () const
- const char * GetSegmentDescription () const
- const char * GetSegmentLabel () const
- unsigned short GetSegmentNumber () const
- SmartPointer< Surface > GetSurface (const unsigned int idx=0) const
- unsigned long GetSurfaceCount ()
- SurfaceVector & GetSurfaces ()
- SurfaceVector const & GetSurfaces () const
- void SetAnatomicRegion (SegmentHelper::BasicCodedEntry const &BSE)
- void SetAnatomicRegionModifiers (BasicCodedEntryVector const &BSEV)
- void SetPropertyCategory (SegmentHelper::BasicCodedEntry const &BSE)
- void SetPropertyType (SegmentHelper::BasicCodedEntry const &BSE)
- void SetPropertyTypeModifiers (BasicCodedEntryVector const &BSEV)
- void SetSegmentAlgorithmName (const char *name)
- void SetSegmentAlgorithmType (ALGOType type)
- void SetSegmentAlgorithmType (const char *typeStr)
- void SetSegmentDescription (const char *description)
- void SetSegmentLabel (const char *label)
- void SetSegmentNumber (const unsigned short num)
- void SetSurfaceCount (const unsigned long nb)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static ALGOType GetALGOType (const char *type)
- static const char * GetALGOTypeString (ALGOType type)

Protected Attributes

- SegmentHelper::BasicCodedEntry AnatomicRegion
- BasicCodedEntryVector AnatomicRegionModifiers
- SegmentHelper::BasicCodedEntry PropertyCategory
- SegmentHelper::BasicCodedEntry PropertyType
- BasicCodedEntryVector PropertyTypeModifiers
- std::string SegmentAlgorithmName
- ALGOType SegmentAlgorithmType
- std::string SegmentDescription
- std::string SegmentLabel
- unsigned short SegmentNumber
- unsigned long SurfaceCount
- SurfaceVector Surfaces

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.269.1 Detailed Description

This class defines a segment.

It mainly contains attributes of group 0x0062. In addition, it can be associated with surface.

See also

PS 3.3 C.8.20.2 and C.8.23

12.269.2 Member Typedef Documentation

12.269.2.1 BasicCodedEntryVector

```
typedef std::vector< SegmentHelper::BasicCodedEntry > gdcm::Segment::BasicCodedEntryVector
```

12.269.2.2 SurfaceVector

```
typedef std::vector< SmartPointer< Surface > > gdcm::Segment::SurfaceVector
```

12.269.3 Member Enumeration Documentation

12.269.3.1 ALGOType

```
enum gdcm::Segment::ALGOType
```

Enumerator

AUTOMATIC	
SEMIAUTOMATIC	
MANUAL	
ALGOType_END	

12.269.4 Constructor & Destructor Documentation

12.269.4.1 Segment()

```
gdcm::Segment::Segment ()
```

12.269.4.2 ~Segment()

```
gdcm::Segment::~Segment ()  [override]
```

12.269.5 Member Function Documentation

12.269.5.1 AddSurface()

```
void gdcm::Segment::AddSurface (
            SmartPointer< Surface > surface)
```

References gdcm::Object::SmartPointer.

12.269.5.2 GetALGOType()

```
ALGOType gdcm::Segment::GetALGOType (
            const char * type)  [static]
```

12.269.5.3 GetALGOTypeString()

```
const char * gdcm::Segment::GetALGOTypeString (
            ALGOType type)  [static]
```

12.269.5.4 GetAnatomicRegion() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Segment::GetAnatomicRegion ()
```

12.269.5.5 GetAnatomicRegion() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Segment::GetAnatomicRegion () const
```

12.269.5.6 GetAnatomicRegionModifiers() [1/2]

```
BasicCodedEntryVector & gdcm::Segment::GetAnatomicRegionModifiers ()
```

12.269.5.7 GetAnatomicRegionModifiers() [2/2]

```
BasicCodedEntryVector const & gdcm::Segment::GetAnatomicRegionModifiers () const
```

12.269.5.8 GetPropertyCategory() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Segment::GetPropertyCategory ()
```

12.269.5.9 GetPropertyCategory() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Segment::GetPropertyCategory () const
```

12.269.5.10 GetPropertyType() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Segment::GetPropertyType ()
```

12.269.5.11 GetPropertyType() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Segment::GetPropertyType () const
```

12.269.5.12 GetPropertyTypeModifiers() [1/2]

```
BasicCodedEntryVector & gdcm::Segment::GetPropertyTypeModifiers ()
```

12.269.5.13 GetPropertyTypeModifiers() [2/2]

```
BasicCodedEntryVector const & gdcm::Segment::GetPropertyTypeModifiers () const
```

12.269.5.14 GetSegmentAlgorithmName()

```
const char * gdcm::Segment::GetSegmentAlgorithmName () const
```

12.269.5.15 GetSegmentAlgorithmType()

```
ALGOType gdcm::Segment::GetSegmentAlgorithmType () const
```

12.269.5.16 GetSegmentDescription()

```
const char * gdcm::Segment::GetSegmentDescription () const
```

12.269.5.17 GetSegmentLabel()

```
const char * gdcm::Segment::GetSegmentLabel () const
```

12.269.5.18 GetSegmentNumber()

```
unsigned short gdcm::Segment::GetSegmentNumber () const
```

12.269.5.19 GetSurface()

```
SmartPointer< Surface > gdcm::Segment::GetSurface (
            const unsigned int idx = 0) const
```

References gdcm::Object::SmartPointer.

12.269.5.20 GetSurfaceCount()

```
unsigned long gdcm::Segment::GetSurfaceCount ()
```

12.269.5.21 GetSurfaces() [1/2]

```
SurfaceVector & gdcm::Segment::GetSurfaces ()
```

12.269.5.22 GetSurfaces() [2/2]

```
SurfaceVector const & gdcm::Segment::GetSurfaces () const
```

12.269.5.23 SetAnatomicRegion()

```
void gdcm::Segment::SetAnatomicRegion (
            SegmentHelper::BasicCodedEntry const & BSE)
```

12.269.5.24 SetAnatomicRegionModifiers()

```
void gdcm::Segment::SetAnatomicRegionModifiers (
            BasicCodedEntryVector const & BSEV)
```

12.269.5.25 SetPropertyCategory()

```
void gdcm::Segment::SetPropertyCategory (
            SegmentHelper::BasicCodedEntry const & BSE)
```

12.269.5.26 SetPropertyType()

```
void gdcm::Segment::SetPropertyType (
            SegmentHelper::BasicCodedEntry const & BSE)
```

12.269.5.27 SetPropertyTypeModifiers()

```
void gdcm::Segment::SetPropertyTypeModifiers (
            BasicCodedEntryVector const & BSEV)
```

12.269.5.28 SetSegmentAlgorithmName()

```
void gdcm::Segment::SetSegmentAlgorithmName (
            const char * name)
```

12.269.5.29 SetSegmentAlgorithmType() [1/2]

```
void gdcm::Segment::SetSegmentAlgorithmType (
            ALGOType type)
```

12.269.5.30 SetSegmentAlgorithmType() [2/2]

```
void gdcm::Segment::SetSegmentAlgorithmType (
            const char * typeStr)
```

12.269.5.31 SetSegmentDescription()

```
void gdcm::Segment::SetSegmentDescription (
            const char * description)
```

12.269.5.32 SetSegmentLabel()

```
void gdcm::Segment::SetSegmentLabel (
            const char * label)
```

12.269.5.33 SetSegmentNumber()

```
void gdcm::Segment::SetSegmentNumber (
            const unsigned short num)
```

12.269.5.34 SetSurfaceCount()

```
void gdcm::Segment::SetSurfaceCount (
            const unsigned long nb)
```

12.269.6 Member Data Documentation

12.269.6.1 AnatomicRegion

```
SegmentHelper::BasicCodedEntry gdcm::Segment::AnatomicRegion  [protected]
```

12.269.6.2 AnatomicRegionModifiers

```
BasicCodedEntryVector gdcm::Segment::AnatomicRegionModifiers  [protected]
```

12.269.6.3 PropertyCategory

```
SegmentHelper::BasicCodedEntry gdcm::Segment::PropertyCategory  [protected]
```

12.269.6.4 PropertyType

```
SegmentHelper::BasicCodedEntry gdcm::Segment::PropertyType  [protected]
```

12.269.6.5 PropertyTypeModifiers

```
BasicCodedEntryVector gdcm::Segment::PropertyTypeModifiers  [protected]
```

12.269.6.6 SegmentAlgorithmName

```
std::string gdcm::Segment::SegmentAlgorithmName  [protected]
```

12.269.6.7 SegmentAlgorithmType

```
ALGOType gdcm::Segment::SegmentAlgorithmType  [protected]
```

12.269.6.8 SegmentDescription

```
std::string gdcm::Segment::SegmentDescription  [protected]
```

12.269.6.9 SegmentLabel

```
std::string gdcm::Segment::SegmentLabel  [protected]
```

12.269.6.10 SegmentNumber

```
unsigned short gdcm::Segment::SegmentNumber  [protected]
```

12.269.6.11 SurfaceCount

```
unsigned long gdcm::Segment::SurfaceCount  [protected]
```

12.269.6.12 Surfaces

```
SurfaceVector gdcm::Segment::Surfaces  [protected]
```

The documentation for this class was generated from the following file:

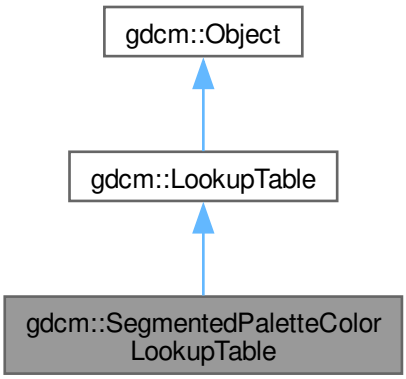
- gdcmSegment.h

12.270 gdcm::SegmentedPaletteColorLookupTable Class Reference

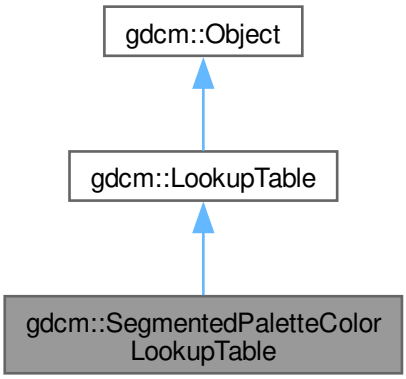
SegmentedPaletteColorLookupTable class.

`#include <gdcmSegmentedPaletteColorLookupTable.h>`

Inheritance diagram for gdcm::SegmentedPaletteColorLookupTable:



Collaboration diagram for gdcm::SegmentedPaletteColorLookupTable:



Public Member Functions

- SegmentedPaletteColorLookupTable ()
- ~SegmentedPaletteColorLookupTable () override
- void Print (std::ostream &) const override
- void SetLUT (LookupTableType type, const unsigned char *array, unsigned int length) override

  Initialize a SegmentedPaletteColorLookupTable.

Public Member Functions inherited from gdcm::LookupTable

- LookupTable ()
- LookupTable (LookupTable const &lut)
- ~LookupTable () override
- void Allocate (unsigned short bitsample=8)

  Allocate the LUT.
- void Clear ()

  Clear the LUT.
- bool Decode (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const
- void Decode (std::istream &is, std::ostream &os) const

  Decode the LUT.
- bool Decode8 (char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const

  Decode into RGB 8 bits space.
- unsigned short GetBitSample () const

  return the bit sample
- bool GetBufferAsRGBA (unsigned char *rgba) const

  return the LUT as RGBA buffer
- void GetLUT (LookupTableType type, unsigned char *array, unsigned int &length) const
- void GetLUTDescriptor (LookupTableType type, unsigned short &length, unsigned short &subscript, unsigned short &bitsize) const
- unsigned int GetLUTLength (LookupTableType type) const
- const unsigned char * GetPointer () const

  return a raw pointer to the LUT
- void InitializeBlueLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)
- bool Initialized () const

  return whether the LUT has been initialized
- void InitializeGreenLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)
- void InitializeLUT (LookupTableType type, unsigned short length, unsigned short subscript, unsigned short bitsize)

  Generic interface:
- void InitializeRedLUT (unsigned short length, unsigned short subscript, unsigned short bitsize)

  RED / GREEN / BLUE specific:
- bool IsRGB8 () const

  Return whether 16 bits LUT is in RGB 8 bits space.
- void SetBlueLUT (const unsigned char *blue, unsigned int length)
- void SetGreenLUT (const unsigned char *green, unsigned int length)
- void SetRedLUT (const unsigned char *red, unsigned int length)
- bool WriteBufferAsRGBA (const unsigned char *rgba)

  Write the LUT as RGBA.

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Additional Inherited Members

Public Types inherited from gdcm::LookupTable

- enum LookupTableType {
  RED = 0 ,
  GREEN ,
  BLUE ,
  GRAY ,
  UNKNOWN }

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes inherited from gdcm::LookupTable

- unsigned short BitSample
- bool IncompleteLUT:1
- LookupTableInternal * Internal

12.270.1 Detailed Description

SegmentedPaletteColorLookupTable class.

12.270.2 Constructor & Destructor Documentation

12.270.2.1 SegmentedPaletteColorLookupTable()

```
gdcm::SegmentedPaletteColorLookupTable::SegmentedPaletteColorLookupTable ()
```

12.270.2.2 ~SegmentedPaletteColorLookupTable()

```
gdcm::SegmentedPaletteColorLookupTable::~SegmentedPaletteColorLookupTable ()  [override]
```

12.270.3 Member Function Documentation

12.270.3.1 Print()

```
void gdcm::SegmentedPaletteColorLookupTable::Print (
            std::ostream & ) const  [inline], [override], [virtual]
```

Reimplemented from gdcm::LookupTable.

12.270.3.2 SetLUT()

```
void gdcm::SegmentedPaletteColorLookupTable::SetLUT (
            LookupTableType type,
            const unsigned char * array,
            unsigned int length)  [override], [virtual]
```

Initialize a SegmentedPaletteColorLookupTable.

Reimplemented from gdcm::LookupTable.

The documentation for this class was generated from the following file:

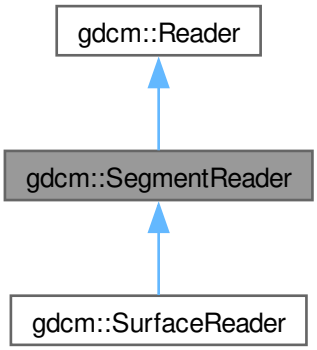
- gdcmSegmentedPaletteColorLookupTable.h

12.271 gdcm::SegmentReader Class Reference

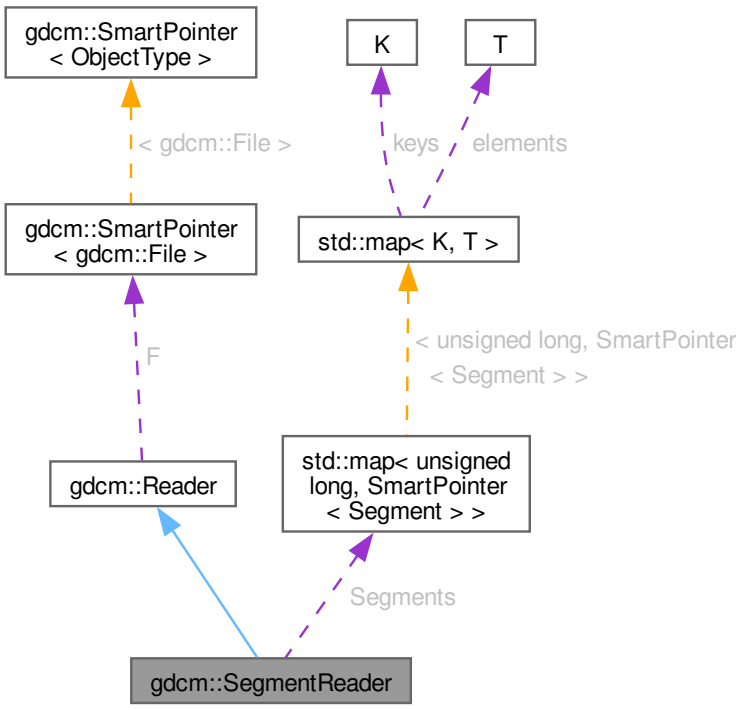
This class defines a segment reader.

```
#include <gdcmSegmentReader.h>
```

Inheritance diagram for gdcm::SegmentReader:



Collaboration diagram for gdcm::SegmentReader:



Public Types

- typedef std::vector< SmartPointer< Segment > > SegmentVector

Public Member Functions

- SegmentReader ()
- ~SegmentReader () override
- SegmentVector GetSegments ()
- SegmentVector GetSegments () const
- bool Read () override

  Read.

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const

- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Types

- typedef std::map< unsigned long, SmartPointer< Segment > > SegmentMap

Protected Member Functions

- bool ReadSegment (const Item &segmentItem, const unsigned int idx)
- bool ReadSegments ()

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Protected Attributes

- SegmentMap Segments

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

12.271.1 Detailed Description

This class defines a segment reader.

It reads attributes of group 0x0062.

See also

PS 3.3 C.8.20.2 and C.8.23

12.271.2 Member Typedef Documentation

12.271.2.1 SegmentMap

```
typedef std::map< unsigned long, SmartPointer< Segment > > gdcm::SegmentReader::SegmentMap  [protected]
```

12.271.2.2 SegmentVector

```
typedef std::vector< SmartPointer< Segment > > gdcm::SegmentReader::SegmentVector
```

12.271.3 Constructor & Destructor Documentation

12.271.3.1 SegmentReader()

```
gdcm::SegmentReader::SegmentReader ()
```

12.271.3.2 ~SegmentReader()

```
gdcm::SegmentReader::~SegmentReader ()  [override]
```

12.271.4 Member Function Documentation

12.271.4.1 GetSegments() [1/2]

```
SegmentVector gdcm::SegmentReader::GetSegments ()
```

12.271.4.2 GetSegments() [2/2]

```
SegmentVector gdcm::SegmentReader::GetSegments () const
```

12.271.4.3 Read()

```
bool gdcm::SegmentReader::Read ()  [override], [virtual]
```

Read.

Reimplemented from gdcm::Reader.

Reimplemented in gdcm::SurfaceReader.

12.271.4.4 ReadSegment()

```
bool gdcm::SegmentReader::ReadSegment (
            const Item & segmentItem,
            const unsigned int idx)  [protected]
```

12.271.4.5 ReadSegments()

```
bool gdcm::SegmentReader::ReadSegments ()  [protected]
```

12.271.5 Member Data Documentation

12.271.5.1 Segments

```
SegmentMap gdcm::SegmentReader::Segments  [protected]
```

The documentation for this class was generated from the following file:

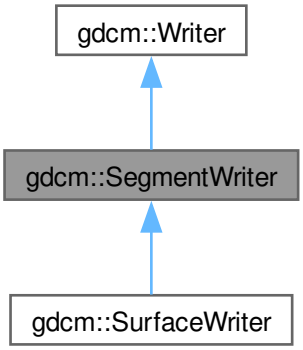
- gdcmSegmentReader.h

12.272 gdcm::SegmentWriter Class Reference

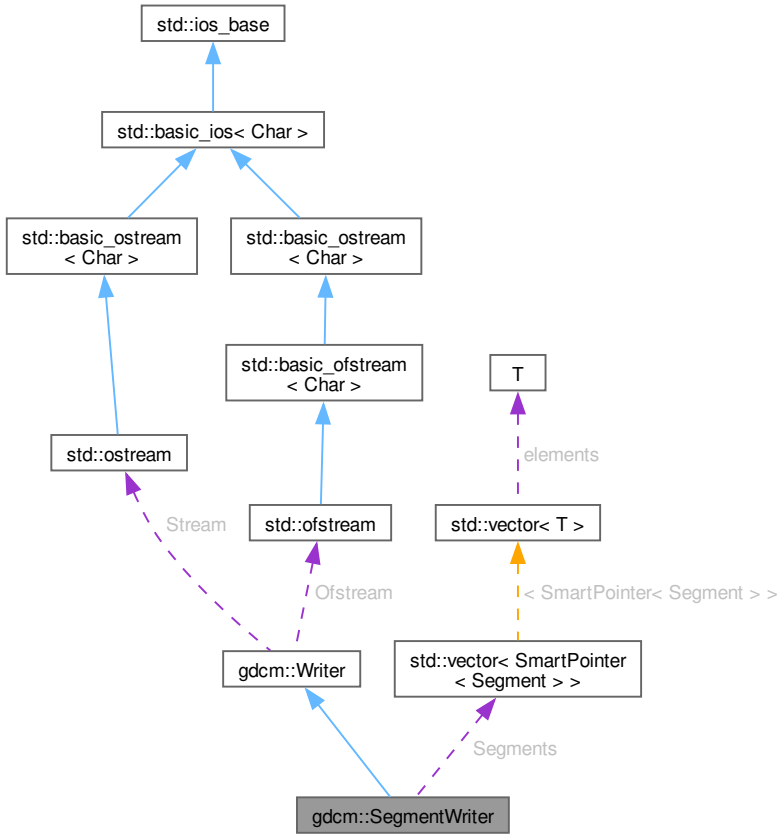
This class defines a segment writer.

```
#include <gdcmSegmentWriter.h>
```

Inheritance diagram for gdcm::SegmentWriter:



Collaboration diagram for gdcm::SegmentWriter:



Public Types

- typedef std::vector< SmartPointer< Segment > > SegmentVector

Public Member Functions

- SegmentWriter ()
- ~SegmentWriter () override
- void AddSegment (SmartPointer< Segment > segment)
- unsigned int GetNumberOfSegments () const
- SmartPointer< Segment > GetSegment (const unsigned int idx=0) const
- SegmentVector & GetSegments ()
- const SegmentVector & GetSegments () const
- void SetNumberOfSegments (const unsigned int size)
- void SetSegments (SegmentVector &segments)
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::Writer

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default).
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header).
- void SetFileName (const char *filename_native)

  Set the filename of DICOM file to write:
- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

Protected Member Functions

- bool PrepareWrite ()

Protected Member Functions inherited from gdcm::Writer

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes

- SegmentVector Segments

Protected Attributes inherited from gdcm::Writer

- std::ofstream * Ofstream
- std::ostream * Stream

12.272.1 Detailed Description

This class defines a segment writer.

It writes attributes of group 0x0062.

See also

PS 3.3 C.8.20.2 and C.8.23

12.272.2 Member Typedef Documentation

12.272.2.1 SegmentVector

```
typedef std::vector< SmartPointer< Segment > > gdcm::SegmentWriter::SegmentVector
```

12.272.3 Constructor & Destructor Documentation

12.272.3.1 SegmentWriter()

```
gdcm::SegmentWriter::SegmentWriter ()
```

12.272.3.2 ~SegmentWriter()

```
gdcm::SegmentWriter::~SegmentWriter ()  [override]
```

12.272.4 Member Function Documentation

12.272.4.1 AddSegment()

```
void gdcm::SegmentWriter::AddSegment (
            SmartPointer< Segment > segment)
```

12.272.4.2 GetNumberOfSegments()

```
unsigned int gdcm::SegmentWriter::GetNumberOfSegments () const
```

12.272.4.3 GetSegment()

```
SmartPointer< Segment > gdcm::SegmentWriter::GetSegment (
            const unsigned int idx = 0) const
```

12.272.4.4 GetSegments() [1/2]

```
SegmentVector & gdcm::SegmentWriter::GetSegments ()
```

12.272.4.5 GetSegments() [2/2]

```
const SegmentVector & gdcm::SegmentWriter::GetSegments () const
```

12.272.4.6 PrepareWrite()

```
bool gdcm::SegmentWriter::PrepareWrite ()  [protected]
```

12.272.4.7 SetNumberOfSegments()

```
void gdcm::SegmentWriter::SetNumberOfSegments (
            const unsigned int size)
```

12.272.4.8 SetSegments()

```
void gdcm::SegmentWriter::SetSegments (
            SegmentVector & segments)
```

12.272.4.9 Write()

```
bool gdcm::SegmentWriter::Write ()  [override], [virtual]
```

Write.

Reimplemented from gdcm::Writer.

Reimplemented in gdcm::SurfaceWriter.

12.272.5 Member Data Documentation

12.272.5.1 Segments

```
SegmentVector gdcm::SegmentWriter::Segments  [protected]
```

The documentation for this class was generated from the following file:

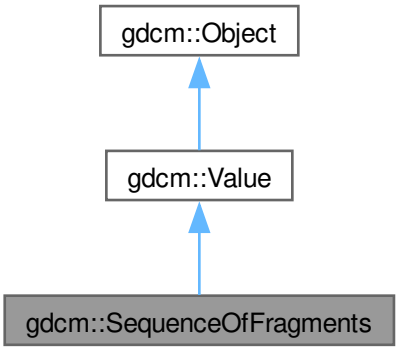
- gdcmSegmentWriter.h

12.273 gdcm::SequenceOfFragments Class Reference

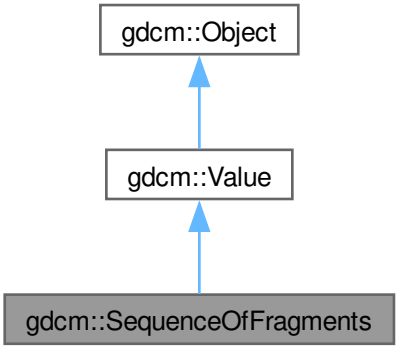
Class to represent a Sequence Of Fragments.

`#include <gdcmSequenceOfFragments.h>`

Inheritance diagram for gdcm::SequenceOfFragments:



Collaboration diagram for gdcm::SequenceOfFragments:



Public Types

- typedef FragmentVector::const_iterator ConstIterator
- typedef std::vector< Fragment > FragmentVector
- typedef FragmentVector::iterator Iterator
- typedef FragmentVector::size_type SizeType

Public Member Functions

- SequenceOfFragments ()

  constructor (UndefinedLength by default)
- void AddFragment (Fragment const &item)

  Appends a Fragment to the already added ones.
- Iterator Begin ()
- ConstIterator Begin () const
- void Clear () override

  Clear.
- unsigned long ComputeByteLength () const
- VL ComputeLength () const
- Iterator End ()
- ConstIterator End () const
- bool GetBuffer (char *buffer, unsigned long length) const
- bool GetFragBuffer (unsigned int fragNb, char *buffer, unsigned long &length) const
- const Fragment & GetFragment (SizeType num) const
- VL GetLength () const override

  Returns the SQ length, as read from disk.
- SizeType GetNumberOfFragments () const
- BasicOffsetTable & GetTable ()
- const BasicOffsetTable & GetTable () const
- bool operator== (const Value &val) const override
- void Print (std::ostream &os) const override
- template<typename TSwap>
  std::istream & Read (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool)
- void SetLength (VL length) override

  Sets the actual SQ length.
- template<typename TSwap>
  std::ostream const & Write (std::ostream &os) const
- bool WriteBuffer (std::ostream &os) const

Public Member Functions inherited from gdcm::Value

- Value ()=default
- ~Value () override=default

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< SequenceOfFragments > New ()

Additional Inherited Members

Protected Member Functions inherited from gdcm::Value

- virtual void SetLengthOnly (VL l)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.273.1 Detailed Description

Class to represent a Sequence Of Fragments.

Todo I do not enforce that Sequence of Fragments ends with a SQ end del

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GetJPEGSamplePrecision.cxx, and MpegVideoInfo.cs.

12.273.2 Member Typedef Documentation

12.273.2.1 ConstIterator

```
typedef FragmentVector::const_iterator gdcm::SequenceOfFragments::ConstIterator
```

12.273.2.2 FragmentVector

```
typedef std::vector<Fragment> gdcm::SequenceOfFragments::FragmentVector
```

12.273.2.3 Iterator

```
typedef FragmentVector::iterator gdcm::SequenceOfFragments::Iterator
```

12.273.2.4 SizeType

```
typedef FragmentVector::size_type gdcm::SequenceOfFragments::SizeType
```

12.273.3 Constructor & Destructor Documentation

12.273.3.1 SequenceOfFragments()

```
gdcm::SequenceOfFragments::SequenceOfFragments ()  [inline]
```

constructor (UndefinedLength by default)

Referenced by New(), and operator==().

12.273.4 Member Function Documentation

12.273.4.1 AddFragment()

```
void gdcm::SequenceOfFragments::AddFragment (
            Fragment const & item)
```

Appends a Fragment to the already added ones.

12.273.4.2 Begin() [1/2]

```
Iterator gdcm::SequenceOfFragments::Begin ()  [inline]
```

Referenced by Print(), and Write().

12.273.4.3 Begin() [2/2]

```
ConstIterator gdcm::SequenceOfFragments::Begin () const  [inline]
```

12.273.4.4 Clear()

```
void gdcm::SequenceOfFragments::Clear ()  [override], [virtual]
```

Clear.

Implements gdcm::Value.

12.273.4.5 ComputeByteLength()

```
unsigned long gdcm::SequenceOfFragments::ComputeByteLength () const
```

12.273.4.6 ComputeLength()

```
VL gdcm::SequenceOfFragments::ComputeLength () const
```

12.273.4.7 End() [1/2]

```
Iterator gdcm::SequenceOfFragments::End ()  [inline]
```

Referenced by Print(), and Write().

12.273.4.8 End() [2/2]

```
ConstIterator gdcm::SequenceOfFragments::End () const  [inline]
```

12.273.4.9 GetBuffer()

```
bool gdcm::SequenceOfFragments::GetBuffer (
            char * buffer,
            unsigned long length) const
```

12.273.4.10 GetFragBuffer()

```
bool gdcm::SequenceOfFragments::GetFragBuffer (
            unsigned int fragNb,
            char * buffer,
            unsigned long & length) const
```

12.273.4.11 GetFragment()

```
const Fragment & gdcm::SequenceOfFragments::GetFragment (
            SizeType num) const
```

Examples

DecompressImage.cs, FixBrokenJ2K.cxx, and FixJAIBugJPEGLS.cxx.

12.273.4.12 GetLength()

```
VL gdcm::SequenceOfFragments::GetLength () const  [inline], [override], [virtual]
```

Returns the SQ length, as read from disk.

Implements gdcm::Value.

12.273.4.13 GetNumberOfFragments()

```
SizeType gdcm::SequenceOfFragments::GetNumberOfFragments () const
```

Examples

FixJAIBugJPEGLS.cxx.

12.273.4.14 GetTable() [1/2]

```
BasicOffsetTable & gdcm::SequenceOfFragments::GetTable ()  [inline]
```

12.273.4.15 GetTable() [2/2]

```
const BasicOffsetTable & gdcm::SequenceOfFragments::GetTable () const  [inline]
```

12.273.4.16 New()

```
SmartPointer< SequenceOfFragments > gdcm::SequenceOfFragments::New ()  [inline], [static]
```

Examples

DecompressImageMultiframe.cs, DecompressJPEGFile.cs, and MpegVideoInfo.cs.

References SequenceOfFragments().

12.273.4.17 operator==()

```
bool gdcm::SequenceOfFragments::operator== (
            const Value & val) const  [inline], [override], [virtual]
```

Implements gdcm::Value.

References SequenceOfFragments(), and gdcm::Value::Value().

12.273.4.18 Print()

```
void gdcm::SequenceOfFragments::Print (
            std::ostream & os) const  [inline], [override], [virtual]
```

Reimplemented from gdcm::Object.

References Begin(), End(), and gdcm_assert.

12.273.4.19 Read()

```
template<typename TSwap>
std::istream & gdcm::SequenceOfFragments::Read (
            std::istream & is,
            bool readvalues = true)  [inline]
```

References gdcm_assert, ReadPreValue(), and ReadValue().

12.273.4.20 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::SequenceOfFragments::ReadPreValue (
            std::istream & is)  [inline]
```

References gdcmDebugMacro.

Referenced by Read().

12.273.4.21 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::SequenceOfFragments::ReadValue (
            std::istream & is,
            bool )  [inline]
```

References gdcm_assert, gdcmAssertAlwaysMacro, gdcmDebugMacro, gdcmWarningMacro, gdcm::Tag::GetElement(), gdcm::Tag::GetGroup(), gdcm::ByteValue::GetLength(), gdcm::ByteValue::GetPointer(), gdcm::DataElement::GetTag(), gdcm::DataElement::GetVL(), gdcm::Fragment::Read(), gdcm::Fragment::ReadBacktrack(), and gdcm::Exception::what().

Referenced by Read().

12.273.4.22 SetLength()

```
void gdcm::SequenceOfFragments::SetLength (
            VL length)  [inline], [override], [virtual]
```

Sets the actual SQ length.

Implements gdcm::Value.

12.273.4.23 Write()

```
template<typename TSwap>
std::ostream const & gdcm::SequenceOfFragments::Write (
             std::ostream & os) const  [inline]
```

References Begin(), End(), gdcm_assert, gdcm::Tag::Write(), and gdcm::VL::Write().

12.273.4.24 WriteBuffer()

```
bool gdcm::SequenceOfFragments::WriteBuffer (
             std::ostream & os) const
```

Examples

GetJPEGSamplePrecision.cxx.

The documentation for this class was generated from the following file:

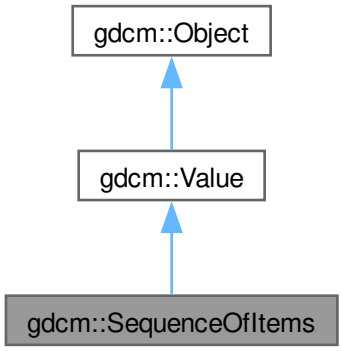
- gdcmSequenceOfFragments.h

12.274 gdcm::SequenceOfItems Class Reference

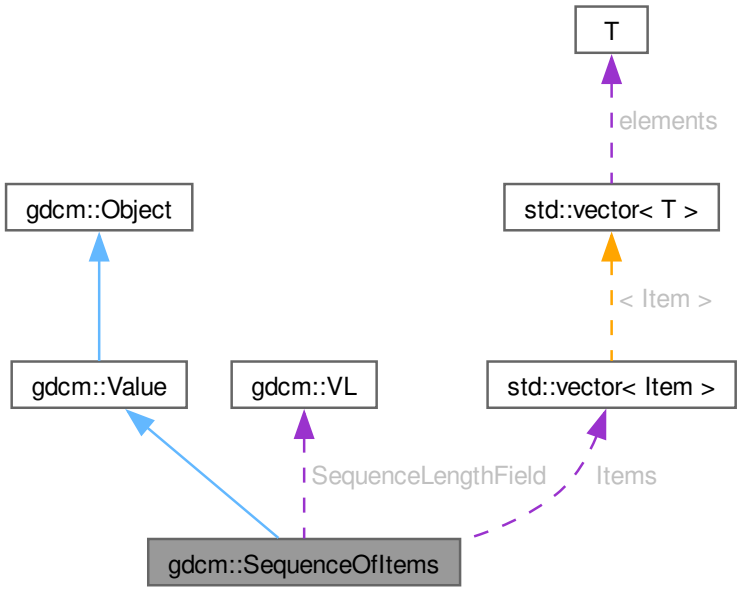
Class to represent a Sequence Of Items.

```
#include <gdcmSequenceOfItems.h>
```

Inheritance diagram for gdcm::SequenceOfItems:



Collaboration diagram for gdcm::SequenceOfItems:



Public Types

- typedef ItemVector::const_iterator ConstIterator
- typedef std::vector< Item > ItemVector
- typedef ItemVector::iterator Iterator
- typedef ItemVector::size_type SizeType

Public Member Functions

- SequenceOfItems ()

  constructor (UndefinedLength by default)
- void AddItem (Item const &item)

  Appends an Item to the already added ones.
- Item & AddNewUndefinedLengthItem ()

  Appends an Item to the already added ones.
- Iterator Begin ()
- ConstIterator Begin () const
- void Clear () override

  remove all items within the sequence
- template<typename TDE>
  VL ComputeLength () const
- Iterator End ()

- ConstIterator End () const
- bool FindDataElement (const Tag &t) const
- Item & GetItem (SizeType position)
- const Item & GetItem (SizeType position) const
- VL GetLength () const override

  Returns the SQ length, as read from disk.
- SizeType GetNumberOfItems () const
- bool IsEmpty () const
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- SequenceOfItems & operator= (const SequenceOfItems &val)
- bool operator== (const Value &val) const override
- void Print (std::ostream &os) const override
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is, bool readvalues=true)
- bool RemoveItemByIndex (const SizeType index)
- void SetLength (VL length) override

  Sets the actual SQ length.
- void SetLengthToUndefined ()

  Properly set the Sequence of Item to be undefined length.
- void SetNumberOfItems (SizeType n)
- template<typename TDE, typename TSwap>
  std::ostream const & Write (std::ostream &os) const

Public Member Functions inherited from gdcm::Value

- Value ()=default
- ~Value () override=default

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< SequenceOfItems > New ()

Public Attributes

- ItemVector Items

  Vector of Sequence Items.
- VL SequenceLengthField

  Total length of the Sequence (or 0xffffffff) if undefined.

Additional Inherited Members

Protected Member Functions inherited from gdcm::Value

- virtual void SetLengthOnly (VL l)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.274.1 Detailed Description

Class to represent a Sequence Of Items.

(value representation : SQ)

- a Value Representation for Data Elements that contains a sequence of Data Sets.
- Sequence of Item allows for Nested Data Sets

See PS 3.5, 7.4.6 Data Element Type Within a Sequence

Note

SEQUENCE OF ITEMS (VALUE REPRESENTATION SQ) A Value Representation for Data Elements that contain a sequence of Data Sets. Sequence of Items allows for Nested Data Sets.

Examples

DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSequenceUltrasound.cxx, and ReadExplicitLengthSQIVR.cxx.

12.274.2 Member Typedef Documentation

12.274.2.1 ConstIterator

```
typedef ItemVector::const_iterator gdcm::SequenceOfItems::ConstIterator
```

12.274.2.2 ItemVector

```
typedef std::vector< Item > gdcm::SequenceOfItems::ItemVector
```

12.274.2.3 Iterator

```
typedef ItemVector::iterator gdcm::SequenceOfItems::Iterator
```

12.274.2.4 SizeType

```
typedef ItemVector::size_type gdcm::SequenceOfItems::SizeType
```

Examples

DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, and GetSubSequenceData.cxx.

12.274.3 Constructor & Destructor Documentation

12.274.3.1 SequenceOfItems()

```
gdcm::SequenceOfItems::SequenceOfItems () [inline]
```

constructor (UndefinedLength by default)

References SequenceLengthField.

Referenced by New(), operator=(), and operator==().

12.274.4 Member Function Documentation

12.274.4.1 AddItem()

```
void gdcm::SequenceOfItems::AddItem (
            Item const & item)
```

Appends an Item to the already added ones.

Examples

Extracting_All_Resolution.cxx.

12.274.4.2 AddNewUndefinedLengthItem()

```
Item & gdcm::SequenceOfItems::AddNewUndefinedLengthItem ()
```

Appends an Item to the already added ones.

12.274.4.3 Begin() [1/2]

```
Iterator gdcm::SequenceOfItems::Begin ()  [inline]
```

References Items.

12.274.4.4 Begin() [2/2]

```
ConstIterator gdcm::SequenceOfItems::Begin () const  [inline]
```

References Items.

12.274.4.5 Clear()

```
void gdcm::SequenceOfItems::Clear ()  [override], [virtual]
```

remove all items within the sequence

Implements gdcm::Value.

12.274.4.6 ComputeLength()

```
template<typename TDE>
VL gdcm::SequenceOfItems::ComputeLength () const
```

12.274.4.7 End() [1/2]

```
Iterator gdcm::SequenceOfItems::End ()  [inline]
```

References Items.

12.274.4.8 End() [2/2]

```
ConstIterator gdcm::SequenceOfItems::End () const  [inline]
```

References Items.

12.274.4.9 FindDataElement()

```
bool gdcm::SequenceOfItems::FindDataElement (
            const Tag & t) const
```

12.274.4.10 GetItem() [1/2]

```
Item & gdcm::SequenceOfItems::GetItem (
            SizeType position)
```

12.274.4.11 GetItem() [2/2]

```
const Item & gdcm::SequenceOfItems::GetItem (
            SizeType position) const
```

Examples

DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, ExtractEncryptedContent.cxx, and GetSequenceUltrasound.cxx.

12.274.4.12 GetLength()

```
VL gdcm::SequenceOfItems::GetLength () const  [inline], [override], [virtual]
```

Returns the SQ length, as read from disk.

Implements gdcm::Value.

References SequenceLengthField.

Referenced by Read().

12.274.4.13 GetNumberOfItems()

```
SizeType gdcm::SequenceOfItems::GetNumberOfItems () const  [inline]
```

Examples

DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, ExtractEncryptedContent.cxx, and GetSequenceUltrasound.cxx.

References Items.

12.274.4.14 IsEmpty()

```
bool gdcm::SequenceOfItems::IsEmpty () const  [inline]
```

References Items.

12.274.4.15 IsUndefinedLength()

```
bool gdcm::SequenceOfItems::IsUndefinedLength () const  [inline]
```

return if Value Length if of undefined length

References SequenceLengthField.

12.274.4.16 New()

```
SmartPointer< SequenceOfItems > gdcm::SequenceOfItems::New ()  [inline], [static]
```

Examples

NewSequence.cs.

References SequenceOfItems().

12.274.4.17 operator=()

```
SequenceOfItems & gdcm::SequenceOfItems::operator= (
            const SequenceOfItems & val)  [inline]
```

References SequenceOfItems(), Items, and SequenceLengthField.

12.274.4.18 operator==()

```
bool gdcm::SequenceOfItems::operator== (
            const Value & val) const  [inline], [override], [virtual]
```

Implements gdcm::Value.

References SequenceOfItems(), gdcm::Value::Value(), Items, and SequenceLengthField.

12.274.4.19 Print()

```
void gdcm::SequenceOfItems::Print (
            std::ostream & os) const  [inline], [override], [virtual]
```

Reimplemented from gdcm::Object.

References Items, and SequenceLengthField.

12.274.4.20 Read()

```
template<typename TDE, typename TSwap>
std::istream & gdcm::SequenceOfItems::Read (
             std::istream & is,
             bool readvalues = true)  [inline]
```

References gdcm::Item::Clear(), gdcm_assert, gdcmDebugMacro, gdcmWarningMacro, gdcm::Exception::GetDescription(), GetLength(), gdcm::Item::GetNestedDataSet(), gdcm::DataElement::GetTag(), gdcm::DataElement::GetVL(), Items, gdcm::Item::Read(), SequenceLengthField, and gdcm::DataSet::Size().

12.274.4.21 RemoveItemByIndex()

```
bool gdcm::SequenceOfItems::RemoveItemByIndex (
             const SizeType index)
```

Remove an Item as specified by its index, if index > size, false is returned Index starts at 1 not 0

12.274.4.22 SetLength()

```
void gdcm::SequenceOfItems::SetLength (
             VL length)  [inline], [override], [virtual]
```

Sets the actual SQ length.

Implements gdcm::Value.

References SequenceLengthField.

12.274.4.23 SetLengthToUndefined()

```
void gdcm::SequenceOfItems::SetLengthToUndefined ()
```

Properly set the Sequence of Item to be undefined length.

12.274.4.24 SetNumberOfItems()

```
void gdcm::SequenceOfItems::SetNumberOfItems (
             SizeType n)  [inline]
```

References Items.

12.274.4.25 Write()

```
template<typename TDE, typename TSwap>
std::ostream const & gdcm::SequenceOfItems::Write (
             std::ostream & os) const  [inline]
```

References Items, SequenceLengthField, gdcm::Tag::Write(), and gdcm::VL::Write().

12.274.5 Member Data Documentation

12.274.5.1 Items

```
ItemVector gdcm::SequenceOfItems::Items
```

Vector of Sequence Items.

Referenced by Begin(), Begin(), End(), End(), GetNumberOfItems(), IsEmpty(), operator=(), operator==(), Print(), Read(), SetNumberOfItems(), and Write().

12.274.5.2 SequenceLengthField

```
VL gdcm::SequenceOfItems::SequenceLengthField
```

Total length of the Sequence (or 0xffffffff) if undefined.

Referenced by SequenceOfItems(), GetLength(), IsUndefinedLength(), operator=(), operator==(), Print(), Read(), SetLength(), and Write().

The documentation for this class was generated from the following file:

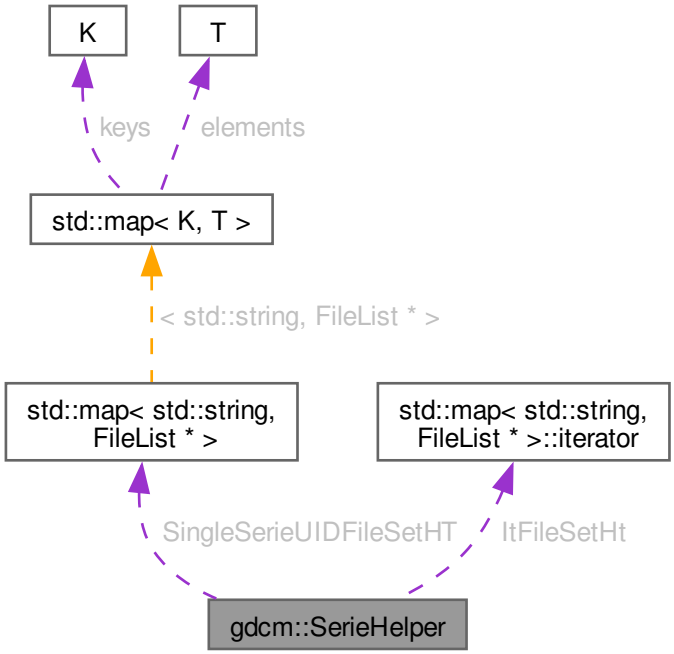
- gdcmSequenceOfItems.h

12.275 gdcm::SerieHelper Class Reference

SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.

```
#include <gdcmSerieHelper.h>
```

Collaboration diagram for gdcm::SerieHelper:



Public Member Functions

- SerieHelper ()
- ~SerieHelper ()
- void AddRestriction (const std::string &tag)
- void AddRestriction (uint16_t group, uint16_t elem, std::string const &value, int op)
- void Clear ()
- void CreateDefaultUniqueSeriesIdentifier ()
- std::string CreateUniqueSeriesIdentifier (File *inFile)
- FileList * GetFirstSingleSerieUIDFileSet ()
- FileList * GetNextSingleSerieUIDFileSet ()
- void OrderFileList (FileList *fileSet)
- void SetDirectory (std::string const &dir, bool recursive=false)
- void SetLoadMode (int)
- void SetUseSeriesDetails (bool useSeriesDetails)

Protected Types

- using Rule
- typedef std::vector< Rule > SerieRestrictions
- typedef std::map< std::string, FileList * > SingleSerieUIDFileSetmap

Protected Member Functions

- bool AddFile (FileWithName &header)
- void AddFileName (std::string const &filename)
- void AddRestriction (const Tag &tag)
- bool FileNameOrdering (FileList *fileList)
- bool ImageNumberOrdering (FileList *fileList)
- bool ImagePositionPatientOrdering (FileList *fileSet)
- bool UserOrdering (FileList *fileSet)

Protected Attributes

- SingleSerieUIDFileSetmap::iterator ItFileSetHt
- SingleSerieUIDFileSetmap SingleSerieUIDFileSetHT

12.275.1 Detailed Description

SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.

Instead see ImageHelper or IPPSorter

12.275.2 Member Typedef Documentation

12.275.2.1 Rule

```
using gdcm::SerieHelper::Rule  [protected]
```

Initial value:

```
struct RuleStructure{
   uint16_t group;
   uint16_t elem;
   std::string value;
   int op;
 }
```

12.275.2.2 SerieRestrictions

```
typedef std::vector<Rule> gdcm::SerieHelper::SerieRestrictions  [protected]
```

12.275.2.3 SingleSerieUIDFileSetmap

```
typedef std::map<std::string, FileList *> gdcm::SerieHelper::SingleSerieUIDFileSetmap  [protected]
```

12.275.3 Constructor & Destructor Documentation

12.275.3.1 SerieHelper()

```
gdcm::SerieHelper::SerieHelper ()
```

12.275.3.2 ~SerieHelper()

```
gdcm::SerieHelper::~SerieHelper ()
```

12.275.4 Member Function Documentation

12.275.4.1 AddFile()

```
bool gdcm::SerieHelper::AddFile (
            FileWithName & header)  [protected]
```

12.275.4.2 AddFileName()

```
void gdcm::SerieHelper::AddFileName (
            std::string const & filename)  [protected]
```

12.275.4.3 AddRestriction() [1/3]

```
void gdcm::SerieHelper::AddRestriction (
            const std::string & tag)
```

12.275.4.4 AddRestriction() [2/3]

```
void gdcm::SerieHelper::AddRestriction (
            const Tag & tag)  [protected]
```

12.275.4.5 AddRestriction() [3/3]

```
void gdcm::SerieHelper::AddRestriction (
            uint16_t group,
            uint16_t elem,
            std::string const & value,
            int op)
```

12.275.4.6 Clear()

```
void gdcm::SerieHelper::Clear ()
```

12.275.4.7 CreateDefaultUniqueSeriesIdentifier()

```
void gdcm::SerieHelper::CreateDefaultUniqueSeriesIdentifier ()
```

12.275.4.8 CreateUniqueSeriesIdentifier()

```
std::string gdcm::SerieHelper::CreateUniqueSeriesIdentifier (
            File * inFile)
```

12.275.4.9 FileNameOrdering()

```
bool gdcm::SerieHelper::FileNameOrdering (
            FileList * fileList)  [protected]
```

12.275.4.10 GetFirstSingleSerieUIDFileSet()

```
FileList * gdcm::SerieHelper::GetFirstSingleSerieUIDFileSet ()
```

12.275.4.11 GetNextSingleSerieUIDFileSet()

```
FileList * gdcm::SerieHelper::GetNextSingleSerieUIDFileSet ()
```

12.275.4.12 ImageNumberOrdering()

```
bool gdcm::SerieHelper::ImageNumberOrdering (
            FileList * fileList)  [protected]
```

12.275.4.13 ImagePositionPatientOrdering()

```
bool gdcm::SerieHelper::ImagePositionPatientOrdering (
            FileList * fileSet)  [protected]
```

12.275.4.14 OrderFileList()

```
void gdcm::SerieHelper::OrderFileList (
            FileList * fileSet)
```

12.275.4.15 SetDirectory()

```
void gdcm::SerieHelper::SetDirectory (
            std::string const & dir,
            bool recursive = false)
```

12.275.4.16 SetLoadMode()

```
void gdcm::SerieHelper::SetLoadMode (
            int )  [inline]
```

12.275.4.17 SetUseSeriesDetails()

```
void gdcm::SerieHelper::SetUseSeriesDetails (
            bool useSeriesDetails)
```

12.275.4.18 UserOrdering()

```
bool gdcm::SerieHelper::UserOrdering (
            FileList * fileSet)  [protected]
```

12.275.5 Member Data Documentation

12.275.5.1 ItFileSetHt

```
SingleSerieUIDFileSetmap::iterator gdcm::SerieHelper::ItFileSetHt  [protected]
```

12.275.5.2 SingleSerieUIDFileSetHT

```
SingleSerieUIDFileSetmap gdcm::SerieHelper::SingleSerieUIDFileSetHT  [protected]
```

The documentation for this class was generated from the following file:

- gdcmSerieHelper.h

12.276 gdcm::Series Class Reference

Series.

```
#include <gdcmSeries.h>
```

Public Member Functions

- Series ()=default

12.276.1 Detailed Description

Series.

12.276.2 Constructor & Destructor Documentation

12.276.2.1 Series()

```
gdcm::Series::Series ()  [default]
```

The documentation for this class was generated from the following file:

- gdcmSeries.h

12.277 gdcm::network::ServiceClassApplicationInformation Class Reference

```
#include <gdcmServiceClassApplicationInformation.h>
```

Public Member Functions

- ServiceClassApplicationInformation ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetTuple (uint8_t levelofsupport, uint8_t levelofdigitalsig, uint8_t elementcoercion)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.277.1 Detailed Description

PS 3.4 Table B.3-1 SERVICE-CLASS-APPLICATION-INFORMATION (A-ASSOCIATE-RQ)

12.277.2 Constructor & Destructor Documentation

12.277.2.1 ServiceClassApplicationInformation()

```
gdcm::network::ServiceClassApplicationInformation::ServiceClassApplicationInformation ()
```

12.277.3 Member Function Documentation

12.277.3.1 Print()

```
void gdcm::network::ServiceClassApplicationInformation::Print (
            std::ostream & os) const
```

12.277.3.2 Read()

```
std::istream & gdcm::network::ServiceClassApplicationInformation::Read (
            std::istream & is)
```

12.277.3.3 SetTuple()

```
void gdcm::network::ServiceClassApplicationInformation::SetTuple (
            uint8_t levelofsupport,
            uint8_t levelofdigitalsig,
            uint8_t elementcoercion)
```

12.277.3.4 Size()

```
size_t gdcm::network::ServiceClassApplicationInformation::Size () const
```

12.277.3.5 Write()

```
const std::ostream & gdcm::network::ServiceClassApplicationInformation::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

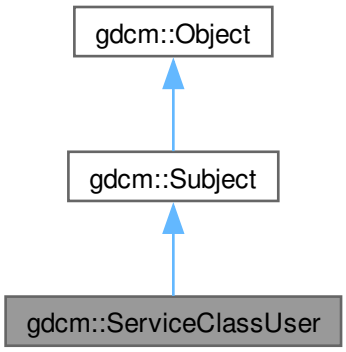
- gdcmServiceClassApplicationInformation.h

12.278 gdcm::ServiceClassUser Class Reference

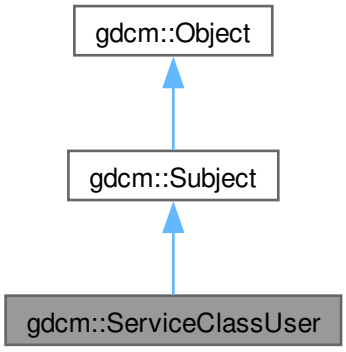
ServiceClassUser.

`#include <gdcmServiceClassUser.h>`

Inheritance diagram for gdcm::ServiceClassUser:



Collaboration diagram for gdcm::ServiceClassUser:



Public Member Functions

- ServiceClassUser ()
- ServiceClassUser (const ServiceClassUser &)=delete
- ~ServiceClassUser () override
- const char * GetAETitle () const
- const char * GetCalledAETitle () const
- double GetTimeout () const
- bool InitializeConnection ()
- bool IsPresentationContextAccepted (const PresentationContext &pc) const

  Return if the passed in presentation was accepted during association negotiation.
- void operator= (const ServiceClassUser &)=delete
- bool SendEcho ()

  C-ECHO.
- bool SendFind (const BaseRootQuery *query, std::vector< DataSet > &retDatasets)

  C-FIND a query, return result are in retDatasets.
- bool SendMove (const BaseRootQuery *query, const char *outputdir)

  Execute a C-MOVE, based on query, return files are written in outputdir.
- bool SendMove (const BaseRootQuery *query, std::vector< DataSet > &retDatasets)

  Execute a C-MOVE, based on query, returned dataset are Implicit.
- bool SendMove (const BaseRootQuery *query, std::vector< File > &retFile)

  Execute a C-MOVE, based on query, returned Files are stored in vector.
- bool SendStore (const char *filename)

  Execute a C-STORE on file on disk, named filename.
- bool SendStore (DataSet const &ds)

  Execute a C-STORE on a DataSet, the transfer syntax used will be Implicit.
- bool SendStore (File const &file)
- void SetAETitle (const char *aetitle)

  set calling ae title
- void SetCalledAETitle (const char *aetitle)

  set called ae title
- void SetHostname (const char *hostname)

  Set the name of the called hostname (hostname or IP address).
- void SetPort (uint16_t port)

  Set port of remote host (called application).
- void SetPortSCP (uint16_t portscp)

  Set the port for any incoming C-STORE-SCP operation (typically in a return of C-MOVE).
- void SetPresentationContexts (std::vector< PresentationContext > const &pcs)

  Set the Presentation Context used for the Association.
- void SetTimeout (double t)

  set/get Timeout
- bool StartAssociation ()

  Start the association. Need to call SetPresentationContexts before.
- bool StopAssociation ()

  Stop the running association.

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< ServiceClassUser > New ()

  for wrapped language: instantiate a reference counted object

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.278.1 Detailed Description

ServiceClassUser.

Examples

CStoreQtProgress.cxx.

12.278.2 Constructor & Destructor Documentation

12.278.2.1 ServiceClassUser() [1/2]

```
gdcm::ServiceClassUser::ServiceClassUser ()
```

Construct a SCU with default:

- hostname = localhost
- port = 104

Referenced by ServiceClassUser(), New(), and operator=().

12.278.2.2 ~ServiceClassUser()

```
gdcm::ServiceClassUser::~ServiceClassUser ()  [override]
```

12.278.2.3 ServiceClassUser() [2/2]

```
gdcm::ServiceClassUser::ServiceClassUser (
            const ServiceClassUser & )  [delete]
```

References ServiceClassUser().

12.278.3 Member Function Documentation

12.278.3.1 GetAETitle()

```
const char * gdcm::ServiceClassUser::GetAETitle () const
```

12.278.3.2 GetCalledAETitle()

```
const char * gdcm::ServiceClassUser::GetCalledAETitle () const
```

12.278.3.3 GetTimeout()

```
double gdcm::ServiceClassUser::GetTimeout () const
```

12.278.3.4 InitializeConnection()

```
bool gdcm::ServiceClassUser::InitializeConnection ()
```

Will try to connect This will setup the actual timeout used during the whole connection time. Need to call SetTimeout first

Examples

CStoreQtProgress.cxx.

12.278.3.5 IsPresentationContextAccepted()

```
bool gdcm::ServiceClassUser::IsPresentationContextAccepted (
            const PresentationContext & pc) const
```

Return if the passed in presentation was accepted during association negotiation.

12.278.3.6 New()

```
SmartPointer< ServiceClassUser > gdcm::ServiceClassUser::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References ServiceClassUser().

12.278.3.7 operator=()

```
void gdcm::ServiceClassUser::operator= (
            const ServiceClassUser & )  [delete]
```

References ServiceClassUser().

12.278.3.8 SendEcho()

```
bool gdcm::ServiceClassUser::SendEcho ()
```

C-ECHO.

12.278.3.9 SendFind()

```
bool gdcm::ServiceClassUser::SendFind (
            const BaseRootQuery * query,
            std::vector< DataSet > & retDatasets)
```

C-FIND a query, return result are in retDatasets.

12.278.3.10 SendMove() [1/3]

```
bool gdcm::ServiceClassUser::SendMove (
            const BaseRootQuery * query,
            const char * outputdir)
```

Execute a C-MOVE, based on query, return files are written in outputdir.

12.278.3.11 SendMove() [2/3]

```
bool gdcm::ServiceClassUser::SendMove (
            const BaseRootQuery * query,
            std::vector< DataSet > & retDatasets)
```

Execute a C-MOVE, based on query, returned dataset are Implicit.

12.278.3.12 SendMove() [3/3]

```
bool gdcm::ServiceClassUser::SendMove (
            const BaseRootQuery * query,
            std::vector< File > & retFile)
```

Execute a C-MOVE, based on query, returned Files are stored in vector.

12.278.3.13 SendStore() [1/3]

```
bool gdcm::ServiceClassUser::SendStore (
            const char * filename)
```

Execute a C-STORE on file on disk, named filename.

Examples

CStoreQtProgress.cxx.

12.278.3.14 SendStore() [2/3]

```
bool gdcm::ServiceClassUser::SendStore (
            DataSet const & ds)
```

Execute a C-STORE on a DataSet, the transfer syntax used will be Implicit.

12.278.3.15 SendStore() [3/3]

```
bool gdcm::ServiceClassUser::SendStore (
            File const & file)
```

Execute a C-STORE on a File, the transfer syntax used for the query is based on the file.

12.278.3.16 SetAETitle()

```
void gdcm::ServiceClassUser::SetAETitle (
            const char * aetitle)
```

set calling ae title

12.278.3.17 SetCalledAETitle()

```
void gdcm::ServiceClassUser::SetCalledAETitle (
            const char * aetitle)
```

set called ae title

Examples

CStoreQtProgress.cxx.

12.278.3.18 SetHostname()

```
void gdcm::ServiceClassUser::SetHostname (
            const char * hostname)
```

Set the name of the called hostname (hostname or IP address).

Examples

CStoreQtProgress.cxx.

12.278.3.19 SetPort()

```
void gdcm::ServiceClassUser::SetPort (
            uint16_t port)
```

Set port of remote host (called application).

Examples

CStoreQtProgress.cxx.

12.278.3.20 SetPortSCP()

```
void gdcm::ServiceClassUser::SetPortSCP (
            uint16_t portscp)
```

Set the port for any incoming C-STORE-SCP operation (typically in a return of C-MOVE).

12.278.3.21 SetPresentationContexts()

```
void gdcm::ServiceClassUser::SetPresentationContexts (
            std::vector< PresentationContext > const & pcs)
```

Set the Presentation Context used for the Association.

Examples

CStoreQtProgress.cxx.

12.278.3.22 SetTimeout()

```
void gdcm::ServiceClassUser::SetTimeout (
            double t)
```

set/get Timeout

Examples

CStoreQtProgress.cxx.

12.278.3.23 StartAssociation()

```
bool gdcm::ServiceClassUser::StartAssociation ()
```

Start the association. Need to call SetPresentationContexts before.

Examples

CStoreQtProgress.cxx.

12.278.3.24 StopAssociation()

```
bool gdcm::ServiceClassUser::StopAssociation ()
```

Stop the running association.

Examples

CStoreQtProgress.cxx.

The documentation for this class was generated from the following file:

- gdcmServiceClassUser.h

12.279 gdcm::SHA1 Class Reference

Class for SHA1.

```
#include <gdcmSHA1.h>
```

Public Member Functions

- SHA1 ()
- SHA1 (const SHA1 &)=delete
- ~SHA1 ()
- void operator= (const SHA1 &)=delete

Static Public Member Functions

- static bool Compute (const char *buffer, unsigned long buf_len, char digest_str[20 *2+1])
- static bool ComputeFile (const char *filename, char digest_str[20 *2+1])

12.279.1 Detailed Description

Class for SHA1.

Warning

this class is able to pick from one implementation:

1. the one from OpenSSL (when GDCM_USE_SYSTEM_OPENSSL is turned ON)

In all other cases it will return an error

12.279.2 Constructor & Destructor Documentation

12.279.2.1 SHA1() [1/2]

```
gdcm::SHA1::SHA1 ()
```

Referenced by SHA1(), and operator=().

12.279.2.2 ~SHA1()

```
gdcm::SHA1::~SHA1 ()
```

12.279.2.3 SHA1() [2/2]

```
gdcm::SHA1::SHA1 (
            const SHA1 & )  [delete]
```

References SHA1().

12.279.3 Member Function Documentation

12.279.3.1 Compute()

```
bool gdcm::SHA1::Compute (
            const char * buffer,
            unsigned long buf_len,
            char digest_str[20 *2+1])  [static]
```

12.279.3.2 ComputeFile()

```
bool gdcm::SHA1::ComputeFile (
            const char * filename,
            char digest_str[20 *2+1])  [static]
```

12.279.3.3 operator=()

```
void gdcm::SHA1::operator= (
            const SHA1 & )  [delete]
```

References SHA1().

The documentation for this class was generated from the following file:

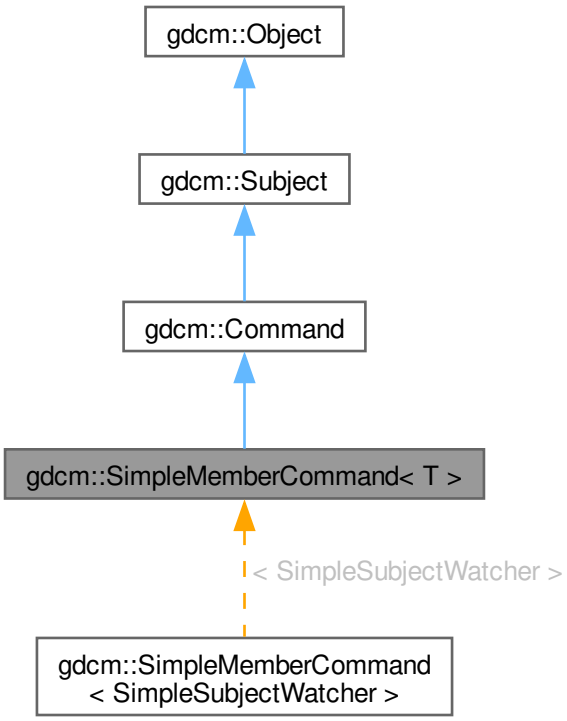
- gdcmSHA1.h

12.280 gdcm::SimpleMemberCommand< T > Class Template Reference

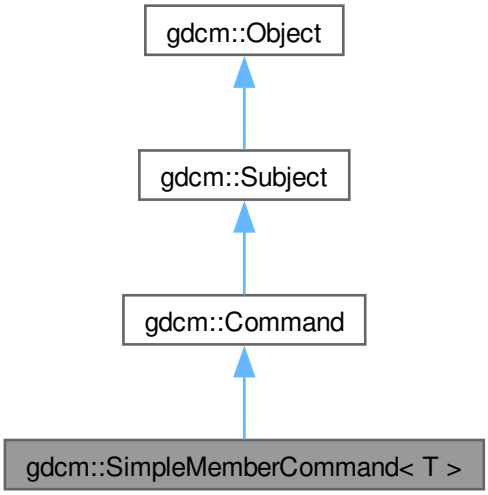
Command subclass that calls a pointer to a member function.

`#include <gdcmCommand.h>`

Inheritance diagram for gdcm::SimpleMemberCommand< T >:



Collaboration diagram for gdcm::SimpleMemberCommand< T >:



Public Types

- typedef SimpleMemberCommand Self
- typedef void(T::* TMemberFunctionPointer) ()

Public Member Functions

- SimpleMemberCommand (const Self &)=delete
- void Execute (const Subject *, const Event &) override
- void Execute (Subject *, const Event &) override
- void operator= (const Self &)=delete
- void SetCallbackFunction (T *object, TMemberFunctionPointer memberFunction)

Public Member Functions inherited from gdcm::Command

- Command (const Command &)=delete
- void operator= (const Command &)=delete

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static SmartPointer< SimpleMemberCommand > New ()

Protected Member Functions

- SimpleMemberCommand ()
- ~SimpleMemberCommand () override=default

Protected Member Functions inherited from gdcm::Command

- Command ()
- ~Command () override

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- TMemberFunctionPointer m_MemberFunction
- T * m_This

12.280.1 Detailed Description

template<typename T>
class gdcm::SimpleMemberCommand< T >

Command subclass that calls a pointer to a member function.

SimpleMemberCommand calls a pointer to a member function with no arguments.

12.280.2 Member Typedef Documentation

12.280.2.1 Self

```
template<typename T>
typedef SimpleMemberCommand gdcm::SimpleMemberCommand< T >::Self
```

Standard class typedefs.

12.280.2.2 TMemberFunctionPointer

```
template<typename T>
typedef void(T::* gdcm::SimpleMemberCommand< T >::TMemberFunctionPointer) ()
```

A method callback.

12.280.3 Constructor & Destructor Documentation

12.280.3.1 SimpleMemberCommand() [1/2]

```
template<typename T>
gdcm::SimpleMemberCommand< T >::SimpleMemberCommand (
            const Self & )  [delete]
```

12.280.3.2 SimpleMemberCommand() [2/2]

```
template<typename T>
gdcm::SimpleMemberCommand< T >::SimpleMemberCommand ()  [inline], [protected]
```

12.280.3.3 ~SimpleMemberCommand()

```
template<typename T>
gdcm::SimpleMemberCommand< T >::~SimpleMemberCommand ()  [override], [protected], [default]
```

12.280.4 Member Function Documentation

12.280.4.1 Execute() [1/2]

```
template<typename T>
void gdcm::SimpleMemberCommand< T >::Execute (
            const Subject * caller,
            const Event & event)  [inline], [override], [virtual]
```

Abstract method that defines the action to be taken by the command. This variant is expected to be used when requests comes from a const Object

Implements gdcm::Command.

12.280.4.2 Execute() [2/2]

```
template<typename T>
void gdcm::SimpleMemberCommand< T >::Execute (
            Subject * ,
            const Event & )  [inline], [override], [virtual]
```

Invoke the callback function.

Implements gdcm::Command.

12.280.4.3 New()

```
template<typename T>
SmartPointer< SimpleMemberCommand > gdcm::SimpleMemberCommand< T >::New ()  [inline], [static]
```

Run-time type information (and related methods). Method for creation through the object factory.

12.280.4.4 operator=()

```
template<typename T>
void gdcm::SimpleMemberCommand< T >::operator= (
            const Self & )  [delete]
```

12.280.4.5 SetCallbackFunction()

```
template<typename T>
void gdcm::SimpleMemberCommand< T >::SetCallbackFunction (
            T * object,
            TMemberFunctionPointer memberFunction)  [inline]
```

Specify the callback function.

12.280.5 Member Data Documentation

12.280.5.1 m_MemberFunction

```
template<typename T>
TMemberFunctionPointer gdcm::SimpleMemberCommand< T >::m_MemberFunction  [protected]
```

12.280.5.2 m_This

```
template<typename T>
T* gdcm::SimpleMemberCommand< T >::m_This  [protected]
```

The documentation for this class was generated from the following file:

- gdcmCommand.h

12.281 gdcm::SimpleSubjectWatcher Class Reference

SimpleSubjectWatcher.

```
#include <gdcmSimpleSubjectWatcher.h>
```

Public Member Functions

- SimpleSubjectWatcher (const SimpleSubjectWatcher &)=delete
- SimpleSubjectWatcher (Subject *s, const char *comment="")
- virtual ~SimpleSubjectWatcher ()
- void operator= (const SimpleSubjectWatcher &)=delete

Protected Member Functions

- virtual void EndFilter ()
- virtual void ShowAbort ()
- virtual void ShowAnonymization (Subject *caller, const Event &evt)
- virtual void ShowData (Subject *caller, const Event &evt)
- virtual void ShowDataSet (Subject *caller, const Event &evt)
- virtual void ShowFileName (Subject *caller, const Event &evt)
- virtual void ShowIteration ()
- virtual void ShowProgress (Subject *caller, const Event &evt)
- virtual void StartFilter ()
- void TestAbortOff ()
- void TestAbortOn ()

12.281.1 Detailed Description

SimpleSubjectWatcher.

This is a typical Subject Watcher class. It will observe all events.

Examples

BasicAnonymizer.cs, CStoreQtProgress.cxx, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, FileChangeTS.cs, FileChangeTSLossy.cs, ScanDirectory.cs, and SimpleScanner.cxx.

12.281.2 Constructor & Destructor Documentation

12.281.2.1 SimpleSubjectWatcher() [1/2]

```
gdcm::SimpleSubjectWatcher::SimpleSubjectWatcher (
            Subject * s,
            const char * comment = "")
```

Referenced by SimpleSubjectWatcher(), and operator=().

12.281.2.2 ~SimpleSubjectWatcher()

```
virtual gdcm::SimpleSubjectWatcher::~SimpleSubjectWatcher ()  [virtual]
```

12.281.2.3 SimpleSubjectWatcher() [2/2]

```
gdcm::SimpleSubjectWatcher::SimpleSubjectWatcher (
            const SimpleSubjectWatcher & )  [delete]
```

References SimpleSubjectWatcher().

12.281.3 Member Function Documentation

12.281.3.1 EndFilter()

```
virtual void gdcm::SimpleSubjectWatcher::EndFilter ()  [protected], [virtual]
```

12.281.3.2 operator=()

```
void gdcm::SimpleSubjectWatcher::operator= (
            const SimpleSubjectWatcher & )  [delete]
```

References SimpleSubjectWatcher().

12.281.3.3 ShowAbort()

```
virtual void gdcm::SimpleSubjectWatcher::ShowAbort ()  [protected], [virtual]
```

12.281.3.4 ShowAnonymization()

```
virtual void gdcm::SimpleSubjectWatcher::ShowAnonymization (
            Subject * caller,
            const Event & evt)  [protected], [virtual]
```

12.281.3.5 ShowData()

```
virtual void gdcm::SimpleSubjectWatcher::ShowData (
            Subject * caller,
            const Event & evt)  [protected], [virtual]
```

12.281.3.6 ShowDataSet()

```
virtual void gdcm::SimpleSubjectWatcher::ShowDataSet (
            Subject * caller,
            const Event & evt)  [protected], [virtual]
```

12.281.3.7 ShowFileName()

```
virtual void gdcm::SimpleSubjectWatcher::ShowFileName (
            Subject * caller,
            const Event & evt)  [protected], [virtual]
```

Examples

SimpleScanner.cxx.

12.281.3.8 ShowIteration()

```
virtual void gdcm::SimpleSubjectWatcher::ShowIteration ()  [protected], [virtual]
```

12.281.3.9 ShowProgress()

```
virtual void gdcm::SimpleSubjectWatcher::ShowProgress (
            Subject * caller,
            const Event & evt)  [protected], [virtual]
```

12.281.3.10 StartFilter()

```
virtual void gdcm::SimpleSubjectWatcher::StartFilter ()  [protected], [virtual]
```

12.281.3.11 TestAbortOff()

```
void gdcm::SimpleSubjectWatcher::TestAbortOff ()  [protected]
```

12.281.3.12 TestAbortOn()

```
void gdcm::SimpleSubjectWatcher::TestAbortOn ()  [protected]
```

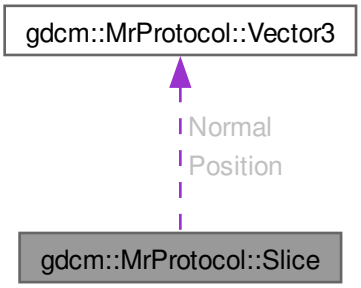
The documentation for this class was generated from the following file:

- gdcmSimpleSubjectWatcher.h

12.282 gdcm::MrProtocol::Slice Struct Reference

```
#include <gdcmMrProtocol.h>
```

Collaboration diagram for gdcm::MrProtocol::Slice:



Public Attributes

- Vector3 Normal
- Vector3 Position

12.282.1 Member Data Documentation

12.282.1.1 Normal

```
Vector3 gdcm::MrProtocol::Slice::Normal
```

12.282.1.2 Position

```
Vector3 gdcm::MrProtocol::Slice::Position
```

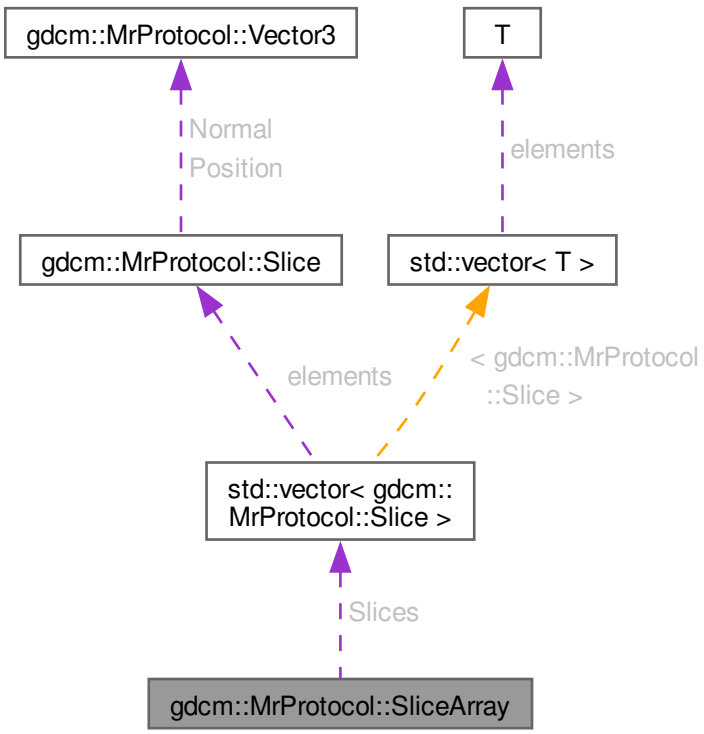
The documentation for this struct was generated from the following file:

- gdcmMrProtocol.h

12.283 gdcm::MrProtocol::SliceArray Struct Reference

```
#include <gdcmMrProtocol.h>
```

Collaboration diagram for gdcm::MrProtocol::SliceArray:



Public Attributes

- std::vector< Slice > Slices

12.283.1 Member Data Documentation

12.283.1.1 Slices

```
std::vector< Slice > gdcm::MrProtocol::SliceArray::Slices
```

The documentation for this struct was generated from the following file:

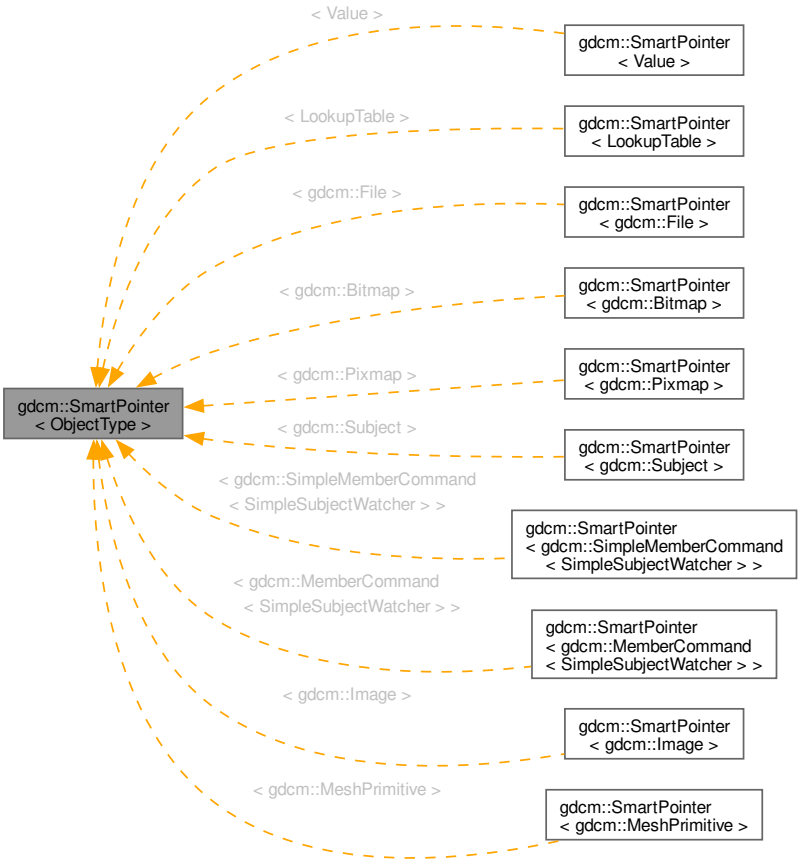
- gdcmMrProtocol.h

12.284 gdcm::SmartPointer< ObjectType > Class Template Reference

Class for Smart Pointer.

```
#include <gdcmSmartPointer.h>
```

Inheritance diagram for gdcm::SmartPointer< ObjectType >:



Public Member Functions

- SmartPointer ()
- SmartPointer (const SmartPointer< ObjectType > &p)
- SmartPointer (ObjectType *p)
- SmartPointer (ObjectType const &p)
- ~SmartPointer ()
- ObjectType * GetPointer () const

  Explicit function to retrieve the pointer.
- operator ObjectType * () const

  Return pointer to object.
- ObjectType & operator* () const
- ObjectType * operator-> () const

  Overload operator ->.
- SmartPointer & operator= (ObjectType *r)

  Overload operator assignment.
- SmartPointer & operator= (ObjectType const &r)
- SmartPointer & operator= (SmartPointer const &r)

  Overload operator assignment.

12.284.1 Detailed Description

template<class ObjectType>
class gdcm::SmartPointer< ObjectType >

Class for Smart Pointer.

Will only work for subclass of gdcm::Object See tr1/shared_ptr for a more general approach (not invasive) #include <tr1/memory> { shared_ptr<Bla> b(new Bla); }

Note

Class partly based on post by Bill Hubauer: `http://groups.google.com/group/comp.lang.↩ c++/msg/173ddc38a827a930`

See also

`http://www.davethehat.com/articles/smartp.htm`

and itk::SmartPointer

Examples

CStoreQtProgress.cxx, ChangeSequenceUltrasound.cxx, DumpGEMSMovieGroup.cxx, DumpPhilipsECHO.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, DumpVisusChange.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_ FixBrokenJ2K.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, ReadAndDumpDICOMDIR.cxx, ReadExplicitLengthSQIVR.cxx, SimpleScanner.cxx, gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.284.2 Constructor & Destructor Documentation

12.284.2.1 SmartPointer() [1/4]

```
template<class ObjectType>
gdcm::SmartPointer< ObjectType >::SmartPointer ()  [inline]
```

12.284.2.2 SmartPointer() [2/4]

```
template<class ObjectType>
gdcm::SmartPointer< ObjectType >::SmartPointer (
            const SmartPointer< ObjectType > & p)  [inline]
```

12.284.2.3 SmartPointer() [3/4]

```
template<class ObjectType>
gdcm::SmartPointer< ObjectType >::SmartPointer (
            ObjectType * p)  [inline]
```

12.284.2.4 SmartPointer() [4/4]

```
template<class ObjectType>
gdcm::SmartPointer< ObjectType >::SmartPointer (
            ObjectType const & p)  [inline]
```

12.284.2.5 ~SmartPointer()

```
template<class ObjectType>
gdcm::SmartPointer< ObjectType >::~SmartPointer ()  [inline]
```

12.284.3 Member Function Documentation

12.284.3.1 GetPointer()

```
template<class ObjectType>
ObjectType * gdcm::SmartPointer< ObjectType >::GetPointer () const  [inline]
```

Explicit function to retrieve the pointer.

12.284.3.2 operator ObjectType *()

```
template<class ObjectType>
gdcm::SmartPointer< ObjectType >::operator ObjectType * () const  [inline]
```

Return pointer to object.

12.284.3.3 operator*()

```
template<class ObjectType>
ObjectType & gdcm::SmartPointer< ObjectType >::operator* () const  [inline]
```

12.284.3.4 operator->()

```
template<class ObjectType>
ObjectType * gdcm::SmartPointer< ObjectType >::operator-> () const  [inline]
```

Overload operator ->.

12.284.3.5 operator=() [1/3]

```
template<class ObjectType>
SmartPointer & gdcm::SmartPointer< ObjectType >::operator= (
            ObjectType * r)  [inline]
```

Overload operator assignment.

12.284.3.6 operator=() [2/3]

```
template<class ObjectType>
SmartPointer & gdcm::SmartPointer< ObjectType >::operator= (
            ObjectType const & r)  [inline]
```

12.284.3.7 operator=() [3/3]

```
template<class ObjectType>
SmartPointer & gdcm::SmartPointer< ObjectType >::operator= (
            SmartPointer< ObjectType > const & r)  [inline]
```

Overload operator assignment.

Referenced by gdcm::SmartPointer< Value >::operator=(), and gdcm::SmartPointer< Value >::operator=().

The documentation for this class was generated from the following files:

- gdcmObject.h
- gdcmSmartPointer.h

12.285 gdcm::network::SOPClassExtendedNegociationSub Class Reference

SOPClassExtendedNegociationSub.

```
#include <gdcmSOPClassExtendedNegociationSub.h>
```

Public Member Functions

- SOPClassExtendedNegociationSub ()
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetTuple (const char *uid, uint8_t levelofsupport=3, uint8_t levelofdigitalsig=0, uint8_t elementcoercion=2)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.285.1 Detailed Description

SOPClassExtendedNegociationSub.

PS 3.7 Table D.3-11 SOP CLASS EXTENDED NEGOTIATION SUB-ITEM FIELDS (A-ASSOCIATE-RQ and A-↩ ASSOCIATE-AC)

12.285.2 Constructor & Destructor Documentation

12.285.2.1 SOPClassExtendedNegociationSub()

```
gdcm::network::SOPClassExtendedNegociationSub::SOPClassExtendedNegociationSub ()
```

12.285.3 Member Function Documentation

12.285.3.1 Print()

```
void gdcm::network::SOPClassExtendedNegociationSub::Print (
            std::ostream & os) const
```

12.285.3.2 Read()

```
std::istream & gdcm::network::SOPClassExtendedNegociationSub::Read (
            std::istream & is)
```

12.285.3.3 SetTuple()

```
void gdcm::network::SOPClassExtendedNegociationSub::SetTuple (
            const char * uid,
            uint8_t levelofsupport = 3,
            uint8_t levelofdigitalsig = 0,
            uint8_t elementcoercion = 2)
```

12.285.3.4 Size()

```
size_t gdcm::network::SOPClassExtendedNegociationSub::Size () const
```

12.285.3.5 Write()

```
const std::ostream & gdcm::network::SOPClassExtendedNegociationSub::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmSOPClassExtendedNegociationSub.h

12.286 gdcm::SOPClassUIDToIOD Class Reference

Class convert a class SOP Class UID into IOD.

`#include <gdcmSOPClassUIDToIOD.h>`

Public Types

- typedef const char * const(SOPClassUIDToIODType)[2]

Static Public Member Functions

- static const char * GetIOD (UIDs const &uid)
- static const char * GetIODFromSOPClassUID (const char *sopclassuid)
- static unsigned int GetNumberOfSOPClassToIOD ()

  Return the number of SOP Class UID listed internally.
- static const char * GetSOPClassUIDFromIOD (const char *iod)
- static SOPClassUIDToIODType & GetSOPClassUIDToIOD (unsigned int i)
- static SOPClassUIDToIODType * GetSOPClassUIDToIODs ()

12.286.1 Detailed Description

Class convert a class SOP Class UID into IOD.

Reference PS 3.4 Table B.5-1 STANDARD SOP CLASSES

12.286.2 Member Typedef Documentation

12.286.2.1 const

```
typedef const char * gdcm::SOPClassUIDToIOD::const(SOPClassUIDToIODType)[2]
```

12.286.3 Member Function Documentation

12.286.3.1 GetIOD()

```
const char * gdcm::SOPClassUIDToIOD::GetIOD (
            UIDs const & uid)  [static]
```

Return the associated IOD based on a SOP Class UID uid (there is a one-to-one mapping from SOP Class UID to matching IOD)

Examples

GenerateStandardSOPClasses.cxx.

12.286.3.2 GetIODFromSOPClassUID()

```
const char * gdcm::SOPClassUIDToIOD::GetIODFromSOPClassUID (
            const char * sopclassuid)  [static]
```

12.286.3.3 GetNumberOfSOPClassToIOD()

```
unsigned int gdcm::SOPClassUIDToIOD::GetNumberOfSOPClassToIOD ()  [static]
```

Return the number of SOP Class UID listed internally.

12.286.3.4 GetSOPClassUIDFromIOD()

```
const char * gdcm::SOPClassUIDToIOD::GetSOPClassUIDFromIOD (
            const char * iod)  [static]
```

12.286.3.5 GetSOPClassUIDToIOD()

```
SOPClassUIDToIODType & gdcm::SOPClassUIDToIOD::GetSOPClassUIDToIOD (
            unsigned int i)  [static]
```

12.286.3.6 GetSOPClassUIDToIODs()

```
SOPClassUIDToIODType * gdcm::SOPClassUIDToIOD::GetSOPClassUIDToIODs ()  [static]
```

The documentation for this class was generated from the following file:

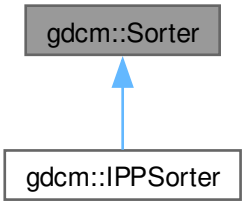
- gdcmSOPClassUIDToIOD.h

12.287 gdcm::Sorter Class Reference

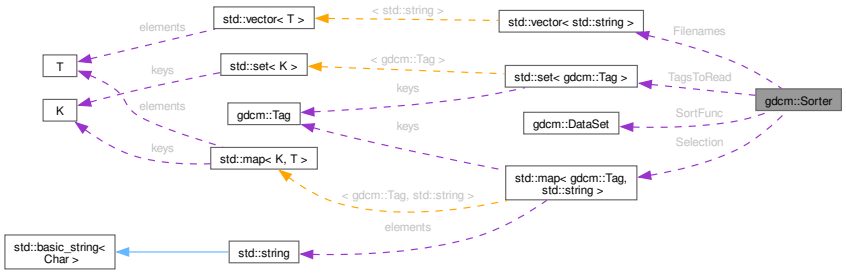
Sorter.

```
#include <gdcmSorter.h>
```

Inheritance diagram for gdcm::Sorter:



Collaboration diagram for gdcm::Sorter:



Public Types

- typedef bool(∗ SortFunction) (DataSet const &, DataSet const &)

  Set the sort function which compares one dataset to the other.

Public Member Functions

- Sorter ()
- virtual ∼Sorter ()
- bool AddSelect (Tag const &tag, const char ∗value)

  UNSUPPORTED FOR NOW.
- const std::vector< std::string > & GetFilenames () const
- void Print (std::ostream &os) const

  Print.
- void SetSortFunction (SortFunction f)
- void SetTagsToRead (std::set< Tag > const &tags)
- virtual bool Sort (std::vector< std::string > const &filenames)

  Typically the output of Directory::GetFilenames().
- virtual bool StableSort (std::vector< std::string > const &filenames)

Protected Types

- typedef std::map< Tag, std::string > SelectionMap

Protected Attributes

- std::vector< std::string > Filenames
- std::map< Tag, std::string > Selection
- SortFunction SortFunc
- std::set< Tag > TagsToRead

Friends

- std::ostream & operator<< (std::ostream &_os, const Sorter &s)

12.287.1 Detailed Description

Sorter.

General class to do sorting using a custom function You simply need to provide a function of type: Sorter::SortFunction

Warning

implementation details. For now there is no cache mechanism. Which means that every time you call Sort, all files specified as input parameter are *read*

See also

Scanner

Examples

SortImage.cxx, SortImage2.cs, and VolumeSorter.cxx.

12.287.2 Member Typedef Documentation

12.287.2.1 SelectionMap

```
typedef std::map<Tag,std::string> gdcm::Sorter::SelectionMap  [protected]
```

12.287.2.2 SortFunction

```
typedef bool(* gdcm::Sorter::SortFunction) (DataSet const &, DataSet const &)
```

Set the sort function which compares one dataset to the other.

12.287.3 Constructor & Destructor Documentation

12.287.3.1 Sorter()

```
gdcm::Sorter::Sorter ()
```

Referenced by operator<<.

12.287.3.2 ~Sorter()

```
virtual gdcm::Sorter::~Sorter ()  [virtual]
```

12.287.4 Member Function Documentation

12.287.4.1 AddSelect()

```
bool gdcm::Sorter::AddSelect (
            Tag const & tag,
            const char * value)
```

UNSUPPORTED FOR NOW.

12.287.4.2 GetFilenames()

```
const std::vector< std::string > & gdcm::Sorter::GetFilenames () const  [inline]
```

Return the list of filenames as sorted by the specific algorithm used. Empty by default (before Sort() is called)

Examples

Compute3DSpacing.cxx, SortImage.cxx, VolumeSorter.cxx, gdcmorthoplanes.cxx, and reslicesphere.cxx.

References Filenames.

12.287.4.3 Print()

```
void gdcm::Sorter::Print (
            std::ostream & os) const
```

Print.

Examples

SortImage.cxx, VolumeSorter.cxx, and gdcmorthoplanes.cxx.

Referenced by operator<<.

12.287.4.4 SetSortFunction()

```
void gdcm::Sorter::SetSortFunction (
            SortFunction f)
```

Examples

SortImage.cxx, SortImage2.cs, and VolumeSorter.cxx.

12.287.4.5 SetTagsToRead()

```
void gdcm::Sorter::SetTagsToRead (
            std::set< Tag > const & tags)
```

Specify a set of tags to be read in during the sort procedure. By default this set is empty, in which case the entire image, including pixel data, is read in.

12.287.4.6 Sort()

```
virtual bool gdcm::Sorter::Sort (
            std::vector< std::string > const & filenames)  [virtual]
```

Typically the output of Directory::GetFilenames().

Reimplemented in gdcm::IPPSorter.

Examples

SortImage.cxx.

12.287.4.7 StableSort()

```
virtual bool gdcm::Sorter::StableSort (
            std::vector< std::string > const & filenames)  [virtual]
```

Examples

SortImage.cxx, and VolumeSorter.cxx.

12.287.5 Friends And Related Symbol Documentation

12.287.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Sorter & s)  [friend]
```

References Sorter(), and Print().

12.287.6 Member Data Documentation

12.287.6.1 Filenames

```
std::vector<std::string> gdcm::Sorter::Filenames  [protected]
```

Referenced by GetFilenames().

12.287.6.2 Selection

```
std::map<Tag,std::string> gdcm::Sorter::Selection  [protected]
```

12.287.6.3 SortFunc

```
SortFunction gdcm::Sorter::SortFunc  [protected]
```

12.287.6.4 TagsToRead

```
std::set<Tag> gdcm::Sorter::TagsToRead  [protected]
```

The documentation for this class was generated from the following file:

- gdcmSorter.h

12.288 gdcm::Spacing Class Reference

Class for Spacing.

`#include <gdcmSpacing.h>`

Public Types

- enum SpacingType {
  DETECTOR = 0 ,
  MAGNIFIED ,
  CALIBRATED ,
  UNKNOWN }

Public Member Functions

- Spacing ()
- ~Spacing ()=default

Static Public Member Functions

- static Attribute< 0x28, 0x34 > ComputePixelAspectRatioFromPixelSpacing (const Attribute< 0x28, 0x30 > &pixelspacing)

12.288.1 Detailed Description

Class for Spacing.

It all began with a mail to WG6:

Subject: Imager Pixel Spacing vs Pixel Spacing Body: [Apologies for the duplicate post, namely to David Clunie & OFFIS team]

I have been trying to understand CP-586 in the following two cases:

On the one hand:

- DISCIMG/IMAGES/CRIMAGE taken from `http://dclunie.com/images/pixelspacingtestimages.zip`

And on the other hand:

- `http://gdcm.sourceforge.net/thingies/cr_pixelspacing.dcm`

If I understand correctly the CP, one is required to use Pixel Spacing for measurement ('true size' print) instead of Imager Pixel Spacing, since the two attributes are present and Pixel Spacing is different from Imager Pixel Spacing.

If this is correct, then the test data DISCIMG/IMAGES/CRIMAGE is incorrect. If this is incorrect (ie. I need to use Imager Pixel Spacing), then the display of cr_pixelspacing.dcm for measurement will be incorrect.

Could someone please let me know what am I missing here? I could not find any information in any header that would allow me to differentiate those.

Thank you for your time,

Ref: `http://lists.nema.org/scripts/lyris.pl?sub=488573&id=400720477`

See PS 3.3-2008, Table C.7-11b IMAGE PIXEL MACRO ATTRIBUTES

Ratio of the vertical size and horizontal size of the pixels in the image specified by a pair of integer values where the first value is the vertical pixel size, and the second value is the horizontal pixel size. Required if the aspect ratio values do not have a ratio of 1:1 and the physical pixel spacing is not specified by Pixel Spacing (0028,0030), or Imager Pixel Spacing (0018,1164) or Nominal Scanned Pixel Spacing (0018,2010), either for the entire Image or per-frame in a Functional Group Macro. See C.7.6.3.1.7.

PS 3.3-2008 10.7.1.3 Pixel Spacing Value Order and Valid Values All pixel spacing related attributes shall have non-zero values, except when there is only a single row or column or pixel of data present, in which case the corresponding value may be zero.

Ref: `http://gdcm.sourceforge.net/wiki/index.php/Imager_Pixel_Spacing`

12.288.2 Member Enumeration Documentation

12.288.2.1 SpacingType

`enum gdcm::Spacing::SpacingType`

Enumerator

DETECTOR	
MAGNIFIED	
CALIBRATED	
UNKNOWN	

12.288.3 Constructor & Destructor Documentation

12.288.3.1 Spacing()

`gdcm::Spacing::Spacing ()`

12.288.3.2 ~Spacing()

```
gdcm::Spacing::~Spacing ()  [default]
```

12.288.4 Member Function Documentation

12.288.4.1 ComputePixelAspectRatioFromPixelSpacing()

```
Attribute< 0x28, 0x34 > gdcm::Spacing::ComputePixelAspectRatioFromPixelSpacing (
            const Attribute< 0x28, 0x30 > & pixelspacing)  [static]
```

The documentation for this class was generated from the following file:

- gdcmSpacing.h

12.289 gdcm::Spectroscopy Class Reference

Spectroscopy class.

```
#include <gdcmSpectroscopy.h>
```

Public Member Functions

- Spectroscopy ()=default

12.289.1 Detailed Description

Spectroscopy class.

12.289.2 Constructor & Destructor Documentation

12.289.2.1 Spectroscopy()

```
gdcm::Spectroscopy::Spectroscopy ()  [default]
```

The documentation for this class was generated from the following file:

- gdcmSpectroscopy.h

12.290 gdcm::SplitGridFilter Class Reference

SplitGridFilter class.

`#include <gdcmSplitGridFilter.h>`

Public Member Functions

- SplitGridFilter ()
- ~SplitGridFilter ()
- bool ComputeGRIDDimensions (unsigned int dims[3])
- bool ComputeGRIDImagePositionPatient (double pos[3], const double ipp[6], const double dircos[6], const double pixelspacing[3], const unsigned int image_dims[3], const unsigned int mosaic_dims[3], bool inverted)

  Extract the value for ImagePositionPatient.
- bool ComputeGRIDSliceNormal (double dims[3], bool &inverted)

  Extract the value for SliceNormalVector (UIH header).
- File & GetFile ()
- const File & GetFile () const
- bool GetGRIDSlicePosition (unsigned int index, double pos[3])

  Extract the value for ImagePositionPatient at index.
- Image & GetImage ()
- const Image & GetImage () const
- void SetFile (const File &f)
- void SetImage (const Image &image)
- bool Split ()

  Split the UIH GRID image.

Static Public Member Functions

- static bool GetAcquisitionSize (unsigned int size[2], DataSet const &ds)

  Get the Acquisition Matrix (non zero value):
- static unsigned int GetNumberOfImagesInGrid (File const &file)

  Return the value for NumberOfImagesInGrid, or compute it from Acquisition Size.

12.290.1 Detailed Description

SplitGridFilter class.

Class to reshuffle bytes for a UIH Grid image

Only known documentation at the time was found at: `https://github.com/rordenlab/dcm2niix/↩issues/225`

Pay attention that SliceNormalVector seems to be inspired from SIEMENS but is always inverted. Also the IPP in the SQ seems to be accurate, do not use this value for now.

12.290.2 Constructor & Destructor Documentation

12.290.2.1 SplitGridFilter()

```
gdcm::SplitGridFilter::SplitGridFilter ()
```

12.290.2.2 ~SplitGridFilter()

```
gdcm::SplitGridFilter::~SplitGridFilter ()
```

12.290.3 Member Function Documentation

12.290.3.1 ComputeGRIDDimensions()

```
bool gdcm::SplitGridFilter::ComputeGRIDDimensions (
            unsigned int dims[3])
```

Compute the new dimensions according to private information stored in the GRID header.

12.290.3.2 ComputeGRIDImagePositionPatient()

```
bool gdcm::SplitGridFilter::ComputeGRIDImagePositionPatient (
            double pos[3],
            const double ipp[6],
            const double dircos[6],
            const double pixelspacing[3],
            const unsigned int image_dims[3],
            const unsigned int mosaic_dims[3],
            bool inverted)
```

Extract the value for ImagePositionPatient.

12.290.3.3 ComputeGRIDSliceNormal()

```
bool gdcm::SplitGridFilter::ComputeGRIDSliceNormal (
            double dims[3],
            bool & inverted)
```

Extract the value for SliceNormalVector (UIH header).

12.290.3.4 GetAcquisitionSize()

```
bool gdcm::SplitGridFilter::GetAcquisitionSize (
            unsigned int size[2],
            DataSet const & ds)  [static]
```

Get the Acquisition Matrix (non zero value):

12.290.3.5 GetFile() [1/2]

```
File & gdcm::SplitGridFilter::GetFile ()  [inline]
```

12.290.3.6 GetFile() [2/2]

```
const File & gdcm::SplitGridFilter::GetFile () const  [inline]
```

12.290.3.7 GetGRIDSlicePosition()

```
bool gdcm::SplitGridFilter::GetGRIDSlicePosition (
            unsigned int index,
            double pos[3])
```

Extract the value for ImagePositionPatient at index.

12.290.3.8 GetImage() [1/2]

```
Image & gdcm::SplitGridFilter::GetImage ()  [inline]
```

12.290.3.9 GetImage() [2/2]

```
const Image & gdcm::SplitGridFilter::GetImage () const  [inline]
```

12.290.3.10 GetNumberOfImagesInGrid()

```
unsigned int gdcm::SplitGridFilter::GetNumberOfImagesInGrid (
            File const & file)  [static]
```

Return the value for NumberOfImagesInGrid, or compute it from Acquisition Size.

12.290.3.11 SetFile()

```
void gdcm::SplitGridFilter::SetFile (
            const File & f)  [inline]
```

12.290.3.12 SetImage()

```
void gdcm::SplitGridFilter::SetImage (
            const Image & image)
```

12.290.3.13 Split()

```
bool gdcm::SplitGridFilter::Split ()
```

Split the UIH GRID image.

The documentation for this class was generated from the following file:

- gdcmSplitGridFilter.h

12.291 gdcm::SplitMosaicFilter Class Reference

SplitMosaicFilter class.

```
#include <gdcmSplitMosaicFilter.h>
```

Public Member Functions

- SplitMosaicFilter ()
- ~SplitMosaicFilter ()
- bool ComputeMOSAICDimensions (unsigned int dims[3])
- bool ComputeMOSAICImagePositionPatient (double pos[3], const double ipp[6], const double dircos[6], const double pixelspacing[3], const unsigned int image_dims[3], const unsigned int mosaic_dims[3], bool inverted)

  Extract the value for ImagePositionPatient.
- bool ComputeMOSAICSliceNormal (double dims[3], bool &inverted)

  Extract the value for SliceNormalVector (CSA header).
- bool ComputeMOSAICSlicePosition (double pos[3], bool inverted)
- File & GetFile ()
- const File & GetFile () const
- Image & GetImage ()
- const Image & GetImage () const
- void SetFile (const File &f)
- void SetImage (const Image &image)
- bool Split ()

  Split the SIEMENS MOSAIC image.

Static Public Member Functions

- static const DataElement & ComputeCSAImageHeaderInfo (const DataSet &ds, bool handleMissingPrivate↩ Creator=true)

  Return the DataElement for the CSA Image Header.
- static const DataElement & ComputeCSASeriesHeaderInfo (const DataSet &ds, bool handleMissingPrivate↩ Creator=true)

  Return the DataElement for the CSA Series Header.
- static bool GetAcquisitionSize (unsigned int size[2], DataSet const &ds)

  Get the Acquisition Matrix (non zero value):
- static unsigned int GetNumberOfImagesInMosaic (File const &file)

  Return the value for NumberOfImagesInMosaic, or compute it from Acquisition Size.

12.291.1 Detailed Description

SplitMosaicFilter class.

Class to reshuffle bytes for a SIEMENS Mosaic image Siemens CSA Image Header CSA:= Common Siemens Architecture, sometimes also known as Common syngo Architecture

Warning

when private attributes are not found, the acquisition matrix is used to compute the NumberOfImagesInMosaic. This means trailing black slices will be considered in the volume (instead of discarded). CSA 0029,1010 is needed for correct NumberOfImagesInMosaic CSA 0029,1020 is needed to compute the correct origin without above info default are taken (may not be accurate).

12.291.2 Constructor & Destructor Documentation

12.291.2.1 SplitMosaicFilter()

```
gdcm::SplitMosaicFilter::SplitMosaicFilter ()
```

12.291.2.2 ~SplitMosaicFilter()

```
gdcm::SplitMosaicFilter::~SplitMosaicFilter ()
```

12.291.3 Member Function Documentation

12.291.3.1 ComputeCSAImageHeaderInfo()

```
const DataElement & gdcm::SplitMosaicFilter::ComputeCSAImageHeaderInfo (
            const DataSet & ds,
            bool handleMissingPrivateCreator = true)  [static]
```

Return the DataElement for the CSA Image Header.

12.291.3.2 ComputeCSASeriesHeaderInfo()

```
const DataElement & gdcm::SplitMosaicFilter::ComputeCSASeriesHeaderInfo (
            const DataSet & ds,
            bool handleMissingPrivateCreator = true)  [static]
```

Return the DataElement for the CSA Series Header.

12.291.3.3 ComputeMOSAICDimensions()

```
bool gdcm::SplitMosaicFilter::ComputeMOSAICDimensions (
            unsigned int dims[3])
```

Compute the new dimensions according to private information stored in the MOSAIC header.

12.291.3.4 ComputeMOSAICImagePositionPatient()

```
bool gdcm::SplitMosaicFilter::ComputeMOSAICImagePositionPatient (
            double pos[3],
            const double ipp[6],
            const double dircos[6],
            const double pixelspacing[3],
            const unsigned int image_dims[3],
            const unsigned int mosaic_dims[3],
            bool inverted)
```

Extract the value for ImagePositionPatient.

12.291.3.5 ComputeMOSAICSliceNormal()

```
bool gdcm::SplitMosaicFilter::ComputeMOSAICSliceNormal (
            double dims[3],
            bool & inverted)
```

Extract the value for SliceNormalVector (CSA header).

12.291.3.6 ComputeMOSAICSlicePosition()

```
bool gdcm::SplitMosaicFilter::ComputeMOSAICSlicePosition (
            double pos[3],
            bool inverted)
```

Extract the value for ImagePositionPatient (requires inverted flag) Deprecated

12.291.3.7 GetAcquisitionSize()

```
bool gdcm::SplitMosaicFilter::GetAcquisitionSize (
            unsigned int size[2],
            DataSet const & ds)  [static]
```

Get the Acquisition Matrix (non zero value):

12.291.3.8 GetFile() [1/2]

```
File & gdcm::SplitMosaicFilter::GetFile ()  [inline]
```

12.291.3.9 GetFile() [2/2]

```
const File & gdcm::SplitMosaicFilter::GetFile () const  [inline]
```

12.291.3.10 GetImage() [1/2]

```
Image & gdcm::SplitMosaicFilter::GetImage ()  [inline]
```

12.291.3.11 GetImage() [2/2]

```
const Image & gdcm::SplitMosaicFilter::GetImage () const  [inline]
```

12.291.3.12 GetNumberOfImagesInMosaic()

```
unsigned int gdcm::SplitMosaicFilter::GetNumberOfImagesInMosaic (
            File const & file)  [static]
```

Return the value for NumberOfImagesInMosaic, or compute it from Acquisition Size.

12.291.3.13 SetFile()

```
void gdcm::SplitMosaicFilter::SetFile (
            const File & f)  [inline]
```

12.291.3.14 SetImage()

```
void gdcm::SplitMosaicFilter::SetImage (
            const Image & image)
```

12.291.3.15 Split()

```
bool gdcm::SplitMosaicFilter::Split ()
```

Split the SIEMENS MOSAIC image.

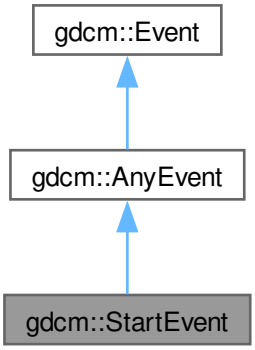
The documentation for this class was generated from the following file:

- gdcmSplitMosaicFilter.h

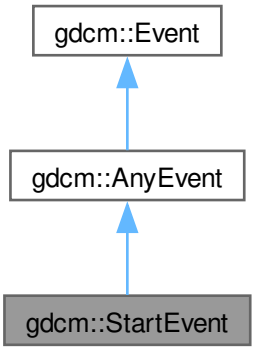
12.292 gdcm::StartEvent Class Reference

`#include <gdcmEvent.h>`

Inheritance diagram for gdcm::StartEvent:



Collaboration diagram for gdcm::StartEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()

- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.293 gdcm::static_assert_test< x > Struct Template Reference

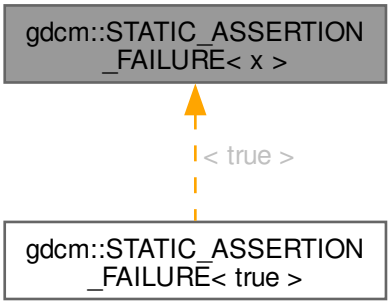
`#include <gdcmStaticAssert.h>`

The documentation for this struct was generated from the following file:

- gdcmStaticAssert.h

12.294 gdcm::STATIC_ASSERTION_FAILURE< x > Struct Template Reference

Inheritance diagram for gdcm::STATIC_ASSERTION_FAILURE< x >:



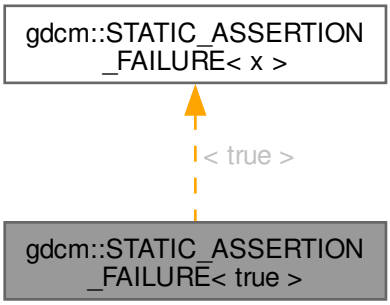
The documentation for this struct was generated from the following file:

- gdcmStaticAssert.h

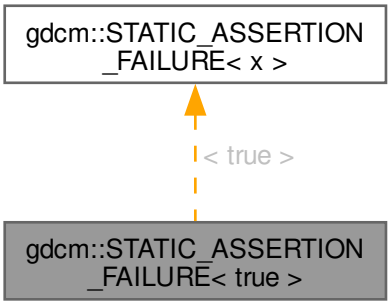
12.295 gdcm::STATIC_ASSERTION_FAILURE< true > Struct Reference

`#include <gdcmStaticAssert.h>`

Inheritance diagram for gdcm::STATIC_ASSERTION_FAILURE< true >:



Collaboration diagram for gdcm::STATIC_ASSERTION_FAILURE< true >:



Public Types

- enum { value = 1 }

12.295.1 Member Enumeration Documentation

12.295.1.1 anonymous enum

anonymous enum

Enumerator

value	

The documentation for this struct was generated from the following file:

- gdcmStaticAssert.h

12.296 gdcm::StreamImageReader Class Reference

StreamImageReader.

#include <gdcmStreamImageReader.h>

Public Member Functions

- StreamImageReader ()
- virtual ~StreamImageReader ()
- bool CanReadImage () const
- void DefinePixelExtent (uint16_t inXMin, uint16_t inXMax, uint16_t inYMin, uint16_t inYMax, uint16_t inZMin=0, uint16_t inZMax=1)
- uint32_t DefineProperBufferLength () const
- std::vector< unsigned int > GetDimensionsValueForResolution (unsigned int)
- File const & GetFile () const
- bool Read (char *inReadBuffer, const std::size_t &inBufferLength)
- virtual bool ReadImageInformation ()
- void SetFileName (const char *inFileName)
- void SetStream (std::istream &inStream)

12.296.1 Detailed Description

StreamImageReader.

Note

its role is to convert the DICOM DataSet into a Image representation via an ITK streaming (ie, multithreaded) interface Image is different from Pixmap has it has a position and a direction in Space. Currently, this class is thread safe in that it can read a single extent in a single thread. Multiple versions can be used for multiple extents/threads.

See also

Image

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.296.2 Constructor & Destructor Documentation

12.296.2.1 StreamImageReader()

```
gdcm::StreamImageReader::StreamImageReader ()
```

12.296.2.2 ~StreamImageReader()

```
virtual gdcm::StreamImageReader::~StreamImageReader ()  [virtual]
```

12.296.3 Member Function Documentation

12.296.3.1 CanReadImage()

```
bool gdcm::StreamImageReader::CanReadImage () const
```

Only RAW images are currently readable by the stream reader. As more streaming codecs are added, then this function will be updated to reflect those changes. Calling this function prior to reading will ensure that only streamable files are streamed. Make sure to call ReadImageInformation prior to calling this function.

Examples

StreamImageReaderTest.cxx.

12.296.3.2 DefinePixelExtent()

```
void gdcm::StreamImageReader::DefinePixelExtent (
            uint16_t inXMin,
            uint16_t inXMax,
            uint16_t inYMin,
            uint16_t inYMax,
            uint16_t inZMin = 0,
            uint16_t inZMax = 1)
```

Defines an image extent for the Read function. DICOM states that an image can have no more than 2^16 pixels per edge (as of 2009) In this case, the pixel extents ignore the direction cosines entirely, and assumes that the origin of the image is at location 0,0 (regardless of the definition in space per the tags). So, if the first 100 pixels of the first row are to be read in, this function should be called with DefinePixelExtent(0, 100, 0, 1), regardless of pixel size or orientation.

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.296.3.3 DefineProperBufferLength()

```
uint32_t gdcm::StreamImageReader::DefineProperBufferLength () const
```

Paying attention to the pixel format and so forth, define the proper buffer length for the user. The return amount is in bytes. Call this function to determine the size of the char* buffer that will need to be passed in to ReadImageSubregion(). If the return is 0, then that means that the pixel extent was not defined prior

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.296.3.4 GetDimensionsValueForResolution()

```
std::vector< unsigned int > gdcm::StreamImageReader::GetDimensionsValueForResolution (
            unsigned int )
```

12.296.3.5 GetFile()

```
File const & gdcm::StreamImageReader::GetFile () const
```

Returns the dataset read by ReadImageInformation Couple this with the ImageHelper to get statistics about the image, like pixel extent, to be able to initialize buffers for reading

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.296.3.6 Read()

```
bool gdcm::StreamImageReader::Read (
            char * inReadBuffer,
            const std::size_t & inBufferLength)
```

Read the DICOM image. There are three reasons for failure:

1. The extent is not set
2. the conversion from char* to std::ostream (internally) fails
3. the given buffer isn't large enough to accommodate the desired pixel extent. This method has been implemented to look similar to the metaimageio in itk MUST have an extent defined, or else Read will return false. If no particular extent is required, use ImageReader instead.

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.296.3.7 ReadImageInformation()

```
virtual bool gdcm::StreamImageReader::ReadImageInformation ()  [virtual]
```

Set the spacing and dimension information for the set filename. returns false if the file is not initialized or not an image, with the pixel (7fe0,0010) tag.

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.296.3.8 SetFileName()

```
void gdcm::StreamImageReader::SetFileName (
            const char * inFileName)
```

One of either SetFileName or SetStream must be called prior to any other functions. These initialize an internal Reader class to be able to get non-pixel image information.

Examples

ExtractOneFrame.cs, and StreamImageReaderTest.cxx.

12.296.3.9 SetStream()

```
void gdcm::StreamImageReader::SetStream (
            std::istream & inStream)
```

The documentation for this class was generated from the following file:

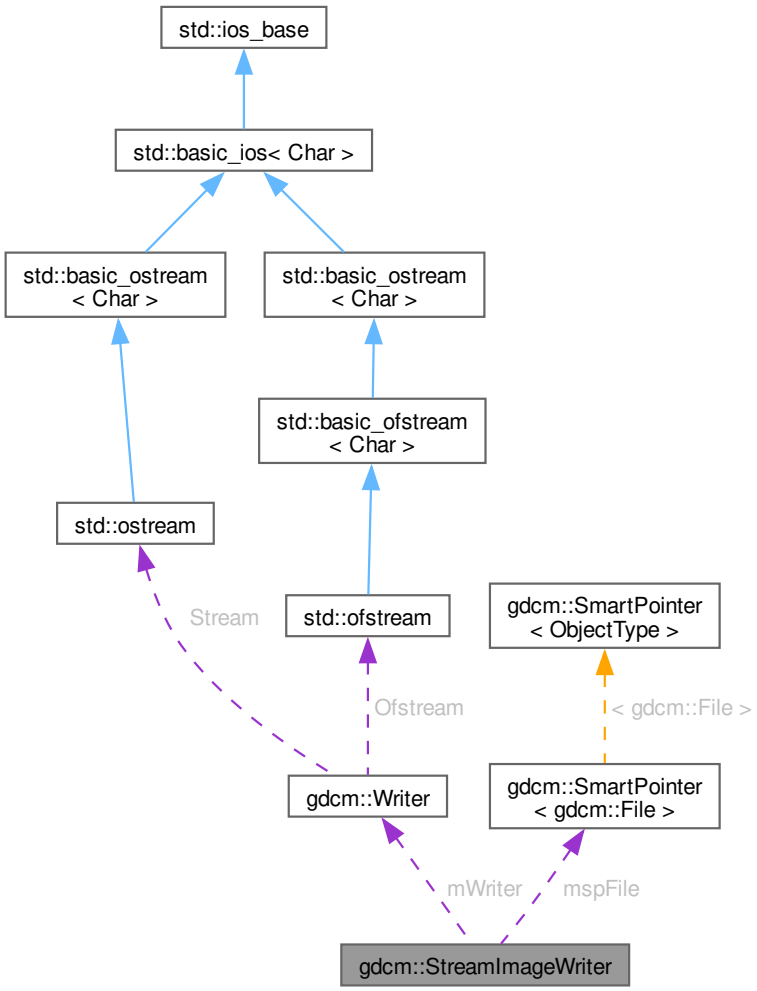
- gdcmStreamImageReader.h

12.297 gdcm::StreamImageWriter Class Reference

StreamImageReader.

```
#include <gdcmStreamImageWriter.h>
```

Collaboration diagram for gdcm::StreamImageWriter:



Public Member Functions

- StreamImageWriter ()
- virtual ~StreamImageWriter ()
- bool CanWriteFile () const
- void DefinePixelExtent (uint16_t inXMin, uint16_t inXMax, uint16_t inYMin, uint16_t inYMax, uint16_t inZMin=0, uint16_t inZMax=1)
- uint32_t DefineProperBufferLength ()
- void SetFile (const File &inFile)
- void SetFileName (const char *inFileName)
- void SetStream (std::ostream &inStream)
- bool Write (void *inWriteBuffer, const std::size_t &inBufferLength)
- virtual bool WriteImageInformation ()

Protected Member Functions

- virtual bool WriteImageSubregionRAW (char *inWriteBuffer, const std::size_t &inBufferLength)
- int WriteRawHeader (RAWCodec *inCodec, std::ostream *inStream)

Protected Attributes

- int mElementOffsets
- int mElementOffsets1
- SmartPointer< File > mspFile
- Writer mWriter
- uint16_t mXMax
- uint16_t mXMin
- uint16_t mYMax
- uint16_t mYMin
- uint16_t mZMax
- uint16_t mZMin

12.297.1 Detailed Description

StreamImageReader.

Note

its role is to convert the DICOM DataSet into a Image representation via an ITK streaming (ie, multithreaded) interface Image is different from Pixmap has it has a position and a direction in Space. Currently, this class is threadsafe in that it can read a single extent in a single thread. Multiple versions can be used for multiple extents/threads.

See also

Image

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.297.2 Constructor & Destructor Documentation

12.297.2.1 StreamImageWriter()

```
gdcm::StreamImageWriter::StreamImageWriter ()
```

12.297.2.2 ~StreamImageWriter()

```
virtual gdcm::StreamImageWriter::~StreamImageWriter ()  [virtual]
```

12.297.3 Member Function Documentation

12.297.3.1 CanWriteFile()

```
bool gdcm::StreamImageWriter::CanWriteFile () const
```

This function determines if a file can even be written using the streaming writer unlike the reader, can be called before WriteImageInformation, but must be called after SetFile.

Examples

Extracting_All_Resolution.cxx, and Fake_Image_Using_Stream_Image_Writer.cxx.

12.297.3.2 DefinePixelExtent()

```
void gdcm::StreamImageWriter::DefinePixelExtent (
            uint16_t inXMin,
            uint16_t inXMax,
            uint16_t inYMin,
            uint16_t inYMax,
            uint16_t inZMin = 0,
            uint16_t inZMax = 1)
```

Defines an image extent for the Read function. DICOM states that an image can have no more than 2^16 pixels per edge (as of 2009) In this case, the pixel extents ignore the direction cosines entirely, and assumes that the origin of the image is at location 0,0 (regardless of the definition in space per the tags). So, if the first 100 pixels of the first row are to be read in, this function should be called with DefinePixelExtent(0, 100, 0, 1), regardless of pixel size or orientation. 15 nov 2010: added z dimension, defaults to being 1 plane large

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.297.3.3 DefineProperBufferLength()

```
uint32_t gdcm::StreamImageWriter::DefineProperBufferLength ()
```

Paying attention to the pixel format and so forth, define the proper buffer length for the user. The return amount is in bytes. If the return is 0, then that means that the pixel extent was not defined prior this return is for RAW inputs which are then encoded by the writer, but are used to ensure that the writer gets the proper buffer size

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.297.3.4 SetFile()

```
void gdcm::StreamImageWriter::SetFile (
            const File & inFile)
```

Set the image information to be written to disk that is everything but the pixel information: (7fe0,0010) PixelData

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.297.3.5 SetFileName()

```
void gdcm::StreamImageWriter::SetFileName (
            const char * inFileName)
```

One of either SetFileName or SetStream must be called prior to any other functions. These initialize an internal Reader class to be able to get non-pixel image information.

12.297.3.6 SetStream()

```
void gdcm::StreamImageWriter::SetStream (
            std::ostream & inStream)
```

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.297.3.7 Write()

```
bool gdcm::StreamImageWriter::Write (
            void * inWriteBuffer,
            const std::size_t & inBufferLength)
```

Read the DICOM image. There are three reasons for failure:

1. The extent is not set
2. the conversion from void* to std::ostream (internally) fails
3. the given buffer isn't large enough to accommodate the desired pixel extent. This method has been implemented to look similar to the metaimageio in itk MUST have an extent defined, or else Read will return false. If no particular extent is required, use ImageReader instead.

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.297.3.8 WriteImageInformation()

```
virtual bool gdcm::StreamImageWriter::WriteImageInformation ()  [virtual]
```

Write the header information to disk, and a bunch of zeros for the actual pixel information Of course, if we're doing a non-compressed format, that works but if it's compressed, we have to force the ordering of chunks that are written.

Examples

Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.297.3.9 WriteImageSubregionRAW()

```
virtual bool gdcm::StreamImageWriter::WriteImageSubregionRAW (
            char * inWriteBuffer,
            const std::size_t & inBufferLength)  [protected], [virtual]
```

Using the min, max, etc set by DefinePixelExtent, this will fill the given buffer Make sure to call DefinePixelExtent and to initialize the buffer with the amount given by DefineProperBufferLength prior to calling this. reads by the RAW codec; other codecs are added once implemented

12.297.3.10 WriteRawHeader()

```
int gdcm::StreamImageWriter::WriteRawHeader (
            RAWCodec * inCodec,
            std::ostream * inStream)  [protected]
```

when writing a raw file, we know the full extent, and can just write the first 12 bytes out (the tag, the VR, and the size) when we do compressed files, we'll do it in chunks, as described in 2009-3, part 5, Annex A, section 4. Pass the raw codec so that in the rare case of a bigendian explicit raw, the first 12 bytes written out should still be kosher. returns -1 if there's any failure, or the complete offset (12 bytes) if it works. Those 12 bytes are then added to the position in order to determine where to write.

12.297.4 Member Data Documentation

12.297.4.1 mElementOffsets

```
int gdcm::StreamImageWriter::mElementOffsets  [protected]
```

The result of WriteRawHeader (or another header, when that's implemented) This result is saved so that the first N bytes aren't constantly being rewritten for each chunk that's passed in. For compressed data, the offset table will require rewrites of data.

12.297.4.2 mElementOffsets1

```
int gdcm::StreamImageWriter::mElementOffsets1  [protected]
```

12.297.4.3 mspFile

```
SmartPointer<File> gdcm::StreamImageWriter::mspFile  [protected]
```

12.297.4.4 mWriter

```
Writer gdcm::StreamImageWriter::mWriter  [protected]
```

12.297.4.5 mXMax

```
uint16_t gdcm::StreamImageWriter::mXMax  [protected]
```

12.297.4.6 mXMin

```
uint16_t gdcm::StreamImageWriter::mXMin  [protected]
```

12.297.4.7 mYMax

```
uint16_t gdcm::StreamImageWriter::mYMax  [protected]
```

12.297.4.8 mYMin

```
uint16_t gdcm::StreamImageWriter::mYMin  [protected]
```

12.297.4.9 mZMax

```
uint16_t gdcm::StreamImageWriter::mZMax  [protected]
```

12.297.4.10 mZMin

```
uint16_t gdcm::StreamImageWriter::mZMin  [protected]
```

The documentation for this class was generated from the following file:

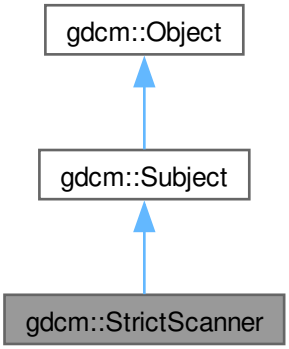
- gdcmStreamImageWriter.h

12.298 gdcm::StrictScanner Class Reference

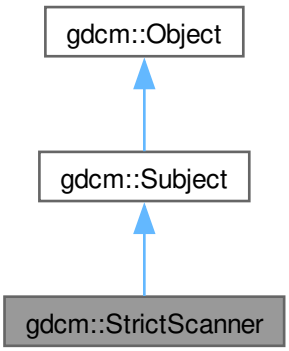
StrictScanner.

`#include <gdcmStrictScanner.h>`

Inheritance diagram for gdcm::StrictScanner:



Collaboration diagram for gdcm::StrictScanner:



Classes

- struct ltstr

Public Types

- typedef MappingType::const_iterator ConstIterator
- typedef std::map< const char *, TagToValue, ltstr > MappingType
- typedef std::map< Tag, const char * > TagToValue
- typedef TagToValue::value_type TagToValueValueType
- typedef std::set< std::string > ValuesType

Public Member Functions

- StrictScanner ()
- ~StrictScanner () override
- void AddPrivateTag (PrivateTag const &t)
- void AddSkipTag (Tag const &t)

  Add a tag that will need to be skipped. Those are root level skip tags.
- void AddTag (Tag const &t)

  Add a tag that will need to be read. Those are root level skip tags.
- ConstIterator Begin () const
- void ClearSkipTags ()
- void ClearTags ()
- ConstIterator End () const
- Directory::FilenamesType GetAllFilenamesFromTagToValue (Tag const &t, const char *valueref) const
- const char * GetFilenameFromTagToValue (Tag const &t, const char *valueref) const
- Directory::FilenamesType const & GetFilenames () const
- Directory::FilenamesType GetKeys () const
- TagToValue const & GetMapping (const char *filename) const

  Get the std::map mapping filenames to value for file 'filename'.
- TagToValue const & GetMappingFromTagToValue (Tag const &t, const char *value) const

  See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.
- MappingType const & GetMappings () const

  Mappings are the mapping from a particular tag to the map, mapping filename to value:
- Directory::FilenamesType GetOrderedValues (Tag const &t) const
- const char * GetValue (const char *filename, Tag const &t) const
- ValuesType const & GetValues () const

  Get all the values found (in lexicographic order).
- ValuesType GetValues (Tag const &t) const

  Get all the values found (in lexicographic order) associated with Tag 't'.
- bool IsKey (const char *filename) const
- void Print (std::ostream &os) const override

  Print result.
- void PrintTable (std::ostream &os) const
- bool Scan (Directory::FilenamesType const &filenames)

  Start the scan !

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< StrictScanner > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- void ProcessPublicTag (StringFilter &sf, const char *filename)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &_os, const StrictScanner &s)

12.298.1 Detailed Description

StrictScanner.

This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute.

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of StringFilter

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- ProgressEvent
- StartEvent
- EndEvent

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

12.298.2 Member Typedef Documentation

12.298.2.1 ConstIterator

```
typedef MappingType::const_iterator gdcm::StrictScanner::ConstIterator
```

12.298.2.2 MappingType

```
typedef std::map<const char *,TagToValue, ltstr> gdcm::StrictScanner::MappingType
```

12.298.2.3 TagToValue

```
typedef std::map<Tag, const char*> gdcm::StrictScanner::TagToValue
```

struct to map a filename to a value Implementation note: all std::map in this class will be using const char * and not std::string since we are pointing to existing std::string (hold in a std::vector) this avoid an extra copy of the byte array. Tag are used as Tag class since sizeof(tag) <= sizeof(pointer)

Examples

SimpleScanner.cxx.

12.298.2.4 TagToValueValueType

```
typedef TagToValue::value_type gdcm::StrictScanner::TagToValueValueType
```

12.298.2.5 ValuesType

```
typedef std::set< std::string > gdcm::StrictScanner::ValuesType
```

12.298.3 Constructor & Destructor Documentation

12.298.3.1 StrictScanner()

```
gdcm::StrictScanner::StrictScanner () [inline]
```

Referenced by New(), and operator<<.

12.298.3.2 ~StrictScanner()

```
gdcm::StrictScanner::~StrictScanner () [override]
```

12.298.4 Member Function Documentation

12.298.4.1 AddPrivateTag()

```
void gdcm::StrictScanner::AddPrivateTag (
            PrivateTag const & t)
```

12.298.4.2 AddSkipTag()

```
void gdcm::StrictScanner::AddSkipTag (
            Tag const & t)
```

Add a tag that will need to be skipped. Those are root level skip tags.

12.298.4.3 AddTag()

```
void gdcm::StrictScanner::AddTag (
            Tag const & t)
```

Add a tag that will need to be read. Those are root level skip tags.

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

12.298.4.4 Begin()

```
ConstIterator gdcm::StrictScanner::Begin () const  [inline]
```

12.298.4.5 ClearSkipTags()

```
void gdcm::StrictScanner::ClearSkipTags ()
```

12.298.4.6 ClearTags()

```
void gdcm::StrictScanner::ClearTags ()
```

12.298.4.7 End()

```
ConstIterator gdcm::StrictScanner::End () const  [inline]
```

12.298.4.8 GetAllFilenamesFromTagToValue()

```
Directory::FilenamesType gdcm::StrictScanner::GetAllFilenamesFromTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valueref'

12.298.4.9 GetFilenameFromTagToValue()

```
const char * gdcm::StrictScanner::GetFilenameFromTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return the first file where value match the reference value 'valueref'

12.298.4.10 GetFilenames()

```
Directory::FilenamesType const & gdcm::StrictScanner::GetFilenames () const  [inline]
```

12.298.4.11 GetKeys()

```
Directory::FilenamesType gdcm::StrictScanner::GetKeys () const
```

Return the list of filename that are key in the internal map, which means those filename were properly parsed

12.298.4.12 GetMapping()

```
TagToValue const & gdcm::StrictScanner::GetMapping (
            const char * filename) const
```

Get the std::map mapping filenames to value for file 'filename'.

Examples

SimpleScanner.cxx.

12.298.4.13 GetMappingFromTagToValue()

```
TagToValue const & gdcm::StrictScanner::GetMappingFromTagToValue (
            Tag const & t,
            const char * value) const
```

See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed.

12.298.4.14 GetMappings()

```
MappingType const & gdcm::StrictScanner::GetMappings () const  [inline]
```

Mappings are the mapping from a particular tag to the map, mapping filename to value:

12.298.4.15 GetOrderedValues()

```
Directory::FilenamesType gdcm::StrictScanner::GetOrderedValues (
            Tag const & t) const
```

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

12.298.4.16 GetValue()

```
const char * gdcm::StrictScanner::GetValue (
            const char * filename,
            Tag const & t) const
```

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via AddTag() prior to the Scan() call !

12.298.4.17 GetValues() [1/2]

```
ValuesType const & gdcm::StrictScanner::GetValues () const  [inline]
```

Get all the values found (in lexicographic order).

12.298.4.18 GetValues() [2/2]

```
ValuesType gdcm::StrictScanner::GetValues (
            Tag const & t) const
```

Get all the values found (in lexicographic order) associated with Tag 't'.

12.298.4.19 IsKey()

```
bool gdcm::StrictScanner::IsKey (
            const char * filename) const
```

Check if filename is a key in the Mapping table. returns true only of file can be found, which means the file was indeed a DICOM file that could be processed

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

12.298.4.20 New()

```
SmartPointer< StrictScanner > gdcm::StrictScanner::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

Examples

ScanDirectory.cs.

References StrictScanner().

12.298.4.21 Print()

```
void gdcm::StrictScanner::Print (
            std::ostream & os) const  [override], [virtual]
```

Print result.

Reimplemented from gdcm::Object.

Referenced by operator<<.

12.298.4.22 PrintTable()

```
void gdcm::StrictScanner::PrintTable (
            std::ostream & os) const
```

12.298.4.23 ProcessPublicTag()

```
void gdcm::StrictScanner::ProcessPublicTag (
            StringFilter & sf,
            const char * filename)  [protected]
```

12.298.4.24 Scan()

```
bool gdcm::StrictScanner::Scan (
            Directory::FilenamesType const & filenames)
```

Start the scan !

Examples

ScanDirectory.cs, and SimpleScanner.cxx.

12.298.5 Friends And Related Symbol Documentation

12.298.5.1 operator<<

```
std::ostream & operator<< (
             std::ostream & _os,
             const StrictScanner & s)  [friend]
```

References StrictScanner(), and Print().

The documentation for this class was generated from the following file:

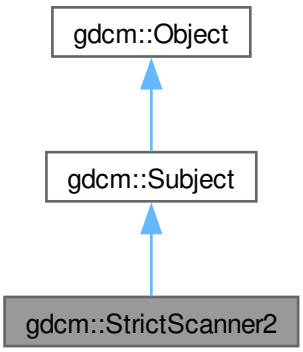
- gdcmStrictScanner.h

12.299 gdcm::StrictScanner2 Class Reference

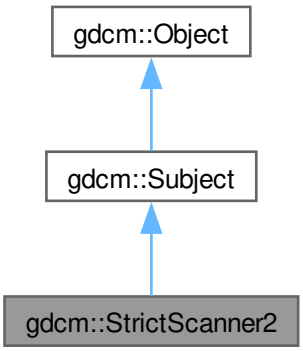
StrictScanner2.

```
#include <gdcmStrictScanner2.h>
```

Inheritance diagram for gdcm::StrictScanner2:



Collaboration diagram for gdcm::StrictScanner2:



Classes

- struct ltstr

Public Types

- typedef PrivateMappingType::const_iterator PrivateConstIterator
- typedef std::map< const char *, PrivateTagToValue, ltstr > PrivateMappingType
- typedef std::map< PrivateTag, const char * > PrivateTagToValue
- typedef PrivateTagToValue::value_type PrivateTagToValueValueType
- typedef PublicMappingType::const_iterator PublicConstIterator
- typedef std::map< const char *, PublicTagToValue, ltstr > PublicMappingType
- typedef std::map< Tag, const char * > PublicTagToValue
- typedef PublicTagToValue::value_type PublicTagToValueValueType
- typedef std::set< std::string > ValuesType

Public Member Functions

- StrictScanner2 ()
- ~StrictScanner2 () override
- bool AddPrivateTag (PrivateTag const &pt)
- bool AddPublicTag (Tag const &t)

  Add a tag that will need to be read. Those are root level tags.
- bool AddSkipTag (Tag const &t)

  Add a tag that will need to be skipped. Those are root level skip tags.
- PublicConstIterator Begin () const
- void ClearPrivateTags ()
- void ClearPublicTags ()

- void ClearSkipTags ()
- PublicConstIterator End () const
- Directory::FilenamesType GetAllFilenamesFromPrivateTagToValue (PrivateTag const &pt, const char *valueref) const
- Directory::FilenamesType GetAllFilenamesFromPublicTagToValue (Tag const &t, const char *valueref) const
- const char * GetFilenameFromPrivateTagToValue (PrivateTag const &pt, const char *valueref) const
- const char * GetFilenameFromPublicTagToValue (Tag const &t, const char *valueref) const
- Directory::FilenamesType const & GetFilenames () const

  Return the list of filenames.
- Directory::FilenamesType GetKeys () const
- PrivateTagToValue const & GetMappingFromPrivateTagToValue (PrivateTag const &pt, const char *value) const
- PublicTagToValue const & GetMappingFromPublicTagToValue (Tag const &t, const char *value) const
- PrivateTagToValue const & GetPrivateMapping (const char *filename) const
- PrivateMappingType const & GetPrivateMappings () const
- Directory::FilenamesType GetPrivateOrderedValues (PrivateTag const &pt) const
- const char * GetPrivateValue (const char *filename, PrivateTag const &t) const
- ValuesType GetPrivateValues (PrivateTag const &pt) const
- PublicTagToValue const & GetPublicMapping (const char *filename) const

  Get the std::map mapping filenames to value for file 'filename'.
- PublicMappingType const & GetPublicMappings () const
- Directory::FilenamesType GetPublicOrderedValues (Tag const &t) const
- const char * GetPublicValue (const char *filename, Tag const &t) const
- ValuesType GetPublicValues (Tag const &t) const

  Get all the values found (in lexicographic order) associated with Tag 't'.
- ValuesType const & GetValues () const

  Get all the values found (in lexicographic order).
- bool IsKey (const char *filename) const
- void Print (std::ostream &os) const override

  Print result.
- void PrintTable (std::ostream &os, bool header=false) const

  Print result as CSV table.
- PrivateConstIterator PrivateBegin () const
- PrivateConstIterator PrivateEnd () const
- bool Scan (Directory::FilenamesType const &filenames)

  Start the scan !

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Static Public Member Functions

- static SmartPointer< StrictScanner2 > New ()

  for wrapped language: instantiate a reference counted object

Protected Member Functions

- void ProcessPrivateTag (StringFilter &sf, const char *filename)
- void ProcessPublicTag (StringFilter &sf, const char *filename)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- std::ostream & operator<< (std::ostream &_os, const StrictScanner2 &s)

12.299.1 Detailed Description

StrictScanner2.

This filter is meant for quickly browsing a FileSet (a set of files on disk). Special consideration are taken so as to read the minimum amount of information in each file in order to retrieve the user specified set of DICOM Attribute.

This filter is dealing with both VRASCII and VRBINARY element, thanks to the help of StringFilter

Warning

IMPORTANT In case of file where tags are not ordered (illegal as per DICOM specification), the output will be missing information

Note

implementation details. All values are stored in a std::set of std::string. Then the address of the cstring underlying the std::string is used in the std::map.

This class implement the Subject/Observer pattern trigger the following events:

- ProgressEvent
- StartEvent
- EndEvent

12.299.2 Member Typedef Documentation

12.299.2.1 PrivateConstIterator

```
typedef PrivateMappingType::const_iterator gdcm::StrictScanner2::PrivateConstIterator
```

12.299.2.2 PrivateMappingType

```
typedef std::map<const char *, PrivateTagToValue, ltstr> gdcm::StrictScanner2::PrivateMappingType
```

12.299.2.3 PrivateTagToValue

```
typedef std::map<PrivateTag, const char *> gdcm::StrictScanner2::PrivateTagToValue
```

12.299.2.4 PrivateTagToValueValueType

```
typedef PrivateTagToValue::value_type gdcm::StrictScanner2::PrivateTagToValueValueType
```

12.299.2.5 PublicConstIterator

```
typedef PublicMappingType::const_iterator gdcm::StrictScanner2::PublicConstIterator
```

12.299.2.6 PublicMappingType

```
typedef std::map<const char *, PublicTagToValue, ltstr> gdcm::StrictScanner2::PublicMappingType
```

12.299.2.7 PublicTagToValue

```
typedef std::map<Tag, const char *> gdcm::StrictScanner2::PublicTagToValue
```

struct to map a filename to a value Implementation note: all std::map in this class will be using const char * and not std::string since we are pointing to existing std::string (held in a std::vector) this avoid an extra copy of the byte array. Tag are used as Tag class since sizeof(tag) <= sizeof(pointer)

12.299.2.8 PublicTagToValueValueType

```
typedef PublicTagToValue::value_type gdcm::StrictScanner2::PublicTagToValueValueType
```

12.299.2.9 ValuesType

```
typedef std::set<std::string> gdcm::StrictScanner2::ValuesType
```

12.299.3 Constructor & Destructor Documentation

12.299.3.1 StrictScanner2()

```
gdcm::StrictScanner2::StrictScanner2 ()  [inline]
```

Referenced by New(), and operator<<.

12.299.3.2 ~StrictScanner2()

```
gdcm::StrictScanner2::~StrictScanner2 ()  [override]
```

12.299.4 Member Function Documentation

12.299.4.1 AddPrivateTag()

```
bool gdcm::StrictScanner2::AddPrivateTag (
            PrivateTag const & pt)
```

12.299.4.2 AddPublicTag()

```
bool gdcm::StrictScanner2::AddPublicTag (
            Tag const & t)
```

Add a tag that will need to be read. Those are root level tags.

12.299.4.3 AddSkipTag()

```
bool gdcm::StrictScanner2::AddSkipTag (
            Tag const & t)
```

Add a tag that will need to be skipped. Those are root level skip tags.

12.299.4.4 Begin()

```
PublicConstIterator gdcm::StrictScanner2::Begin () const  [inline]
```

12.299.4.5 ClearPrivateTags()

```
void gdcm::StrictScanner2::ClearPrivateTags ()
```

12.299.4.6 ClearPublicTags()

```
void gdcm::StrictScanner2::ClearPublicTags ()
```

12.299.4.7 ClearSkipTags()

```
void gdcm::StrictScanner2::ClearSkipTags ()
```

12.299.4.8 End()

```
PublicConstIterator gdcm::StrictScanner2::End () const  [inline]
```

12.299.4.9 GetAllFilenamesFromPrivateTagToValue()

```
Directory::FilenamesType gdcm::StrictScanner2::GetAllFilenamesFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * valueref) const
```

12.299.4.10 GetAllFilenamesFromPublicTagToValue()

```
Directory::FilenamesType gdcm::StrictScanner2::GetAllFilenamesFromPublicTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return a vector of std::strings of filenames where value match the reference value 'valueref'

12.299.4.11 GetFilenameFromPrivateTagToValue()

```
const char * gdcm::StrictScanner2::GetFilenameFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * valueref) const
```

12.299.4.12 GetFilenameFromPublicTagToValue()

```
const char * gdcm::StrictScanner2::GetFilenameFromPublicTagToValue (
            Tag const & t,
            const char * valueref) const
```

Will loop over all files and return the first file where value match the reference value 'valueref'

12.299.4.13 GetFilenames()

```
Directory::FilenamesType const & gdcm::StrictScanner2::GetFilenames () const  [inline]
```

Return the list of filenames.

12.299.4.14 GetKeys()

```
Directory::FilenamesType gdcm::StrictScanner2::GetKeys () const
```

Return the list of filename that are key in the internal map, which means those filename were properly parsed

12.299.4.15 GetMappingFromPrivateTagToValue()

```
PrivateTagToValue const & gdcm::StrictScanner2::GetMappingFromPrivateTagToValue (
            PrivateTag const & pt,
            const char * value) const
```

12.299.4.16 GetMappingFromPublicTagToValue()

```
PublicTagToValue const & gdcm::StrictScanner2::GetMappingFromPublicTagToValue (
            Tag const & t,
            const char * value) const
```

See GetFilenameFromTagToValue(). This is simply GetFilenameFromTagToValue followed

12.299.4.17 GetPrivateMapping()

```
PrivateTagToValue const & gdcm::StrictScanner2::GetPrivateMapping (
            const char * filename) const
```

12.299.4.18 GetPrivateMappings()

```
PrivateMappingType const & gdcm::StrictScanner2::GetPrivateMappings () const  [inline]
```

12.299.4.19 GetPrivateOrderedValues()

```
Directory::FilenamesType gdcm::StrictScanner2::GetPrivateOrderedValues (
            PrivateTag const & pt) const
```

12.299.4.20 GetPrivateValue()

```
const char * gdcm::StrictScanner2::GetPrivateValue (
             const char * filename,
             PrivateTag const & t) const
```

12.299.4.21 GetPrivateValues()

```
ValuesType gdcm::StrictScanner2::GetPrivateValues (
             PrivateTag const & pt) const
```

Get all the values found (in lexicographic order) associated with PrivateTag 'pt'

12.299.4.22 GetPublicMapping()

```
PublicTagToValue const & gdcm::StrictScanner2::GetPublicMapping (
             const char * filename) const
```

Get the std::map mapping filenames to value for file 'filename'.

12.299.4.23 GetPublicMappings()

```
PublicMappingType const & gdcm::StrictScanner2::GetPublicMappings () const  [inline]
```

Mappings are the mapping from a particular tag to the map, mapping filename to value:

12.299.4.24 GetPublicOrderedValues()

```
Directory::FilenamesType gdcm::StrictScanner2::GetPublicOrderedValues (
             Tag const & t) const
```

Get all the values found (in a vector) associated with Tag 't' This function is identical to GetValues, but is accessible from the wrapped layer (python, C#, java)

12.299.4.25 GetPublicValue()

```
const char * gdcm::StrictScanner2::GetPublicValue (
             const char * filename,
             Tag const & t) const
```

Retrieve the value found for tag: t associated with file: filename This is meant for a single short call. If multiple calls (multiple tags) should be done, prefer the GetMapping function, and then reuse the TagToValue hash table.

Warning

Tag 't' should have been added via AddTag() prior to the Scan() call !

12.299.4.26 GetPublicValues()

```
ValuesType gdcm::StrictScanner2::GetPublicValues (
            Tag const & t) const
```

Get all the values found (in lexicographic order) associated with Tag 't'.

12.299.4.27 GetValues()

```
ValuesType const & gdcm::StrictScanner2::GetValues () const  [inline]
```

Get all the values found (in lexicographic order).

12.299.4.28 IsKey()

```
bool gdcm::StrictScanner2::IsKey (
            const char * filename) const
```

Check if filename is a key in the Mapping table. returns true only of file can be found, which means the file was indeed a DICOM file that could be processed

12.299.4.29 New()

```
SmartPointer< StrictScanner2 > gdcm::StrictScanner2::New ()  [inline], [static]
```

for wrapped language: instantiate a reference counted object

References StrictScanner2().

12.299.4.30 Print()

```
void gdcm::StrictScanner2::Print (
            std::ostream & os) const  [override], [virtual]
```

Print result.

Reimplemented from gdcm::Object.

Referenced by operator<<.

12.299.4.31 PrintTable()

```
void gdcm::StrictScanner2::PrintTable (
            std::ostream & os,
            bool header = false) const
```

Print result as CSV table.

12.299.4.32 PrivateBegin()

```
PrivateConstIterator gdcm::StrictScanner2::PrivateBegin () const  [inline]
```

12.299.4.33 PrivateEnd()

```
PrivateConstIterator gdcm::StrictScanner2::PrivateEnd () const  [inline]
```

12.299.4.34 ProcessPrivateTag()

```
void gdcm::StrictScanner2::ProcessPrivateTag (
            StringFilter & sf,
            const char * filename)  [protected]
```

12.299.4.35 ProcessPublicTag()

```
void gdcm::StrictScanner2::ProcessPublicTag (
            StringFilter & sf,
            const char * filename)  [protected]
```

12.299.4.36 Scan()

```
bool gdcm::StrictScanner2::Scan (
            Directory::FilenamesType const & filenames)
```

Start the scan !

12.299.5 Friends And Related Symbol Documentation

12.299.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const StrictScanner2 & s)  [friend]
```

References StrictScanner2(), and Print().

The documentation for this class was generated from the following file:

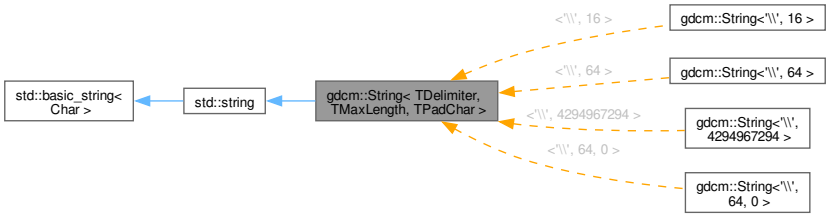
- gdcmStrictScanner2.h

12.300 gdcm::String< TDelimiter, TMaxLength, TPadChar > Class Template Reference

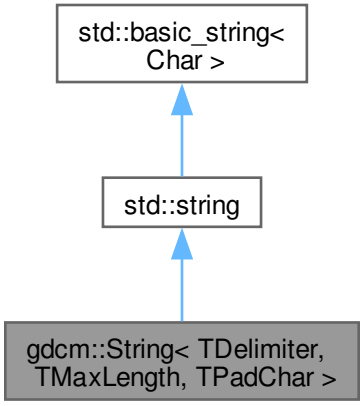
String.

`#include <gdcmString.h>`

Inheritance diagram for gdcm::String< TDelimiter, TMaxLength, TPadChar >:



Collaboration diagram for gdcm::String< TDelimiter, TMaxLength, TPadChar >:



Public Types

- typedef std::string::const_iterator const_iterator
- typedef std::string::const_reference const_reference
- typedef std::string::const_reverse_iterator const_reverse_iterator
- typedef std::string::difference_type difference_type

- typedef std::string::iterator iterator
- typedef std::string::pointer pointer
- typedef std::string::reference reference
- typedef std::string::reverse_iterator reverse_iterator
- typedef std::string::size_type size_type
- typedef std::string::value_type value_type

Public Member Functions

- String ()
  String constructors.
- String (const std::string &s, size_type pos=0, size_type n=npos)
- String (const value_type *s)
- String (const value_type *s, size_type n)
- bool IsValid () const
  return if string is valid
- operator const char * () const
  WARNING: Trailing \0 might be lost in this operation:
- std::string Trim () const
- gdcm::String< TDelimiter, TMaxLength, TPadChar > Truncate () const

Static Public Member Functions

- static std::string Trim (const char *input)

12.300.1 Detailed Description

template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
class gdcm::String< TDelimiter, TMaxLength, TPadChar >

String.

Note

TDelimiter template parameter is used to separate multiple String (VM1 >) TMaxLength is only a hint. No one actually respect the max length TPadChar is the string padding (0 or space)

12.300.2 Member Typedef Documentation

12.300.2.1 const_iterator

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::const_iterator gdcm::String< TDelimiter, TMaxLength, TPadChar >::const_↩
iterator
```

12.300.2.2 const_reference

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::const_reference gdcm::String< TDelimiter, TMaxLength, TPadChar >::const_↩
reference
```

12.300.2.3 const_reverse_iterator

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::const_reverse_iterator gdcm::String< TDelimiter, TMaxLength, TPadChar >::↩
const_reverse_iterator
```

12.300.2.4 difference_type

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::difference_type gdcm::String< TDelimiter, TMaxLength, TPadChar >::difference↩
_type
```

12.300.2.5 iterator

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::iterator gdcm::String< TDelimiter, TMaxLength, TPadChar >::iterator
```

12.300.2.6 pointer

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::pointer gdcm::String< TDelimiter, TMaxLength, TPadChar >::pointer
```

12.300.2.7 reference

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::reference gdcm::String< TDelimiter, TMaxLength, TPadChar >::reference
```

12.300.2.8 reverse_iterator

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::reverse_iterator gdcm::String< TDelimiter, TMaxLength, TPadChar >::reverse↩
_iterator
```

12.300.2.9 size_type

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::size_type gdcm::String< TDelimiter, TMaxLength, TPadChar >::size_type
```

12.300.2.10 value_type

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
typedef std::string::value_type gdcm::String< TDelimiter, TMaxLength, TPadChar >::value_type
```

12.300.3 Constructor & Destructor Documentation

12.300.3.1 String() [1/4]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::String ()  [inline]
```

String constructors.

12.300.3.2 String() [2/4]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::String (
            const value_type * s)  [inline]
```

12.300.3.3 String() [3/4]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::String (
            const value_type * s,
            size_type n)  [inline]
```

12.300.3.4 String() [4/4]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::String (
            const std::string & s,
            size_type pos = 0,
            size_type n = npos)  [inline]
```

12.300.4 Member Function Documentation

12.300.4.1 IsValid()

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
bool gdcm::String< TDelimiter, TMaxLength, TPadChar >::IsValid () const  [inline]
```

return if string is valid

Referenced by gdcm::String<'\\', 16 >::Truncate().

12.300.4.2 operator const char *()

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar >::operator const char * () const  [inline]
```

WARNING: Trailing \0 might be lost in this operation:

12.300.4.3 Trim() [1/2]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
std::string gdcm::String< TDelimiter, TMaxLength, TPadChar >::Trim () const  [inline]
```

Trim function is required to return a std::string object, otherwise we could not create a gdcm::String object with an odd number of bytes...

12.300.4.4 Trim() [2/2]

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
std::string gdcm::String< TDelimiter, TMaxLength, TPadChar >::Trim (
            const char * input)  [inline], [static]
```

12.300.4.5 Truncate()

```
template<char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
gdcm::String< TDelimiter, TMaxLength, TPadChar > gdcm::String< TDelimiter, TMaxLength, TPadChar
>::Truncate () const  [inline]
```

The documentation for this class was generated from the following file:

- gdcmString.h

12.301 gdcm::StringFilter Class Reference

StringFilter.

```
#include <gdcmStringFilter.h>
```

Public Member Functions

- StringFilter ()
- ~StringFilter ()
- bool ExecuteQuery (std::string const &query, std::string &value) const
- std::string FromString (const Tag &t, const char *value, size_t len)

  Convert to string the char array defined by the pair (value,len).
- File & GetFile ()
- const File & GetFile () const
- void SetDicts (const Dicts &dicts)

  Allow user to pass in there own dicts.
- void SetFile (const File &f)

  Set/Get File.
- std::string ToString (const DataElement &de) const
- std::string ToString (const PrivateTag &t) const
- std::string ToString (const Tag &t) const

  Directly from a Tag:
- std::pair< std::string, std::string > ToStringPair (const DataElement &de) const
- std::pair< std::string, std::string > ToStringPair (const Tag &t) const

  Directly from a Tag:
- void UseDictAlways (bool)

Protected Member Functions

- bool ExecuteQuery (std::string const &query, DataSet const &ds, std::string &value) const
- std::pair< std::string, std::string > ToStringPair (const Tag &t, DataSet const &ds) const

12.301.1 Detailed Description

StringFilter.

StringFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language

Examples

DumpVisusChange.cxx, ReadAndPrintAttributes.cxx, and SimplePrintPatientName.cs.

12.301.2 Constructor & Destructor Documentation

12.301.2.1 StringFilter()

```
gdcm::StringFilter::StringFilter ()
```

12.301.2.2 ~StringFilter()

```
gdcm::StringFilter::~StringFilter ()
```

12.301.3 Member Function Documentation

12.301.3.1 ExecuteQuery() [1/2]

```
bool gdcm::StringFilter::ExecuteQuery (
            std::string const & query,
            DataSet const & ds,
            std::string & value) const  [protected]
```

12.301.3.2 ExecuteQuery() [2/2]

```
bool gdcm::StringFilter::ExecuteQuery (
            std::string const & query,
            std::string & value) const
```

Execute the XPATH query to find a value (as string) return false when attribute is not found (or an error in the XPATH query) You need to make sure that your XPATH query is syntactically correct

12.301.3.3 FromString()

```
std::string gdcm::StringFilter::FromString (
            const Tag & t,
            const char * value,
            size_t len)
```

Convert to string the char array defined by the pair (value,len).

12.301.3.4 GetFile() [1/2]

```
File & gdcm::StringFilter::GetFile ()  [inline]
```

12.301.3.5 GetFile() [2/2]

```
const File & gdcm::StringFilter::GetFile () const  [inline]
```

12.301.3.6 SetDicts()

```
void gdcm::StringFilter::SetDicts (
            const Dicts & dicts)
```

Allow user to pass in there own dicts.

12.301.3.7 SetFile()

```
void gdcm::StringFilter::SetFile (
            const File & f)  [inline]
```

Set/Get File.

Examples

DumpVisusChange.cxx, ReadAndPrintAttributes.cxx, and SimplePrintPatientName.cs.

12.301.3.8 ToString() [1/3]

```
std::string gdcm::StringFilter::ToString (
            const DataElement & de) const
```

Convert to string the ByteValue contained in a DataElement. The DataElement must be coming from the actual DataSet associated with File (see SetFile).

Examples

DumpVisusChange.cxx, ReadAndPrintAttributes.cxx, and SimplePrintPatientName.cs.

12.301.3.9 ToString() [2/3]

```
std::string gdcm::StringFilter::ToString (
            const PrivateTag & t) const
```

12.301.3.10 ToString() [3/3]

```
std::string gdcm::StringFilter::ToString (
            const Tag & t) const
```

Directly from a Tag:

12.301.3.11 ToStringPair() [1/3]

```
std::pair< std::string, std::string > gdcm::StringFilter::ToStringPair (
            const DataElement & de) const
```

Convert to string the ByteValue contained in a DataElement the returned elements are: pair.first : the name as found in the dictionary of DataElement pari.second : the value encoded into a string (US,UL...) are properly converted

Examples

ReadAndPrintAttributes.cxx.

12.301.3.12 ToStringPair() [2/3]

```
std::pair< std::string, std::string > gdcm::StringFilter::ToStringPair (
            const Tag & t) const
```

Directly from a Tag:

12.301.3.13 ToStringPair() [3/3]

```
std::pair< std::string, std::string > gdcm::StringFilter::ToStringPair (
            const Tag & t,
            DataSet const & ds) const  [protected]
```

12.301.3.14 UseDictAlways()

```
void gdcm::StringFilter::UseDictAlways (
            bool )  [inline]
```

The documentation for this class was generated from the following file:

- gdcmStringFilter.h

12.302 gdcm::Study Class Reference

Study.

```
#include <gdcmStudy.h>
```

Public Member Functions

- Study ()=default

12.302.1 Detailed Description

Study.

12.302.2 Constructor & Destructor Documentation

12.302.2.1 Study()

```
gdcm::Study::Study ()  [default]
```

The documentation for this class was generated from the following file:

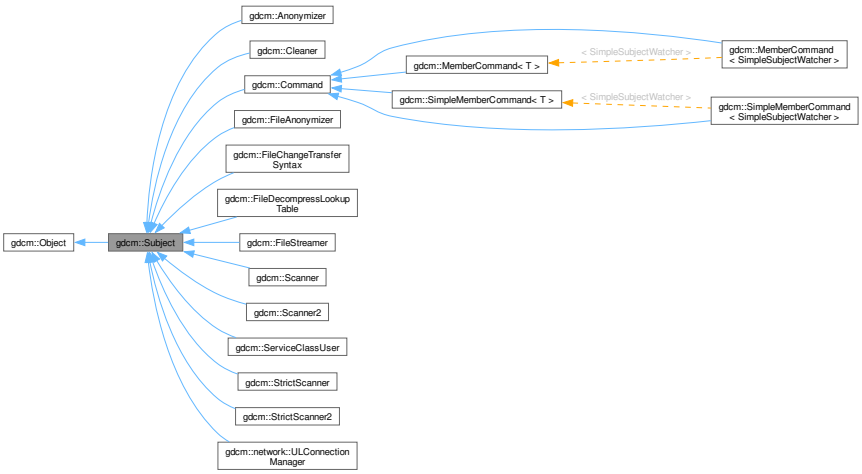
- gdcmStudy.h

12.303 gdcm::Subject Class Reference

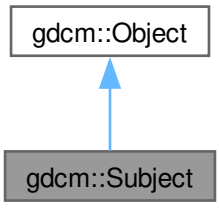
Subject.

`#include <gdcmSubject.h>`

Inheritance diagram for gdcm::Subject:



Collaboration diagram for gdcm::Subject:



Public Member Functions

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)

- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.303.1 Detailed Description

Subject.

See also

Command Event

Examples

BasicAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, ScanDirectory.cs, and SimpleScanner.cxx.

12.303.2 Constructor & Destructor Documentation

12.303.2.1 Subject()

```
gdcm::Subject::Subject ()
```

Referenced by gdcm::Command::Execute(), and gdcm::Command::Execute().

12.303.2.2 ~Subject()

```
gdcm::Subject::~Subject ()  [override]
```

12.303.3 Member Function Documentation

12.303.3.1 AddObserver() [1/2]

```
unsigned long gdcm::Subject::AddObserver (
            const Event & event,
            Command * )
```

Allow people to add/remove/invoke observers (callbacks) to any GDCM object. This is an implementation of the subject/observer design pattern. An observer is added by specifying an event to respond to and an gdcm::Command to execute. It returns an unsigned long tag which can be used later to remove the event or retrieve the command. The memory for the Command becomes the responsibility of this object, so don't pass the same instance of a command to two different objects

12.303.3.2 AddObserver() [2/2]

```
unsigned long gdcm::Subject::AddObserver (
            const Event & event,
            Command * ) const
```

12.303.3.3 GetCommand()

```
Command * gdcm::Subject::GetCommand (
            unsigned long tag)
```

Get the command associated with the given tag. NOTE: This returns a pointer to a Command, but it is safe to assign this to a Command::Pointer. Since Command inherits from LightObject, at this point in the code, only a pointer or a reference to the Command can be used.

12.303.3.4 HasObserver()

```
bool gdcm::Subject::HasObserver (
            const Event & event) const
```

Return true if an observer is registered for this event.

12.303.3.5 InvokeEvent() [1/2]

```
void gdcm::Subject::InvokeEvent (
            const Event & )
```

Call Execute on all the Commands observing this event id.

12.303.3.6 InvokeEvent() [2/2]

```
void gdcm::Subject::InvokeEvent (
            const Event & ) const
```

Call Execute on all the Commands observing this event id. The actions triggered by this call doesn't modify this object.

12.303.3.7 RemoveAllObservers()

```
void gdcm::Subject::RemoveAllObservers ()
```

Remove all observers .

12.303.3.8 RemoveObserver()

```
void gdcm::Subject::RemoveObserver (
            unsigned long tag)
```

Remove the observer with this tag value.

The documentation for this class was generated from the following file:

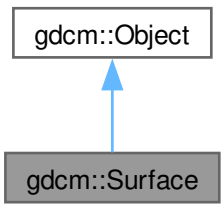
- gdcmSubject.h

12.304 gdcm::Surface Class Reference

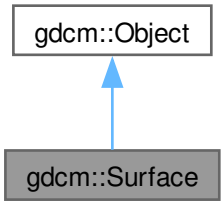
This class defines a SURFACE IE.

`#include <gdcmSurface.h>`

Inheritance diagram for gdcm::Surface:



Collaboration diagram for gdcm::Surface:



Public Types

- enum STATES {
  NO = 0 ,
  YES ,
  UNKNOWN ,
  STATES_END }
- enum VIEWType {
  SURFACE = 0 ,
  WIREFRAME ,
  POINTS ,
  VIEWType_END }

  Enumeration for Recommended Presentation Type.

Public Member Functions

- Surface ()
- ~Surface () override
- SegmentHelper::BasicCodedEntry & GetAlgorithmFamily ()
- SegmentHelper::BasicCodedEntry const & GetAlgorithmFamily () const
- const char * GetAlgorithmName () const
- const char * GetAlgorithmVersion () const
- const float * GetAxisOfRotation () const
- const float * GetCenterOfRotation () const
- STATES GetFiniteVolume () const
- STATES GetManifold () const
- float GetMaximumPointDistance () const
- float GetMeanPointDistance () const
- MeshPrimitive & GetMeshPrimitive ()
- MeshPrimitive const & GetMeshPrimitive () const
- unsigned long GetNumberOfSurfacePoints () const
- unsigned long GetNumberOfVectors () const
- DataElement & GetPointCoordinatesData ()

- const DataElement & GetPointCoordinatesData () const
- const float * GetPointPositionAccuracy () const
- const float * GetPointsBoundingBoxCoordinates () const
- SegmentHelper::BasicCodedEntry & GetProcessingAlgorithm ()
- SegmentHelper::BasicCodedEntry const & GetProcessingAlgorithm () const
- const unsigned short * GetRecommendedDisplayCIELabValue () const
- unsigned short GetRecommendedDisplayCIELabValue (const unsigned int idx) const
- unsigned short GetRecommendedDisplayGrayscaleValue () const
- float GetRecommendedPresentationOpacity () const
- VIEWType GetRecommendedPresentationType () const
- const char * GetSurfaceComments () const
- unsigned long GetSurfaceNumber () const
- bool GetSurfaceProcessing () const
- const char * GetSurfaceProcessingDescription () const
- float GetSurfaceProcessingRatio () const
- const float * GetVectorAccuracy () const
- DataElement & GetVectorCoordinateData ()
- const DataElement & GetVectorCoordinateData () const
- unsigned short GetVectorDimensionality () const
- void SetAlgorithmFamily (SegmentHelper::BasicCodedEntry const &BSE)
- void SetAlgorithmName (const char *str)
- void SetAlgorithmVersion (const char *str)
- void SetAxisOfRotation (const float *axis)
- void SetCenterOfRotation (const float *center)
- void SetFiniteVolume (STATES state)
- void SetManifold (STATES state)
- void SetMaximumPointDistance (float maximum)
- void SetMeanPointDistance (float average)
- void SetMeshPrimitive (MeshPrimitive const &mp)
- void SetNumberOfSurfacePoints (const unsigned long nb)
- void SetNumberOfVectors (const unsigned long nb)
- void SetPointCoordinatesData (DataElement const &de)
- void SetPointPositionAccuracy (const float *accuracies)
- void SetPointsBoundingBoxCoordinates (const float *coordinates)
- void SetProcessingAlgorithm (SegmentHelper::BasicCodedEntry const &BSE)
- void SetRecommendedDisplayCIELabValue (const std::vector< unsigned short > &vl)
- void SetRecommendedDisplayCIELabValue (const unsigned short vl, const unsigned int idx=0)
- void SetRecommendedDisplayCIELabValue (const unsigned short vl[3])
- void SetRecommendedDisplayGrayscaleValue (const unsigned short vl)
- void SetRecommendedPresentationOpacity (const float opacity)
- void SetRecommendedPresentationType (VIEWType type)
- void SetSurfaceComments (const char *comment)
- void SetSurfaceNumber (const unsigned long nb)
- void SetSurfaceProcessing (bool b)
- void SetSurfaceProcessingDescription (const char *description)
- void SetSurfaceProcessingRatio (const float ratio)
- void SetVectorAccuracy (const float *accuracy)
- void SetVectorCoordinateData (DataElement const &de)
- void SetVectorDimensionality (const unsigned short dim)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Static Public Member Functions

- static STATES GetSTATES (const char *state)
- static const char * GetSTATESString (STATES state)
- static VIEWType GetVIEWType (const char *type)
- static const char * GetVIEWTypeString (VIEWType type)

Additional Inherited Members

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

12.304.1 Detailed Description

This class defines a SURFACE IE.

This members are taken from required surface mesh module attributes.

See also

PS 3.3 A.1.2.18 , A.57 and C.27

12.304.2 Member Enumeration Documentation

12.304.2.1 STATES

`enum gdcm::Surface::STATES`

Enumerator

NO	

YES	
UNKNOWN	
STATES_END	

12.304.2.2 VIEWType

`enum gdcm::Surface::VIEWType`

Enumeration for Recommended Presentation Type.

See also

Tag(0x0066, 0x000D) and PS 3.3 C.27.1.1.3

Enumerator

SURFACE	
WIREFRAME	
POINTS	
VIEWType_END	

12.304.3 Constructor & Destructor Documentation

12.304.3.1 Surface()

```
gdcm::Surface::Surface ()
```

12.304.3.2 ~Surface()

```
gdcm::Surface::~Surface ()  [override]
```

12.304.4 Member Function Documentation

12.304.4.1 GetAlgorithmFamily() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Surface::GetAlgorithmFamily ()
```

12.304.4.2 GetAlgorithmFamily() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Surface::GetAlgorithmFamily () const
```

12.304.4.3 GetAlgorithmName()

```
const char * gdcm::Surface::GetAlgorithmName () const
```

12.304.4.4 GetAlgorithmVersion()

```
const char * gdcm::Surface::GetAlgorithmVersion () const
```

12.304.4.5 GetAxisOfRotation()

```
const float * gdcm::Surface::GetAxisOfRotation () const
```

Note

Pointer is null if undefined

12.304.4.6 GetCenterOfRotation()

```
const float * gdcm::Surface::GetCenterOfRotation () const
```

Note

Pointer is null if undefined

12.304.4.7 GetFiniteVolume()

```
STATES gdcm::Surface::GetFiniteVolume () const
```

12.304.4.8 GetManifold()

```
STATES gdcm::Surface::GetManifold () const
```

12.304.4.9 GetMaximumPointDistance()

```
float gdcm::Surface::GetMaximumPointDistance () const
```

12.304.4.10 GetMeanPointDistance()

```
float gdcm::Surface::GetMeanPointDistance () const
```

12.304.4.11 GetMeshPrimitive() [1/2]

```
MeshPrimitive & gdcm::Surface::GetMeshPrimitive ()
```

12.304.4.12 GetMeshPrimitive() [2/2]

```
MeshPrimitive const & gdcm::Surface::GetMeshPrimitive () const
```

12.304.4.13 GetNumberOfSurfacePoints()

```
unsigned long gdcm::Surface::GetNumberOfSurfacePoints () const
```

12.304.4.14 GetNumberOfVectors()

```
unsigned long gdcm::Surface::GetNumberOfVectors () const
```

12.304.4.15 GetPointCoordinatesData() [1/2]

```
DataElement & gdcm::Surface::GetPointCoordinatesData ()
```

12.304.4.16 GetPointCoordinatesData() [2/2]

```
const DataElement & gdcm::Surface::GetPointCoordinatesData () const
```

12.304.4.17 GetPointPositionAccuracy()

```
const float * gdcm::Surface::GetPointPositionAccuracy () const
```

Note

Pointer is null if undefined

12.304.4.18 GetPointsBoundingBoxCoordinates()

```
const float * gdcm::Surface::GetPointsBoundingBoxCoordinates () const
```

Note

Pointer is null if undefined

12.304.4.19 GetProcessingAlgorithm() [1/2]

```
SegmentHelper::BasicCodedEntry & gdcm::Surface::GetProcessingAlgorithm ()
```

12.304.4.20 GetProcessingAlgorithm() [2/2]

```
SegmentHelper::BasicCodedEntry const & gdcm::Surface::GetProcessingAlgorithm () const
```

12.304.4.21 GetRecommendedDisplayCIELabValue() [1/2]

```
const unsigned short * gdcm::Surface::GetRecommendedDisplayCIELabValue () const
```

12.304.4.22 GetRecommendedDisplayCIELabValue() [2/2]

```
unsigned short gdcm::Surface::GetRecommendedDisplayCIELabValue (
            const unsigned int idx) const
```

12.304.4.23 GetRecommendedDisplayGrayscaleValue()

```
unsigned short gdcm::Surface::GetRecommendedDisplayGrayscaleValue () const
```

12.304.4.24 GetRecommendedPresentationOpacity()

```
float gdcm::Surface::GetRecommendedPresentationOpacity () const
```

12.304.4.25 GetRecommendedPresentationType()

```
VIEWType gdcm::Surface::GetRecommendedPresentationType () const
```

12.304.4.26 GetSTATES()

```
STATES gdcm::Surface::GetSTATES (
            const char * state)  [static]
```

12.304.4.27 GetSTATESString()

```
const char * gdcm::Surface::GetSTATESString (
            STATES state)  [static]
```

12.304.4.28 GetSurfaceComments()

```
const char * gdcm::Surface::GetSurfaceComments () const
```

12.304.4.29 GetSurfaceNumber()

```
unsigned long gdcm::Surface::GetSurfaceNumber () const
```

12.304.4.30 GetSurfaceProcessing()

```
bool gdcm::Surface::GetSurfaceProcessing () const
```

12.304.4.31 GetSurfaceProcessingDescription()

```
const char * gdcm::Surface::GetSurfaceProcessingDescription () const
```

12.304.4.32 GetSurfaceProcessingRatio()

```
float gdcm::Surface::GetSurfaceProcessingRatio () const
```

12.304.4.33 GetVectorAccuracy()

```
const float * gdcm::Surface::GetVectorAccuracy () const
```

12.304.4.34 GetVectorCoordinateData() [1/2]

```
DataElement & gdcm::Surface::GetVectorCoordinateData ()
```

12.304.4.35 GetVectorCoordinateData() [2/2]

```
const DataElement & gdcm::Surface::GetVectorCoordinateData () const
```

12.304.4.36 GetVectorDimensionality()

```
unsigned short gdcm::Surface::GetVectorDimensionality () const
```

12.304.4.37 GetVIEWType()

```
VIEWType gdcm::Surface::GetVIEWType (
            const char * type)  [static]
```

12.304.4.38 GetVIEWTypeString()

```
const char * gdcm::Surface::GetVIEWTypeString (
            VIEWType type)  [static]
```

12.304.4.39 SetAlgorithmFamily()

```
void gdcm::Surface::SetAlgorithmFamily (
            SegmentHelper::BasicCodedEntry const & BSE)
```

12.304.4.40 SetAlgorithmName()

```
void gdcm::Surface::SetAlgorithmName (
            const char * str)
```

12.304.4.41 SetAlgorithmVersion()

```
void gdcm::Surface::SetAlgorithmVersion (
            const char * str)
```

12.304.4.42 SetAxisOfRotation()

```
void gdcm::Surface::SetAxisOfRotation (
            const float * axis)
```

12.304.4.43 SetCenterOfRotation()

```
void gdcm::Surface::SetCenterOfRotation (
            const float * center)
```

12.304.4.44 SetFiniteVolume()

```
void gdcm::Surface::SetFiniteVolume (
            STATES state)
```

12.304.4.45 SetManifold()

```
void gdcm::Surface::SetManifold (
            STATES state)
```

12.304.4.46 SetMaximumPointDistance()

```
void gdcm::Surface::SetMaximumPointDistance (
            float maximum)
```

12.304.4.47 SetMeanPointDistance()

```
void gdcm::Surface::SetMeanPointDistance (
            float average)
```

12.304.4.48 SetMeshPrimitive()

```
void gdcm::Surface::SetMeshPrimitive (
            MeshPrimitive const & mp)
```

References gdcm::Object::SmartPointer.

12.304.4.49 SetNumberOfSurfacePoints()

```
void gdcm::Surface::SetNumberOfSurfacePoints (
            const unsigned long nb)
```

12.304.4.50 SetNumberOfVectors()

```
void gdcm::Surface::SetNumberOfVectors (
            const unsigned long nb)
```

12.304.4.51 SetPointCoordinatesData()

```
void gdcm::Surface::SetPointCoordinatesData (
            DataElement const & de)
```

12.304.4.52 SetPointPositionAccuracy()

```
void gdcm::Surface::SetPointPositionAccuracy (
            const float * accuracies)
```

12.304.4.53 SetPointsBoundingBoxCoordinates()

```
void gdcm::Surface::SetPointsBoundingBoxCoordinates (
            const float * coordinates)
```

12.304.4.54 SetProcessingAlgorithm()

```
void gdcm::Surface::SetProcessingAlgorithm (
            SegmentHelper::BasicCodedEntry const & BSE)
```

12.304.4.55 SetRecommendedDisplayCIELabValue() [1/3]

```
void gdcm::Surface::SetRecommendedDisplayCIELabValue (
            const std::vector< unsigned short > & vl)
```

12.304.4.56 SetRecommendedDisplayCIELabValue() [2/3]

```
void gdcm::Surface::SetRecommendedDisplayCIELabValue (
            const unsigned short vl,
            const unsigned int idx = 0)
```

12.304.4.57 SetRecommendedDisplayCIELabValue() [3/3]

```
void gdcm::Surface::SetRecommendedDisplayCIELabValue (
            const unsigned short vl[3])
```

12.304.4.58 SetRecommendedDisplayGrayscaleValue()

```
void gdcm::Surface::SetRecommendedDisplayGrayscaleValue (
            const unsigned short vl)
```

12.304.4.59 SetRecommendedPresentationOpacity()

```
void gdcm::Surface::SetRecommendedPresentationOpacity (
            const float opacity)
```

12.304.4.60 SetRecommendedPresentationType()

```
void gdcm::Surface::SetRecommendedPresentationType (
            VIEWType type)
```

12.304.4.61 SetSurfaceComments()

```
void gdcm::Surface::SetSurfaceComments (
            const char * comment)
```

12.304.4.62 SetSurfaceNumber()

```
void gdcm::Surface::SetSurfaceNumber (
            const unsigned long nb)
```

12.304.4.63 SetSurfaceProcessing()

```
void gdcm::Surface::SetSurfaceProcessing (
            bool b)
```

12.304.4.64 SetSurfaceProcessingDescription()

```
void gdcm::Surface::SetSurfaceProcessingDescription (
            const char * description)
```

12.304.4.65 SetSurfaceProcessingRatio()

```
void gdcm::Surface::SetSurfaceProcessingRatio (
            const float ratio)
```

12.304.4.66 SetVectorAccuracy()

```
void gdcm::Surface::SetVectorAccuracy (
            const float * accuracy)
```

12.304.4.67 SetVectorCoordinateData()

```
void gdcm::Surface::SetVectorCoordinateData (
            DataElement const & de)
```

12.304.4.68 SetVectorDimensionality()

```
void gdcm::Surface::SetVectorDimensionality (
            const unsigned short dim)
```

The documentation for this class was generated from the following file:

- gdcmSurface.h

12.305 gdcm::SurfaceHelper Class Reference

SurfaceHelper.

```
#include <gdcmSurfaceHelper.h>
```

Public Types

- typedef std::vector< unsigned short > ColorArray

Static Public Member Functions

- template<typename U>
  static std::vector< float > RecommendedDisplayCIELabToRGB (const ColorArray &CIELab, const U rangeMax=255)

  Convert a DICOM CIE-Lab (after reading) color into RGB.
- template<typename T, typename U>
  static std::vector< T > RecommendedDisplayCIELabToRGB (const ColorArray &CIELab, const U rangeMax=255)

  Convert a DICOM CIE-Lab (after reading) color into RGB.
- template<typename T, typename U>
  static ColorArray RGBToRecommendedDisplayCIELab (const std::vector< T > &RGB, const U rangeMax=255)

  Convert a RGB color into DICOM CIE-Lab (ready to write).
- template<typename T, typename U>
  static unsigned short RGBToRecommendedDisplayGrayscale (const std::vector< T > &RGB, const U rangeMax=255)

  Convert a RGB color into DICOM grayscale (ready to write).

12.305.1 Detailed Description

SurfaceHelper.

Helper class for Surface object

12.305.2 Member Typedef Documentation

12.305.2.1 ColorArray

```
typedef std::vector< unsigned short > gdcm::SurfaceHelper::ColorArray
```

12.305.3 Member Function Documentation

12.305.3.1 RecommendedDisplayCIELabToRGB() [1/2]

```
template<typename U>
std::vector< float > gdcm::SurfaceHelper::RecommendedDisplayCIELabToRGB (
            const ColorArray & CIELab,
            const U rangeMax = 255)  [static]
```

Convert a DICOM CIE-Lab (after reading) color into RGB.

See also

PS 3.3 C.10.7.1.1

Parameters

CIELab	DICOM CIE-Lab array.
rangeMax	Max value of the RGB range.

Template Parameters

U	Type of rangeMax value.

References RecommendedDisplayCIELabToRGB().

12.305.3.2 RecommendedDisplayCIELabToRGB() [2/2]

```
template<typename T, typename U>
std::vector< T > gdcm::SurfaceHelper::RecommendedDisplayCIELabToRGB (
            const ColorArray & CIELab,
            const U rangeMax = 255)  [static]
```

Convert a DICOM CIE-Lab (after reading) color into RGB.

See also

PS 3.3 C.10.7.1.1

Parameters

CIELab	DICOM CIE-Lab array.
rangeMax	Max value of the RGB range.

Template Parameters

T	Type of CIELab components.
U	Type of rangeMax value.

References gdcm_assert.

Referenced by RecommendedDisplayCIELabToRGB().

12.305.3.3 RGBToRecommendedDisplayCIELab()

```
template<typename T, typename U>
SurfaceHelper::ColorArray gdcm::SurfaceHelper::RGBToRecommendedDisplayCIELab (
            const std::vector< T > & RGB,
            const U rangeMax = 255)  [static]
```

Convert a RGB color into DICOM CIE-Lab (ready to write).

See also

PS 3.3 C.10.7.1.1

Parameters

RGB	RGB array.
rangeMax	Max value of the RGB range.

Template Parameters

T	Type of RGB components.
U	Type of rangeMax value.

References gdcm_assert.

12.305.3.4 RGBToRecommendedDisplayGrayscale()

```
template<typename T, typename U>
unsigned short gdcm::SurfaceHelper::RGBToRecommendedDisplayGrayscale (
            const std::vector< T > & RGB,
            const U rangeMax = 255)  [static]
```

Convert a RGB color into DICOM grayscale (ready to write).

See also

PS 3.3 C.27.1 tag(0062,000C)

Parameters

RGB	RGB array.
rangeMax	Max value of the RGB range.

Template Parameters

T	Type of RGB components.
U	Type of rangeMax value.

References gdcm_assert.

The documentation for this class was generated from the following file:

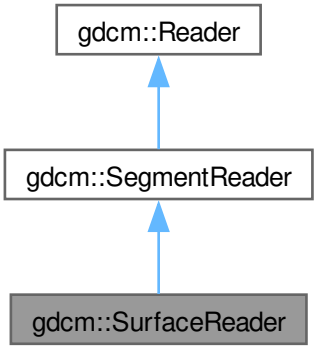
- gdcmSurfaceHelper.h

12.306 gdcm::SurfaceReader Class Reference

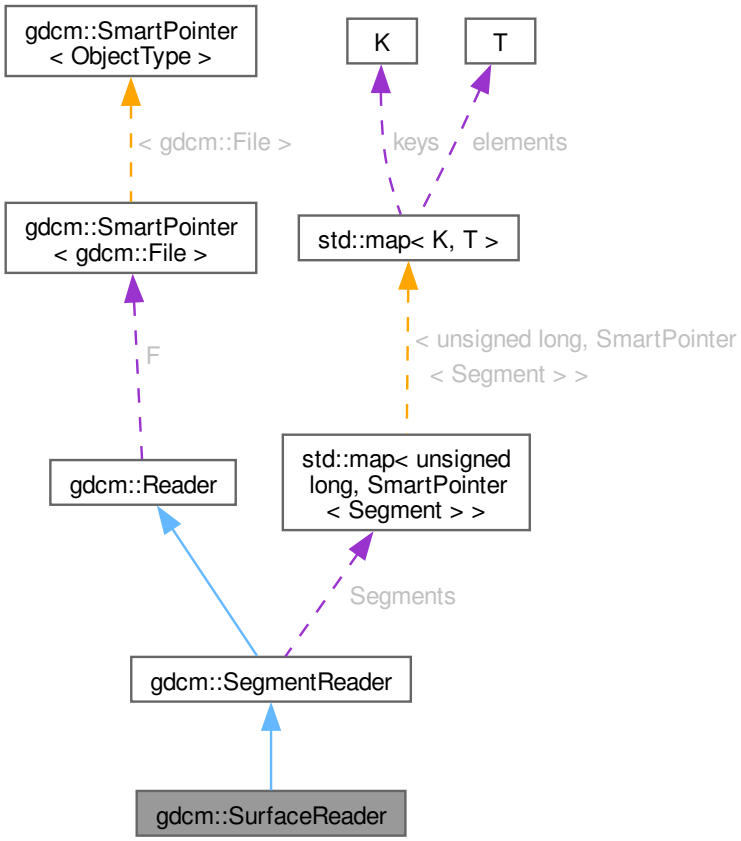
This class defines a SURFACE IE reader.

`#include <gdcmSurfaceReader.h>`

Inheritance diagram for gdcm::SurfaceReader:



Collaboration diagram for gdcm::SurfaceReader:



Public Member Functions

- SurfaceReader ()
- ~SurfaceReader () override
- unsigned long GetNumberOfSurfaces () const
- bool Read () override

  Read.

Public Member Functions inherited from gdcm::SegmentReader

- SegmentReader ()
- ~SegmentReader () override
- SegmentVector GetSegments ()
- SegmentVector GetSegments () const

Public Member Functions inherited from gdcm::Reader

- Reader ()
- virtual ~Reader ()
- bool CanRead () const
- File & GetFile ()

  Set/Get File.
- const File & GetFile () const

  Set/Get File.
- size_t GetStreamCurrentPosition () const
- bool ReadSelectedPrivateTags (std::set< PrivateTag > const &ptags, bool readvalues=true)

  Will only read the specified selected private tags.
- bool ReadSelectedTags (std::set< Tag > const &tags, bool readvalues=true)

  Will only read the specified selected tags.
- bool ReadUpToTag (const Tag &tag, std::set< Tag > const &skiptags=std::set< Tag >())
- void SetFile (File &file)

  Set/Get File.
- void SetFileName (const char *filename_native)
- void SetStream (std::istream &input_stream)

  Set the open-ed stream directly.

Protected Member Functions

- bool ReadPointMacro (SmartPointer< Surface > surface, const DataSet &surfaceDS)
- bool ReadSurface (const Item &surfaceItem, const unsigned long idx)
- bool ReadSurfaces ()

Protected Member Functions inherited from gdcm::SegmentReader

- bool ReadSegment (const Item &segmentItem, const unsigned int idx)
- bool ReadSegments ()

Protected Member Functions inherited from gdcm::Reader

- std::istream * GetStreamPtr () const
- bool ReadDataSet ()
- bool ReadMetaInformation ()
- bool ReadPreamble ()

Additional Inherited Members

Public Types inherited from gdcm::SegmentReader

- typedef std::vector< SmartPointer< Segment > > SegmentVector

Protected Types inherited from gdcm::SegmentReader

- typedef std::map< unsigned long, SmartPointer< Segment > > SegmentMap

Protected Attributes inherited from gdcm::SegmentReader

- SegmentMap Segments

Protected Attributes inherited from gdcm::Reader

- SmartPointer< File > F

12.306.1 Detailed Description

This class defines a SURFACE IE reader.

It reads surface mesh module attributes.

See also

PS 3.3 A.1.2.18 , A.57 and C.27

12.306.2 Constructor & Destructor Documentation

12.306.2.1 SurfaceReader()

```
gdcm::SurfaceReader::SurfaceReader ()
```

12.306.2.2 ~SurfaceReader()

```
gdcm::SurfaceReader::~SurfaceReader ()  [override]
```

12.306.3 Member Function Documentation

12.306.3.1 GetNumberOfSurfaces()

```
unsigned long gdcm::SurfaceReader::GetNumberOfSurfaces () const
```

12.306.3.2 Read()

```
bool gdcm::SurfaceReader::Read ()  [override], [virtual]
```

Read.

Reimplemented from gdcm::SegmentReader.

12.306.3.3 ReadPointMacro()

```
bool gdcm::SurfaceReader::ReadPointMacro (
            SmartPointer< Surface > surface,
            const DataSet & surfaceDS)  [protected]
```

12.306.3.4 ReadSurface()

```
bool gdcm::SurfaceReader::ReadSurface (
            const Item & surfaceItem,
            const unsigned long idx)  [protected]
```

12.306.3.5 ReadSurfaces()

```
bool gdcm::SurfaceReader::ReadSurfaces ()  [protected]
```

The documentation for this class was generated from the following file:

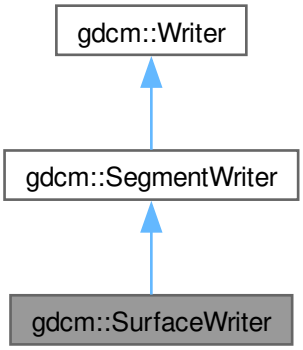
- gdcmSurfaceReader.h

12.307 gdcm::SurfaceWriter Class Reference

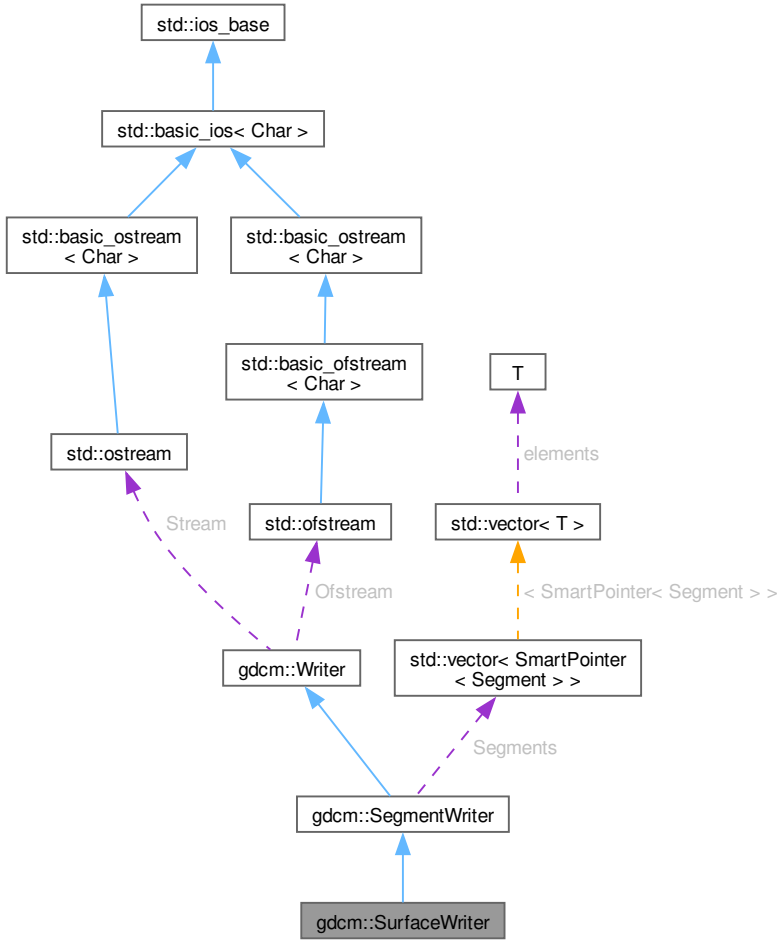
This class defines a SURFACE IE writer.

```
#include <gdcmSurfaceWriter.h>
```

Inheritance diagram for gdcm::SurfaceWriter:



Collaboration diagram for gdcm::SurfaceWriter:



Public Member Functions

- SurfaceWriter ()
- ~SurfaceWriter () override
- unsigned long GetNumberOfSurfaces ()
- void SetNumberOfSurfaces (const unsigned long nb)
- bool Write () override

  Write.

Public Member Functions inherited from gdcm::SegmentWriter

- SegmentWriter ()
- ~SegmentWriter () override

- void AddSegment (SmartPointer< Segment > segment)
- unsigned int GetNumberOfSegments () const
- SmartPointer< Segment > GetSegment (const unsigned int idx=0) const
- SegmentVector & GetSegments ()
- const SegmentVector & GetSegments () const
- void SetNumberOfSegments (const unsigned int size)
- void SetSegments (SegmentVector &segments)

Public Member Functions inherited from gdcm::Writer

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default).
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header).
- void SetFileName (const char *filename_native)

  Set the filename of DICOM file to write:
- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

Protected Member Functions

- void ComputeNumberOfSurfaces ()
- bool PrepareWrite ()
- bool PrepareWritePointMacro (SmartPointer< Surface > surface, DataSet &surfaceDS, const TransferSyntax &ts)

Protected Member Functions inherited from gdcm::SegmentWriter

- bool PrepareWrite ()

Protected Member Functions inherited from gdcm::Writer

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes

- unsigned long NumberOfSurfaces

Protected Attributes inherited from gdcm::SegmentWriter

- SegmentVector Segments

Protected Attributes inherited from gdcm::Writer

- std::ofstream * Ofstream
- std::ostream * Stream

Additional Inherited Members

Public Types inherited from gdcm::SegmentWriter

- typedef std::vector< SmartPointer< Segment > > SegmentVector

12.307.1 Detailed Description

This class defines a SURFACE IE writer.

It writes surface mesh module attributes.

See also

PS 3.3 A.1.2.18 , A.57 and C.27

12.307.2 Constructor & Destructor Documentation

12.307.2.1 SurfaceWriter()

```
gdcm::SurfaceWriter::SurfaceWriter ()
```

12.307.2.2 ~SurfaceWriter()

```
gdcm::SurfaceWriter::~SurfaceWriter ()  [override]
```

12.307.3 Member Function Documentation

12.307.3.1 ComputeNumberOfSurfaces()

```
void gdcm::SurfaceWriter::ComputeNumberOfSurfaces ()  [protected]
```

12.307.3.2 GetNumberOfSurfaces()

```
unsigned long gdcm::SurfaceWriter::GetNumberOfSurfaces ()
```

12.307.3.3 PrepareWrite()

```
bool gdcm::SurfaceWriter::PrepareWrite ()  [protected]
```

12.307.3.4 PrepareWritePointMacro()

```
bool gdcm::SurfaceWriter::PrepareWritePointMacro (
            SmartPointer< Surface > surface,
            DataSet & surfaceDS,
            const TransferSyntax & ts)  [protected]
```

12.307.3.5 SetNumberOfSurfaces()

```
void gdcm::SurfaceWriter::SetNumberOfSurfaces (
            const unsigned long nb)
```

12.307.3.6 Write()

```
bool gdcm::SurfaceWriter::Write ()  [override], [virtual]
```

Write.

Reimplemented from gdcm::SegmentWriter.

12.307.4 Member Data Documentation

12.307.4.1 NumberOfSurfaces

```
unsigned long gdcm::SurfaceWriter::NumberOfSurfaces  [protected]
```

The documentation for this class was generated from the following file:

- gdcmSurfaceWriter.h

12.308 gdcm::SwapCode Class Reference

SwapCode representation.

```
#include <gdcmSwapCode.h>
```

Public Types

- enum SwapCodeType {
  Unknown = 0 ,
  LittleEndian = 1234 ,
  BigEndian = 4321 ,
  BadLittleEndian = 3412 ,
  BadBigEndian = 2143 }

Public Member Functions

- SwapCode (SwapCodeType sc=Unknown)
- operator SwapCode::SwapCodeType () const

Static Public Member Functions

- static const char * GetSwapCodeString (SwapCode const &sc)

Static Protected Member Functions

- static int GetIndex (SwapCode const &sc)

Friends

- std::ostream & operator<< (std::ostream &os, const SwapCode &sc)

12.308.1 Detailed Description

SwapCode representation.

Examples

TestByteSwap.cxx.

12.308.2 Member Enumeration Documentation

12.308.2.1 SwapCodeType

```
enum gdcm::SwapCode::SwapCodeType
```

Enumerator

Unknown	
LittleEndian	
BigEndian	
BadLittleEndian	
BadBigEndian	

12.308.3 Constructor & Destructor Documentation

12.308.3.1 SwapCode()

```
gdcm::SwapCode::SwapCode (
            SwapCodeType sc = Unknown)  [inline]
```

References Unknown.

Referenced by GetIndex(), GetSwapCodeString(), and operator<<.

12.308.4 Member Function Documentation

12.308.4.1 GetIndex()

```
int gdcm::SwapCode::GetIndex (
            SwapCode const & sc)  [static], [protected]
```

References SwapCode().

12.308.4.2 GetSwapCodeString()

```
const char * gdcm::SwapCode::GetSwapCodeString (
            SwapCode const & sc)  [static]
```

References SwapCode(), and operator<<.

Referenced by operator<<.

12.308.4.3 operator SwapCode::SwapCodeType()

```
gdcm::SwapCode::operator SwapCode::SwapCodeType () const  [inline]
```

12.308.5 Friends And Related Symbol Documentation

12.308.5.1 operator<<

```
std::ostream & operator<< (
             std::ostream & os,
             const SwapCode & sc)  [friend]
```

References SwapCode(), and GetSwapCodeString().

Referenced by GetSwapCodeString().

The documentation for this class was generated from the following file:

- gdcmSwapCode.h

12.309 gdcm::SwapperDoOp Class Reference

```
#include <gdcmSwapper.h>
```

Static Public Member Functions

- template<typename T>
  static T Swap (T val)
- template<typename T>
  static void SwapArray (T *array, size_t n)

12.309.1 Member Function Documentation

12.309.1.1 Swap()

```
template<typename T>
T gdcm::SwapperDoOp::Swap (
             T val)  [static]
```

Referenced by gdcm::Item::Read(), and SwapArray().

12.309.1.2 SwapArray()

```
template<typename T>
void gdcm::SwapperDoOp::SwapArray (
            T * array,
            size_t n)  [inline], [static]
```

References Swap().

The documentation for this class was generated from the following file:

- gdcmSwapper.h

12.310 gdcm::SwapperNoOp Class Reference

`#include <gdcmSwapper.h>`

Static Public Member Functions

- template<typename T>
  static T Swap (T val)
- template<typename T>
  static void SwapArray (T *, size_t)

12.310.1 Detailed Description

Examples

DumpSiemensBase64.cxx, DumpToshibaDTI.cxx, DumpToshibaDTI2.cxx, and ReadExplicitLengthSQIVR.cxx.

12.310.2 Member Function Documentation

12.310.2.1 Swap()

```
template<typename T>
T gdcm::SwapperNoOp::Swap (
            T val)  [inline], [static]
```

Referenced by gdcm::EncodingImplementation< VR::VRBINARY >::Write().

12.310.2.2 SwapArray()

```
template<typename T>
void gdcm::SwapperNoOp::SwapArray (
            T * ,
            size_t )  [inline], [static]
```

Referenced by gdcm::EncodingImplementation< VR::VRBINARY >::Read().

The documentation for this class was generated from the following file:

- gdcmSwapper.h

12.311 gdcm::System Class Reference

Class to do system operation.

```
#include <gdcmSystem.h>
```

Static Public Member Functions

- static std::wstring ConvertToUNC (const char *utf8path)
- static bool DeleteDirectory (const char *source)

  remove a directory named source
- static size_t EncodeBytes (char *out, const unsigned char *data, int size)
- static bool FileExists (const char *filename)

  Check whether the specified file exist on the system.
- static bool FileIsDirectory (const char *name)

  Check whether the file specified is a directory:
- static bool FileIsSymlink (const char *name)

  Check whether name is a symlink.
- static size_t FileSize (const char *filename)
- static time_t FileTime (const char *filename)
- static bool FormatDateTime (char date[22], time_t t, long milliseconds=0)
- static bool GetCurrentDateTime (char date[22])
- static const char * GetCurrentModuleFileName ()
- static const char * GetCurrentProcessFileName ()
- static const char * GetCurrentResourcesDirectory ()
- static const char * GetCWD ()
- static bool GetHostName (char hostname[255])
- static const char * GetLastSystemError ()

  Return the last error.
- static const char * GetLocaleCharset ()

  return `locale charmap`
- static const char * GetTimezoneOffsetFromUTC ()
- static bool MakeDirectory (const char *path)

Create a directory name path.

- static bool ParseDateTime (time_t &timep, const char date[22])

  Parse a date stored as ASCII text into a time_t structured (discard millisecond if any).
- static bool ParseDateTime (time_t &timep, long &milliseconds, const char date[22])
- static bool RemoveFile (const char *source)

  remove a file named source
- static int StrCaseCmp (const char *s1, const char *s2)

  consistent func for C99 spec of strcasecmp/strncasecmp
- static int StrNCaseCmp (const char *s1, const char *s2, size_t n)
- static char * StrSep (char **stringp, const char *delim)
- static char * StrTokR (char *ptr, const char *sep, char **end)

  strtok_r

Static Protected Member Functions

- static bool GetPermissions (const char *file, unsigned short &mode)

  NOT THREAD SAFE.
- static bool SetPermissions (const char *file, unsigned short mode)

12.311.1 Detailed Description

Class to do system operation.

OS independent functionalities

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, Cleaner.cs, ClinicalTrialIdentificationWorkflow.cs, CompressLossyJPEG.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, DumpCSA.cs, ExplicitLittleEndian.cs, ExtractEncapsulatedFile.cs, ExtractImageRegion.cs, ExtractImageRegionWithLUT.cs, ExtractOneFrame.cs, FileAnonymize.cs, FileChangeTS.cs, FileChangeTSLossy.cs, FileStreaming.cs, GetArray.cs, MetaImageMD5Activiz.cs, MpegVideoInfo.cs, ReformatFile.cs, RescaleImage.cs, ScanDirectory.cs, SimplePrint.cs, and StandardizeFiles.cs.

12.311.2 Member Function Documentation

12.311.2.1 ConvertToUNC()

```
std::wstring gdcm::System::ConvertToUNC (
            const char * utf8path)  [static]
```

When needed convert a PATH into a UNC equivalent. This allow transparent support for path longer that MAX_PATH. Only on _MSC_VER compiler, return empty string otherwise.

12.311.2.2 DeleteDirectory()

```
bool gdcm::System::DeleteDirectory (
            const char * source)  [static]
```

remove a directory named source

12.311.2.3 EncodeBytes()

```
size_t gdcm::System::EncodeBytes (
            char * out,
            const unsigned char * data,
            int size)  [static]
```

Used internally by the UIDGenerator class to convert a uuid tape to a DICOM VR:UI type

12.311.2.4 FileExists()

```
bool gdcm::System::FileExists (
            const char * filename)  [static]
```

Check whether the specified file exist on the system.

Examples

DumpVisusChange.cxx, EncapsulateFileInRawData.cxx, MagnifyFile.cxx, and gdcmorthoplanes.cxx.

12.311.2.5 FileIsDirectory()

```
bool gdcm::System::FileIsDirectory (
            const char * name)  [static]
```

Check whether the file specified is a directory:

Examples

DumpVisusChange.cxx, gdcmorthoplanes.cxx, and threadgdcm.cxx.

12.311.2.6 FileIsSymlink()

```
bool gdcm::System::FileIsSymlink (
            const char * name)  [static]
```

Check whether name is a symlink.

12.311.2.7 FileSize()

```
size_t gdcm::System::FileSize (
            const char * filename)  [static]
```

Return the filesize. 0 if file does not exist.

Warning

you need to use FileExists to differentiate between empty file and missing file.

for very large size file and on system where size_t is not appropriate to store off_t value the function will return 0.

Examples

CheckBigEndianBug.cxx, CreateARGBImage.cxx, CreateCMYKImage.cxx, EncapsulateFileInRawData.cxx, and SimpleScanner.cxx.

12.311.2.8 FileTime()

```
time_t gdcm::System::FileTime (
            const char * filename)  [static]
```

Return the time of last modification of file 0 if the file does not exist

12.311.2.9 FormatDateTime()

```
bool gdcm::System::FormatDateTime (
            char date[22],
            time_t t,
            long milliseconds = 0)  [static]
```

format as ASCII text a time_t with milliseconds See VR::DT from DICOM PS 3.5 milliseconds is in the range [0, 999999]

12.311.2.10 GetCurrentDateTime()

```
bool gdcm::System::GetCurrentDateTime (
            char date[22])  [static]
```

Return the current data time, and format it as ASCII text. This is simply a call to gettimeofday + FormatDateTime, since WIN32 do not have an implementation for gettimeofday, this is more portable. The call time(0) is not precise for our resolution

Examples

TemplateEmptyImage.cxx.

12.311.2.11 GetCurrentModuleFileName()

```
const char * gdcm::System::GetCurrentModuleFileName ()  [static]
```

Return the directory the current module is located: NOT THREAD SAFE

12.311.2.12 GetCurrentProcessFileName()

```
const char * gdcm::System::GetCurrentProcessFileName ()  [static]
```

Return the directory the current process (executable) is located: NOT THREAD SAFE

12.311.2.13 GetCurrentResourcesDirectory()

```
const char * gdcm::System::GetCurrentResourcesDirectory ()  [static]
```

On some system (Apple) return the path to the current bundled 'Resources' directory NOT THREAD SAFE

12.311.2.14 GetCWD()

```
const char * gdcm::System::GetCWD ()  [static]
```

Return current working directory Warning: if current working path is too long (>2048 bytes) the call will fail and call will return NULL NOT THREAD SAFE

12.311.2.15 GetHostName()

```
bool gdcm::System::GetHostName (
            char hostname[255])  [static]
```

Retrieve the hostname, only the first 255 byte are copied. This may come handy to specify the Station Name

12.311.2.16 GetLastSystemError()

```
const char * gdcm::System::GetLastSystemError ()  [static]
```

Return the last error.

12.311.2.17 GetLocaleCharset()

```
const char * gdcm::System::GetLocaleCharset ()  [static]
```

return `locale charmap`

12.311.2.18 GetPermissions()

```
bool gdcm::System::GetPermissions (
            const char * file,
            unsigned short & mode)  [static], [protected]
```

NOT THREAD SAFE.

12.311.2.19 GetTimezoneOffsetFromUTC()

```
const char * gdcm::System::GetTimezoneOffsetFromUTC ()  [static]
```

Return the value for Timezone Offset From UTC as string.

Warning

not thread safe

12.311.2.20 MakeDirectory()

```
bool gdcm::System::MakeDirectory (
            const char * path)  [static]
```

Create a directory name path.

12.311.2.21 ParseDateTime() [1/2]

```
bool gdcm::System::ParseDateTime (
            time_t & timep,
            const char date[22])  [static]
```

Parse a date stored as ASCII text into a time_t structured (discard millisecond if any).

12.311.2.22 ParseDateTime() [2/2]

```
bool gdcm::System::ParseDateTime (
            time_t & timep,
            long & milliseconds,
            const char date[22])  [static]
```

Parse a date stored as ASCII text into a time_t structured and millisecond

See also

FormatDateTime

12.311.2.23 RemoveFile()

```
bool gdcm::System::RemoveFile (
            const char * source)  [static]
```

remove a file named source

12.311.2.24 SetPermissions()

```
bool gdcm::System::SetPermissions (
            const char * file,
            unsigned short mode)  [static], [protected]
```

12.311.2.25 StrCaseCmp()

```
int gdcm::System::StrCaseCmp (
            const char * s1,
            const char * s2)  [static]
```

consistent func for C99 spec of strcasecmp/strncasecmp

12.311.2.26 StrNCaseCmp()

```
int gdcm::System::StrNCaseCmp (
            const char * s1,
            const char * s2,
            size_t n)  [static]
```

Precondition

n != 0

12.311.2.27 StrSep()

```
char * gdcm::System::StrSep (
            char ** stringp,
            const char * delim)  [static]
```

strsep param stringp is passed by pointer, it may be modified, you'll need to make a copy, in case you want to free the memory pointed at

12.311.2.28 StrTokR()

```
char * gdcm::System::StrTokR (
            char * ptr,
            const char * sep,
            char ** end)  [static]
```

strtok_r

The documentation for this class was generated from the following file:

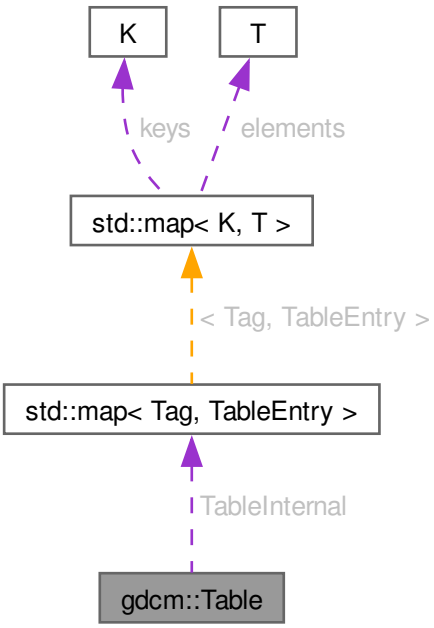
- gdcmSystem.h

12.312 gdcm::Table Class Reference

Table.

```
#include <gdcmTable.h>
```

Collaboration diagram for gdcm::Table:



Public Types

- typedef std::map< Tag, TableEntry > MapTableEntry

Public Member Functions

- Table ()=default
- Table (const Table &_val)=delete
- ~Table ()=default
- const TableEntry & GetTableEntry (const Tag &tag) const
- void InsertEntry (Tag const &tag, TableEntry const &te)
- Table & operator= (const Table &_val)=delete

Public Attributes

- MapTableEntry TableInternal

Friends

- std::ostream & operator<< (std::ostream &_os, const Table &_val)

12.312.1 Detailed Description

Table.

12.312.2 Member Typedef Documentation

12.312.2.1 MapTableEntry

```
typedef std::map<Tag, TableEntry> gdcm::Table::MapTableEntry
```

12.312.3 Constructor & Destructor Documentation

12.312.3.1 Table() [1/2]

```
gdcm::Table::Table ()  [default]
```

Referenced by Table(), operator<<, and operator=().

12.312.3.2 ~Table()

```
gdcm::Table::~Table ()  [default]
```

12.312.3.3 Table() [2/2]

```
gdcm::Table::Table (
            const Table & _val)  [delete]
```

References Table().

12.312.4 Member Function Documentation

12.312.4.1 GetTableEntry()

```
const TableEntry & gdcm::Table::GetTableEntry (
            const Tag & tag) const  [inline]
```

References gdcm_assert, GetTableEntry(), and TableInternal.

Referenced by GetTableEntry().

12.312.4.2 InsertEntry()

```
void gdcm::Table::InsertEntry (
            Tag const & tag,
            TableEntry const & te)  [inline]
```

References gdcm_assert, and TableInternal.

12.312.4.3 operator=()

```
Table & gdcm::Table::operator= (
            const Table & _val)  [delete]
```

References Table().

12.312.5 Friends And Related Symbol Documentation

12.312.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Table & _val)  [friend]
```

References Table().

12.312.6 Member Data Documentation

12.312.6.1 TableInternal

```
MapTableEntry gdcm::Table::TableInternal
```

Referenced by GetTableEntry(), and InsertEntry().

The documentation for this class was generated from the following file:

- gdcmTable.h

12.313 gdcm::TableEntry Class Reference

TableEntry.

```
#include <gdcmTableEntry.h>
```

Public Member Functions

- TableEntry (const char *attribute=nullptr, Type const &type=Type(), const char *des=nullptr)
- ~TableEntry ()=default

12.313.1 Detailed Description

TableEntry.

12.313.2 Constructor & Destructor Documentation

12.313.2.1 TableEntry()

```
gdcm::TableEntry::TableEntry (
            const char * attribute = nullptr,
            Type const & type = Type(),
            const char * des = nullptr)  [inline]
```

12.313.2.2 ~TableEntry()

```
gdcm::TableEntry::~TableEntry ()  [default]
```

The documentation for this class was generated from the following file:

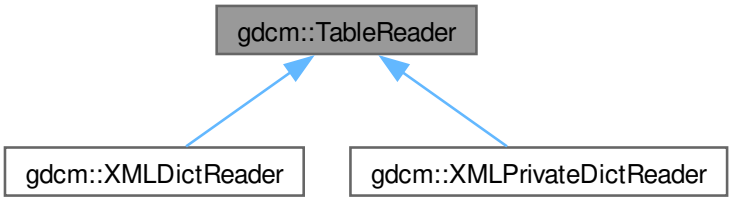
- gdcmTableEntry.h

12.314 gdcm::TableReader Class Reference

Class for representing a TableReader.

`#include <gdcmTableReader.h>`

Inheritance diagram for gdcm::TableReader:



Public Member Functions

- TableReader (Defs &defs)
- virtual ~TableReader ()=default
- virtual void CharacterDataHandler (const char *data, int length)
- virtual void EndElement (const char *name)
- const Defs & GetDefs () const
- const char * GetFilename ()
- void HandleIOD (const char **atts)
- void HandleIODEntry (const char **atts)
- void HandleMacro (const char **atts)
- void HandleMacroEntry (const char **atts)
- void HandleMacroEntryDescription (const char **atts)
- void HandleModule (const char **atts)
- void HandleModuleEntry (const char **atts)
- void HandleModuleEntryDescription (const char **atts)
- void HandleModuleInclude (const char **atts)
- int Read ()
- void SetFilename (const char *filename)
- virtual void StartElement (const char *name, const char **atts)

12.314.1 Detailed Description

Class for representing a TableReader.

Note

This class is an empty shell meant to be derived

12.314.2 Constructor & Destructor Documentation

12.314.2.1 TableReader()

```
gdcm::TableReader::TableReader (
            Defs & defs)  [inline]
```

12.314.2.2 ~TableReader()

```
virtual gdcm::TableReader::~TableReader ()  [virtual], [default]
```

12.314.3 Member Function Documentation

12.314.3.1 CharacterDataHandler()

```
virtual void gdcm::TableReader::CharacterDataHandler (
            const char * data,
            int length)  [virtual]
```

Reimplemented in gdcm::XMLDictReader, and gdcm::XMLPrivateDictReader.

12.314.3.2 EndElement()

```
virtual void gdcm::TableReader::EndElement (
            const char * name)  [virtual]
```

Reimplemented in gdcm::XMLDictReader, and gdcm::XMLPrivateDictReader.

12.314.3.3 GetDefs()

```
const Defs & gdcm::TableReader::GetDefs () const  [inline]
```

12.314.3.4 GetFilename()

```
const char * gdcm::TableReader::GetFilename ()  [inline]
```

12.314.3.5 HandleIOD()

```
void gdcm::TableReader::HandleIOD (
            const char ** atts)
```

12.314.3.6 HandleIODEntry()

```
void gdcm::TableReader::HandleIODEntry (
            const char ** atts)
```

12.314.3.7 HandleMacro()

```
void gdcm::TableReader::HandleMacro (
            const char ** atts)
```

12.314.3.8 HandleMacroEntry()

```
void gdcm::TableReader::HandleMacroEntry (
            const char ** atts)
```

12.314.3.9 HandleMacroEntryDescription()

```
void gdcm::TableReader::HandleMacroEntryDescription (
            const char ** atts)
```

12.314.3.10 HandleModule()

```
void gdcm::TableReader::HandleModule (
            const char ** atts)
```

12.314.3.11 HandleModuleEntry()

```
void gdcm::TableReader::HandleModuleEntry (
            const char ** atts)
```

12.314.3.12 HandleModuleEntryDescription()

```
void gdcm::TableReader::HandleModuleEntryDescription (
            const char ** atts)
```

12.314.3.13 HandleModuleInclude()

```
void gdcm::TableReader::HandleModuleInclude (
            const char ** atts)
```

12.314.3.14 Read()

```
int gdcm::TableReader::Read ()
```

12.314.3.15 SetFilename()

```
void gdcm::TableReader::SetFilename (
            const char * filename)  [inline]
```

12.314.3.16 StartElement()

```
virtual void gdcm::TableReader::StartElement (
            const char * name,
            const char ** atts)  [virtual]
```

Reimplemented in gdcm::XMLDictReader, and gdcm::XMLPrivateDictReader.

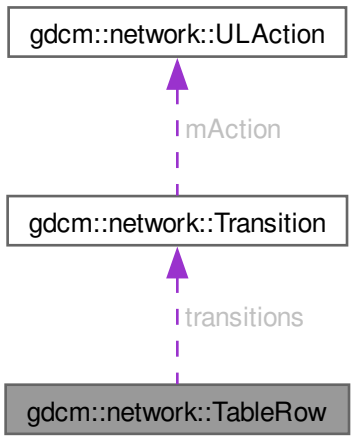
The documentation for this class was generated from the following file:

- gdcmTableReader.h

12.315 gdcm::network::TableRow Class Reference

```
#include <gdcmULTransitionTable.h>
```

Collaboration diagram for gdcm::network::TableRow:



Public Member Functions

- TableRow ()
- ~TableRow ()

Public Attributes

- Transition * transitions [cMaxStateID]

12.315.1 Constructor & Destructor Documentation

12.315.1.1 TableRow()

```
gdcm::network::TableRow::TableRow ()  [inline]
```

References gdcm::network::cMaxStateID, and transitions.

12.315.1.2 ~TableRow()

```
gdcm::network::TableRow::~TableRow ()  [inline]
```

References gdcm::network::cMaxStateID, and transitions.

12.315.2 Member Data Documentation

12.315.2.1 transitions

```
Transition* gdcm::network::TableRow::transitions[cMaxStateID]
```

Referenced by TableRow(), and ~TableRow().

The documentation for this class was generated from the following file:

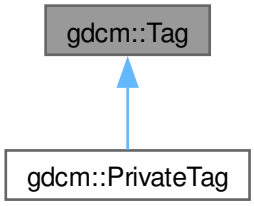
- gdcmULTransitionTable.h

12.316 gdcm::Tag Class Reference

Class to represent a DICOM Data Element (Attribute) Tag (Group, Element).

`#include <gdcmTag.h>`

Inheritance diagram for gdcm::Tag:



Public Member Functions

- Tag (const Tag &_val)
- Tag (uint16_t group, uint16_t element)

  Constructor with 2∗uint16_t.
- Tag (uint32_t tag=0)

  Constructor with 1∗uint32_t Prefer the cstor that takes two uint16_t.
- uint16_t GetElement () const

  Returns the 'Element number' of the given Tag.
- uint32_t GetElementTag () const

  Returns the full tag value of the given Tag.
- uint16_t GetGroup () const

  Returns the 'Group number' of the given Tag.
- uint32_t GetLength () const

  return the length of tag (read: size on disk)
- Tag GetPrivateCreator () const

  Return the Private Creator Data Element tag of a private data element.
- bool IsGroupLength () const

  return whether the tag correspond to a group length tag:
- bool IsGroupXX (const Tag &t) const

  e.g 6002,3000 belong to groupXX: 6000,3000
- bool IsIllegal () const

  return if the tag is considered to be an illegal tag
- bool IsPrivate () const
- bool IsPrivateCreator () const
- bool IsPublic () const

- bool operator!= (const Tag &_val) const
- bool operator< (const Tag &_val) const
- bool operator<= (const Tag &t2) const
- Tag & operator= (const Tag &_val)
- bool operator== (const Tag &_val) const
- uint16_t & operator[ ] (const unsigned int &_id)

  Returns the Group or Element of the given Tag, depending on id (0/1).
- const uint16_t & operator[ ] (const unsigned int &_id) const

  Returns the Group or Element of the given Tag, depending on id (0/1).
- std::string PrintAsContinuousString () const
- std::string PrintAsContinuousUpperCaseString () const

  Same as PrintAsContinuousString, but hexadecimal [a-f] are printed using upper case.
- std::string PrintAsPipeSeparatedString () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)

  Read a tag from binary representation.
- bool ReadFromCommaSeparatedString (const char *str)
- bool ReadFromContinuousString (const char *str)
- bool ReadFromPipeSeparatedString (const char *str)
- void SetElement (uint16_t element)

  Sets the 'Element number' of the given Tag.
- void SetElementTag (uint16_t group, uint16_t element)

  Sets the 'Group number' & 'Element number' of the given Tag.
- void SetElementTag (uint32_t tag)

  Sets the full tag value of the given Tag.
- void SetGroup (uint16_t group)

  Sets the 'Group number' of the given Tag.
- void SetPrivateCreator (Tag const &t)

  Set private creator:
- template<typename TSwap>
  const std::ostream & Write (std::ostream &os) const

  Write a tag in binary rep.

Friends

- std::ostream & operator<< (std::ostream &_os, const Tag &_val)
- std::istream & operator>> (std::istream &_is, Tag &_val)

12.316.1 Detailed Description

Class to represent a DICOM Data Element (Attribute) Tag (Group, Element).

Basically an uint32_t which can also be expressed as two uint16_t (group and element)

Note

DATA ELEMENT TAG: A unique identifier for a Data Element composed of an ordered pair of numbers (a Group Number followed by an Element Number). GROUP NUMBER: The first number in the ordered pair of numbers that makes up a Data Element Tag. ELEMENT NUMBER: The second number in the ordered pair of numbers that makes up a Data Element Tag.

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DecompressImage.cs, DeriveSeries.cxx, DiscriminateVolume.cxx, DumpToSQLITE3.cxx, DumpVisusChange.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, ExtractEncapsulatedFile.cs, ExtractEncryptedContent.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FileAnonymize.cs, FileChangeTS.cs, FileChangeTSLossy.cs, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GetJPEGSamplePrecision.cxx, GetSequenceUltrasound.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, MpegVideoInfo.cs, PatchFile.cxx, PublicDict.cxx, ReadAndDumpDICOMDIR.cxx, ReadAndDumpDICOMDIR2.c ReadAndPrintAttributes.cxx, ReadExplicitLengthSQIVR.cxx, ScanDirectory.cs, SimpleScanner.cxx, SortImage.cxx, StreamImageReaderTest.cxx, TraverseModules.cxx, VolumeSorter.cxx, gdcmrtionplan.cxx, gdcmrtplan.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.316.2 Constructor & Destructor Documentation

12.316.2.1 Tag() [1/3]

```
gdcm::Tag::Tag (
            uint16_t group,
            uint16_t element)  [inline]
```

Constructor with 2∗uint16_t.

Referenced by gdcm::PrivateTag::PrivateTag(), gdcm::PrivateTag::PrivateTag(), Tag(), GetPrivateCreator(), IsGroupXX(), gdcm::PrivateTag::operator!=(), operator!=(), operator<(), operator<<, operator<=(), operator=(), gdcm::PrivateTag::operator==(), operator==(), operator>>, and SetPrivateCreator().

12.316.2.2 Tag() [2/3]

```
gdcm::Tag::Tag (
            uint32_t tag = 0)  [inline]
```

Constructor with 1∗uint32_t Prefer the cstor that takes two uint16_t.

References SetElementTag(), and tag.

12.316.2.3 Tag() [3/3]

```
gdcm::Tag::Tag (
            const Tag & _val)  [inline]
```

References Tag(), and tag.

12.316.3 Member Function Documentation

12.316.3.1 GetElement()

```
uint16_t gdcm::Tag::GetElement () const  [inline]
```

Returns the 'Element number' of the given Tag.

Examples

DuplicatePCDE.cxx, and PublicDict.cxx.

Referenced by gdcm::PrivateTag::PrivateTag(), gdcm::DataSet::ComputeGroupLength(), GetPrivateCreator(), IsGroupLength(), IsGroupXX(), IsIllegal(), IsPrivateCreator(), gdcm::PrivateDict::PrintXML(), gdcm::SequenceOfFragments::ReadValue(), and SetPrivateCreator().

12.316.3.2 GetElementTag()

```
uint32_t gdcm::Tag::GetElementTag () const  [inline]
```

Returns the full tag value of the given Tag.

Referenced by gdcm::PrivateTag::operator!=(), gdcm::PrivateTag::operator!=(), gdcm::PrivateTag::operator=(), gdcm::PrivateTag::operator==(), and gdcm::PrivateTag::operator==().

12.316.3.3 GetGroup()

```
uint16_t gdcm::Tag::GetGroup () const  [inline]
```

Returns the 'Group number' of the given Tag.

Examples

DuplicatePCDE.cxx, and GenAllVR.cxx.

Referenced by gdcm::DataSet::ComputeGroupLength(), gdcm::CommandDataSet::Insert(), gdcm::DataSet::Insert(), gdcm::FileMetaInformation::Insert(), IsGroupXX(), IsIllegal(), gdcm::PrivateDict::PrintXML(), gdcm::SequenceOfFragments::ReadValue(), and SetPrivateCreator().

12.316.3.4 GetLength()

```
uint32_t gdcm::Tag::GetLength () const  [inline]
```

return the length of tag (read: size on disk)

12.316.3.5 GetPrivateCreator()

```
Tag gdcm::Tag::GetPrivateCreator () const  [inline]
```

Return the Private Creator Data Element tag of a private data element.

References Tag(), GetElement(), IsPrivate(), IsPrivateCreator(), and SetElement().

12.316.3.6 IsGroupLength()

```
bool gdcm::Tag::IsGroupLength () const  [inline]
```

return whether the tag correspond to a group length tag:

References GetElement().

12.316.3.7 IsGroupXX()

```
bool gdcm::Tag::IsGroupXX (
            const Tag & t) const  [inline]
```

e.g 6002,3000 belong to groupXX: 6000,3000

References Tag(), GetElement(), GetGroup(), and IsPrivate().

12.316.3.8 IsIllegal()

```
bool gdcm::Tag::IsIllegal () const  [inline]
```

return if the tag is considered to be an illegal tag

References GetElement(), GetGroup(), and IsPrivate().

12.316.3.9 IsPrivate()

```
bool gdcm::Tag::IsPrivate () const  [inline]
```

PRIVATE DATA ELEMENT: Additional Data Element, defined by an implementor, to communicate information that is not contained in Standard Data Elements. Private Data elements have odd Group Numbers.

Examples

DuplicatePCDE.cxx.

References IsPublic().

Referenced by GetPrivateCreator(), IsGroupXX(), IsIllegal(), IsPrivateCreator(), and SetPrivateCreator().

12.316.3.10 IsPrivateCreator()

```
bool gdcm::Tag::IsPrivateCreator () const  [inline]
```

Returns if tag is a Private Creator (xxxx,00yy), where xxxx is odd number and yy in [0x10,0xFF]

Examples

DuplicatePCDE.cxx.

References GetElement(), and IsPrivate().

Referenced by GetPrivateCreator().

12.316.3.11 IsPublic()

```
bool gdcm::Tag::IsPublic () const  [inline]
```

STANDARD DATA ELEMENT: A Data Element defined in the DICOM Standard, and therefore listed in the DICOM Data Element Dictionary in PS 3.6. Is the Tag from the Public dict...well the implementation is buggy it does not prove the element is indeed in the dict...

Referenced by IsPrivate().

12.316.3.12 operator"!=()

```
bool gdcm::Tag::operator!= (
            const Tag & _val) const  [inline]
```

References Tag(), and tag.

12.316.3.13 operator<()

```
bool gdcm::Tag::operator< (
            const Tag & _val) const  [inline]
```

DICOM Standard expects the Data Element to be sorted by Tags All other comparison can be constructed from this one and operator ==

References Tag(), tag, and tags.

12.316.3.14 operator<=()

```
bool gdcm::Tag::operator<= (
            const Tag & t2) const  [inline]
```

References Tag().

12.316.3.15 operator=()

```
Tag & gdcm::Tag::operator= (
            const Tag & _val)  [inline]
```

References Tag(), and tag.

12.316.3.16 operator==()

```
bool gdcm::Tag::operator== (
            const Tag & _val) const  [inline]
```

References Tag(), and tag.

12.316.3.17 operator[]() [1/2]

```
uint16_t & gdcm::Tag::operator[] (
            const unsigned int & _id)  [inline]
```

Returns the Group or Element of the given Tag, depending on id (0/1).

References gdcm_assert.

12.316.3.18 operator[]() [2/2]

```
const uint16_t & gdcm::Tag::operator[] (
            const unsigned int & _id) const  [inline]
```

Returns the Group or Element of the given Tag, depending on id (0/1).

References gdcm_assert.

12.316.3.19 PrintAsContinuousString()

```
std::string gdcm::Tag::PrintAsContinuousString () const
```

Print tag value with no separating comma: eg. tag = "12345678" It comes in useful when reading tag values from XML file(in NativeDICOMModel)

12.316.3.20 PrintAsContinuousUpperCaseString()

```
std::string gdcm::Tag::PrintAsContinuousUpperCaseString () const
```

Same as PrintAsContinuousString, but hexadecimal [a-f] are printed using upper case.

12.316.3.21 PrintAsPipeSeparatedString()

```
std::string gdcm::Tag::PrintAsPipeSeparatedString () const
```

Print as a pipe separated string (GDCM 1.x compat only). Do not use in newer code

See also

ReadFromPipeSeparatedString

12.316.3.22 Read()

```
template<typename TSwap>
std::istream & gdcm::Tag::Read (
            std::istream & is)  [inline]
```

Read a tag from binary representation.

12.316.3.23 ReadFromCommaSeparatedString()

```
bool gdcm::Tag::ReadFromCommaSeparatedString (
            const char * str)
```

Read from a comma separated string. This is a highly user oriented function, the string should be formatted as:↩ 1234,5678 to specify the tag (0x1234,0x5678) The notation comes from the DICOM standard, and is handy to use from a command line program

12.316.3.24 ReadFromContinuousString()

```
bool gdcm::Tag::ReadFromContinuousString (
            const char * str)
```

Read From XML formatted tag value eg. tag = "12345678" It comes in useful when reading tag values from XML file(in NativeDICOMModel)

12.316.3.25 ReadFromPipeSeparatedString()

```
bool gdcm::Tag::ReadFromPipeSeparatedString (
            const char * str)
```

Read from a pipe separated string (GDCM 1.x compat only). Do not use in newer code

See also

ReadFromCommaSeparatedString

12.316.3.26 SetElement()

```
void gdcm::Tag::SetElement (
            uint16_t element)  [inline]
```

Sets the 'Element number' of the given Tag.

Examples

DuplicatePCDE.cxx, and PublicDict.cxx.

Referenced by gdcm::PrivateTag::PrivateTag(), gdcm::PrivateTag::PrivateTag(), GetPrivateCreator(), operator>>, and SetPrivateCreator().

12.316.3.27 SetElementTag() [1/2]

```
void gdcm::Tag::SetElementTag (
            uint16_t group,
            uint16_t element)  [inline]
```

Sets the 'Group number' & 'Element number' of the given Tag.

Referenced by Tag(), and gdcm::PrivateTag::operator=().

12.316.3.28 SetElementTag() [2/2]

```
void gdcm::Tag::SetElementTag (
            uint32_t tag)  [inline]
```

Sets the full tag value of the given Tag.

References tag.

12.316.3.29 SetGroup()

```
void gdcm::Tag::SetGroup (
            uint16_t group)  [inline]
```

Sets the 'Group number' of the given Tag.

Referenced by operator>>, and SetPrivateCreator().

12.316.3.30 SetPrivateCreator()

```
void gdcm::Tag::SetPrivateCreator (
            Tag const & t)  [inline]
```

Set private creator:

Examples

DuplicatePCDE.cxx.

References Tag(), gdcm_assert, GetElement(), GetGroup(), IsPrivate(), SetElement(), and SetGroup().

12.316.3.31 Write()

```
template<typename TSwap>
const std::ostream & gdcm::Tag::Write (
            std::ostream & os) const  [inline]
```

Write a tag in binary rep.

Referenced by gdcm::Item::Write(), gdcm::SequenceOfFragments::Write(), and gdcm::SequenceOfItems::Write().

12.316.4 Friends And Related Symbol Documentation

12.316.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Tag & _val)  [friend]
```

References Tag().

12.316.4.2 operator>>

```
std::istream & operator>> (
            std::istream & _is,
            Tag & _val)  [friend]
```

References Tag(), SetElement(), and SetGroup().

12.316.5 Member Data Documentation

12.316.5.1 bytes

```
char gdcm::Tag::bytes[4]
```

12.316.5.2 tag

```
uint32_t gdcm::Tag::tag
```

Referenced by Tag(), Tag(), operator!=(), operator<(), operator=(), operator==(), and SetElementTag().

12.316.5.3 tags

```
uint16_t gdcm::Tag::tags[2]
```

Referenced by operator<().

The documentation for this class was generated from the following file:

- gdcmTag.h

12.317 gdcm::TagPath Class Reference

class to handle a path of tag.

```
#include <gdcmTagPath.h>
```

Public Member Functions

- TagPath ()
- ~TagPath ()
- bool ConstructFromString (const char *path)
- bool ConstructFromTagList (Tag const *l, unsigned int n)

  Construct from a list of tags.
- void Print (std::ostream &) const
- bool Push (Tag const &t)
- bool Push (unsigned int itemnum)

Static Public Member Functions

- static bool IsValid (const char *path)

  Return if path is valid or not.

12.317.1 Detailed Description

class to handle a path of tag.

Any Resemblance to Existing XPath is Purely Coincidental ftp://medical.nema.org/medical/dicom/↩supps/sup118_pc.pdf

12.317.2 Constructor & Destructor Documentation

12.317.2.1 TagPath()

```
gdcm::TagPath::TagPath ()
```

12.317.2.2 ~TagPath()

```
gdcm::TagPath::~TagPath ()
```

12.317.3 Member Function Documentation

12.317.3.1 ConstructFromString()

```
bool gdcm::TagPath::ConstructFromString (
            const char * path)
```

"/0018,0018/"... No space allowed, comma is use to separate tag group from tag element and slash is used to separate tag return false if invalid

12.317.3.2 ConstructFromTagList()

```
bool gdcm::TagPath::ConstructFromTagList (
            Tag const * l,
            unsigned int n)
```

Construct from a list of tags.

12.317.3.3 IsValid()

```
bool gdcm::TagPath::IsValid (
            const char * path)  [static]
```

Return if path is valid or not.

12.317.3.4 Print()

```
void gdcm::TagPath::Print (
            std::ostream & ) const
```

12.317.3.5 Push() [1/2]

```
bool gdcm::TagPath::Push (
            Tag const & t)
```

12.317.3.6 Push() [2/2]

```
bool gdcm::TagPath::Push (
            unsigned int itemnum)
```

The documentation for this class was generated from the following file:

- gdcmTagPath.h

12.318 gdcm::Testing Class Reference

class for testing

`#include <gdcmTesting.h>`

Public Types

- typedef const char *const (* MD5DataImagesType)[2]
- typedef const char *const (* MediaStorageDataFilesType)[2]

  return the table that map the media storage (as string) of a filename (gdcmData)

Public Member Functions

- Testing ()=default
- ~Testing ()=default
- void Print (std::ostream &os=std::cout)

  Print.

Static Public Member Functions

- static bool ComputeFileMD5 (const char *filename, char digest_str[33])
- static bool ComputeMD5 (const char *buffer, size_t buf_len, char digest_str[33])
- static const char * GetDataExtraRoot ()

  Return the GDCM DATA EXTRA ROOT.
- static const char * GetDataRoot ()

  Return the GDCM DATA ROOT.
- static const char * GetFileName (unsigned int file)
- static const char *const * GetFileNames ()

  return the table of fullpath to gdcmData DICOM files:
- static int GetLossyFlagFromFile (const char *filepath)
- static const char *const * GetMD5DataImage (unsigned int file)
- static MD5DataImagesType GetMD5DataImages ()
- static const char * GetMD5FromBrokenFile (const char *filepath)
- static const char * GetMD5FromFile (const char *filepath)
- static const char *const * GetMediaStorageDataFile (unsigned int file)
- static MediaStorageDataFilesType GetMediaStorageDataFiles ()
- static const char * GetMediaStorageFromFile (const char *filepath)
- static unsigned int GetNumberOfFileNames ()
- static unsigned int GetNumberOfMD5DataImages ()
- static unsigned int GetNumberOfMediaStorageDataFiles ()
- static const char * GetPixelSpacingDataRoot ()

  Return the GDCM PIXEL SPACING DATA ROOT (See David Clunie website for dataset).
- static std::streamoff GetSelectedPrivateGroupOffsetFromFile (const char *filepath)
- static std::streamoff GetSelectedTagsOffsetFromFile (const char *filepath)
- static const char * GetSourceDirectory ()
- static std::streamoff GetStreamOffsetFromFile (const char *filepath)
- static const char * GetTempDirectory (const char *subdir=nullptr)
- static const wchar_t * GetTempDirectoryW (const wchar_t *subdir=nullptr)

  NOT THREAD SAFE.
- static const char * GetTempFilename (const char *filename, const char *subdir=nullptr)

  NOT THREAD SAFE.
- static const wchar_t * GetTempFilenameW (const wchar_t *filename, const wchar_t *subdir=nullptr)

  NOT THREAD SAFE.

12.318.1 Detailed Description

class for testing

this class is used for the nightly regression system for GDCM It makes heavily use of md5 computation

See also

gdcm::MD5 class for md5 computation

12.318.2 Member Typedef Documentation

12.318.2.1 MD5DataImagesType

```
typedef const char* const(* gdcm::Testing::MD5DataImagesType)[2]
```

return the table that map the md5 (as in md5sum) of the Pixel Data associated to a filename

12.318.2.2 MediaStorageDataFilesType

```
typedef const char* const(* gdcm::Testing::MediaStorageDataFilesType)[2]
```

return the table that map the media storage (as string) of a filename (gdcmData)

12.318.3 Constructor & Destructor Documentation

12.318.3.1 Testing()

```
gdcm::Testing::Testing ()  [default]
```

12.318.3.2 ~Testing()

```
gdcm::Testing::~Testing ()  [default]
```

12.318.4 Member Function Documentation

12.318.4.1 ComputeFileMD5()

```
bool gdcm::Testing::ComputeFileMD5 (
            const char * filename,
            char digest_str[33])  [static]
```

Examples

MetaImageMD5Activiz.cs.

12.318.4.2 ComputeMD5()

```
bool gdcm::Testing::ComputeMD5 (
            const char * buffer,
            size_t buf_len,
            char digest_str[33])  [static]
```

MD5 stuff digest_str needs to be at least : strlen = [2*16+1]; string will be \0 padded. (md5 are 32 bytes long) Testing is not meant to be shipped with an installed GDCM release, always prefer the gdcm::MD5 API when doing md5 computation.

12.318.4.3 GetDataExtraRoot()

```
const char * gdcm::Testing::GetDataExtraRoot ()  [static]
```

Return the GDCM DATA EXTRA ROOT.

Examples

DiscriminateVolume.cxx, VolumeSorter.cxx, and reslicesphere.cxx.

12.318.4.4 GetDataRoot()

```
const char * gdcm::Testing::GetDataRoot ()  [static]
```

Return the GDCM DATA ROOT.

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, and MagnifyFile.cxx.

12.318.4.5 GetFileName()

```
const char * gdcm::Testing::GetFileName (
            unsigned int file)  [static]
```

Examples

MetaImageMD5Activiz.cs.

12.318.4.6 GetFileNames()

```
const char *const * gdcm::Testing::GetFileNames ()  [static]
```

return the table of fullpath to gdcmData DICOM files:

Examples

TestReader.cxx.

12.318.4.7 GetLossyFlagFromFile()

```
int gdcm::Testing::GetLossyFlagFromFile (
            const char * filepath)  [static]
```

Return the lossy flag of the given filename -1 -> Error 0 -> Lossless 1 -> Lossy

12.318.4.8 GetMD5DataImage()

```
const char *const * gdcm::Testing::GetMD5DataImage (
            unsigned int file)  [static]
```

12.318.4.9 GetMD5DataImages()

```
MD5DataImagesType gdcm::Testing::GetMD5DataImages ()  [static]
```

12.318.4.10 GetMD5FromBrokenFile()

```
const char * gdcm::Testing::GetMD5FromBrokenFile (
            const char * filepath)  [static]
```

Return what should have been the md5 of file 'filepath' This is based on current GDCM implementation to decipher a broken DICOM file.

12.318.4.11 GetMD5FromFile()

```
const char * gdcm::Testing::GetMD5FromFile (
            const char * filepath)  [static]
```

12.318.4.12 GetMediaStorageDataFile()

```
const char *const * gdcm::Testing::GetMediaStorageDataFile (
            unsigned int file)  [static]
```

12.318.4.13 GetMediaStorageDataFiles()

```
MediaStorageDataFilesType gdcm::Testing::GetMediaStorageDataFiles ()  [static]
```

12.318.4.14 GetMediaStorageFromFile()

```
const char * gdcm::Testing::GetMediaStorageFromFile (
            const char * filepath)  [static]
```

Examples

MetaImageMD5Activiz.cs, and TestReader.cxx.

12.318.4.15 GetNumberOfFileNames()

```
unsigned int gdcm::Testing::GetNumberOfFileNames ()  [static]
```

Examples

MetaImageMD5Activiz.cs.

12.318.4.16 GetNumberOfMD5DataImages()

```
unsigned int gdcm::Testing::GetNumberOfMD5DataImages ()  [static]
```

12.318.4.17 GetNumberOfMediaStorageDataFiles()

```
unsigned int gdcm::Testing::GetNumberOfMediaStorageDataFiles ()  [static]
```

12.318.4.18 GetPixelSpacingDataRoot()

```
const char * gdcm::Testing::GetPixelSpacingDataRoot ()  [static]
```

Return the GDCM PIXEL SPACING DATA ROOT (See David Clunie website for dataset).

12.318.4.19 GetSelectedPrivateGroupOffsetFromFile()

```
std::streamoff gdcm::Testing::GetSelectedPrivateGroupOffsetFromFile (
            const char * filepath)  [static]
```

Return the offset just after private attribute (0009,0010,"GEMS_IDEN_01") if found. Otherwise the offset of the next attribute -1 if not found

12.318.4.20 GetSelectedTagsOffsetFromFile()

```
std::streamoff gdcm::Testing::GetSelectedTagsOffsetFromFile (
            const char * filepath)  [static]
```

Return the offset just after Pixel Data Length (7fe0,0000) if found. Otherwise the offset of the very first pixel cell in Pixel Data -1 if not found

12.318.4.21 GetSourceDirectory()

```
const char * gdcm::Testing::GetSourceDirectory ()  [static]
```

12.318.4.22 GetStreamOffsetFromFile()

```
std::streamoff gdcm::Testing::GetStreamOffsetFromFile (
            const char * filepath)  [static]
```

Return the offset of the very first pixel cell in the PixelData -1 if not found

12.318.4.23 GetTempDirectory()

```
const char * gdcm::Testing::GetTempDirectory (
            const char * subdir = nullptr)  [static]
```

NOT THREAD SAFE Returns the temp directory as used in testing needing to output data:

Examples

MetaImageMD5Activiz.cs.

12.318.4.24 GetTempDirectoryW()

```
const wchar_t * gdcm::Testing::GetTempDirectoryW (
            const wchar_t * subdir = nullptr)  [static]
```

NOT THREAD SAFE.

12.318.4.25 GetTempFilename()

```
const char * gdcm::Testing::GetTempFilename (
            const char * filename,
            const char * subdir = nullptr)  [static]
```

NOT THREAD SAFE.

Examples

MetaImageMD5Activiz.cs.

12.318.4.26 GetTempFilenameW()

```
const wchar_t * gdcm::Testing::GetTempFilenameW (
            const wchar_t * filename,
            const wchar_t * subdir = nullptr)  [static]
```

NOT THREAD SAFE.

12.318.4.27 Print()

```
void gdcm::Testing::Print (
            std::ostream & os = std::cout)
```

Print.

The documentation for this class was generated from the following file:

- gdcmTesting.h

12.319 gdcm::Trace Class Reference

Trace.

```
#include <gdcmTrace.h>
```

Public Member Functions

- Trace ()
- ~Trace ()

Static Public Member Functions

- static void DebugOff ()
- static void DebugOn ()
- static void ErrorOff ()
- static void ErrorOn ()
- static bool GetDebugFlag ()
- static std::ostream & GetDebugStream ()
- static bool GetErrorFlag ()
- static std::ostream & GetErrorStream ()
- static std::ostream & GetStream ()
- static bool GetWarningFlag ()
- static std::ostream & GetWarningStream ()
- static void SetDebug (bool debug)

  Turn debug messages on (default: false).
- static void SetDebugStream (std::ostream &os)

  Explicitly set the stream which receive Debug messages:
- static void SetError (bool debug)

  Turn error messages on (default: true).
- static void SetErrorStream (std::ostream &os)

  Explicitly set the stream which receive Error messages:
- static void SetStream (std::ostream &os)
- static void SetStreamToFile (const char *filename)
- static void SetWarning (bool debug)

  Turn warning messages on (default: true).
- static void SetWarningStream (std::ostream &os)

  Explicitly set the stream which receive Warning messages:
- static void WarningOff ()
- static void WarningOn ()

12.319.1 Detailed Description

Trace.

Debug / Warning and Error are encapsulated in this class by default the Trace class will redirect any debug/warning/error to std::cerr. Unless SetStream was specified with another (open) stream or SetStreamToFile was specified to a writable file on the system.

Warning

All string messages are removed during compilation time when compiled with CMAKE_BUILD_TYPE being set to either:

- Release
- MinSizeRel It is recommended to compile with RelWithDebInfo and/or Debug during prototyping of applications.

Examples

DecompressJPEGFile.cs.

12.319.2 Constructor & Destructor Documentation

12.319.2.1 Trace()

```
gdcm::Trace::Trace ()
```

12.319.2.2 ~Trace()

```
gdcm::Trace::~Trace ()
```

12.319.3 Member Function Documentation

12.319.3.1 DebugOff()

```
void gdcm::Trace::DebugOff ()  [static]
```

Examples

MetaImageMD5Activiz.cs, and TestReader.cxx.

12.319.3.2 DebugOn()

```
void gdcm::Trace::DebugOn ()  [static]
```

Examples

CreateFakePET.cxx, DecompressJPEGFile.cs, Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

12.319.3.3 ErrorOff()

```
void gdcm::Trace::ErrorOff ()  [static]
```

Examples

MetaImageMD5Activiz.cs.

12.319.3.4 ErrorOn()

```
void gdcm::Trace::ErrorOn ()  [static]
```

12.319.3.5 GetDebugFlag()

```
bool gdcm::Trace::GetDebugFlag ()  [static]
```

12.319.3.6 GetDebugStream()

```
std::ostream & gdcm::Trace::GetDebugStream ()  [static]
```

12.319.3.7 GetErrorFlag()

```
bool gdcm::Trace::GetErrorFlag ()  [static]
```

12.319.3.8 GetErrorStream()

```
std::ostream & gdcm::Trace::GetErrorStream ()  [static]
```

12.319.3.9 GetStream()

```
std::ostream & gdcm::Trace::GetStream ()  [static]
```

12.319.3.10 GetWarningFlag()

```
bool gdcm::Trace::GetWarningFlag ()  [static]
```

12.319.3.11 GetWarningStream()

```
std::ostream & gdcm::Trace::GetWarningStream ()  [static]
```

12.319.3.12 SetDebug()

```
void gdcm::Trace::SetDebug (
            bool debug)  [static]
```

Turn debug messages on (default: false).

Examples

DumpToSQLITE3.cxx.

12.319.3.13 SetDebugStream()

```
void gdcm::Trace::SetDebugStream (
            std::ostream & os)  [static]
```

Explicitly set the stream which receive Debug messages:

12.319.3.14 SetError()

```
void gdcm::Trace::SetError (
            bool debug)  [static]
```

Turn error messages on (default: true).

12.319.3.15 SetErrorStream()

```
void gdcm::Trace::SetErrorStream (
            std::ostream & os)  [static]
```

Explicitly set the stream which receive Error messages:

Examples

CStoreQtProgress.cxx.

12.319.3.16 SetStream()

```
void gdcm::Trace::SetStream (
            std::ostream & os)  [static]
```

Explicitly set the ostream for gdcm::Trace to report to This will set the DebugStream, WarningStream and ErrorStream at once:

12.319.3.17 SetStreamToFile()

```
void gdcm::Trace::SetStreamToFile (
            const char * filename)  [static]
```

Explicitly set the filename for gdcm::Trace to report to The file will be created (it will not append to existing file)

12.319.3.18 SetWarning()

```
void gdcm::Trace::SetWarning (
            bool debug)  [static]
```

Turn warning messages on (default: true).

Examples

DumpToSQLITE3.cxx.

12.319.3.19 SetWarningStream()

```
void gdcm::Trace::SetWarningStream (
            std::ostream & os)  [static]
```

Explicitly set the stream which receive Warning messages:

12.319.3.20 WarningOff()

```
void gdcm::Trace::WarningOff ()  [static]
```

Examples

MetaImageMD5Activiz.cs, and TestReader.cxx.

12.319.3.21 WarningOn()

```
void gdcm::Trace::WarningOn ()  [static]
```

Examples

Fake_Image_Using_Stream_Image_Writer.cxx, and StreamImageReaderTest.cxx.

The documentation for this class was generated from the following file:

- gdcmTrace.h

12.320 gdcm::TransferSyntax Class Reference

Class to manipulate Transfer Syntax.

```
#include <gdcmTransferSyntax.h>
```

Public Types

- enum NegociatedType {
  Unknown = 0 ,
  Explicit ,
  Implicit }
- enum TSType {
  ImplicitVRLittleEndian = 0 ,
  ImplicitVRBigEndianPrivateGE ,
  ExplicitVRLittleEndian ,
  DeflatedExplicitVRLittleEndian ,
  ExplicitVRBigEndian ,
  JPEGBaselineProcess1 ,
  JPEGExtendedProcess2_4 ,
  JPEGExtendedProcess3_5 ,
  JPEGSpectralSelectionProcess6_8 ,
  JPEGFullProgressionProcess10_12 ,
  JPEGLosslessProcess14 ,
  JPEGLosslessProcess14_1 ,
  JPEGLSLossless ,
  JPEGLSNearLossless ,
  JPEG2000Lossless ,
  JPEG2000 ,
  JPEG2000Part2Lossless ,
  JPEG2000Part2 ,
  RLELossless ,
  MPEG2MainProfile ,
  ImplicitVRBigEndianACRNEMA ,
  WeirdPapryus ,
  CT_private_ELE ,

JPIPReferenced ,
MPEG2MainProfileHighLevel ,
MPEG4AVCH264HighProfileLevel4_1 ,
MPEG4AVCH264BDcompatibleHighProfileLevel4_1 ,
HTJ2KLossless ,
HTJ2KRPCLLossless ,
HTJ2K ,
DeflatedImageFrameCompression ,
TS_END }

Public Member Functions

- TransferSyntax (TSType type=ImplicitVRLittleEndian)
- bool CanStoreLossy () const
- NegociatedType GetNegociatedType () const
- const char * GetString () const
- SwapCode GetSwapCode () const
- bool IsEncapsulated () const
- bool IsEncoded () const
- bool IsExplicit () const
- bool IsImplicit () const
- bool IsLossless () const
- bool IsLossy () const
- bool IsValid () const
- operator TSType () const

Static Public Member Functions

- static const char * GetTSString (TSType ts)
- static TSType GetTSType (const char *str)

Friends

- std::ostream & operator<< (std::ostream &os, const TransferSyntax &ts)

12.320.1 Detailed Description

Class to manipulate Transfer Syntax.

Note

TRANSFER SYNTAX (Standard and Private): A set of encoding rules that allow Application Entities to unambiguously negotiate the encoding techniques (e.g., Data Element structure, byte ordering, compression) they are able to support, thereby allowing these Application Entities to communicate.

Todo : The implementation is completely retarded -> see gdcm::UIDs for a replacement We need: IsSupported We need preprocess of raw/xml file We need GetFullName()

Need a notion of Private Syntax. As defined in PS 3.5. Section 9.2

See also

UIDs

Examples

BasicImageAnonymizer.cs, CompressLossyJPEG.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, ExplicitLittleEndian.cs, FileChangeTS.cs, FileChangeTSLossy.cs, GetJPEGSamplePrecision.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, MpegVideoInfo.cs, and StandardizeFiles.cs.

12.320.2 Member Enumeration Documentation

12.320.2.1 NegociatedType

`enum gdcm::TransferSyntax::NegociatedType`

Enumerator

Unknown	
Explicit	
Implicit	

12.320.2.2 TSType

`enum gdcm::TransferSyntax::TSType`

Enumerator

ImplicitVRLittleEndian	
ImplicitVRBigEndianPrivateGE	
ExplicitVRLittleEndian	
DeflatedExplicitVRLittleEndian	
ExplicitVRBigEndian	
JPEGBaselineProcess1	
JPEGExtendedProcess2_4	
JPEGExtendedProcess3_5	
JPEGSpectralSelectionProcess6_8	
JPEGFullProgressionProcess10_12	
JPEGLosslessProcess14	

JPEGLosslessProcess14_1	
JPEGLSLossless	
JPEGLSNearLossless	
JPEG2000Lossless	
JPEG2000	
JPEG2000Part2Lossless	
JPEG2000Part2	
RLELossless	
MPEG2MainProfile	
ImplicitVRBigEndianACRNEMA	
WeirdPapryus	
CT_private_ELE	
JPIPReferenced	
MPEG2MainProfileHighLevel	
MPEG4AVCH264HighProfileLevel4_1	
MPEG4AVCH264BDcompatibleHighProfileLevel4_1	
HTJ2KLossless	
HTJ2KRPCLLossless	
HTJ2K	
DeflatedImageFrameCompression	
TS_END	

Examples

BasicImageAnonymizer.cs, CompressLossyJPEG.cs, DecompressImageMultiframe.cs, DecompressJPEGFile.cs, ExplicitLittleEndian.cs, FileChangeTS.cs, FileChangeTSLossy.cs, MpegVideoInfo.cs, and StandardizeFiles.cs.

12.320.3 Constructor & Destructor Documentation

12.320.3.1 TransferSyntax()

```
gdcm::TransferSyntax::TransferSyntax (
            TSType type = ImplicitVRLittleEndian)  [inline]
```

References ImplicitVRLittleEndian.

Referenced by operator<<.

12.320.4 Member Function Documentation

12.320.4.1 CanStoreLossy()

```
bool gdcm::TransferSyntax::CanStoreLossy () const
```

return true if TransFer Syntax Allow storing of Lossy Pixel Data

12.320.4.2 GetNegociatedType()

```
NegociatedType gdcm::TransferSyntax::GetNegociatedType () const
```

12.320.4.3 GetString()

```
const char * gdcm::TransferSyntax::GetString () const  [inline]
```

References GetTSString().

12.320.4.4 GetSwapCode()

```
SwapCode gdcm::TransferSyntax::GetSwapCode () const
```

Deprecated Return the SwapCode associated with the Transfer Syntax. Be careful with the special GE private syntax the DataSet is written in little endian but the Pixel Data is in Big Endian.

12.320.4.5 GetTSString()

```
const char * gdcm::TransferSyntax::GetTSString (
            TSType ts)  [static]
```

Examples

LargeVRDSExplicit.cxx.

Referenced by GetString(), and operator<<.

12.320.4.6 GetTSType()

```
TSType gdcm::TransferSyntax::GetTSType (
            const char * str)  [static]
```

12.320.4.7 IsEncapsulated()

```
bool gdcm::TransferSyntax::IsEncapsulated () const
```

Examples

ExtractIconFromFile.cxx.

12.320.4.8 IsEncoded()

```
bool gdcm::TransferSyntax::IsEncoded () const
```

12.320.4.9 IsExplicit()

```
bool gdcm::TransferSyntax::IsExplicit () const
```

12.320.4.10 IsImplicit()

```
bool gdcm::TransferSyntax::IsImplicit () const
```

12.320.4.11 IsLossless()

```
bool gdcm::TransferSyntax::IsLossless () const
```

Return true if the transfer syntax algorithm is a lossless algorithm

12.320.4.12 IsLossy()

```
bool gdcm::TransferSyntax::IsLossy () const
```

Return true if the transfer syntax algorithm is a lossy algorithm

12.320.4.13 IsValid()

```
bool gdcm::TransferSyntax::IsValid () const  [inline]
```

References TS_END.

12.320.4.14 operator TSType()

```
gdcm::TransferSyntax::operator TSType () const  [inline]
```

12.320.5 Friends And Related Symbol Documentation

12.320.5.1 operator<<

```
std::ostream & operator<< (
             std::ostream & os,
             const TransferSyntax & ts)  [friend]
```

References TransferSyntax(), and GetTSString().

The documentation for this class was generated from the following file:

- gdcmTransferSyntax.h

12.321 gdcm::network::TransferSyntaxSub Class Reference

TransferSyntaxSub.

```
#include <gdcmTransferSyntaxSub.h>
```

Public Member Functions

- TransferSyntaxSub ()
- const char * GetName () const
- bool operator== (const TransferSyntaxSub &ts) const
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- void SetName (const char *name)
- void SetNameFromUID (UIDs::TSName tsname)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.321.1 Detailed Description

TransferSyntaxSub.

Table 9-15 TRANSFER SYNTAX SUB-ITEM FIELDS

TODO what is the goal of :

Table 9-19 TRANSFER SYNTAX SUB-ITEM FIELDS

12.321.2 Constructor & Destructor Documentation

12.321.2.1 TransferSyntaxSub()

```
gdcm::network::TransferSyntaxSub::TransferSyntaxSub ()
```

Referenced by operator==().

12.321.3 Member Function Documentation

12.321.3.1 GetName()

```
const char * gdcm::network::TransferSyntaxSub::GetName () const  [inline]
```

12.321.3.2 operator==()

```
bool gdcm::network::TransferSyntaxSub::operator== (
            const TransferSyntaxSub & ts) const  [inline]
```

References TransferSyntaxSub().

12.321.3.3 Print()

```
void gdcm::network::TransferSyntaxSub::Print (
            std::ostream & os) const
```

12.321.3.4 Read()

```
std::istream & gdcm::network::TransferSyntaxSub::Read (
            std::istream & is)
```

12.321.3.5 SetName()

```
void gdcm::network::TransferSyntaxSub::SetName (
            const char * name)
```

12.321.3.6 SetNameFromUID()

```
void gdcm::network::TransferSyntaxSub::SetNameFromUID (
            UIDs::TSName tsname)
```

12.321.3.7 Size()

```
size_t gdcm::network::TransferSyntaxSub::Size () const
```

12.321.3.8 Write()

```
const std::ostream & gdcm::network::TransferSyntaxSub::Write (
            std::ostream & os) const
```

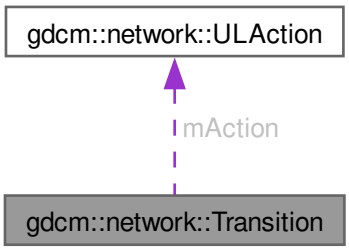
The documentation for this class was generated from the following file:

- gdcmTransferSyntaxSub.h

12.322 gdcm::network::Transition Struct Reference

```
#include <gdcmULTransitionTable.h>
```

Collaboration diagram for gdcm::network::Transition:



Public Member Functions

- Transition ()
- Transition (int inEndState, ULAction ∗inAction)
- ∼Transition ()

Static Public Member Functions

- static Transition ∗ MakeNew (int inEndState, ULAction ∗inAction)

Public Attributes

- ULAction * mAction
- int mEnd

12.322.1 Constructor & Destructor Documentation

12.322.1.1 Transition() [1/2]

```
gdcm::network::Transition::Transition ()  [inline]
```

References gdcm::network::eStaDoesNotExist, mAction, and mEnd.

Referenced by MakeNew().

12.322.1.2 ~Transition()

```
gdcm::network::Transition::~Transition ()  [inline]
```

References mAction.

12.322.1.3 Transition() [2/2]

```
gdcm::network::Transition::Transition (
            int inEndState,
            ULAction * inAction)  [inline]
```

References mAction, and mEnd.

12.322.2 Member Function Documentation

12.322.2.1 MakeNew()

```
Transition * gdcm::network::Transition::MakeNew (
            int inEndState,
            ULAction * inAction)  [inline], [static]
```

References Transition().

12.322.3 Member Data Documentation

12.322.3.1 mAction

```
ULAction* gdcm::network::Transition::mAction
```

Referenced by Transition(), Transition(), and ~Transition().

12.322.3.2 mEnd

```
int gdcm::network::Transition::mEnd
```

Referenced by Transition(), and Transition().

The documentation for this struct was generated from the following file:

- gdcmULTransitionTable.h

12.323 gdcm::Type Class Reference

Type.

```
#include <gdcmType.h>
```

Public Types

- enum TypeType {
  T1 = 0 ,
  T1C ,
  T2 ,
  T2C ,
  T3 ,
  UNKNOWN }

Public Member Functions

- Type (TypeType type=UNKNOWN)
- operator TypeType () const

Static Public Member Functions

- static const char * GetTypeString (TypeType type)
- static TypeType GetTypeType (const char *type)

Friends

- std::ostream & operator<< (std::ostream &os, const Type &vr)

12.323.1 Detailed Description

Type.

Note

PS 3.5 7.4 DATA ELEMENT TYPE 7.4.1 TYPE 1 REQUIRED DATA ELEMENTS 7.4.2 TYPE 1C CONDITIONAL DATA ELEMENTS 7.4.3 TYPE 2 REQUIRED DATA ELEMENTS 7.4.4 TYPE 2C CONDITIONAL DATA ELEMENTS 7.4.5 TYPE 3 OPTIONAL DATA ELEMENTS

The intent of Type 2 Data Elements is to allow a zero length to be conveyed when the operator or application does not know its value or has a specific reason for not specifying its value. It is the intent that the device should support these Data Elements.

Examples

TraverseModules.cxx.

12.323.2 Member Enumeration Documentation

12.323.2.1 TypeType

```
enum gdcm::Type::TypeType
```

Enumerator

T1	
T1C	
T2	
T2C	
T3	
UNKNOWN	

12.323.3 Constructor & Destructor Documentation

12.323.3.1 Type()

```
gdcm::Type::Type (
            TypeType type = UNKNOWN)  [inline]
```

References UNKNOWN.

Referenced by operator<<.

12.323.4 Member Function Documentation

12.323.4.1 GetTypeString()

```
const char * gdcm::Type::GetTypeString (
            TypeType type)  [static]
```

Referenced by operator<<.

12.323.4.2 GetTypeType()

```
TypeType gdcm::Type::GetTypeType (
            const char * type)  [static]
```

Referenced by gdcm::ModuleEntry::ModuleEntry().

12.323.4.3 operator TypeType()

```
gdcm::Type::operator TypeType () const  [inline]
```

12.323.5 Friends And Related Symbol Documentation

12.323.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const Type & vr)  [friend]
```

References Type(), and GetTypeString().

The documentation for this class was generated from the following file:

- gdcmType.h

12.324 gdcm::UI Struct Reference

```
#include <gdcmVR.h>
```

Public Attributes

- char Internal [64+1]

Friends

- std::ostream & operator<< (std::ostream &_os, const UI &_val)

12.324.1 Friends And Related Symbol Documentation

12.324.1.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const UI & _val)  [friend]
```

References Internal.

12.324.2 Member Data Documentation

12.324.2.1 Internal

```
char gdcm::UI::Internal[64+1]
```

Referenced by operator<<.

The documentation for this struct was generated from the following file:

- gdcmVR.h

12.325 gdcm::UIDGenerator Class Reference

Class for generating unique UID.

```
#include <gdcmUIDGenerator.h>
```

Public Member Functions

- UIDGenerator ()
  By default the root of a UID is a GDCM Root...
- const char * Generate ()

Static Public Member Functions

- static const char * GetGDCMUID ()
  Return the default (GDCM) root UID:
- static const char * GetRoot ()
- static bool IsValid (const char *uid)
- static void SetRoot (const char *root)

Static Protected Member Functions

- static bool GenerateUUID (unsigned char *uuid_data)

12.325.1 Detailed Description

Class for generating unique UID.

When constructing a Series or Study UID, user *has* to keep around the UID, otherwise the UID Generator will simply forget the value and create a new UID.

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GetSubSequenceData.cxx, ManipulateFile.cs, MpegVideoInfo.cs, ReformatFile.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, and uid_unique.cxx.

12.325.2 Constructor & Destructor Documentation

12.325.2.1 UIDGenerator()

```
gdcm::UIDGenerator::UIDGenerator ()  [inline]
```

By default the root of a UID is a GDCM Root...

12.325.3 Member Function Documentation

12.325.3.1 Generate()

```
const char * gdcm::UIDGenerator::Generate ()
```

Internally uses a std::string, so two calls have the same pointer ! save into a std::string In summary do not write code like that: const char *uid1 = uid.Generate(); const char *uid2 = uid.Generate(); since uid1 == uid2

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GetSubSequenceData.cxx, ManipulateFile.cs, ReformatFile.cs, StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, and uid_unique.cxx.

12.325.3.2 GenerateUUID()

```
bool gdcm::UIDGenerator::GenerateUUID (
            unsigned char * uuid_data)  [static], [protected]
```

12.325.3.3 GetGDCMUID()

```
const char * gdcm::UIDGenerator::GetGDCMUID ()  [static]
```

Return the default (GDCM) root UID:

12.325.3.4 GetRoot()

```
const char * gdcm::UIDGenerator::GetRoot ()  [static]
```

Examples

ExplicitLittleEndian.cs, ReformatFile.cs, and StandardizeFiles.cs.

12.325.3.5 IsValid()

```
bool gdcm::UIDGenerator::IsValid (
            const char * uid)  [static]
```

Find out if the string is a valid UID or not

Todo : Move that in DataStructureAndEncoding (see FileMetaInformation::CheckFileMetaInformation)

12.325.3.6 SetRoot()

```
void gdcm::UIDGenerator::SetRoot (
            const char * root)  [static]
```

The current implementation in GDCM make use of the UUID implementation (RFC 4122) and has been successfully been tested for a root of size 26 bytes. Any longer root should work (the Generate() function will return a string), but will truncate the high bits of the 128bits UUID until the generated string fits on 64 bits. The authors disclaims any responsabitlity for guaranteeing uniqueness of UIDs when the root is longer than 26 bytes.

Examples

ExplicitLittleEndian.cs, ReformatFile.cs, StandardizeFiles.cs, and uid_unique.cxx.

The documentation for this class was generated from the following file:

- gdcmUIDGenerator.h

12.326 gdcm::UIDs Class Reference

all known uids

`#include <gdcmUIDs.h>`

Public Types

- typedef const char *const (* TransferSyntaxStringsType)[2]
- enum TSName {
  VerificationSOPClass = 1 ,
  ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM = 2 ,
  ExplicitVRLittleEndian = 3 ,
  DeflatedExplicitVRLittleEndian = 4 ,
  ExplicitVRBigEndian = 5 ,
  JPEGBaselineProcess1DefaultTransferSyntaxforLossyJPEG8BitImageCompression = 6 ,
  JPEGExtendedProcess24DefaultTransferSyntaxforLossyJPEG12BitImageCompressionProcess4only = 7 ,
  JPEGExtendedProcess35Retired = 8 ,
  JPEGSpectralSelectionNonHierarchicalProcess68Retired = 9 ,
  JPEGSpectralSelectionNonHierarchicalProcess79Retired = 10 ,
  JPEGFullProgressionNonHierarchicalProcess1012Retired = 11 ,
  JPEGFullProgressionNonHierarchicalProcess1113Retired = 12 ,
  JPEGLosslessNonHierarchicalProcess14 = 13 ,
  JPEGLosslessNonHierarchicalProcess15Retired = 14 ,
  JPEGExtendedHierarchicalProcess1618Retired = 15 ,
  JPEGExtendedHierarchicalProcess1719Retired = 16 ,
  JPEGSpectralSelectionHierarchicalProcess2022Retired = 17 ,
  JPEGSpectralSelectionHierarchicalProcess2123Retired = 18 ,
  JPEGFullProgressionHierarchicalProcess2426Retired = 19 ,
  JPEGFullProgressionHierarchicalProcess2527Retired = 20 ,
  JPEGLosslessHierarchicalProcess28Retired = 21 ,
  JPEGLosslessHierarchicalProcess29Retired = 22 ,
  JPEGLosslessNonHierarchicalFirstOrderPredictionProcess14SelectionValue1DefaultTransferSyntaxforLossless↩
  JPEGImageCompression = 23 ,
  JPEGLSLosslessImageCompression = 24 ,
  JPEGLSLossyNearLosslessImageCompression = 25 ,
  JPEG2000ImageCompressionLosslessOnly = 26 ,
  JPEG2000ImageCompression = 27 ,
  JPEG2000Part2MulticomponentImageCompressionLosslessOnly = 28 ,
  JPEG2000Part2MulticomponentImageCompression = 29 ,
  JPIPReferenced = 30 ,
  JPIPReferencedDeflate = 31 ,
  MPEG2MainProfileMainLevel = 32 ,
  RLELossless = 33 ,
  RFC2557MIMEencapsulation = 34 ,
  XMLEncoding = 35 ,
  MediaStorageDirectoryStorage = 36 ,
  TalairachBrainAtlasFrameofReference = 37 ,
  SPM2T1FrameofReference = 38 ,
  SPM2T2FrameofReference = 39 ,
  SPM2PDFrameofReference = 40 ,
  SPM2EPIFrameofReference = 41 ,

SPM2FILT1FrameofReference = 42 ,
SPM2PETFrameofReference = 43 ,
SPM2TRANSMFrameofReference = 44 ,
SPM2SPECTFrameofReference = 45 ,
SPM2GRAYFrameofReference = 46 ,
SPM2WHITEFrameofReference = 47 ,
SPM2CSFFrameofReference = 48 ,
SPM2BRAINMASKFrameofReference = 49 ,
SPM2AVG305T1FrameofReference = 50 ,
SPM2AVG152T1FrameofReference = 51 ,
SPM2AVG152T2FrameofReference = 52 ,
SPM2AVG152PDFrameofReference = 53 ,
SPM2SINGLESUBJT1FrameofReference = 54 ,
ICBM452T1FrameofReference = 55 ,
ICBMSingleSubjectMRIFrameofReference = 56 ,
BasicStudyContentNotificationSOPClassRetired = 57 ,
StorageCommitmentPushModelSOPClass = 58 ,
StorageCommitmentPushModelSOPInstance = 59 ,
StorageCommitmentPullModelSOPClassRetired = 60 ,
StorageCommitmentPullModelSOPInstanceRetired = 61 ,
ProceduralEventLoggingSOPClass = 62 ,
ProceduralEventLoggingSOPInstance = 63 ,
SubstanceAdministrationLoggingSOPClass = 64 ,
SubstanceAdministrationLoggingSOPInstance = 65 ,
DICOMUIDRegistry = 66 ,
DICOMControlledTerminology = 67 ,
DICOMApplicationContextName = 68 ,
DetachedPatientManagementSOPClassRetired = 69 ,
DetachedPatientManagementMetaSOPClassRetired = 70 ,
DetachedVisitManagementSOPClassRetired = 71 ,
DetachedStudyManagementSOPClassRetired = 72 ,
StudyComponentManagementSOPClassRetired = 73 ,
ModalityPerformedProcedureStepSOPClass = 74 ,
ModalityPerformedProcedureStepRetrieveSOPClass = 75 ,
ModalityPerformedProcedureStepNotificationSOPClass = 76 ,
DetachedResultsManagementSOPClassRetired = 77 ,
DetachedResultsManagementMetaSOPClassRetired = 78 ,
DetachedStudyManagementMetaSOPClassRetired = 79 ,
DetachedInterpretationManagementSOPClassRetired = 80 ,
StorageServiceClass = 81 ,
BasicFilmSessionSOPClass = 82 ,
BasicFilmBoxSOPClass = 83 ,
BasicGrayscaleImageBoxSOPClass = 84 ,
BasicColorImageBoxSOPClass = 85 ,
ReferencedImageBoxSOPClassRetired = 86 ,
BasicGrayscalePrintManagementMetaSOPClass = 87 ,
ReferencedGrayscalePrintManagementMetaSOPClassRetired = 88 ,
PrintJobSOPClass = 89 ,
BasicAnnotationBoxSOPClass = 90 ,
PrinterSOPClass = 91 ,
PrinterConfigurationRetrievalSOPClass = 92 ,
PrinterSOPInstance = 93 ,
PrinterConfigurationRetrievalSOPInstance = 94 ,
BasicColorPrintManagementMetaSOPClass = 95 ,

ReferencedColorPrintManagementMetaSOPClassRetired = 96 ,
VOILUTBoxSOPClass = 97 ,
PresentationLUTSOPClass = 98 ,
ImageOverlayBoxSOPClassRetired = 99 ,
BasicPrintImageOverlayBoxSOPClassRetired = 100 ,
PrintQueueSOPInstanceRetired = 101 ,
PrintQueueManagementSOPClassRetired = 102 ,
StoredPrintStorageSOPClassRetired = 103 ,
HardcopyGrayscaleImageStorageSOPClassRetired = 104 ,
HardcopyColorImageStorageSOPClassRetired = 105 ,
PullPrintRequestSOPClassRetired = 106 ,
PullStoredPrintManagementMetaSOPClassRetired = 107 ,
MediaCreationManagementSOPClassUID = 108 ,
ComputedRadiographyImageStorage = 109 ,
DigitalXRayImageStorageForPresentation = 110 ,
DigitalXRayImageStorageForProcessing = 111 ,
DigitalMammographyXRayImageStorageForPresentation = 112 ,
DigitalMammographyXRayImageStorageForProcessing = 113 ,
DigitalIntraoralXRayImageStorageForPresentation = 114 ,
DigitalIntraoralXRayImageStorageForProcessing = 115 ,
CTImageStorage = 116 ,
EnhancedCTImageStorage = 117 ,
UltrasoundMultiframeImageStorageRetired = 118 ,
UltrasoundMultiframeImageStorage = 119 ,
MRImageStorage = 120 ,
EnhancedMRImageStorage = 121 ,
MRSpectroscopyStorage = 122 ,
NuclearMedicineImageStorageRetired = 123 ,
UltrasoundImageStorageRetired = 124 ,
UltrasoundImageStorage = 125 ,
SecondaryCaptureImageStorage = 126 ,
MultiframeSingleBitSecondaryCaptureImageStorage = 127 ,
MultiframeGrayscaleByteSecondaryCaptureImageStorage = 128 ,
MultiframeGrayscaleWordSecondaryCaptureImageStorage = 129 ,
MultiframeTrueColorSecondaryCaptureImageStorage = 130 ,
StandaloneOverlayStorageRetired = 131 ,
StandaloneCurveStorageRetired = 132 ,
WaveformStorageTrialRetired = 133 ,
ECG12leadWaveformStorage = 134 ,
GeneralECGWaveformStorage = 135 ,
AmbulatoryECGWaveformStorage = 136 ,
HemodynamicWaveformStorage = 137 ,
CardiacElectrophysiologyWaveformStorage = 138 ,
BasicVoiceAudioWaveformStorage = 139 ,
StandaloneModalityLUTStorageRetired = 140 ,
StandaloneVOILUTStorageRetired = 141 ,
GrayscaleSoftcopyPresentationStateStorageSOPClass = 142 ,
ColorSoftcopyPresentationStateStorageSOPClass = 143 ,
PseudoColorSoftcopyPresentationStateStorageSOPClass = 144 ,
BlendingSoftcopyPresentationStateStorageSOPClass = 145 ,
XRayAngiographicImageStorage = 146 ,
EnhancedXAImageStorage = 147 ,
XRayRadiofluoroscopicImageStorage = 148 ,
EnhancedXRFImageStorage = 149 ,

XRay3DAngiographicImageStorage = 150 ,
XRay3DCraniofacialImageStorage = 151 ,
XRayAngiographicBiPlaneImageStorageRetired = 152 ,
NuclearMedicineImageStorage = 153 ,
RawDataStorage = 154 ,
SpatialRegistrationStorage = 155 ,
SpatialFiducialsStorage = 156 ,
DeformableSpatialRegistrationStorage = 157 ,
SegmentationStorage = 158 ,
RealWorldValueMappingStorage = 159 ,
VLImageStorageTrialRetired = 160 ,
VLMultiframeImageStorageTrialRetired = 161 ,
VLEndoscopicImageStorage = 162 ,
VideoEndoscopicImageStorage = 163 ,
VLMicroscopicImageStorage = 164 ,
VideoMicroscopicImageStorage = 165 ,
VLSlideCoordinatesMicroscopicImageStorage = 166 ,
VLPhotographicImageStorage = 167 ,
VideoPhotographicImageStorage = 168 ,
OphthalmicPhotography8BitImageStorage = 169 ,
OphthalmicPhotography16BitImageStorage = 170 ,
StereometricRelationshipStorage = 171 ,
OphthalmicTomographyImageStorage = 172 ,
TextSRStorageTrialRetired = 173 ,
AudioSRStorageTrialRetired = 174 ,
DetailSRStorageTrialRetired = 175 ,
ComprehensiveSRStorageTrialRetired = 176 ,
BasicTextSRStorage = 177 ,
EnhancedSRStorage = 178 ,
ComprehensiveSRStorage = 179 ,
ProcedureLogStorage = 180 ,
MammographyCADSRStorage = 181 ,
KeyObjectSelectionDocumentStorage = 182 ,
ChestCADSRStorage = 183 ,
XRayRadiationDoseSRStorage = 184 ,
EncapsulatedPDFStorage = 185 ,
EncapsulatedCDAStorage = 186 ,
PositronEmissionTomographyImageStorage = 187 ,
StandalonePETCurveStorageRetired = 188 ,
RTImageStorage = 189 ,
RTDoseStorage = 190 ,
RTStructureSetStorage = 191 ,
RTBeamsTreatmentRecordStorage = 192 ,
RTPlanStorage = 193 ,
RTBrachyTreatmentRecordStorage = 194 ,
RTTreatmentSummaryRecordStorage = 195 ,
RTIonPlanStorage = 196 ,
RTIonBeamsTreatmentRecordStorage = 197 ,
PatientRootQueryRetrieveInformationModelFIND = 198 ,
PatientRootQueryRetrieveInformationModelMOVE = 199 ,
PatientRootQueryRetrieveInformationModelGET = 200 ,
StudyRootQueryRetrieveInformationModelFIND = 201 ,
StudyRootQueryRetrieveInformationModelMOVE = 202 ,
StudyRootQueryRetrieveInformationModelGET = 203 ,

PatientStudyOnlyQueryRetrieveInformationModelFINDRetired = 204 ,
PatientStudyOnlyQueryRetrieveInformationModelMOVERetired = 205 ,
PatientStudyOnlyQueryRetrieveInformationModelGETRetired = 206 ,
ModalityWorklistInformationModelFIND = 207 ,
GeneralPurposeWorklistInformationModelFIND = 208 ,
GeneralPurposeScheduledProcedureStepSOPClass = 209 ,
GeneralPurposePerformedProcedureStepSOPClass = 210 ,
GeneralPurposeWorklistManagementMetaSOPClass = 211 ,
InstanceAvailabilityNotificationSOPClass = 212 ,
RTBeamsDeliveryInstructionStorageSupplement74FrozenDraft = 213 ,
RTConventionalMachineVerificationSupplement74FrozenDraft = 214 ,
RTIonMachineVerificationSupplement74FrozenDraft = 215 ,
UnifiedWorklistandProcedureStepServiceClass = 216 ,
UnifiedProcedureStepPushSOPClass = 217 ,
UnifiedProcedureStepWatchSOPClass = 218 ,
UnifiedProcedureStepPullSOPClass = 219 ,
UnifiedProcedureStepEventSOPClass = 220 ,
UnifiedWorklistandProcedureStepSOPInstance = 221 ,
GeneralRelevantPatientInformationQuery = 222 ,
BreastImagingRelevantPatientInformationQuery = 223 ,
CardiacRelevantPatientInformationQuery = 224 ,
HangingProtocolStorage = 225 ,
HangingProtocolInformationModelFIND = 226 ,
HangingProtocolInformationModelMOVE = 227 ,
ProductCharacteristicsQuerySOPClass = 228 ,
SubstanceApprovalQuerySOPClass = 229 ,
dicomDeviceName = 230 ,
dicomDescription = 231 ,
dicomManufacturer = 232 ,
dicomManufacturerModelName = 233 ,
dicomSoftwareVersion = 234 ,
dicomVendorData = 235 ,
dicomAETitle = 236 ,
dicomNetworkConnectionReference = 237 ,
dicomApplicationCluster = 238 ,
dicomAssociationInitiator = 239 ,
dicomAssociationAcceptor = 240 ,
dicomHostname = 241 ,
dicomPort = 242 ,
dicomSOPClass = 243 ,
dicomTransferRole = 244 ,
dicomTransferSyntax = 245 ,
dicomPrimaryDeviceType = 246 ,
dicomRelatedDeviceReference = 247 ,
dicomPreferredCalledAETitle = 248 ,
dicomTLSCyphersuite = 249 ,
dicomAuthorizedNodeCertificateReference = 250 ,
dicomThisNodeCertificateReference = 251 ,
dicomInstalled = 252 ,
dicomStationName = 253 ,
dicomDeviceSerialNumber = 254 ,
dicomInstitutionName = 255 ,
dicomInstitutionAddress = 256 ,
dicomInstitutionDepartmentName = 257 ,

dicomIssuerOfPatientID = 258 ,
dicomPreferredCallingAETitle = 259 ,
dicomSupportedCharacterSet = 260 ,
dicomConfigurationRoot = 261 ,
dicomDevicesRoot = 262 ,
dicomUniqueAETitlesRegistryRoot = 263 ,
dicomDevice = 264 ,
dicomNetworkAE = 265 ,
dicomNetworkConnection = 266 ,
dicomUniqueAETitle = 267 ,
dicomTransferCapability = 268 ,
VLWholeSlideMicroscopyImageStorage = 269 ,
EnhancedUSVolumeStorage = 270 ,
SurfaceSegmentationStorage = 271 ,
BreastTomosynthesisImageStorage = 272 ,
LegacyConvertedEnhancedCTImageStorage = 273 ,
LegacyConvertedEnhancedMRImageStorage = 274 ,
LegacyConvertedEnhancedPETImageStorage = 275 ,
MPEG2MainProfileHighLevel = 276 ,
MPEG4AVCH_264HighProfileLevel4_1 = 277 ,
MPEG4AVCH_264BDcompatibleHighProfileLevel4_1 = 278 ,
PETColorPaletteSOPInstance = 279 ,
HotMetalBlueColorPaletteSOPInstance = 280 ,
PET20StepColorPaletteSOPInstance = 281 ,
SpringColorPaletteSOPInstance = 282 ,
SummerColorPaletteSOPInstance = 283 ,
FallColorPaletteSOPInstance = 284 ,
WinterColorPaletteSOPInstance = 285 ,
Papyrus3ImplicitVRLittleEndian = 286 ,
AdultMouseAnatomyOntology = 287 ,
UberonOntology = 288 ,
IntegratedTaxonomicInformationSystemITISTaxonomicSerialNumberTSN = 289 ,
MouseGenomeInitiativeMGI = 290 ,
PubChemCompoundCID = 291 ,
ICD11 = 292 ,
NewYorkUniversityMelanomaClinicalCooperativeGroup = 293 ,
MayoClinicNonradiologicalImagesSBSAnatomicalSurfaceRegionGuide = 294 ,
ImageBiomarkerStandardisationInitiative = 295 ,
RadiomicsOntology = 296 ,
DisplaySystemSOPClass = 297 ,
DisplaySystemSOPInstance = 298 ,
GeneralAudioWaveformStorage = 299 ,
ArterialPulseWaveformStorage = 300 ,
RespiratoryWaveformStorage = 301 ,
XAXRFGrayscaleSoftcopyPresentationStateStorage = 302 ,
GrayscalePlanarMPRVolumetricPresentationStateStorage = 303 ,
MPEG4AVCH_264HighProfileLevel4_2For2DVideo = 304 ,
MPEG4AVCH_264HighProfileLevel4_2For3DVideo = 305 ,
MPEG4AVCH_264StereoHighProfileLevel4_2 = 306 ,
HEVCH_265MainProfileLevel5_1 = 307 ,
HEVCH_265Main10ProfileLevel5_1 = 308 ,
HotIronColorPaletteSOPInstance = 309 ,
CompositingPlanarMPRVolumetricPresentationStateStorage = 310 ,
AdvancedBlendingPresentationStateStorage = 311 ,

VolumeRenderingVolumetricPresentationStateStorage = 312 ,
SegmentedVolumeRenderingVolumetricPresentationStateStorage = 313 ,
MultipleVolumeRenderingVolumetricPresentationStateStorage = 314 ,
Null0 = 315 ,
BreastProjectionXRayImageStorageForPresentation = 316 ,
BreastProjectionXRayImageStorageForProcessing = 317 ,
IntravascularOpticalCoherenceTomographyImageStorageForPresentation = 318 ,
IntravascularOpticalCoherenceTomographyImageStorageForProcessing = 319 ,
ParametricMapStorage = 320 ,
Null1 = 321 ,
TractographyResultsStorage = 322 ,
SurfaceScanMeshStorage = 323 ,
SurfaceScanPointCloudStorage = 324 ,
WideFieldOphthalmicPhotographyStereographicProjectionImageStorage = 325 ,
WideFieldOphthalmicPhotography3DCoordinatesImageStorage = 326 ,
OphthalmicOpticalCoherenceTomographyEnFaceImageStorage = 327 ,
OphthalmicOpticalCoherenceTomographyBscanVolumeAnalysisStorage = 328 ,
LensometryMeasurementsStorage = 329 ,
AutorefractionMeasurementsStorage = 330 ,
KeratometryMeasurementsStorage = 331 ,
SubjectiveRefractionMeasurementsStorage = 332 ,
VisualAcuityMeasurementsStorage = 333 ,
SpectaclePrescriptionReportStorage = 334 ,
OphthalmicAxialMeasurementsStorage = 335 ,
IntraocularLensCalculationsStorage = 336 ,
MacularGridThicknessandVolumeReportStorage = 337 ,
OphthalmicVisualFieldStaticPerimetryMeasurementsStorage = 338 ,
OphthalmicThicknessMapStorage = 339 ,
CornealTopographyMapStorage = 340 ,
Comprehensive3DSRStorage = 341 ,
ExtensibleSRStorage = 342 ,
RadiopharmaceuticalRadiationDoseSRStorage = 343 ,
ColonCADSRStorage = 344 ,
ImplantationPlanSRStorage = 345 ,
AcquisitionContextSRStorage = 346 ,
SimplifiedAdultEchoSRStorage = 347 ,
PatientRadiationDoseSRStorage = 348 ,
PlannedImagingAgentAdministrationSRStorage = 349 ,
PerformedImagingAgentAdministrationSRStorage = 350 ,
ContentAssessmentResultsStorage = 351 ,
EncapsulatedSTLStorage = 352 ,
EnhancedPETImageStorage = 353 ,
BasicStructuredDisplayStorage = 354 ,
CTDefinedProcedureProtocolStorage = 355 ,
CTPerformedProcedureProtocolStorage = 356 ,
ProtocolApprovalStorage = 357 ,
ProtocolApprovalInformationModelFIND = 358 ,
ProtocolApprovalInformationModelMOVE = 359 ,
ProtocolApprovalInformationModelGET = 360 ,
RTPhysicianIntentStorage = 361 ,
RTSegmentAnnotationStorage = 362 ,
DICOSCTImageStorage = 363 ,
DICOSDigitalXRayImageStorageForPresentation = 364 ,
DICOSDigitalXRayImageStorageForProcessing = 365 ,

DICOSThreatDetectionReportStorage = 366 ,
DICOS2DAITStorage = 367 ,
DICOS3DAITStorage = 368 ,
DICOSQuadrupoleResonanceQRStorage = 369 ,
EddyCurrentImageStorage = 370 ,
EddyCurrentMultiframeImageStorage = 371 ,
CompositeInstanceRootRetrieveMOVE = 372 ,
CompositeInstanceRootRetrieveGET = 373 ,
CompositeInstanceRetrieveWithoutBulkDataGET = 374 ,
DefinedProcedureProtocolInformationModelFIND = 375 ,
DefinedProcedureProtocolInformationModelMOVE = 376 ,
DefinedProcedureProtocolInformationModelGET = 377 ,
UPSFilteredGlobalSubscriptionSOPInstance = 378 ,
UnifiedWorklistandProcedureStepServiceClass1 = 379 ,
UnifiedProcedureStepPushSOPClass1 = 380 ,
UnifiedProcedureStepWatchSOPClass1 = 381 ,
UnifiedProcedureStepPullSOPClass1 = 382 ,
UnifiedProcedureStepEventSOPClass1 = 383 ,
RTBeamsDeliveryInstructionStorage = 384 ,
RTConventionalMachineVerification = 385 ,
RTIonMachineVerification = 386 ,
RTBrachyApplicationSetupDeliveryInstructionStorage = 387 ,
HangingProtocolInformationModelGET = 388 ,
ColorPaletteStorage = 389 ,
ColorPaletteQueryRetrieveInformationModelFIND = 390 ,
ColorPaletteQueryRetrieveInformationModelMOVE = 391 ,
ColorPaletteQueryRetrieveInformationModelGET = 392 ,
GenericImplantTemplateStorage = 393 ,
GenericImplantTemplateInformationModelFIND = 394 ,
GenericImplantTemplateInformationModelMOVE = 395 ,
GenericImplantTemplateInformationModelGET = 396 ,
ImplantAssemblyTemplateStorage = 397 ,
ImplantAssemblyTemplateInformationModelFIND = 398 ,
ImplantAssemblyTemplateInformationModelMOVE = 399 ,
ImplantAssemblyTemplateInformationModelGET = 400 ,
ImplantTemplateGroupStorage = 401 ,
ImplantTemplateGroupInformationModelFIND = 402 ,
ImplantTemplateGroupInformationModelMOVE = 403 ,
ImplantTemplateGroupInformationModelGET = 404 ,
NativeDICOMModel = 405 ,
AbstractMultiDimensionalImageModel = 406 ,
DICOMContentMappingResource = 407 ,
EnhancedMRColorImageStorage = 408 ,
UniversalCoordinatedTime = 409 }

- enum TSType {
uid_1_2_840_10008_1_1 = 1 ,
uid_1_2_840_10008_1_2 = 2 ,
uid_1_2_840_10008_1_2_1 = 3 ,
uid_1_2_840_10008_1_2_1_99 = 4 ,
uid_1_2_840_10008_1_2_2 = 5 ,
uid_1_2_840_10008_1_2_4_50 = 6 ,
uid_1_2_840_10008_1_2_4_51 = 7 ,
uid_1_2_840_10008_1_2_4_52 = 8 ,
uid_1_2_840_10008_1_2_4_53 = 9 ,

uid_1_2_840_10008_1_2_4_54 = 10 ,
uid_1_2_840_10008_1_2_4_55 = 11 ,
uid_1_2_840_10008_1_2_4_56 = 12 ,
uid_1_2_840_10008_1_2_4_57 = 13 ,
uid_1_2_840_10008_1_2_4_58 = 14 ,
uid_1_2_840_10008_1_2_4_59 = 15 ,
uid_1_2_840_10008_1_2_4_60 = 16 ,
uid_1_2_840_10008_1_2_4_61 = 17 ,
uid_1_2_840_10008_1_2_4_62 = 18 ,
uid_1_2_840_10008_1_2_4_63 = 19 ,
uid_1_2_840_10008_1_2_4_64 = 20 ,
uid_1_2_840_10008_1_2_4_65 = 21 ,
uid_1_2_840_10008_1_2_4_66 = 22 ,
uid_1_2_840_10008_1_2_4_70 = 23 ,
uid_1_2_840_10008_1_2_4_80 = 24 ,
uid_1_2_840_10008_1_2_4_81 = 25 ,
uid_1_2_840_10008_1_2_4_90 = 26 ,
uid_1_2_840_10008_1_2_4_91 = 27 ,
uid_1_2_840_10008_1_2_4_92 = 28 ,
uid_1_2_840_10008_1_2_4_93 = 29 ,
uid_1_2_840_10008_1_2_4_94 = 30 ,
uid_1_2_840_10008_1_2_4_95 = 31 ,
uid_1_2_840_10008_1_2_4_100 = 32 ,
uid_1_2_840_10008_1_2_5 = 33 ,
uid_1_2_840_10008_1_2_6_1 = 34 ,
uid_1_2_840_10008_1_2_6_2 = 35 ,
uid_1_2_840_10008_1_3_10 = 36 ,
uid_1_2_840_10008_1_4_1_1 = 37 ,
uid_1_2_840_10008_1_4_1_2 = 38 ,
uid_1_2_840_10008_1_4_1_3 = 39 ,
uid_1_2_840_10008_1_4_1_4 = 40 ,
uid_1_2_840_10008_1_4_1_5 = 41 ,
uid_1_2_840_10008_1_4_1_6 = 42 ,
uid_1_2_840_10008_1_4_1_7 = 43 ,
uid_1_2_840_10008_1_4_1_8 = 44 ,
uid_1_2_840_10008_1_4_1_9 = 45 ,
uid_1_2_840_10008_1_4_1_10 = 46 ,
uid_1_2_840_10008_1_4_1_11 = 47 ,
uid_1_2_840_10008_1_4_1_12 = 48 ,
uid_1_2_840_10008_1_4_1_13 = 49 ,
uid_1_2_840_10008_1_4_1_14 = 50 ,
uid_1_2_840_10008_1_4_1_15 = 51 ,
uid_1_2_840_10008_1_4_1_16 = 52 ,
uid_1_2_840_10008_1_4_1_17 = 53 ,
uid_1_2_840_10008_1_4_1_18 = 54 ,
uid_1_2_840_10008_1_4_2_1 = 55 ,
uid_1_2_840_10008_1_4_2_2 = 56 ,
uid_1_2_840_10008_1_9 = 57 ,
uid_1_2_840_10008_1_20_1 = 58 ,
uid_1_2_840_10008_1_20_1_1 = 59 ,
uid_1_2_840_10008_1_20_2 = 60 ,
uid_1_2_840_10008_1_20_2_1 = 61 ,
uid_1_2_840_10008_1_40 = 62 ,
uid_1_2_840_10008_1_40_1 = 63 ,

uid_1_2_840_10008_1_42 = 64 ,
uid_1_2_840_10008_1_42_1 = 65 ,
uid_1_2_840_10008_2_6_1 = 66 ,
uid_1_2_840_10008_2_16_4 = 67 ,
uid_1_2_840_10008_3_1_1_1 = 68 ,
uid_1_2_840_10008_3_1_2_1_1 = 69 ,
uid_1_2_840_10008_3_1_2_1_4 = 70 ,
uid_1_2_840_10008_3_1_2_2_1 = 71 ,
uid_1_2_840_10008_3_1_2_3_1 = 72 ,
uid_1_2_840_10008_3_1_2_3_2 = 73 ,
uid_1_2_840_10008_3_1_2_3_3 = 74 ,
uid_1_2_840_10008_3_1_2_3_4 = 75 ,
uid_1_2_840_10008_3_1_2_3_5 = 76 ,
uid_1_2_840_10008_3_1_2_5_1 = 77 ,
uid_1_2_840_10008_3_1_2_5_4 = 78 ,
uid_1_2_840_10008_3_1_2_5_5 = 79 ,
uid_1_2_840_10008_3_1_2_6_1 = 80 ,
uid_1_2_840_10008_4_2 = 81 ,
uid_1_2_840_10008_5_1_1_1 = 82 ,
uid_1_2_840_10008_5_1_1_2 = 83 ,
uid_1_2_840_10008_5_1_1_4 = 84 ,
uid_1_2_840_10008_5_1_1_4_1 = 85 ,
uid_1_2_840_10008_5_1_1_4_2 = 86 ,
uid_1_2_840_10008_5_1_1_9 = 87 ,
uid_1_2_840_10008_5_1_1_9_1 = 88 ,
uid_1_2_840_10008_5_1_1_14 = 89 ,
uid_1_2_840_10008_5_1_1_15 = 90 ,
uid_1_2_840_10008_5_1_1_16 = 91 ,
uid_1_2_840_10008_5_1_1_16_376 = 92 ,
uid_1_2_840_10008_5_1_1_17 = 93 ,
uid_1_2_840_10008_5_1_1_17_376 = 94 ,
uid_1_2_840_10008_5_1_1_18 = 95 ,
uid_1_2_840_10008_5_1_1_18_1 = 96 ,
uid_1_2_840_10008_5_1_1_22 = 97 ,
uid_1_2_840_10008_5_1_1_23 = 98 ,
uid_1_2_840_10008_5_1_1_24 = 99 ,
uid_1_2_840_10008_5_1_1_24_1 = 100 ,
uid_1_2_840_10008_5_1_1_25 = 101 ,
uid_1_2_840_10008_5_1_1_26 = 102 ,
uid_1_2_840_10008_5_1_1_27 = 103 ,
uid_1_2_840_10008_5_1_1_29 = 104 ,
uid_1_2_840_10008_5_1_1_30 = 105 ,
uid_1_2_840_10008_5_1_1_31 = 106 ,
uid_1_2_840_10008_5_1_1_32 = 107 ,
uid_1_2_840_10008_5_1_1_33 = 108 ,
uid_1_2_840_10008_5_1_4_1_1_1 = 109 ,
uid_1_2_840_10008_5_1_4_1_1_1_1 = 110 ,
uid_1_2_840_10008_5_1_4_1_1_1_1_1 = 111 ,
uid_1_2_840_10008_5_1_4_1_1_1_2 = 112 ,
uid_1_2_840_10008_5_1_4_1_1_1_2_1 = 113 ,
uid_1_2_840_10008_5_1_4_1_1_1_3 = 114 ,
uid_1_2_840_10008_5_1_4_1_1_1_3_1 = 115 ,
uid_1_2_840_10008_5_1_4_1_1_2 = 116 ,
uid_1_2_840_10008_5_1_4_1_1_2_1 = 117 ,

uid_1_2_840_10008_5_1_4_1_1_3 = 118 ,
uid_1_2_840_10008_5_1_4_1_1_3_1 = 119 ,
uid_1_2_840_10008_5_1_4_1_1_4 = 120 ,
uid_1_2_840_10008_5_1_4_1_1_4_1 = 121 ,
uid_1_2_840_10008_5_1_4_1_1_4_2 = 122 ,
uid_1_2_840_10008_5_1_4_1_1_5 = 123 ,
uid_1_2_840_10008_5_1_4_1_1_6 = 124 ,
uid_1_2_840_10008_5_1_4_1_1_6_1 = 125 ,
uid_1_2_840_10008_5_1_4_1_1_7 = 126 ,
uid_1_2_840_10008_5_1_4_1_1_7_1 = 127 ,
uid_1_2_840_10008_5_1_4_1_1_7_2 = 128 ,
uid_1_2_840_10008_5_1_4_1_1_7_3 = 129 ,
uid_1_2_840_10008_5_1_4_1_1_7_4 = 130 ,
uid_1_2_840_10008_5_1_4_1_1_8 = 131 ,
uid_1_2_840_10008_5_1_4_1_1_9 = 132 ,
uid_1_2_840_10008_5_1_4_1_1_9_1 = 133 ,
uid_1_2_840_10008_5_1_4_1_1_9_1_1 = 134 ,
uid_1_2_840_10008_5_1_4_1_1_9_1_2 = 135 ,
uid_1_2_840_10008_5_1_4_1_1_9_1_3 = 136 ,
uid_1_2_840_10008_5_1_4_1_1_9_2_1 = 137 ,
uid_1_2_840_10008_5_1_4_1_1_9_3_1 = 138 ,
uid_1_2_840_10008_5_1_4_1_1_9_4_1 = 139 ,
uid_1_2_840_10008_5_1_4_1_1_10 = 140 ,
uid_1_2_840_10008_5_1_4_1_1_11 = 141 ,
uid_1_2_840_10008_5_1_4_1_1_11_1 = 142 ,
uid_1_2_840_10008_5_1_4_1_1_11_2 = 143 ,
uid_1_2_840_10008_5_1_4_1_1_11_3 = 144 ,
uid_1_2_840_10008_5_1_4_1_1_11_4 = 145 ,
uid_1_2_840_10008_5_1_4_1_1_12_1 = 146 ,
uid_1_2_840_10008_5_1_4_1_1_12_1_1 = 147 ,
uid_1_2_840_10008_5_1_4_1_1_12_2 = 148 ,
uid_1_2_840_10008_5_1_4_1_1_12_2_1 = 149 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_1 = 150 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_2 = 151 ,
uid_1_2_840_10008_5_1_4_1_1_12_3 = 152 ,
uid_1_2_840_10008_5_1_4_1_1_20 = 153 ,
uid_1_2_840_10008_5_1_4_1_1_66 = 154 ,
uid_1_2_840_10008_5_1_4_1_1_66_1 = 155 ,
uid_1_2_840_10008_5_1_4_1_1_66_2 = 156 ,
uid_1_2_840_10008_5_1_4_1_1_66_3 = 157 ,
uid_1_2_840_10008_5_1_4_1_1_66_4 = 158 ,
uid_1_2_840_10008_5_1_4_1_1_67 = 159 ,
uid_1_2_840_10008_5_1_4_1_1_77_1 = 160 ,
uid_1_2_840_10008_5_1_4_1_1_77_2 = 161 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_1 = 162 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_1_1 = 163 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_2 = 164 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_2_1 = 165 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_3 = 166 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_4 = 167 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_4_1 = 168 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_1 = 169 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_2 = 170 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_3 = 171 ,

uid_1_2_840_10008_5_1_4_1_1_77_1_5_4 = 172 ,
uid_1_2_840_10008_5_1_4_1_1_88_1 = 173 ,
uid_1_2_840_10008_5_1_4_1_1_88_2 = 174 ,
uid_1_2_840_10008_5_1_4_1_1_88_3 = 175 ,
uid_1_2_840_10008_5_1_4_1_1_88_4 = 176 ,
uid_1_2_840_10008_5_1_4_1_1_88_11 = 177 ,
uid_1_2_840_10008_5_1_4_1_1_88_22 = 178 ,
uid_1_2_840_10008_5_1_4_1_1_88_33 = 179 ,
uid_1_2_840_10008_5_1_4_1_1_88_40 = 180 ,
uid_1_2_840_10008_5_1_4_1_1_88_50 = 181 ,
uid_1_2_840_10008_5_1_4_1_1_88_59 = 182 ,
uid_1_2_840_10008_5_1_4_1_1_88_65 = 183 ,
uid_1_2_840_10008_5_1_4_1_1_88_67 = 184 ,
uid_1_2_840_10008_5_1_4_1_1_104_1 = 185 ,
uid_1_2_840_10008_5_1_4_1_1_104_2 = 186 ,
uid_1_2_840_10008_5_1_4_1_1_128 = 187 ,
uid_1_2_840_10008_5_1_4_1_1_129 = 188 ,
uid_1_2_840_10008_5_1_4_1_1_481_1 = 189 ,
uid_1_2_840_10008_5_1_4_1_1_481_2 = 190 ,
uid_1_2_840_10008_5_1_4_1_1_481_3 = 191 ,
uid_1_2_840_10008_5_1_4_1_1_481_4 = 192 ,
uid_1_2_840_10008_5_1_4_1_1_481_5 = 193 ,
uid_1_2_840_10008_5_1_4_1_1_481_6 = 194 ,
uid_1_2_840_10008_5_1_4_1_1_481_7 = 195 ,
uid_1_2_840_10008_5_1_4_1_1_481_8 = 196 ,
uid_1_2_840_10008_5_1_4_1_1_481_9 = 197 ,
uid_1_2_840_10008_5_1_4_1_2_1_1 = 198 ,
uid_1_2_840_10008_5_1_4_1_2_1_2 = 199 ,
uid_1_2_840_10008_5_1_4_1_2_1_3 = 200 ,
uid_1_2_840_10008_5_1_4_1_2_2_1 = 201 ,
uid_1_2_840_10008_5_1_4_1_2_2_2 = 202 ,
uid_1_2_840_10008_5_1_4_1_2_2_3 = 203 ,
uid_1_2_840_10008_5_1_4_1_2_3_1 = 204 ,
uid_1_2_840_10008_5_1_4_1_2_3_2 = 205 ,
uid_1_2_840_10008_5_1_4_1_2_3_3 = 206 ,
uid_1_2_840_10008_5_1_4_31 = 207 ,
uid_1_2_840_10008_5_1_4_32_1 = 208 ,
uid_1_2_840_10008_5_1_4_32_2 = 209 ,
uid_1_2_840_10008_5_1_4_32_3 = 210 ,
uid_1_2_840_10008_5_1_4_32 = 211 ,
uid_1_2_840_10008_5_1_4_33 = 212 ,
uid_1_2_840_10008_5_1_4_34_1 = 213 ,
uid_1_2_840_10008_5_1_4_34_2 = 214 ,
uid_1_2_840_10008_5_1_4_34_3 = 215 ,
uid_1_2_840_10008_5_1_4_34_4 = 216 ,
uid_1_2_840_10008_5_1_4_34_4_1 = 217 ,
uid_1_2_840_10008_5_1_4_34_4_2 = 218 ,
uid_1_2_840_10008_5_1_4_34_4_3 = 219 ,
uid_1_2_840_10008_5_1_4_34_4_4 = 220 ,
uid_1_2_840_10008_5_1_4_34_5 = 221 ,
uid_1_2_840_10008_5_1_4_37_1 = 222 ,
uid_1_2_840_10008_5_1_4_37_2 = 223 ,
uid_1_2_840_10008_5_1_4_37_3 = 224 ,
uid_1_2_840_10008_5_1_4_38_1 = 225 ,

uid_1_2_840_10008_5_1_4_38_2 = 226 ,
uid_1_2_840_10008_5_1_4_38_3 = 227 ,
uid_1_2_840_10008_5_1_4_41 = 228 ,
uid_1_2_840_10008_5_1_4_42 = 229 ,
uid_1_2_840_10008_15_0_3_1 = 230 ,
uid_1_2_840_10008_15_0_3_2 = 231 ,
uid_1_2_840_10008_15_0_3_3 = 232 ,
uid_1_2_840_10008_15_0_3_4 = 233 ,
uid_1_2_840_10008_15_0_3_5 = 234 ,
uid_1_2_840_10008_15_0_3_6 = 235 ,
uid_1_2_840_10008_15_0_3_7 = 236 ,
uid_1_2_840_10008_15_0_3_8 = 237 ,
uid_1_2_840_10008_15_0_3_9 = 238 ,
uid_1_2_840_10008_15_0_3_10 = 239 ,
uid_1_2_840_10008_15_0_3_11 = 240 ,
uid_1_2_840_10008_15_0_3_12 = 241 ,
uid_1_2_840_10008_15_0_3_13 = 242 ,
uid_1_2_840_10008_15_0_3_14 = 243 ,
uid_1_2_840_10008_15_0_3_15 = 244 ,
uid_1_2_840_10008_15_0_3_16 = 245 ,
uid_1_2_840_10008_15_0_3_17 = 246 ,
uid_1_2_840_10008_15_0_3_18 = 247 ,
uid_1_2_840_10008_15_0_3_19 = 248 ,
uid_1_2_840_10008_15_0_3_20 = 249 ,
uid_1_2_840_10008_15_0_3_21 = 250 ,
uid_1_2_840_10008_15_0_3_22 = 251 ,
uid_1_2_840_10008_15_0_3_23 = 252 ,
uid_1_2_840_10008_15_0_3_24 = 253 ,
uid_1_2_840_10008_15_0_3_25 = 254 ,
uid_1_2_840_10008_15_0_3_26 = 255 ,
uid_1_2_840_10008_15_0_3_27 = 256 ,
uid_1_2_840_10008_15_0_3_28 = 257 ,
uid_1_2_840_10008_15_0_3_29 = 258 ,
uid_1_2_840_10008_15_0_3_30 = 259 ,
uid_1_2_840_10008_15_0_3_31 = 260 ,
uid_1_2_840_10008_15_0_4_1 = 261 ,
uid_1_2_840_10008_15_0_4_2 = 262 ,
uid_1_2_840_10008_15_0_4_3 = 263 ,
uid_1_2_840_10008_15_0_4_4 = 264 ,
uid_1_2_840_10008_15_0_4_5 = 265 ,
uid_1_2_840_10008_15_0_4_6 = 266 ,
uid_1_2_840_10008_15_0_4_7 = 267 ,
uid_1_2_840_10008_15_0_4_8 = 268 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_6 = 269 ,
uid_1_2_840_10008_5_1_4_1_1_6_2 = 270 ,
uid_1_2_840_10008_5_1_4_1_1_66_5 = 271 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_3 = 272 ,
uid_1_2_840_10008_5_1_4_1_1_2_2 = 273 ,
uid_1_2_840_10008_5_1_4_1_1_4_4 = 274 ,
uid_1_2_840_10008_5_1_4_1_1_128_1 = 275 ,
uid_1_2_840_10008_1_2_4_101 = 276 ,
uid_1_2_840_10008_1_2_4_102 = 277 ,
uid_1_2_840_10008_1_2_4_103 = 278 ,
uid_1_2_840_10008_1_5_2 = 279 ,

uid_1_2_840_10008_1_5_3 = 280 ,
uid_1_2_840_10008_1_5_4 = 281 ,
uid_1_2_840_10008_1_5_5 = 282 ,
uid_1_2_840_10008_1_5_6 = 283 ,
uid_1_2_840_10008_1_5_7 = 284 ,
uid_1_2_840_10008_1_5_8 = 285 ,
uid_1_2_840_10008_1_20 = 286 ,
uid_1_2_840_10008_2_16_5 = 287 ,
uid_1_2_840_10008_2_16_6 = 288 ,
uid_1_2_840_10008_2_16_7 = 289 ,
uid_1_2_840_10008_2_16_8 = 290 ,
uid_1_2_840_10008_2_16_9 = 291 ,
uid_1_2_840_10008_2_16_10 = 292 ,
uid_1_2_840_10008_2_16_11 = 293 ,
uid_1_2_840_10008_2_16_12 = 294 ,
uid_1_2_840_10008_2_16_13 = 295 ,
uid_1_2_840_10008_2_16_14 = 296 ,
uid_1_2_840_10008_5_1_1_40 = 297 ,
uid_1_2_840_10008_5_1_1_40_1 = 298 ,
uid_1_2_840_10008_5_1_4_1_1_9_4_2 = 299 ,
uid_1_2_840_10008_5_1_4_1_1_9_5_1 = 300 ,
uid_1_2_840_10008_5_1_4_1_1_9_6_1 = 301 ,
uid_1_2_840_10008_5_1_4_1_1_11_5 = 302 ,
uid_1_2_840_10008_5_1_4_1_1_11_6 = 303 ,
uid_1_2_840_10008_1_2_4_104 = 304 ,
uid_1_2_840_10008_1_2_4_105 = 305 ,
uid_1_2_840_10008_1_2_4_106 = 306 ,
uid_1_2_840_10008_1_2_4_107 = 307 ,
uid_1_2_840_10008_1_2_4_108 = 308 ,
uid_1_2_840_10008_1_5_1 = 309 ,
uid_1_2_840_10008_5_1_4_1_1_11_7 = 310 ,
uid_1_2_840_10008_5_1_4_1_1_11_8 = 311 ,
uid_1_2_840_10008_5_1_4_1_1_11_9 = 312 ,
uid_1_2_840_10008_5_1_4_1_1_11_10 = 313 ,
uid_1_2_840_10008_5_1_4_1_1_11_11 = 314 ,
uid_1_2_840_10008_5_1_4_1_1_12_77 = 315 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_4 = 316 ,
uid_1_2_840_10008_5_1_4_1_1_13_1_5 = 317 ,
uid_1_2_840_10008_5_1_4_1_1_14_1 = 318 ,
uid_1_2_840_10008_5_1_4_1_1_14_2 = 319 ,
uid_1_2_840_10008_5_1_4_1_1_30 = 320 ,
uid_1_2_840_10008_5_1_4_1_1_40 = 321 ,
uid_1_2_840_10008_5_1_4_1_1_66_6 = 322 ,
uid_1_2_840_10008_5_1_4_1_1_68_1 = 323 ,
uid_1_2_840_10008_5_1_4_1_1_68_2 = 324 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_5 = 325 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_6 = 326 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_7 = 327 ,
uid_1_2_840_10008_5_1_4_1_1_77_1_5_8 = 328 ,
uid_1_2_840_10008_5_1_4_1_1_78_1 = 329 ,
uid_1_2_840_10008_5_1_4_1_1_78_2 = 330 ,
uid_1_2_840_10008_5_1_4_1_1_78_3 = 331 ,
uid_1_2_840_10008_5_1_4_1_1_78_4 = 332 ,
uid_1_2_840_10008_5_1_4_1_1_78_5 = 333 ,

uid_1_2_840_10008_5_1_4_1_1_78_6 = 334 ,
uid_1_2_840_10008_5_1_4_1_1_78_7 = 335 ,
uid_1_2_840_10008_5_1_4_1_1_78_8 = 336 ,
uid_1_2_840_10008_5_1_4_1_1_79_1 = 337 ,
uid_1_2_840_10008_5_1_4_1_1_80_1 = 338 ,
uid_1_2_840_10008_5_1_4_1_1_81_1 = 339 ,
uid_1_2_840_10008_5_1_4_1_1_82_1 = 340 ,
uid_1_2_840_10008_5_1_4_1_1_88_34 = 341 ,
uid_1_2_840_10008_5_1_4_1_1_88_35 = 342 ,
uid_1_2_840_10008_5_1_4_1_1_88_68 = 343 ,
uid_1_2_840_10008_5_1_4_1_1_88_69 = 344 ,
uid_1_2_840_10008_5_1_4_1_1_88_70 = 345 ,
uid_1_2_840_10008_5_1_4_1_1_88_71 = 346 ,
uid_1_2_840_10008_5_1_4_1_1_88_72 = 347 ,
uid_1_2_840_10008_5_1_4_1_1_88_73 = 348 ,
uid_1_2_840_10008_5_1_4_1_1_88_74 = 349 ,
uid_1_2_840_10008_5_1_4_1_1_88_75 = 350 ,
uid_1_2_840_10008_5_1_4_1_1_90_1 = 351 ,
uid_1_2_840_10008_5_1_4_1_1_104_3 = 352 ,
uid_1_2_840_10008_5_1_4_1_1_130 = 353 ,
uid_1_2_840_10008_5_1_4_1_1_131 = 354 ,
uid_1_2_840_10008_5_1_4_1_1_200_1 = 355 ,
uid_1_2_840_10008_5_1_4_1_1_200_2 = 356 ,
uid_1_2_840_10008_5_1_4_1_1_200_3 = 357 ,
uid_1_2_840_10008_5_1_4_1_1_200_4 = 358 ,
uid_1_2_840_10008_5_1_4_1_1_200_5 = 359 ,
uid_1_2_840_10008_5_1_4_1_1_200_6 = 360 ,
uid_1_2_840_10008_5_1_4_1_1_481_10 = 361 ,
uid_1_2_840_10008_5_1_4_1_1_481_11 = 362 ,
uid_1_2_840_10008_5_1_4_1_1_501_1 = 363 ,
uid_1_2_840_10008_5_1_4_1_1_501_2_1 = 364 ,
uid_1_2_840_10008_5_1_4_1_1_501_2_2 = 365 ,
uid_1_2_840_10008_5_1_4_1_1_501_3 = 366 ,
uid_1_2_840_10008_5_1_4_1_1_501_4 = 367 ,
uid_1_2_840_10008_5_1_4_1_1_501_5 = 368 ,
uid_1_2_840_10008_5_1_4_1_1_501_6 = 369 ,
uid_1_2_840_10008_5_1_4_1_1_601_1 = 370 ,
uid_1_2_840_10008_5_1_4_1_1_601_2 = 371 ,
uid_1_2_840_10008_5_1_4_1_2_4_2 = 372 ,
uid_1_2_840_10008_5_1_4_1_2_4_3 = 373 ,
uid_1_2_840_10008_5_1_4_1_2_5_3 = 374 ,
uid_1_2_840_10008_5_1_4_20_1 = 375 ,
uid_1_2_840_10008_5_1_4_20_2 = 376 ,
uid_1_2_840_10008_5_1_4_20_3 = 377 ,
uid_1_2_840_10008_5_1_4_34_5_1 = 378 ,
uid_1_2_840_10008_5_1_4_34_6 = 379 ,
uid_1_2_840_10008_5_1_4_34_6_1 = 380 ,
uid_1_2_840_10008_5_1_4_34_6_2 = 381 ,
uid_1_2_840_10008_5_1_4_34_6_3 = 382 ,
uid_1_2_840_10008_5_1_4_34_6_4 = 383 ,
uid_1_2_840_10008_5_1_4_34_7 = 384 ,
uid_1_2_840_10008_5_1_4_34_8 = 385 ,
uid_1_2_840_10008_5_1_4_34_9 = 386 ,
uid_1_2_840_10008_5_1_4_34_10 = 387 ,

uid_1_2_840_10008_5_1_4_38_4 = 388 ,
uid_1_2_840_10008_5_1_4_39_1 = 389 ,
uid_1_2_840_10008_5_1_4_39_2 = 390 ,
uid_1_2_840_10008_5_1_4_39_3 = 391 ,
uid_1_2_840_10008_5_1_4_39_4 = 392 ,
uid_1_2_840_10008_5_1_4_43_1 = 393 ,
uid_1_2_840_10008_5_1_4_43_2 = 394 ,
uid_1_2_840_10008_5_1_4_43_3 = 395 ,
uid_1_2_840_10008_5_1_4_43_4 = 396 ,
uid_1_2_840_10008_5_1_4_44_1 = 397 ,
uid_1_2_840_10008_5_1_4_44_2 = 398 ,
uid_1_2_840_10008_5_1_4_44_3 = 399 ,
uid_1_2_840_10008_5_1_4_44_4 = 400 ,
uid_1_2_840_10008_5_1_4_45_1 = 401 ,
uid_1_2_840_10008_5_1_4_45_2 = 402 ,
uid_1_2_840_10008_5_1_4_45_3 = 403 ,
uid_1_2_840_10008_5_1_4_45_4 = 404 ,
uid_1_2_840_10008_7_1_1 = 405 ,
uid_1_2_840_10008_7_1_2 = 406 ,
uid_1_2_840_10008_8_1_1 = 407 ,
uid_1_2_840_10008_5_1_4_1_1_4_3 = 408 ,
uid_1_2_840_10008_15_1_1 = 409 }

Public Member Functions

- UIDs ()=default
- const char * GetName () const
- const char * GetString () const
- operator TSType () const
- bool SetFromUID (const char *str)

Static Public Member Functions

- static unsigned int GetNumberOfTransferSyntaxStrings ()
- static const char *const * GetTransferSyntaxString (unsigned int ts)
- static TransferSyntaxStringsType GetTransferSyntaxStrings ()
- static const char * GetUIDName (unsigned int ts)
- static const char * GetUIDString (unsigned int ts)

12.326.1 Detailed Description

all known uids

Examples

GenerateStandardSOPClasses.cxx.

12.326.2 Member Typedef Documentation

12.326.2.1 TransferSyntaxStringsType

```
typedef const char* const(* gdcm::UIDs::TransferSyntaxStringsType)[2]
```

12.326.3 Member Enumeration Documentation

12.326.3.1 TSName

```
enum gdcm::UIDs::TSName
```

12.326.3.2 TSType

```
enum gdcm::UIDs::TSType
```

12.326.4 Constructor & Destructor Documentation

12.326.4.1 UIDs()

```
gdcm::UIDs::UIDs ()  [default]
```

12.326.5 Member Function Documentation

12.326.5.1 GetName()

```
const char * gdcm::UIDs::GetName () const
```

When object is Initialize function return the well known name associated with uid return NULL when not initialized

Examples

GenerateStandardSOPClasses.cxx.

Referenced by gdcm::operator<<().

12.326.5.2 GetNumberOfTransferSyntaxStrings()

```
unsigned int gdcm::UIDs::GetNumberOfTransferSyntaxStrings ()  [static]
```

12.326.5.3 GetString()

```
const char * gdcm::UIDs::GetString () const
```

When object is Initialize function return the uid return NULL when not initialized

Examples

GenerateStandardSOPClasses.cxx.

Referenced by gdcm::operator<<().

12.326.5.4 GetTransferSyntaxString()

```
const char *const * gdcm::UIDs::GetTransferSyntaxString (
            unsigned int ts)  [static]
```

12.326.5.5 GetTransferSyntaxStrings()

```
TransferSyntaxStringsType gdcm::UIDs::GetTransferSyntaxStrings ()  [static]
```

12.326.5.6 GetUIDName()

```
const char * gdcm::UIDs::GetUIDName (
            unsigned int ts)  [static]
```

12.326.5.7 GetUIDString()

```
const char * gdcm::UIDs::GetUIDString (
            unsigned int ts)  [static]
```

12.326.5.8 operator TSType()

```
gdcm::UIDs::operator TSType () const  [inline]
```

12.326.5.9 SetFromUID()

```
bool gdcm::UIDs::SetFromUID (
            const char * str)
```

Initialize object from a string (a uid number) return false on error, and internal state is set to 0

Examples

GenerateStandardSOPClasses.cxx.

The documentation for this class was generated from the following file:

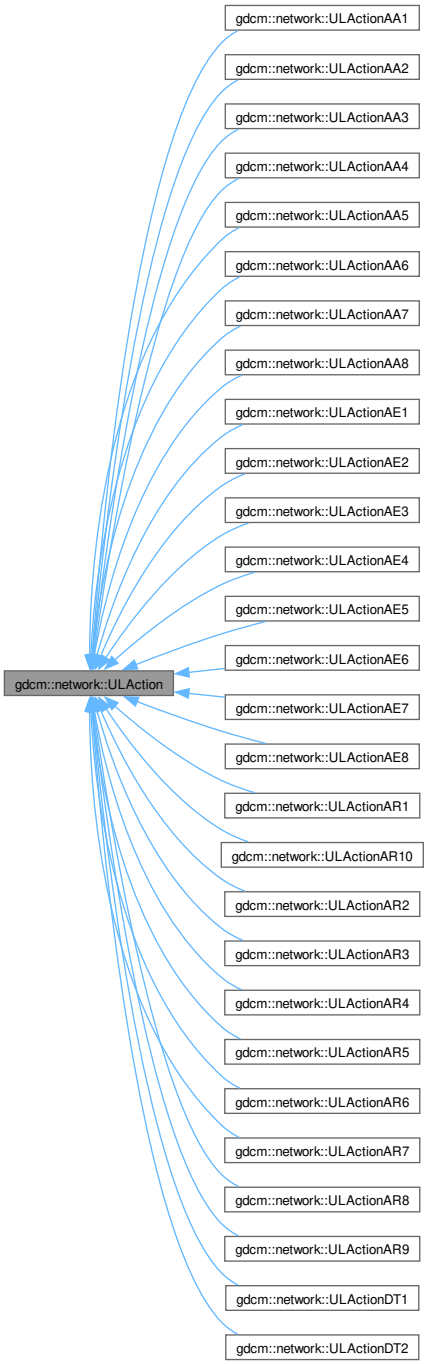
- gdcmUIDs.h

12.327 gdcm::network::ULAction Class Reference

ULAction.

`#include <gdcmULAction.h>`

Inheritance diagram for gdcm::network::ULAction:



Public Member Functions

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete
- virtual EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaiting↩ ForEvent, EEventID &outRaisedEvent)=0

12.327.1 Detailed Description

ULAction.

A ULConnection in a given ULState can perform certain ULActions. This base class provides the interface for running those ULActions on a given ULConnection.

Essentially, the ULConnectionManager will take this object, determined from the current ULState of the ULConnection, and pass the ULConnection object to the ULAction. The ULAction will then invoke whatever necessary commands are required by a given action.

The result of a ULAction is a ULEvent (ie, what happened as a result of the action).

This ULEvent is passed to the ULState, so that the transition to the next state can occur.

Actions are associated with Payloads – be those filestreams, AETitles to establish connections, whatever. The actual parameters that the user will pass via an action will come through a Payload object, which should, in itself, be some gdcm-based object (but not all objects can be payloads; sending a single dataelement as a payload isn't meaningful). As such, each action has its own particular payload.

For the sake of keeping files together, both the particular payload class and the action class will be defined in the same header file. Payloads should JUST be data (or streams), NO METHODS.

Some actions perform changes that should raise events on the local system, and some actions perform changes that will require waiting for events from the remote system.

Therefore, this base action has been modified so that those events are set by each action. When the event loop runs an action, it will then test to see if a local event was raised by the action, and if so, perform the appropriate subsequent action. If the action requires waiting for a response from the remote system, then the event loop will sit there (presumably with the ARTIM timer running) and wait for a response from the remote system. Once a response is obtained, then the the rest of the state transitions can happen.

12.327.2 Constructor & Destructor Documentation

12.327.2.1 ULAction() [1/2]

```
gdcm::network::ULAction::ULAction () [default]
```

Referenced by ULAction(), and operator=().

12.327.2.2 ~ULAction()

```
virtual gdcm::network::ULAction::~ULAction ()  [virtual], [default]
```

12.327.2.3 ULAction() [2/2]

```
gdcm::network::ULAction::ULAction (
            const ULAction & inAction)  [delete]
```

References ULAction().

12.327.3 Member Function Documentation

12.327.3.1 operator=()

```
void gdcm::network::ULAction::operator= (
            const ULAction & )  [delete]
```

References ULAction().

12.327.3.2 PerformAction()

```
virtual EStateID gdcm::network::ULAction::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [pure virtual]
```

Implemented in gdcm::network::ULActionAA1, gdcm::network::ULActionAA2, gdcm::network::ULActionAA3, gdcm::network::ULActionAA4, gdcm::network::ULActionAA5, gdcm::network::ULActionAA6, gdcm::network::ULActionAA7, gdcm::network::ULActionAA8, gdcm::network::ULActionAE1, gdcm::network::ULActionAE2, gdcm::network::ULActionAE3, gdcm::network::ULActionAE4, gdcm::network::ULActionAE5, gdcm::network::ULActionAE6, gdcm::network::ULActionAE7, gdcm::network::ULActionAE8, gdcm::network::ULActionAR10, gdcm::network::ULActionAR1, gdcm::network::ULActionAR2, gdcm::network::ULActionAR3, gdcm::network::ULActionAR4, gdcm::network::ULActionAR5, gdcm::network::ULActionAR6, gdcm::network::ULActionAR7, gdcm::network::ULActionAR8, gdcm::network::ULActionAR9, gdcm::network::ULActionDT1, and gdcm::network::ULActionDT2.

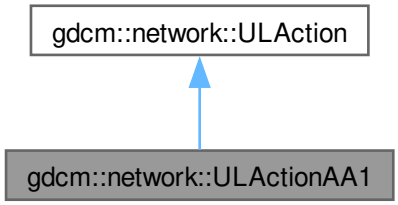
The documentation for this class was generated from the following file:

- gdcmULAction.h

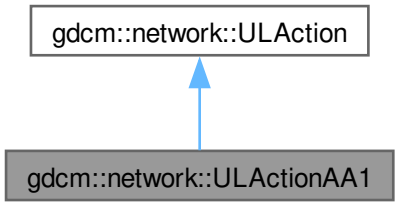
12.328 gdcm::network::ULActionAA1 Class Reference

`#include <gdcmULActionAA.h>`

Inheritance diagram for gdcm::network::ULActionAA1:



Collaboration diagram for gdcm::network::ULActionAA1:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.328.1 Member Function Documentation

12.328.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA1::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

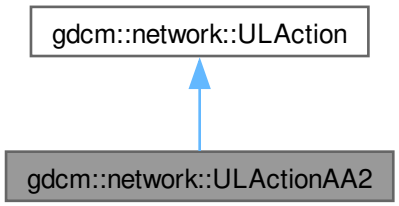
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

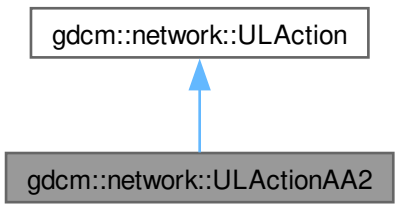
12.329 gdcm::network::ULActionAA2 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA2:



Collaboration diagram for gdcm::network::ULActionAA2:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.329.1 Member Function Documentation

12.329.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA2::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

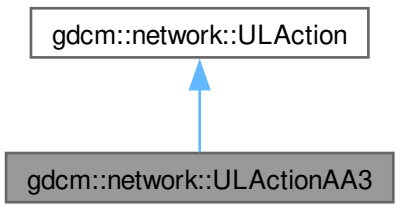
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

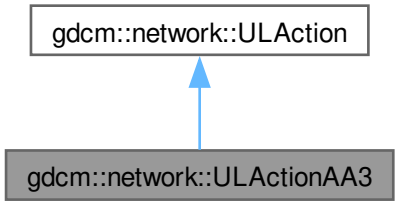
12.330 gdcm::network::ULActionAA3 Class Reference

`#include <gdcmULActionAA.h>`

Inheritance diagram for gdcm::network::ULActionAA3:



Collaboration diagram for gdcm::network::ULActionAA3:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.330.1 Member Function Documentation

12.330.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA3::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

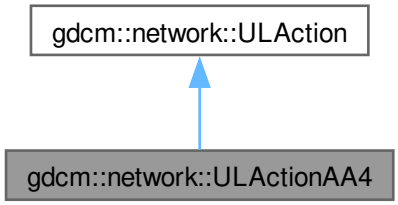
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

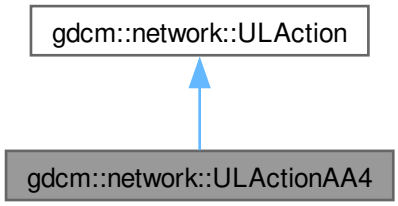
12.331 gdcm::network::ULActionAA4 Class Reference

`#include <gdcmULActionAA.h>`

Inheritance diagram for gdcm::network::ULActionAA4:



Collaboration diagram for gdcm::network::ULActionAA4:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.331.1 Member Function Documentation

12.331.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA4::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

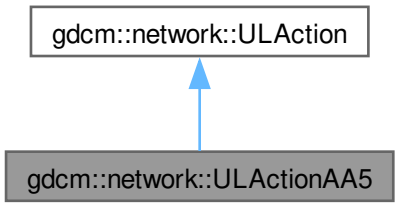
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

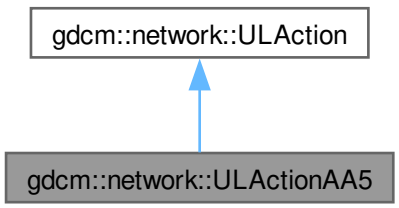
12.332 gdcm::network::ULActionAA5 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA5:



Collaboration diagram for gdcm::network::ULActionAA5:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.332.1 Member Function Documentation

12.332.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA5::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

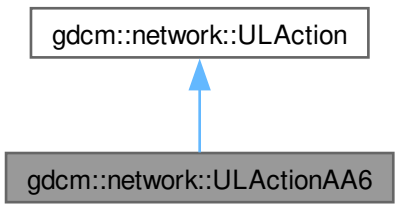
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

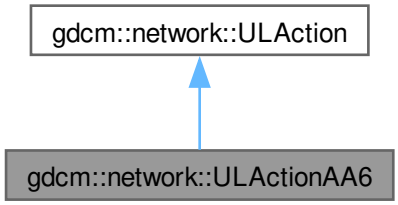
12.333 gdcm::network::ULActionAA6 Class Reference

`#include <gdcmULActionAA.h>`

Inheritance diagram for gdcm::network::ULActionAA6:



Collaboration diagram for gdcm::network::ULActionAA6:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.333.1 Member Function Documentation

12.333.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA6::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

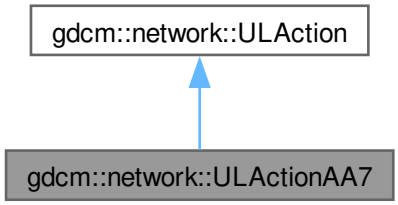
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

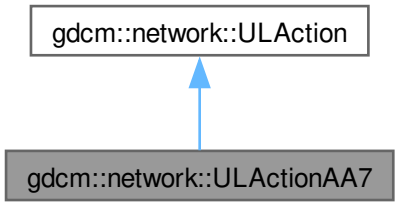
12.334 gdcm::network::ULActionAA7 Class Reference

`#include <gdcmULActionAA.h>`

Inheritance diagram for gdcm::network::ULActionAA7:



Collaboration diagram for gdcm::network::ULActionAA7:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.334.1 Member Function Documentation

12.334.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA7::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

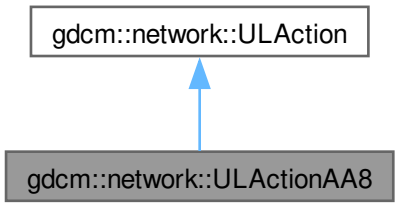
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

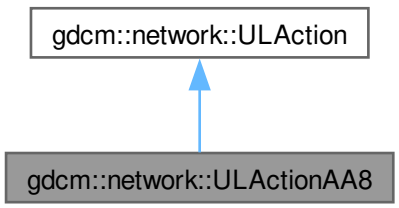
12.335 gdcm::network::ULActionAA8 Class Reference

```
#include <gdcmULActionAA.h>
```

Inheritance diagram for gdcm::network::ULActionAA8:



Collaboration diagram for gdcm::network::ULActionAA8:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.335.1 Member Function Documentation

12.335.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAA8::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

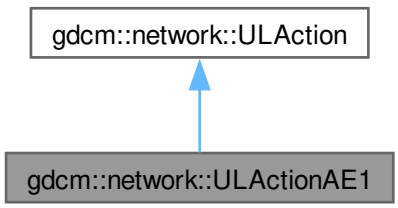
The documentation for this class was generated from the following file:

- gdcmULActionAA.h

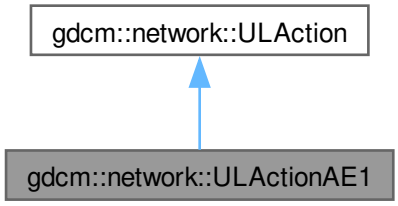
12.336 gdcm::network::ULActionAE1 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE1:



Collaboration diagram for gdcm::network::ULActionAE1:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.336.1 Member Function Documentation

12.336.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE1::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

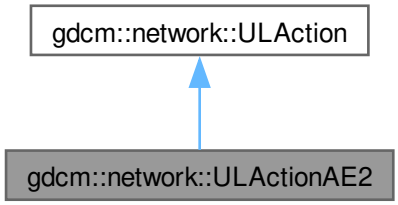
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

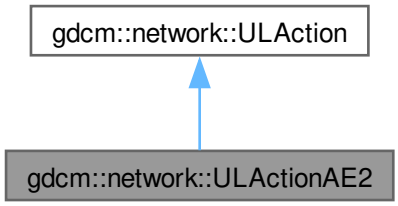
12.337 gdcm::network::ULActionAE2 Class Reference

`#include <gdcmULActionAE.h>`

Inheritance diagram for gdcm::network::ULActionAE2:



Collaboration diagram for gdcm::network::ULActionAE2:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.337.1 Member Function Documentation

12.337.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE2::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

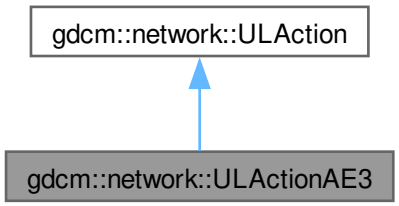
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

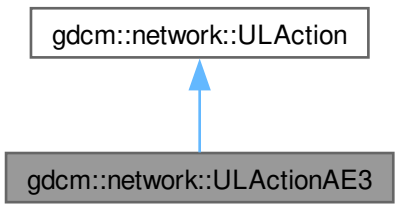
12.338 gdcm::network::ULActionAE3 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE3:



Collaboration diagram for gdcm::network::ULActionAE3:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.338.1 Member Function Documentation

12.338.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE3::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

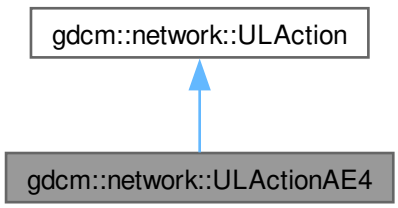
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

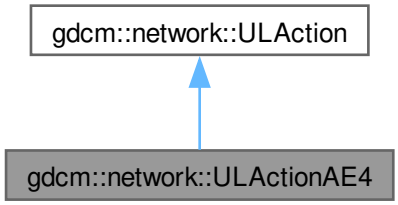
12.339 gdcm::network::ULActionAE4 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE4:



Collaboration diagram for gdcm::network::ULActionAE4:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.339.1 Member Function Documentation

12.339.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE4::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

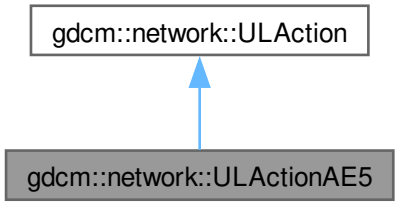
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

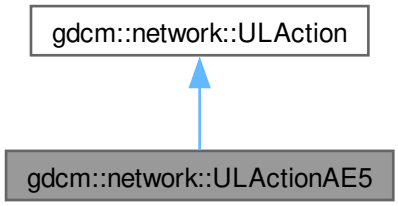
12.340 gdcm::network::ULActionAE5 Class Reference

`#include <gdcmULActionAE.h>`

Inheritance diagram for gdcm::network::ULActionAE5:



Collaboration diagram for gdcm::network::ULActionAE5:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.340.1 Member Function Documentation

12.340.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE5::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

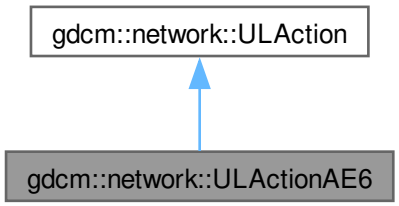
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

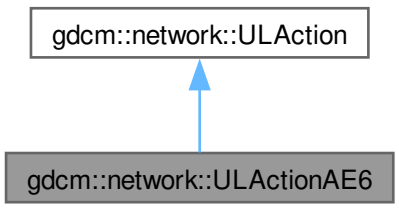
12.341 gdcm::network::ULActionAE6 Class Reference

`#include <gdcmULActionAE.h>`

Inheritance diagram for gdcm::network::ULActionAE6:



Collaboration diagram for gdcm::network::ULActionAE6:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.341.1 Member Function Documentation

12.341.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE6::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

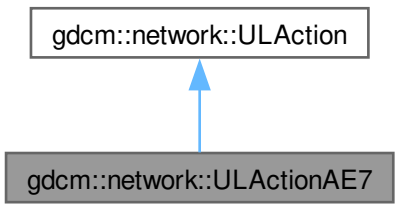
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

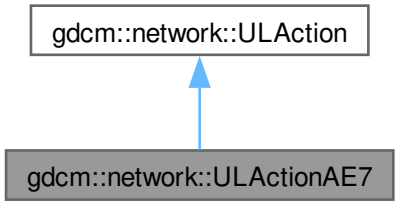
12.342 gdcm::network::ULActionAE7 Class Reference

```
#include <gdcmULActionAE.h>
```

Inheritance diagram for gdcm::network::ULActionAE7:



Collaboration diagram for gdcm::network::ULActionAE7:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.342.1 Member Function Documentation

12.342.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE7::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

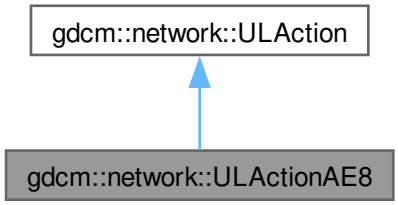
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

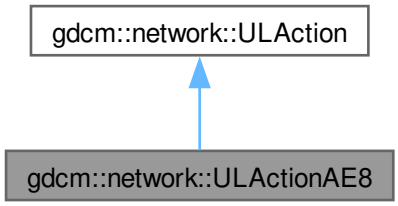
12.343 gdcm::network::ULActionAE8 Class Reference

`#include <gdcmULActionAE.h>`

Inheritance diagram for gdcm::network::ULActionAE8:



Collaboration diagram for gdcm::network::ULActionAE8:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.343.1 Member Function Documentation

12.343.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAE8::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

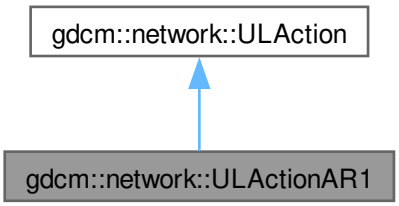
The documentation for this class was generated from the following file:

- gdcmULActionAE.h

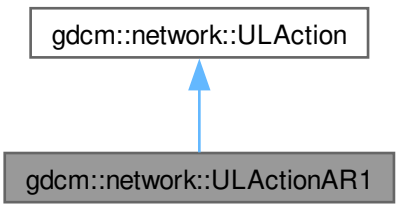
12.344 gdcm::network::ULActionAR1 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR1:



Collaboration diagram for gdcm::network::ULActionAR1:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.344.1 Member Function Documentation

12.344.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR1::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

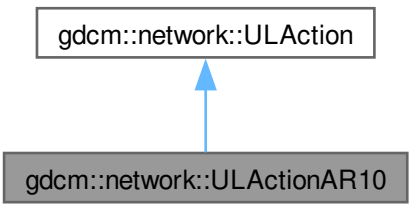
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

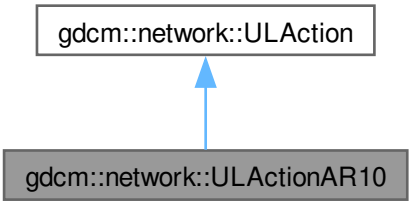
12.345 gdcm::network::ULActionAR10 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR10:



Collaboration diagram for gdcm::network::ULActionAR10:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.345.1 Member Function Documentation

12.345.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR10::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

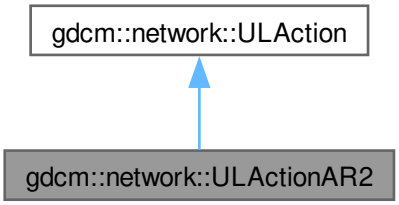
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

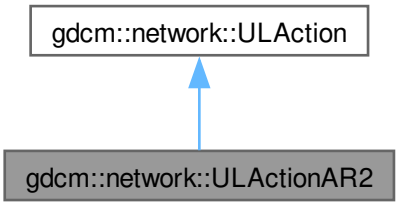
12.346 gdcm::network::ULActionAR2 Class Reference

`#include <gdcmULActionAR.h>`

Inheritance diagram for gdcm::network::ULActionAR2:



Collaboration diagram for gdcm::network::ULActionAR2:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.346.1 Member Function Documentation

12.346.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR2::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

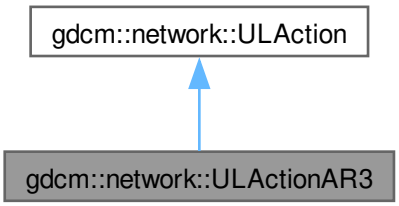
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

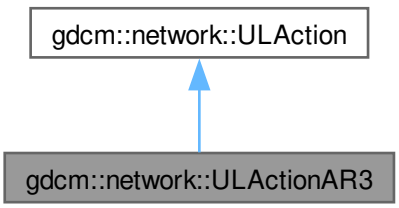
12.347 gdcm::network::ULActionAR3 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR3:



Collaboration diagram for gdcm::network::ULActionAR3:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.347.1 Member Function Documentation

12.347.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR3::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

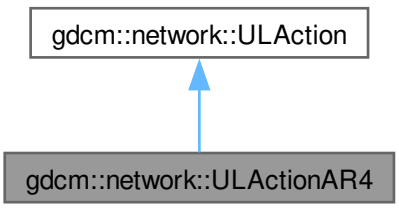
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

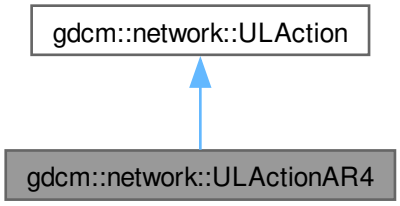
12.348 gdcm::network::ULActionAR4 Class Reference

`#include <gdcmULActionAR.h>`

Inheritance diagram for gdcm::network::ULActionAR4:



Collaboration diagram for gdcm::network::ULActionAR4:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.348.1 Member Function Documentation

12.348.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR4::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

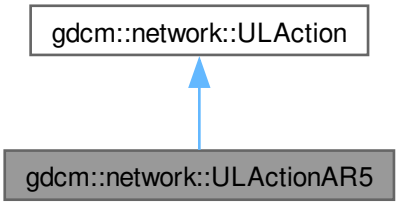
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

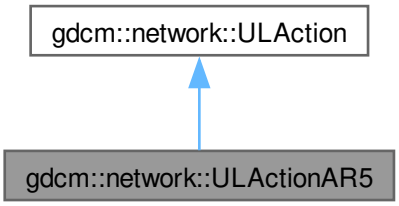
12.349 gdcm::network::ULActionAR5 Class Reference

`#include <gdcmULActionAR.h>`

Inheritance diagram for gdcm::network::ULActionAR5:



Collaboration diagram for gdcm::network::ULActionAR5:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.349.1 Member Function Documentation

12.349.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR5::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

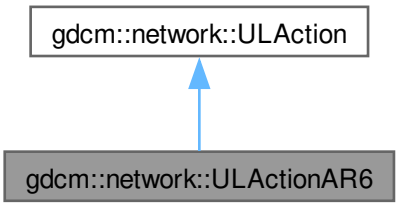
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

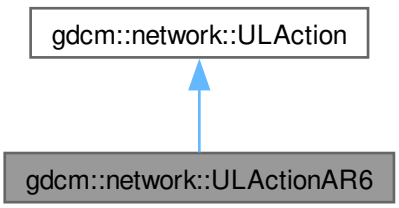
12.350 gdcm::network::ULActionAR6 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR6:



Collaboration diagram for gdcm::network::ULActionAR6:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.350.1 Member Function Documentation

12.350.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR6::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

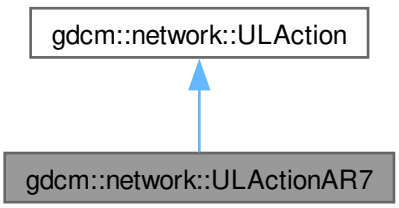
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

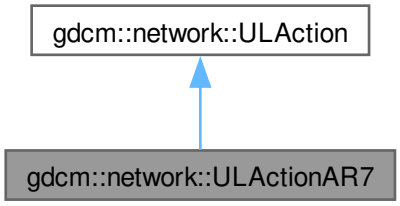
12.351 gdcm::network::ULActionAR7 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR7:



Collaboration diagram for gdcm::network::ULActionAR7:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.351.1 Member Function Documentation

12.351.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR7::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

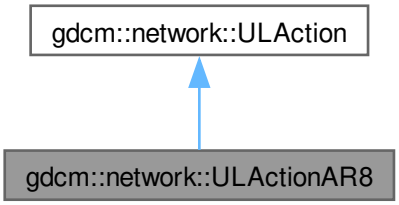
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

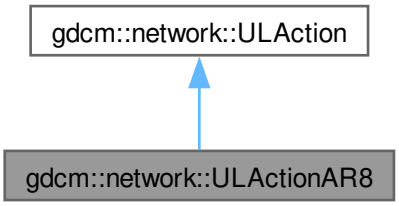
12.352 gdcm::network::ULActionAR8 Class Reference

`#include <gdcmULActionAR.h>`

Inheritance diagram for gdcm::network::ULActionAR8:



Collaboration diagram for gdcm::network::ULActionAR8:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.352.1 Member Function Documentation

12.352.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR8::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

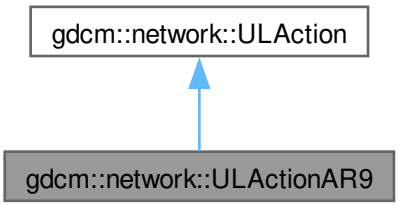
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

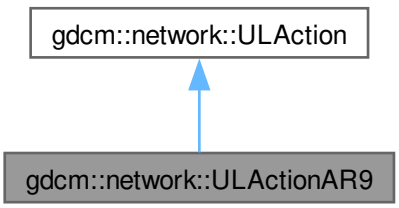
12.353 gdcm::network::ULActionAR9 Class Reference

```
#include <gdcmULActionAR.h>
```

Inheritance diagram for gdcm::network::ULActionAR9:



Collaboration diagram for gdcm::network::ULActionAR9:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.353.1 Member Function Documentation

12.353.1.1 PerformAction()

```
EStateID gdcm::network::ULActionAR9::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

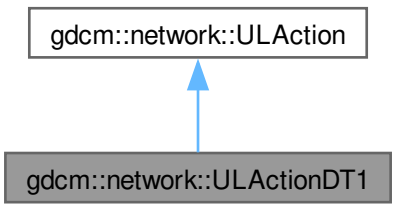
The documentation for this class was generated from the following file:

- gdcmULActionAR.h

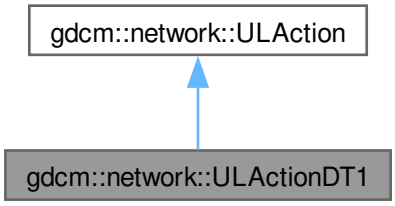
12.354 gdcm::network::ULActionDT1 Class Reference

```
#include <gdcmULActionDT.h>
```

Inheritance diagram for gdcm::network::ULActionDT1:



Collaboration diagram for gdcm::network::ULActionDT1:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingFor↩ Event, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.354.1 Member Function Documentation

12.354.1.1 PerformAction()

```
EStateID gdcm::network::ULActionDT1::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

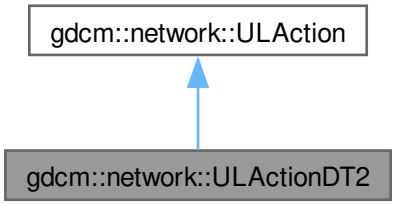
The documentation for this class was generated from the following file:

- gdcmULActionDT.h

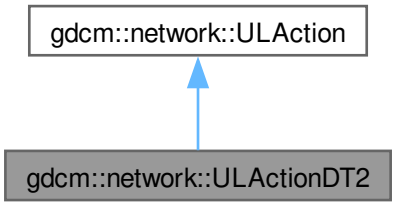
12.355 gdcm::network::ULActionDT2 Class Reference

`#include <gdcmULActionDT.h>`

Inheritance diagram for gdcm::network::ULActionDT2:



Collaboration diagram for gdcm::network::ULActionDT2:



Public Member Functions

- EStateID PerformAction (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) override

Public Member Functions inherited from gdcm::network::ULAction

- ULAction ()=default
- ULAction (const ULAction &inAction)=delete
- virtual ~ULAction ()=default
- void operator= (const ULAction &)=delete

12.355.1 Member Function Documentation

12.355.1.1 PerformAction()

```
EStateID gdcm::network::ULActionDT2::PerformAction (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent)  [override], [virtual]
```

Implements gdcm::network::ULAction.

The documentation for this class was generated from the following file:

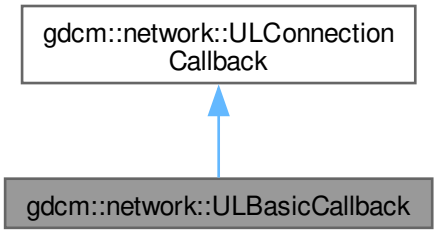
- gdcmULActionDT.h

12.356 gdcm::network::ULBasicCallback Class Reference

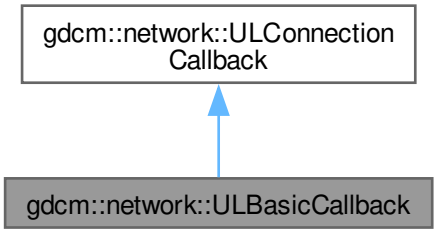
ULBasicCallback.

```
#include <gdcmULBasicCallback.h>
```

Inheritance diagram for gdcm::network::ULBasicCallback:



Collaboration diagram for gdcm::network::ULBasicCallback:



Public Member Functions

- ULBasicCallback ()=default
- ~ULBasicCallback () override=default
- std::vector< DataSet > const & GetDataSets () const
- std::vector< DataSet > const & GetResponses () const
- void HandleDataSet (const DataSet &inDataSet) override
- void HandleResponse (const DataSet &inDataSet) override

Public Member Functions inherited from gdcm::network::ULConnectionCallback

- ULConnectionCallback ()
- virtual ~ULConnectionCallback ()=default
- bool DataSetHandles () const
- void ResetHandledDataSet ()
- void SetImplicitFlag (const bool imp)

Additional Inherited Members

Protected Member Functions inherited from gdcm::network::ULConnectionCallback

- void DataSetHandled ()

Protected Attributes inherited from gdcm::network::ULConnectionCallback

- bool mImplicit

12.356.1 Detailed Description

ULBasicCallback.

This is the most basic of callbacks for how the ULConnectionManager handles incoming datasets. DataSets are just concatenated to the mDataSets vector, and the result can be pulled out of the vector by later code. Alternatives to this method include progress updates, saving to disk, etc. This class is NOT THREAD SAFE. Access the dataset vector after the entire set of datasets has been returned by the ULConnectionManager.

12.356.2 Constructor & Destructor Documentation

12.356.2.1 ULBasicCallback()

```
gdcm::network::ULBasicCallback::ULBasicCallback ()  [default]
```

12.356.2.2 ~ULBasicCallback()

```
gdcm::network::ULBasicCallback::~ULBasicCallback ()  [override], [default]
```

12.356.3 Member Function Documentation

12.356.3.1 GetDataSets()

```
std::vector< DataSet > const & gdcm::network::ULBasicCallback::GetDataSets () const
```

12.356.3.2 GetResponses()

```
std::vector< DataSet > const & gdcm::network::ULBasicCallback::GetResponses () const
```

12.356.3.3 HandleDataSet()

```
void gdcm::network::ULBasicCallback::HandleDataSet (
            const DataSet & inDataSet)  [override], [virtual]
```

Implements gdcm::network::ULConnectionCallback.

12.356.3.4 HandleResponse()

```
void gdcm::network::ULBasicCallback::HandleResponse (
            const DataSet & inDataSet)  [override], [virtual]
```

Implements gdcm::network::ULConnectionCallback.

The documentation for this class was generated from the following file:

- gdcmULBasicCallback.h

12.357 gdcm::network::ULConnection Class Reference

ULConnection.

`#include <gdcmULConnection.h>`

Public Member Functions

- ULConnection (const ULConnection &)=delete
- ULConnection (const ULConnectionInfo &inUserInformation)
- virtual ~ULConnection ()
- void AddAcceptedPresentationContext (const PresentationContextAC &inPC)
- PresentationContextRQ FindContext (const DataElement &de) const
- std::vector< PresentationContextAC > & GetAcceptedPresentationContexts ()
- std::vector< PresentationContextAC > const & GetAcceptedPresentationContexts () const
- const ULConnectionInfo & GetConnectionInfo () const
- uint32_t GetMaxPDUSize () const
- const PresentationContextAC * GetPresentationContextACByID (uint8_t id) const
- uint8_t GetPresentationContextIDFromPresentationContext (PresentationContextRQ const &pc) const

  return 0 upon error
- const PresentationContextRQ * GetPresentationContextRQByID (uint8_t id) const
- std::vector< PresentationContextRQ > const & GetPresentationContexts () const
- std::iostream * GetProtocol ()
- EStateID GetState () const
- ARTIMTimer & GetTimer ()
- bool InitializeConnection ()

  used to establish scu connections
- bool InitializeIncomingConnection ()

  used to establish scp connections
- void operator= (const ULConnection &)=delete
- void SetMaxPDUSize (uint32_t inSize)
- void SetPresentationContexts (const std::vector< PresentationContext > &inContexts)
- void SetPresentationContexts (const std::vector< PresentationContextRQ > &inContexts)
- void SetState (const EStateID &inState)
- void StopProtocol ()

Friends

- class ULActionAE6
- class ULConnectionManager

12.357.1 Detailed Description

ULConnection.

This is the class that contains the socket to another machine, and passes data through itself, as well as maintaining a sense of state.

The ULConnectionManager tells the ULConnection what data can actually be sent.

This class is done this way so that it can be eventually be replaced with a ULSecureConnection, if such a protocol is warranted, so that all data that passes through can be managed through a secure connection. For now, this class provides a simple pass-through mechanism to the socket itself.

So, for instance, a gdcm object will be passes to this object, and it will then get passed along the connection, if that connection is in the proper state to do so.

For right now, this class is not directly intended to be inherited from, but the potential for future ULSecureConnection warrants the addition, rather than having everything be managed from within the ULConnectionManager (or this class) without a wrapper.

12.357.2 Constructor & Destructor Documentation

12.357.2.1 ULConnection() [1/2]

```
gdcm::network::ULConnection::ULConnection (
            const ULConnectionInfo & inUserInformation)
```

Referenced by ULConnection(), and operator=().

12.357.2.2 ~ULConnection()

```
virtual gdcm::network::ULConnection::~ULConnection ()  [virtual]
```

12.357.2.3 ULConnection() [2/2]

```
gdcm::network::ULConnection::ULConnection (
            const ULConnection & )  [delete]
```

References ULConnection().

12.357.3 Member Function Documentation

12.357.3.1 AddAcceptedPresentationContext()

```
void gdcm::network::ULConnection::AddAcceptedPresentationContext (
            const PresentationContextAC & inPC)
```

12.357.3.2 FindContext()

```
PresentationContextRQ gdcm::network::ULConnection::FindContext (
            const DataElement & de) const
```

12.357.3.3 GetAcceptedPresentationContexts() [1/2]

```
std::vector< PresentationContextAC > & gdcm::network::ULConnection::GetAcceptedPresentation↩
Contexts ()
```

12.357.3.4 GetAcceptedPresentationContexts() [2/2]

```
std::vector< PresentationContextAC > const & gdcm::network::ULConnection::GetAcceptedPresentation↩
Contexts () const
```

12.357.3.5 GetConnectionInfo()

```
const ULConnectionInfo & gdcm::network::ULConnection::GetConnectionInfo () const
```

12.357.3.6 GetMaxPDUSize()

```
uint32_t gdcm::network::ULConnection::GetMaxPDUSize () const
```

12.357.3.7 GetPresentationContextACByID()

```
const PresentationContextAC * gdcm::network::ULConnection::GetPresentationContextACByID (
            uint8_t id) const
```

12.357.3.8 GetPresentationContextIDFromPresentationContext()

```
uint8_t gdcm::network::ULConnection::GetPresentationContextIDFromPresentationContext (
            PresentationContextRQ const & pc) const
```

return 0 upon error

12.357.3.9 GetPresentationContextRQByID()

```
const PresentationContextRQ * gdcm::network::ULConnection::GetPresentationContextRQByID (
            uint8_t id) const
```

12.357.3.10 GetPresentationContexts()

```
std::vector< PresentationContextRQ > const & gdcm::network::ULConnection::GetPresentationContexts
() const
```

12.357.3.11 GetProtocol()

```
std::iostream * gdcm::network::ULConnection::GetProtocol ()
```

12.357.3.12 GetState()

```
EStateID gdcm::network::ULConnection::GetState () const
```

12.357.3.13 GetTimer()

```
ARTIMTimer & gdcm::network::ULConnection::GetTimer ()
```

12.357.3.14 InitializeConnection()

```
bool gdcm::network::ULConnection::InitializeConnection ()
```

used to establish scu connections

12.357.3.15 InitializeIncomingConnection()

```
bool gdcm::network::ULConnection::InitializeIncomingConnection ()
```

used to establish scp connections

12.357.3.16 operator=()

```
void gdcm::network::ULConnection::operator= (
            const ULConnection & )  [delete]
```

References ULConnection().

12.357.3.17 SetMaxPDUSize()

```
void gdcm::network::ULConnection::SetMaxPDUSize (
            uint32_t inSize)
```

12.357.3.18 SetPresentationContexts() [1/2]

```
void gdcm::network::ULConnection::SetPresentationContexts (
            const std::vector< PresentationContext > & inContexts)
```

12.357.3.19 SetPresentationContexts() [2/2]

```
void gdcm::network::ULConnection::SetPresentationContexts (
            const std::vector< PresentationContextRQ > & inContexts)
```

12.357.3.20 SetState()

```
void gdcm::network::ULConnection::SetState (
            const EStateID & inState)
```

12.357.3.21 StopProtocol()

```
void gdcm::network::ULConnection::StopProtocol ()
```

12.357.4 Friends And Related Symbol Documentation

12.357.4.1 ULActionAE6

```
friend class ULActionAE6  [friend]
```

References ULActionAE6.

Referenced by ULActionAE6.

12.357.4.2 ULConnectionManager

```
friend class ULConnectionManager  [friend]
```

References ULConnectionManager.

Referenced by ULConnectionManager.

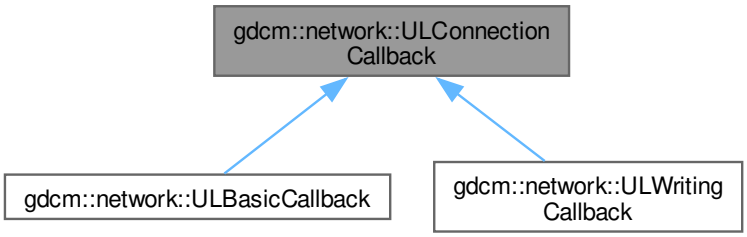
The documentation for this class was generated from the following file:

- gdcmULConnection.h

12.358 gdcm::network::ULConnectionCallback Class Reference

`#include <gdcmULConnectionCallback.h>`

Inheritance diagram for gdcm::network::ULConnectionCallback:



Public Member Functions

- ULConnectionCallback ()
- virtual ~ULConnectionCallback ()=default
- bool DataSetHandles () const
- virtual void HandleDataSet (const DataSet &inDataSet)=0
- virtual void HandleResponse (const DataSet &inDataSet)=0
- void ResetHandledDataSet ()
- void SetImplicitFlag (const bool imp)

Protected Member Functions

- void DataSetHandled ()

Protected Attributes

- bool mImplicit

12.358.1 Detailed Description

When a dataset comes back from a query/move/etc, the result can either be stored entirely in memory, or could be stored on disk. This class provides a mechanism to indicate what the ULConnectionManager should do with datasets that are produced through query results. The ULConnectionManager will call the HandleDataSet function during the course of receiving datasets. Particular implementations should fill in what that function does, including updating progress, etc. NOTE: since cmove requires that multiple event loops be employed, the callback function MUST set mHandledData↩ Set to true. otherwise, the cmove event loop handler will not know data was received, and proceed to end the loop prematurely.

12.358.2 Constructor & Destructor Documentation

12.358.2.1 ULConnectionCallback()

```
gdcm::network::ULConnectionCallback::ULConnectionCallback ()  [inline]
```

References mImplicit.

12.358.2.2 ~ULConnectionCallback()

```
virtual gdcm::network::ULConnectionCallback::~ULConnectionCallback ()  [virtual], [default]
```

12.358.3 Member Function Documentation

12.358.3.1 DataSetHandled()

```
void gdcm::network::ULConnectionCallback::DataSetHandled ()  [inline], [protected]
```

12.358.3.2 DataSetHandles()

```
bool gdcm::network::ULConnectionCallback::DataSetHandles () const  [inline]
```

12.358.3.3 HandleDataSet()

```
virtual void gdcm::network::ULConnectionCallback::HandleDataSet (
            const DataSet & inDataSet)  [pure virtual]
```

Implemented in gdcm::network::ULBasicCallback, and gdcm::network::ULWritingCallback.

12.358.3.4 HandleResponse()

```
virtual void gdcm::network::ULConnectionCallback::HandleResponse (
            const DataSet & inDataSet)  [pure virtual]
```

Implemented in gdcm::network::ULBasicCallback, and gdcm::network::ULWritingCallback.

12.358.3.5 ResetHandledDataSet()

```
void gdcm::network::ULConnectionCallback::ResetHandledDataSet ()  [inline]
```

12.358.3.6 SetImplicitFlag()

```
void gdcm::network::ULConnectionCallback::SetImplicitFlag (
            const bool imp)  [inline]
```

References mImplicit.

12.358.4 Member Data Documentation

12.358.4.1 mImplicit

```
bool gdcm::network::ULConnectionCallback::mImplicit  [protected]
```

Referenced by ULConnectionCallback(), and SetImplicitFlag().

The documentation for this class was generated from the following file:

- gdcmULConnectionCallback.h

12.359 gdcm::network::ULConnectionInfo Class Reference

ULConnectionInfo.

```
#include <gdcmULConnectionInfo.h>
```

Public Member Functions

- ULConnectionInfo ()
- const char * GetCalledAETitle () const
- std::string GetCalledComputerName () const
- unsigned long GetCalledIPAddress () const
- int GetCalledIPPort () const
- const char * GetCallingAETitle () const
- unsigned long GetMaxPDULength () const
- bool Initialize (UserInformation const &inUserInformation, const char *inCalledAETitle, const char *inCalling↩ AETitle, unsigned long inCalledIPAddress, int inCalledIPPort, std::string inCalledComputerName)
- void SetMaxPDULength (unsigned long inMaxPDULength)

12.359.1 Detailed Description

ULConnectionInfo.

this class contains all the information about a particular connection as established by the user. That is, it's: User Information Calling AE Title Called AE Title IP address/computer name IP Port A connection must be established with this information, that's subsequently placed into various primitives for actual communication.

12.359.2 Constructor & Destructor Documentation

12.359.2.1 ULConnectionInfo()

```
gdcm::network::ULConnectionInfo::ULConnectionInfo ()
```

12.359.3 Member Function Documentation

12.359.3.1 GetCalledAETitle()

```
const char * gdcm::network::ULConnectionInfo::GetCalledAETitle () const
```

12.359.3.2 GetCalledComputerName()

```
std::string gdcm::network::ULConnectionInfo::GetCalledComputerName () const
```

12.359.3.3 GetCalledIPAddress()

```
unsigned long gdcm::network::ULConnectionInfo::GetCalledIPAddress () const
```

12.359.3.4 GetCalledIPPort()

```
int gdcm::network::ULConnectionInfo::GetCalledIPPort () const
```

12.359.3.5 GetCallingAETitle()

```
const char * gdcm::network::ULConnectionInfo::GetCallingAETitle () const
```

12.359.3.6 GetMaxPDULength()

```
unsigned long gdcm::network::ULConnectionInfo::GetMaxPDULength () const
```

12.359.3.7 Initialize()

```
bool gdcm::network::ULConnectionInfo::Initialize (
            UserInformation const & inUserInformation,
            const char * inCalledAETitle,
            const char * inCallingAETitle,
            unsigned long inCalledIPAddress,
            int inCalledIPPort,
            std::string inCalledComputerName)
```

12.359.3.8 SetMaxPDULength()

```
void gdcm::network::ULConnectionInfo::SetMaxPDULength (
            unsigned long inMaxPDULength)
```

The documentation for this class was generated from the following file:

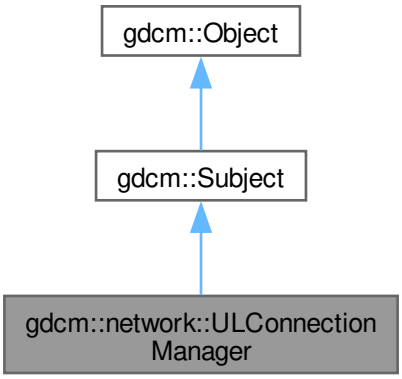
- gdcmULConnectionInfo.h

12.360 gdcm::network::ULConnectionManager Class Reference

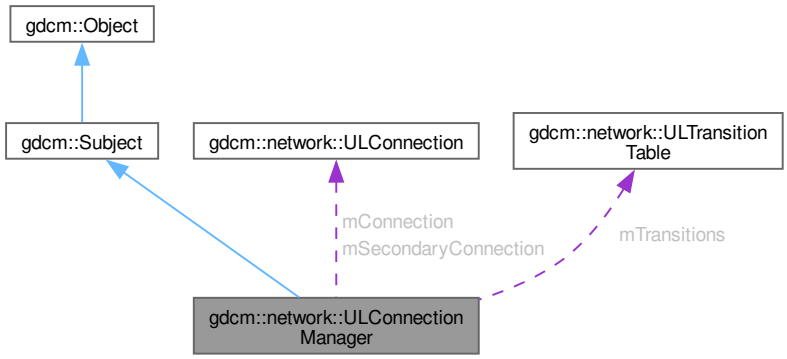
ULConnectionManager.

```
#include <gdcmULConnectionManager.h>
```

Inheritance diagram for gdcm::network::ULConnectionManager:



Collaboration diagram for gdcm::network::ULConnectionManager:



Public Member Functions

- ULConnectionManager ()
- ~ULConnectionManager () override
- bool BreakConnection (const double &inTimeout)
- void BreakConnectionNow ()
- bool EstablishConnection (const std::string &inAETitle, const std::string &inConnectAETitle, const std::string &inComputerName, long inIPAddress, uint16_t inConnectPort, double inTimeout, std::vector< PresentationContext > const &pcVector)
- bool EstablishConnectionMove (const std::string &inAETitle, const std::string &inConnectAETitle, const std::string &inComputerName, long inIPAddress, uint16_t inConnectPort, double inTimeout, uint16_t inReturnPort, std::vector< PresentationContext > const &pcVector)
- std::vector< PresentationDataValue > SendEcho ()
- std::vector< DataSet > SendFind (const BaseRootQuery *inRootQuery)
- void SendFind (const BaseRootQuery *inRootQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendMove (const BaseRootQuery *inRootQuery)
- bool SendMove (const BaseRootQuery *inRootQuery, ULConnectionCallback *inCallback)

  return false upon error
- std::vector< DataSet > SendNAction (const BaseQuery *inQuery)
- void SendNAction (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNCreate (const BaseQuery *inQuery)
- void SendNCreate (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNDelete (const BaseQuery *inQuery)
- void SendNDelete (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNEventReport (const BaseQuery *inQuery)
- void SendNEventReport (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNGet (const BaseQuery *inQuery)
- void SendNGet (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendNSet (const BaseQuery *inQuery)
- void SendNSet (const BaseQuery *inQuery, ULConnectionCallback *inCallback)
- std::vector< DataSet > SendStore (const File &file, std::istream *pStream=nullptr, std::streampos dataSetOffset=0)

- void SendStore (const File &file, ULConnectionCallback *inCallback, std::istream *pStream=nullptr, std::streampos dataSetOffset=0)

  callback based API

Public Member Functions inherited from gdcm::Subject

- Subject ()
- ~Subject () override
- unsigned long AddObserver (const Event &event, Command *)
- unsigned long AddObserver (const Event &event, Command *) const
- Command * GetCommand (unsigned long tag)
- bool HasObserver (const Event &event) const
- void InvokeEvent (const Event &)
- void InvokeEvent (const Event &) const
- void RemoveAllObservers ()
- void RemoveObserver (unsigned long tag)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Protected Member Functions

- ULConnectionManager (const ULConnectionManager &inCM)
- EStateID RunEventLoop (ULEvent &inEvent, ULConnection *inWhichConnection, ULConnectionCallback *inCallback, const bool &startWaiting)
- EStateID RunMoveEventLoop (ULEvent &inEvent, ULConnectionCallback *inCallback)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Protected Attributes

- ULConnection * mConnection
- ULConnection * mSecondaryConnection
- ULTransitionTable mTransitions

12.360.1 Detailed Description

ULConnectionManager.

The ULConnectionManager performs actions on the ULConnection given inputs from the user and from the state of what's going on around the connection (ie, timeouts of the ARTIM timer, responses from the peer across the connection, etc).

Its inputs are ULEvents, and it performs ULActions.

12.360.2 Constructor & Destructor Documentation

12.360.2.1 ULConnectionManager() [1/2]

```
gdcm::network::ULConnectionManager::ULConnectionManager (
            const ULConnectionManager & inCM)  [protected]
```

References ULConnectionManager().

Referenced by ULConnectionManager().

12.360.2.2 ULConnectionManager() [2/2]

```
gdcm::network::ULConnectionManager::ULConnectionManager ()
```

12.360.2.3 ~ULConnectionManager()

```
gdcm::network::ULConnectionManager::~ULConnectionManager ()  [override]
```

12.360.3 Member Function Documentation

12.360.3.1 BreakConnection()

```
bool gdcm::network::ULConnectionManager::BreakConnection (
            const double & inTimeout)
```

12.360.3.2 BreakConnectionNow()

```
void gdcm::network::ULConnectionManager::BreakConnectionNow ()
```

12.360.3.3 EstablishConnection()

```
bool gdcm::network::ULConnectionManager::EstablishConnection (
            const std::string & inAETitle,
            const std::string & inConnectAETitle,
            const std::string & inComputerName,
            long inIPAddress,
            uint16_t inConnectPort,
            double inTimeout,
            std::vector< PresentationContext > const & pcVector)
```

returns true if a connection of the given AETitle (ie, 'this' program) is able to connect to the given AETitle and Port in a certain amount of time providing the connection type will establish the proper exchange syntax with a server; if a different functionality is required, a different connection should be established. returns false if the connection type is 'move'– have to give a return port for move to work as specified.

12.360.3.4 EstablishConnectionMove()

```
bool gdcm::network::ULConnectionManager::EstablishConnectionMove (
            const std::string & inAETitle,
            const std::string & inConnectAETitle,
            const std::string & inComputerName,
            long inIPAddress,
            uint16_t inConnectPort,
            double inTimeout,
            uint16_t inReturnPort,
            std::vector< PresentationContext > const & pcVector)
```

returns true for above reasons, but contains the special 'move' port

12.360.3.5 RunEventLoop()

```
EStateID gdcm::network::ULConnectionManager::RunEventLoop (
            ULEvent & inEvent,
            ULConnection * inWhichConnection,
            ULConnectionCallback * inCallback,
            const bool & startWaiting)  [protected]
```

12.360.3.6 RunMoveEventLoop()

```
EStateID gdcm::network::ULConnectionManager::RunMoveEventLoop (
            ULEvent & inEvent,
            ULConnectionCallback * inCallback)  [protected]
```

12.360.3.7 SendEcho()

```
std::vector< PresentationDataValue > gdcm::network::ULConnectionManager::SendEcho ()
```

12.360.3.8 SendFind() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendFind (
            const BaseRootQuery * inRootQuery)
```

12.360.3.9 SendFind() [2/2]

```
void gdcm::network::ULConnectionManager::SendFind (
            const BaseRootQuery * inRootQuery,
            ULConnectionCallback * inCallback)
```

12.360.3.10 SendMove() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendMove (
            const BaseRootQuery * inRootQuery)
```

12.360.3.11 SendMove() [2/2]

```
bool gdcm::network::ULConnectionManager::SendMove (
            const BaseRootQuery * inRootQuery,
            ULConnectionCallback * inCallback)
```

return false upon error

12.360.3.12 SendNAction() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNAction (
            const BaseQuery * inQuery)
```

12.360.3.13 SendNAction() [2/2]

```
void gdcm::network::ULConnectionManager::SendNAction (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback)
```

12.360.3.14 SendNCreate() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNCreate (
            const BaseQuery * inQuery)
```

12.360.3.15 SendNCreate() [2/2]

```
void gdcm::network::ULConnectionManager::SendNCreate (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback)
```

12.360.3.16 SendNDelete() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNDelete (
            const BaseQuery * inQuery)
```

12.360.3.17 SendNDelete() [2/2]

```
void gdcm::network::ULConnectionManager::SendNDelete (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback)
```

12.360.3.18 SendNEventReport() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNEventReport (
            const BaseQuery * inQuery)
```

12.360.3.19 SendNEventReport() [2/2]

```
void gdcm::network::ULConnectionManager::SendNEventReport (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback)
```

12.360.3.20 SendNGet() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNGet (
            const BaseQuery * inQuery)
```

12.360.3.21 SendNGet() [2/2]

```
void gdcm::network::ULConnectionManager::SendNGet (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback)
```

12.360.3.22 SendNSet() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendNSet (
            const BaseQuery * inQuery)
```

12.360.3.23 SendNSet() [2/2]

```
void gdcm::network::ULConnectionManager::SendNSet (
            const BaseQuery * inQuery,
            ULConnectionCallback * inCallback)
```

12.360.3.24 SendStore() [1/2]

```
std::vector< DataSet > gdcm::network::ULConnectionManager::SendStore (
            const File & file,
            std::istream * pStream = nullptr,
            std::streampos dataSetOffset = 0)
```

12.360.3.25 SendStore() [2/2]

```
void gdcm::network::ULConnectionManager::SendStore (
            const File & file,
            ULConnectionCallback * inCallback,
            std::istream * pStream = nullptr,
            std::streampos dataSetOffset = 0)
```

callback based API

12.360.4 Member Data Documentation

12.360.4.1 mConnection

```
ULConnection* gdcm::network::ULConnectionManager::mConnection  [protected]
```

12.360.4.2 mSecondaryConnection

```
ULConnection* gdcm::network::ULConnectionManager::mSecondaryConnection  [protected]
```

12.360.4.3 mTransitions

```
ULTransitionTable gdcm::network::ULConnectionManager::mTransitions  [protected]
```

The documentation for this class was generated from the following file:

- gdcmULConnectionManager.h

12.361 gdcm::network::ULEvent Class Reference

ULEvent.

`#include <gdcmULEvent.h>`

Public Member Functions

- ULEvent (const EEventID &inEventID, BasePDU *inBasePDU, std::istream *iStream=nullptr, std::streampos posDataSet=0)
- ULEvent (const EEventID &inEventID, std::vector< BasePDU * > inBasePDU, std::istream *iStream=nullptr, std::streampos posDataSet=0)
- ~ULEvent ()
- std::streampos GetDataSetPos () const
- EEventID GetEvent () const
- std::istream * GetIStream () const
- std::vector< BasePDU * > const & GetPDUs () const
- void SetEvent (const EEventID &inEvent)
- void SetPDU (std::vector< BasePDU * > const &inPDU)

12.361.1 Detailed Description

ULEvent.

base class for network events.

An event consists of the event ID and the data associated with that event.

Note that once a PDU is created, it is now the responsibility of the associated event to destroy it!

12.361.2 Constructor & Destructor Documentation

12.361.2.1 ULEvent() [1/2]

```
gdcm::network::ULEvent::ULEvent (
            const EEventID & inEventID,
            std::vector< BasePDU * > inBasePDU,
            std::istream * iStream = nullptr,
            std::streampos posDataSet = 0)  [inline]
```

12.361.2.2 ULEvent() [2/2]

```
gdcm::network::ULEvent::ULEvent (
            const EEventID & inEventID,
            BasePDU * inBasePDU,
            std::istream * iStream = nullptr,
            std::streampos posDataSet = 0)  [inline]
```

12.361.2.3 ~ULEvent()

```
gdcm::network::ULEvent::~ULEvent ()  [inline]
```

12.361.3 Member Function Documentation

12.361.3.1 GetDataSetPos()

```
std::streampos gdcm::network::ULEvent::GetDataSetPos () const  [inline]
```

12.361.3.2 GetEvent()

```
EEventID gdcm::network::ULEvent::GetEvent () const  [inline]
```

12.361.3.3 GetIStream()

```
std::istream * gdcm::network::ULEvent::GetIStream () const  [inline]
```

12.361.3.4 GetPDUs()

```
std::vector< BasePDU * > const & gdcm::network::ULEvent::GetPDUs () const  [inline]
```

12.361.3.5 SetEvent()

```
void gdcm::network::ULEvent::SetEvent (
            const EEventID & inEvent)  [inline]
```

12.361.3.6 SetPDU()

```
void gdcm::network::ULEvent::SetPDU (
            std::vector< BasePDU * > const & inPDU)  [inline]
```

The documentation for this class was generated from the following file:

- gdcmULEvent.h

12.362 gdcm::network::ULTransitionTable Class Reference

ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates.

```
#include <gdcmULTransitionTable.h>
```

Public Member Functions

- ULTransitionTable ()
- void HandleEvent (Subject *s, ULEvent &inEvent, ULConnection &inConnection, bool &outWaitingForEvent, EEventID &outRaisedEvent) const
- void PrintTable () const

12.362.1 Detailed Description

ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates.

Based roughly on the solutions in player2.cpp in the boost examples and this so question: http://stackoverflow.com/questions/1647631/c-state-machine-design

The transition table is constructed of TableRows. Each row is based on an event, and an event handler in the TransitionTable object takes a given event, and then finds the given row.

Then, given the current state of the connection, determines the appropriate action to take and then the state to transition to next.

12.362.2 Constructor & Destructor Documentation

12.362.2.1 ULTransitionTable()

```
gdcm::network::ULTransitionTable::ULTransitionTable ()
```

12.362.3 Member Function Documentation

12.362.3.1 HandleEvent()

```
void gdcm::network::ULTransitionTable::HandleEvent (
            Subject * s,
            ULEvent & inEvent,
            ULConnection & inConnection,
            bool & outWaitingForEvent,
            EEventID & outRaisedEvent) const
```

12.362.3.2 PrintTable()

```
void gdcm::network::ULTransitionTable::PrintTable () const
```

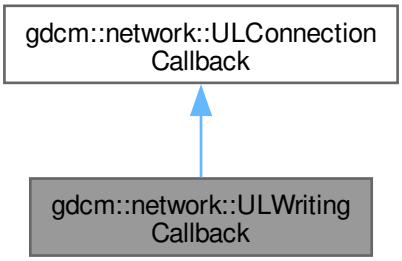
The documentation for this class was generated from the following file:

- gdcmULTransitionTable.h

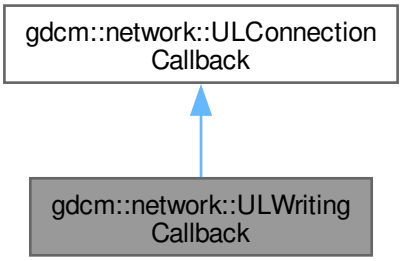
12.363 gdcm::network::ULWritingCallback Class Reference

`#include <gdcmULWritingCallback.h>`

Inheritance diagram for gdcm::network::ULWritingCallback:



Collaboration diagram for gdcm::network::ULWritingCallback:



Public Member Functions

- ULWritingCallback ()=default
- ~ULWritingCallback () override=default
- void HandleDataSet (const DataSet &inDataSet) override
- void HandleResponse (const DataSet &inDataSet) override
- void SetDirectory (const std::string &inDirectoryName)

  provide the directory into which all files are written.

Public Member Functions inherited from gdcm::network::ULConnectionCallback

- ULConnectionCallback ()
- virtual ~ULConnectionCallback ()=default
- bool DataSetHandles () const
- void ResetHandledDataSet ()
- void SetImplicitFlag (const bool imp)

Additional Inherited Members

Protected Member Functions inherited from gdcm::network::ULConnectionCallback

- void DataSetHandled ()

Protected Attributes inherited from gdcm::network::ULConnectionCallback

- bool mImplicit

12.363.1 Constructor & Destructor Documentation

12.363.1.1 ULWritingCallback()

```
gdcm::network::ULWritingCallback::ULWritingCallback ()  [default]
```

12.363.1.2 ~ULWritingCallback()

```
gdcm::network::ULWritingCallback::~ULWritingCallback ()  [override], [default]
```

12.363.2 Member Function Documentation

12.363.2.1 HandleDataSet()

```
void gdcm::network::ULWritingCallback::HandleDataSet (
            const DataSet & inDataSet)  [override], [virtual]
```

Implements gdcm::network::ULConnectionCallback.

12.363.2.2 HandleResponse()

```
void gdcm::network::ULWritingCallback::HandleResponse (
            const DataSet & inDataSet)  [override], [virtual]
```

Implements gdcm::network::ULConnectionCallback.

12.363.2.3 SetDirectory()

```
void gdcm::network::ULWritingCallback::SetDirectory (
            const std::string & inDirectoryName)  [inline]
```

provide the directory into which all files are written.

The documentation for this class was generated from the following file:

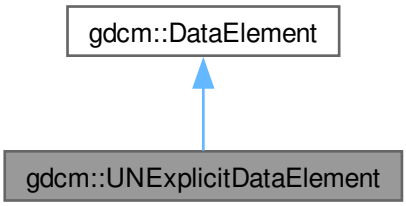
- gdcmULWritingCallback.h

12.364 gdcm::UNExplicitDataElement Class Reference

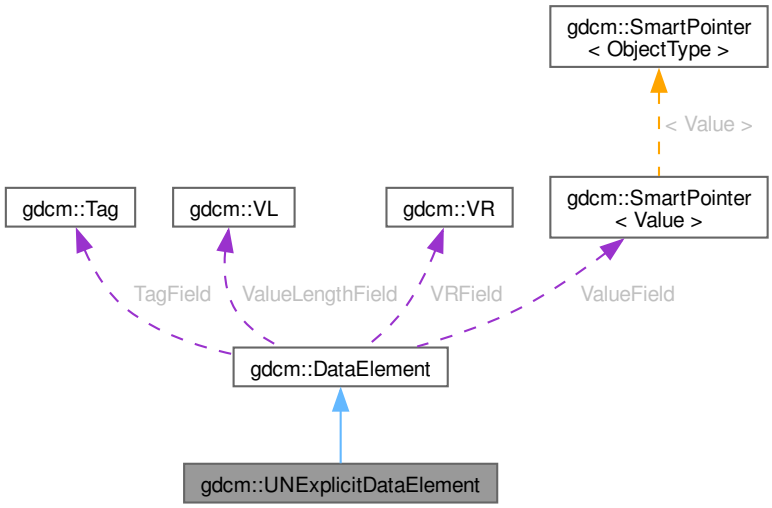
Class to read/write a DataElement as UNExplicit Data Element.

```
#include <gdcmUNExplicitDataElement.h>
```

Inheritance diagram for gdcm::UNExplicitDataElement:



Collaboration diagram for gdcm::UNExplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag + VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const

- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.364.1 Detailed Description

Class to read/write a DataElement as UNExplicit Data Element.

Note

bla

12.364.2 Member Function Documentation

12.364.2.1 GetLength()

```
VL gdcm::UNExplicitDataElement::GetLength () const
```

12.364.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitDataElement::Read (
             std::istream & is)
```

12.364.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.364.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitDataElement::ReadValue (
             std::istream & is,
             bool readvalues = true)
```

12.364.2.5 ReadWithLength()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitDataElement::ReadWithLength (
              std::istream & is,
              VL & length)
```

The documentation for this class was generated from the following file:

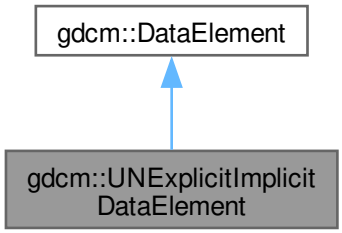
- gdcmUNExplicitDataElement.h

12.365 gdcm::UNExplicitImplicitDataElement Class Reference

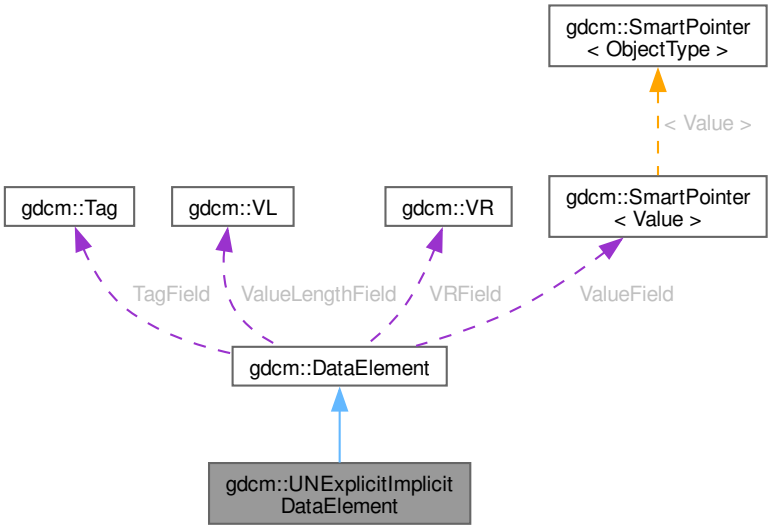
Class to read/write a DataElement as ExplicitImplicit Data Element.

`#include <gdcmUNExplicitImplicitDataElement.h>`

Inheritance diagram for gdcm::UNExplicitImplicitDataElement:



Collaboration diagram for gdcm::UNExplicitImplicitDataElement:



Public Member Functions

- VL GetLength () const
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag + VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

Get Tag.

- Value & GetValue ()
- Value const & GetValue () const

Set/Get Value (bytes array, SQ of items, SQ of fragments):

- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

Get VL.

- VR const & GetVR () const
- bool IsEmpty () const

Check if Data Element is empty.

- bool IsUndefinedLength () const

return if Value Length if of undefined length

- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.365.1 Detailed Description

Class to read/write a DataElement as ExplicitImplicit Data Element.

This class gather two known bugs:

1. GDCM 1.2.0 would rewrite VR=UN Value Length on 2 bytes instead of 4 bytes
2. GDCM 1.2.0 would also rewrite DataElement as Implicit when the VR would not be known this would only happen in some very rare cases. gdcm 2.X design could handle bug #1 or #2 exclusively, this class can now handle file which have both issues. See: gdcmData/TheralysGDCM120Bug.dcm

12.365.2 Member Function Documentation

12.365.2.1 GetLength()

```
VL gdcm::UNExplicitImplicitDataElement::GetLength () const
```

12.365.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitImplicitDataElement::Read (
             std::istream & is)
```

12.365.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitImplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.365.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::UNExplicitImplicitDataElement::ReadValue (
             std::istream & is)
```

The documentation for this class was generated from the following file:

- gdcmUNExplicitImplicitDataElement.h

12.366 gdcm::Unpacker12Bits Class Reference

Pack/Unpack 12 bits pixel into 16bits.

`#include <gdcmUnpacker12Bits.h>`

Static Public Member Functions

- static bool Pack (char *out, const char *in, size_t n)
- static bool Unpack (char *out, const char *in, size_t n)

12.366.1 Detailed Description

Pack/Unpack 12 bits pixel into 16bits.

- You can only pack an even number of 16bits, which means a multiple of 4 (expressed in bytes)
- You can only unpack a multiple of 3 bytes

This class has no purpose in general purpose DICOM implementation. However to be able to cope with some early ACR-NEMA file generated by a well-known private vendor, one would need to unpack 12bits Stored Pixel Value into a more standard 16bits Stored Pixel Value.

See also

Rescaler

12.366.2 Member Function Documentation

12.366.2.1 Pack()

```
bool gdcm::Unpacker12Bits::Pack (
            char * out,
            const char * in,
            size_t n)  [static]
```

Pack an array of 16bits where all values are 12bits into a pack form. n is the length in bytes of array in, out will be a fake 8bits array of size (n / 2) * 3

12.366.2.2 Unpack()

```
bool gdcm::Unpacker12Bits::Unpack (
            char * out,
            const char * in,
            size_t n)  [static]
```

Unpack an array of 'packed' 12bits data into a more conventional 16bits array. n is the length in bytes of array in, out will be a 16bits array of size (n / 3) * 2

The documentation for this class was generated from the following file:

- gdcmUnpacker12Bits.h

12.367 gdcm::Usage Class Reference

Usage.

```
#include <gdcmUsage.h>
```

Public Types

- enum UsageType {
  Mandatory ,
  Conditional ,
  UserOption ,
  Invalid }

Public Member Functions

- Usage (UsageType type=Invalid)
- operator UsageType () const

Static Public Member Functions

- static const char * GetUsageString (UsageType type)
- static UsageType GetUsageType (const char *type)

Friends

- std::ostream & operator<< (std::ostream &os, const Usage &vr)

12.367.1 Detailed Description

Usage.

Note

A.1.3 IOD Module Table and Functional Group Macro Table This Section of each IOD defines in a tabular form the Modules comprising the IOD. The following information must be specified for each Module in the table:

- The name of the Module or Functional Group
- A reference to the Section in Annex C which defines the Module or Functional Group
- The usage of the Module or Functional Group; whether it is:
- Mandatory (see A.1.3.1) , abbreviated M
- Conditional (see A.1.3.2) , abbreviated C
- User Option (see A.1.3.3) , abbreviated U The Modules referenced are defined in Annex C. A.1.3.1 MANDATORY MODULES For each IOD, Mandatory Modules shall be supported per the definitions, semantics and requirements defined in Annex C.

A.1.3.2 CONDITIONAL MODULES Conditional Modules are Mandatory Modules if specific conditions are met. If the specified conditions are not met, this Module shall not be supported; that is, no information defined in that Module shall be sent. A.1.3.3 USER OPTION MODULES User Option Modules may or may not be supported. If an optional Module is supported, the Attribute Types specified in the Modules in Annex C shall be supported.

12.367.2 Member Enumeration Documentation

12.367.2.1 UsageType

```
enum gdcm::Usage::UsageType
```

Enumerator

Mandatory	
Conditional	
UserOption	
Invalid	

12.367.3 Constructor & Destructor Documentation

12.367.3.1 Usage()

```
gdcm::Usage::Usage (
            UsageType type = Invalid)  [inline]
```

References Invalid.

Referenced by operator<<.

12.367.4 Member Function Documentation

12.367.4.1 GetUsageString()

```
const char * gdcm::Usage::GetUsageString (
            UsageType type)  [static]
```

Referenced by operator<<.

12.367.4.2 GetUsageType()

```
UsageType gdcm::Usage::GetUsageType (
            const char * type)  [static]
```

12.367.4.3 operator UsageType()

```
gdcm::Usage::operator UsageType () const  [inline]
```

12.367.5 Friends And Related Symbol Documentation

12.367.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const Usage & vr)  [friend]
```

References Usage(), and GetUsageString().

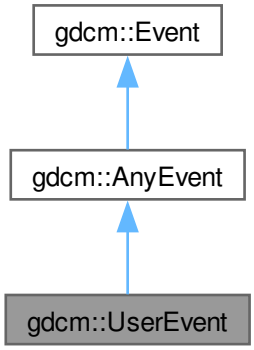
The documentation for this class was generated from the following file:

- gdcmUsage.h

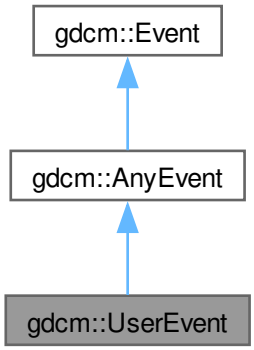
12.368 gdcm::UserEvent Class Reference

`#include <gdcmEvent.h>`

Inheritance diagram for gdcm::UserEvent:



Collaboration diagram for gdcm::UserEvent:



Additional Inherited Members

Public Member Functions inherited from gdcm::Event

- Event ()

- Event (const Event &)
- virtual ~Event ()
- virtual bool CheckEvent (const Event *) const =0
- virtual const char * GetEventName () const =0
- virtual Event * MakeObject () const =0
- void operator= (const Event &)=delete
- virtual void Print (std::ostream &os) const

The documentation for this class was generated from the following file:

- gdcmEvent.h

12.369 gdcm::network::UserInformation Class Reference

UserInformation.

```
#include <gdcmUserInformation.h>
```

Public Member Functions

- UserInformation ()
- UserInformation (const UserInformation &)=delete
- ~UserInformation ()
- void AddRoleSelectionSub (RoleSelectionSub const &r)
- void AddSOPClassExtendedNegociationSub (SOPClassExtendedNegociationSub const &s)
- MaximumLengthSub & GetMaximumLengthSub ()
- const MaximumLengthSub & GetMaximumLengthSub () const
- UserInformation & operator= (const UserInformation &)
- void Print (std::ostream &os) const
- std::istream & Read (std::istream &is)
- size_t Size () const
- const std::ostream & Write (std::ostream &os) const

12.369.1 Detailed Description

UserInformation.

Table 9-16 USER INFORMATION ITEM FIELDS

TODO what is the goal of :

Table 9-20 USER INFORMATION ITEM FIELDS

12.369.2 Constructor & Destructor Documentation

12.369.2.1 UserInformation() [1/2]

```
gdcm::network::UserInformation::UserInformation ()
```

Referenced by UserInformation(), and operator=().

12.369.2.2 ~UserInformation()

```
gdcm::network::UserInformation::~UserInformation ()
```

12.369.2.3 UserInformation() [2/2]

```
gdcm::network::UserInformation::UserInformation (
            const UserInformation & )  [delete]
```

References UserInformation().

12.369.3 Member Function Documentation

12.369.3.1 AddRoleSelectionSub()

```
void gdcm::network::UserInformation::AddRoleSelectionSub (
            RoleSelectionSub const & r)
```

12.369.3.2 AddSOPClassExtendedNegociationSub()

```
void gdcm::network::UserInformation::AddSOPClassExtendedNegociationSub (
            SOPClassExtendedNegociationSub const & s)
```

12.369.3.3 GetMaximumLengthSub() [1/2]

```
MaximumLengthSub & gdcm::network::UserInformation::GetMaximumLengthSub ()  [inline]
```

12.369.3.4 GetMaximumLengthSub() [2/2]

```
const MaximumLengthSub & gdcm::network::UserInformation::GetMaximumLengthSub () const  [inline]
```

12.369.3.5 operator=()

```
UserInformation & gdcm::network::UserInformation::operator= (
            const UserInformation & )
```

References UserInformation().

12.369.3.6 Print()

```
void gdcm::network::UserInformation::Print (
            std::ostream & os) const
```

12.369.3.7 Read()

```
std::istream & gdcm::network::UserInformation::Read (
            std::istream & is)
```

12.369.3.8 Size()

```
size_t gdcm::network::UserInformation::Size () const
```

12.369.3.9 Write()

```
const std::ostream & gdcm::network::UserInformation::Write (
            std::ostream & os) const
```

The documentation for this class was generated from the following file:

- gdcmUserInformation.h

12.370 gdcm::UUIDGenerator Class Reference

Class for generating unique UUID.

`#include <gdcmUUIDGenerator.h>`

Public Member Functions

- const char * Generate ()

Static Public Member Functions

- static bool IsValid (const char *uid)

  Find out if the string is a valid UUID or not.

12.370.1 Detailed Description

Class for generating unique UUID.

generate DCE 1.1 uid

12.370.2 Member Function Documentation

12.370.2.1 Generate()

```
const char * gdcm::UUIDGenerator::Generate ()
```

Return the generated uuid NOT THREAD SAFE

12.370.2.2 IsValid()

```
bool gdcm::UUIDGenerator::IsValid (
            const char * uid)  [static]
```

Find out if the string is a valid UUID or not.

The documentation for this class was generated from the following file:

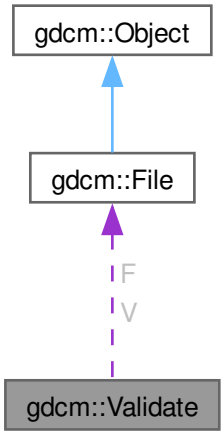
- gdcmUUIDGenerator.h

12.371 gdcm::Validate Class Reference

Validate class.

```
#include <gdcmValidate.h>
```

Collaboration diagram for gdcm::Validate:



Public Member Functions

- Validate ()
- ~Validate ()
- const File & GetValidatedFile ()
- void SetFile (File const &f)
- void Validation ()

Protected Attributes

- const File * F
- File V

12.371.1 Detailed Description

Validate class.

12.371.2 Constructor & Destructor Documentation

12.371.2.1 Validate()

```
gdcm::Validate::Validate ()
```

12.371.2.2 ~Validate()

```
gdcm::Validate::~Validate ()
```

12.371.3 Member Function Documentation

12.371.3.1 GetValidatedFile()

```
const File & gdcm::Validate::GetValidatedFile ()  [inline]
```

References V.

12.371.3.2 SetFile()

```
void gdcm::Validate::SetFile (
            File const & f)  [inline]
```

References F.

12.371.3.3 Validation()

```
void gdcm::Validate::Validation ()
```

12.371.4 Member Data Documentation

12.371.4.1 F

```
const File* gdcm::Validate::F  [protected]
```

Referenced by SetFile().

12.371.4.2 V

```
File gdcm::Validate::V  [protected]
```

Referenced by GetValidatedFile().

The documentation for this class was generated from the following file:

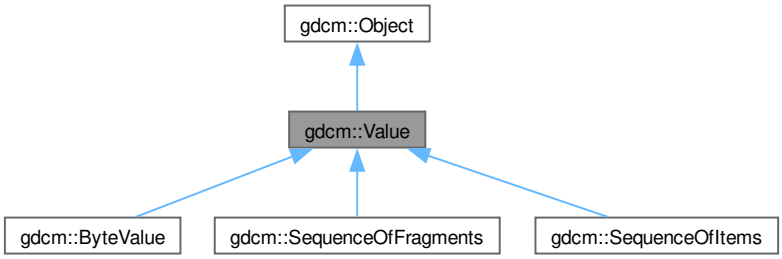
- gdcmValidate.h

12.372 gdcm::Value Class Reference

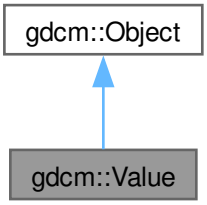
Class to represent the value of a Data Element.

`#include <gdcmValue.h>`

Inheritance diagram for gdcm::Value:



Collaboration diagram for gdcm::Value:



Public Member Functions

- Value ()=default
- ~Value () override=default
- virtual void Clear ()=0
- virtual VL GetLength () const =0
- virtual bool operator== (const Value &val) const =0
- virtual void SetLength (VL l)=0

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)
- virtual void Print (std::ostream &) const

Protected Member Functions

- virtual void SetLengthOnly (VL l)

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- class DataElement

12.372.1 Detailed Description

Class to represent the value of a Data Element.

Note

VALUE: A component of a Value Field. A Value Field may consist of one or more of these components.

12.372.2 Constructor & Destructor Documentation

12.372.2.1 Value()

```
gdcm::Value::Value ()  [default]
```

Referenced by gdcm::ByteValue::operator==(), gdcm::SequenceOfFragments::operator==(), gdcm::SequenceOfItems::operator==(), and operator==().

12.372.2.2 ~Value()

```
gdcm::Value::~Value ()  [override], [default]
```

12.372.3 Member Function Documentation

12.372.3.1 Clear()

```
virtual void gdcm::Value::Clear ()  [pure virtual]
```

Implemented in gdcm::ByteValue, gdcm::SequenceOfFragments, and gdcm::SequenceOfItems.

12.372.3.2 GetLength()

```
virtual VL gdcm::Value::GetLength () const  [pure virtual]
```

Implemented in gdcm::ByteValue, gdcm::SequenceOfFragments, and gdcm::SequenceOfItems.

Referenced by gdcm::DataSet::InsertDataElement(), and gdcm::DataElement::SetValue().

12.372.3.3 operator==()

```
virtual bool gdcm::Value::operator== (
            const Value & val) const  [pure virtual]
```

Implemented in gdcm::ByteValue, gdcm::SequenceOfFragments, and gdcm::SequenceOfItems.

References Value().

12.372.3.4 SetLength()

```
virtual void gdcm::Value::SetLength (
            VL l)  [pure virtual]
```

Implemented in gdcm::ByteValue, gdcm::SequenceOfFragments, and gdcm::SequenceOfItems.

12.372.3.5 SetLengthOnly()

```
virtual void gdcm::Value::SetLengthOnly (
            VL l)  [protected], [virtual]
```

Reimplemented in gdcm::ByteValue.

12.372.4 Friends And Related Symbol Documentation

12.372.4.1 DataElement

```
friend class DataElement  [friend]
```

References DataElement.

Referenced by DataElement.

The documentation for this class was generated from the following file:

- gdcmValue.h

12.373 gdcm::ValueIO< TDE, TSwap, TType > Class Template Reference

Class to dispatch template calls.

```
#include <gdcmValueIO.h>
```

Static Public Member Functions

- static std::istream & Read (std::istream &is, Value &v, bool readvalues)
- static const std::ostream & Write (std::ostream &os, const Value &v)

12.373.1 Detailed Description

template<typename TDE, typename TSwap, typename TType = uint8_t>
class gdcm::ValueIO< TDE, TSwap, TType >

Class to dispatch template calls.

12.373.2 Member Function Documentation

12.373.2.1 Read()

```
template<typename TDE, typename TSwap, typename TType = uint8_t>
std::istream & gdcm::ValueIO< TDE, TSwap, TType >::Read (
             std::istream & is,
             Value & v,
             bool readvalues)  [static]
```

12.373.2.2 Write()

```
template<typename TDE, typename TSwap, typename TType = uint8_t>
const std::ostream & gdcm::ValueIO< TDE, TSwap, TType >::Write (
             std::ostream & os,
             const Value & v)  [static]
```

The documentation for this class was generated from the following file:

- gdcmValueIO.h

12.374 gdcm::MrProtocol::Vector3 Struct Reference

```
#include <gdcmMrProtocol.h>
```

Public Attributes

- double dCor
- double dSag
- double dTra

12.374.1 Member Data Documentation

12.374.1.1 dCor

```
double gdcm::MrProtocol::Vector3::dCor
```

12.374.1.2 dSag

```
double gdcm::MrProtocol::Vector3::dSag
```

12.374.1.3 dTra

```
double gdcm::MrProtocol::Vector3::dTra
```

The documentation for this struct was generated from the following file:

- gdcmMrProtocol.h

12.375 gdcm::Version Class Reference

major/minor and build version

`#include <gdcmVersion.h>`

Public Member Functions

- Version ()=default
- ~Version ()=default
- void Print (std::ostream &os=std::cout) const

Static Public Member Functions

- static int GetBuildVersion ()
- static int GetMajorVersion ()
- static int GetMinorVersion ()
- static const char * GetVersion ()

Friends

- std::ostream & operator<< (std::ostream &_os, const Version &v)

12.375.1 Detailed Description

major/minor and build version

12.375.2 Constructor & Destructor Documentation

12.375.2.1 Version()

`gdcm::Version::Version () [default]`

Referenced by operator<<.

12.375.2.2 ~Version()

`gdcm::Version::~Version () [default]`

12.375.3 Member Function Documentation

12.375.3.1 GetBuildVersion()

```
int gdcm::Version::GetBuildVersion ()  [static]
```

12.375.3.2 GetMajorVersion()

```
int gdcm::Version::GetMajorVersion ()  [static]
```

12.375.3.3 GetMinorVersion()

```
int gdcm::Version::GetMinorVersion ()  [static]
```

12.375.3.4 GetVersion()

```
const char * gdcm::Version::GetVersion ()  [static]
```

12.375.3.5 Print()

```
void gdcm::Version::Print (
            std::ostream & os = std::cout) const
```

Referenced by operator<<.

12.375.4 Friends And Related Symbol Documentation

12.375.4.1 operator<<

```
std::ostream & operator<< (
            std::ostream & _os,
            const Version & v)  [friend]
```

References Version(), and Print().

The documentation for this class was generated from the following file:

- gdcmVersion.h

12.376 gdcm::VL Class Reference

Value Length.

`#include <gdcmVL.h>`

Public Types

- typedef uint32_t Type

Public Member Functions

- VL (uint32_t vl=0)
- VL GetLength () const
- bool IsOdd () const

  Return whether or not the VL is odd or not.
- bool IsUndefined () const
- operator uint32_t () const
- VL & operator++ ()
- VL operator++ (int)
- VL & operator+= (VL const &vl)

  += operator
- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & Read16 (std::istream &is)
- void SetToUndefined ()
- template<typename TSwap>
  const std::ostream & Write (std::ostream &os) const
- template<typename TSwap>
  const std::ostream & Write16 (std::ostream &os) const

Static Public Member Functions

- static uint16_t GetVL16Max ()
- static uint32_t GetVL32Max ()

Friends

- std::ostream & operator<< (std::ostream &os, const VL &vl)

12.376.1 Detailed Description

Value Length.

Warning

this is a 4bytes value ! Do not try to use it for 2bytes value length

Examples

BasicImageAnonymizer.cs, DecompressImage.cs, ReadAndDumpDICOMDIR2.cxx, and rle2img.cxx.

12.376.2 Member Typedef Documentation

12.376.2.1 Type

```
typedef uint32_t gdcm::VL::Type
```

12.376.3 Constructor & Destructor Documentation

12.376.3.1 VL()

```
gdcm::VL::VL (
            uint32_t vl = 0)  [inline]
```

Referenced by GetLength(), operator++(), operator++(), operator+=(), and operator<<.

12.376.4 Member Function Documentation

12.376.4.1 GetLength()

```
VL gdcm::VL::GetLength () const  [inline]
```

Examples

ReadAndDumpDICOMDIR2.cxx.

References VL().

Referenced by gdcm::FileMetaInformation::GetFullLength(), and gdcm::Item::Write().

12.376.4.2 GetVL16Max()

```
uint16_t gdcm::VL::GetVL16Max ()  [inline], [static]
```

12.376.4.3 GetVL32Max()

```
uint32_t gdcm::VL::GetVL32Max ()  [inline], [static]
```

12.376.4.4 IsOdd()

```
bool gdcm::VL::IsOdd () const  [inline]
```

Return whether or not the VL is odd or not.

References IsUndefined().

Referenced by Write(), and Write16().

12.376.4.5 IsUndefined()

```
bool gdcm::VL::IsUndefined () const  [inline]
```

Referenced by IsOdd().

12.376.4.6 operator uint32_t()

```
gdcm::VL::operator uint32_t () const  [inline]
```

12.376.4.7 operator++() [1/2]

```
VL & gdcm::VL::operator++ ()  [inline]
```

References VL().

12.376.4.8 operator++() [2/2]

```
VL gdcm::VL::operator++ (
            int )  [inline]
```

References VL().

12.376.4.9 operator+=()

```
VL & gdcm::VL::operator+= (
             VL const & vl)  [inline]
```

+= operator

References VL().

12.376.4.10 Read()

```
template<typename TSwap>
std::istream & gdcm::VL::Read (
             std::istream & is)  [inline]
```

12.376.4.11 Read16()

```
template<typename TSwap>
std::istream & gdcm::VL::Read16 (
             std::istream & is)  [inline]
```

References gdcm_assert.

12.376.4.12 SetToUndefined()

```
void gdcm::VL::SetToUndefined ()  [inline]
```

12.376.4.13 Write()

```
template<typename TSwap>
const std::ostream & gdcm::VL::Write (
             std::ostream & os) const  [inline]
```

References IsOdd().

Referenced by gdcm::Fragment::Write(), gdcm::Item::Write(), gdcm::SequenceOfFragments::Write(), and gdcm::SequenceOfItems::Write(

12.376.4.14 Write16()

```
template<typename TSwap>
const std::ostream & gdcm::VL::Write16 (
             std::ostream & os) const  [inline]
```

References gdcm_assert, and IsOdd().

12.376.5 Friends And Related Symbol Documentation

12.376.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const VL & vl)  [friend]
```

References VL().

The documentation for this class was generated from the following file:

- gdcmVL.h

12.377 gdcm::VM Class Reference

Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.

```
#include <gdcmVM.h>
```

Public Types

- enum VMType {
  VM0 = 0 ,
  VM1 = 1 ,
  VM2 = 2 ,
  VM3 = 4 ,
  VM4 = 8 ,
  VM5 = 16 ,
  VM6 = 32 ,
  VM8 = 64 ,
  VM9 = 128 ,
  VM10 = 256 ,
  VM12 = 512 ,
  VM16 = 1024 ,
  VM18 = 2048 ,
  VM24 = 4096 ,
  VM28 = 8192 ,
  VM32 = 16384 ,
  VM35 = 32768 ,
  VM99 = 65536 ,
  VM256 = 131072 ,
  VM1_2 = VM1 | VM2 ,
  VM1_3 = VM1 | VM2 | VM3 ,
  VM1_4 = VM1 | VM2 | VM3 | VM4 ,
  VM1_5 = VM1 | VM2 | VM3 | VM4 | VM5 ,
  VM1_8 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 ,
  VM1_32 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 ,

VM1_99 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 ,
VM1_n = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256 ,
VM2_2n = VM2 | VM4 | VM6 | VM8 | VM16 | VM24 | VM32 | VM256 ,
VM2_n = VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256 ,
VM3_4 = VM3 | VM4 ,
VM3_3n = VM3 | VM6 | VM9 | VM24 | VM99 | VM256 ,
VM3_n = VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256 ,
VM4_4n = VM4 | VM16 | VM24 | VM32 | VM256 ,
VM6_6n = VM6 | VM12 | VM18 | VM24 ,
VM6_n = VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256 ,
VM7_7n ,
VM30_30n ,
VM47_47n ,
VM_END = VM1_n + 1 }

Public Member Functions

- VM (VMType type=VM0)
- bool Compatible (VM const &vm) const
- unsigned int GetLength () const
- operator VMType () const

Static Public Member Functions

- static size_t GetNumberOfElementsFromArray (const char *array, size_t length)
- static const char * GetVMString (VMType vm)
- static VMType GetVMType (const char *vm)
- static VMType GetVMTypeFromLength (size_t length, unsigned int size)
- static bool IsValid (int vm1, VMType vm2)

Static Protected Member Functions

- static unsigned int GetIndex (VMType vm)

Friends

- std::ostream & operator<< (std::ostream &os, const VM &vm)

12.377.1 Detailed Description

Value Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.

Some private dict define some more: 4-4n 1-4 1-5 256 9 3-4

even more:

7-7n 10 18 12 35 47_47n 30_30n 28

6-6n

12.377.2 Member Enumeration Documentation

12.377.2.1 VMType

enum gdcm::VM::VMType

Enumerator

VM0	
VM1	
VM2	
VM3	
VM4	
VM5	
VM6	
VM8	
VM9	
VM10	
VM12	
VM16	
VM18	
VM24	
VM28	
VM32	
VM35	
VM99	
VM256	
VM1_2	
VM1_3	
VM1_4	
VM1_5	
VM1_8	
VM1_32	
VM1_99	
VM1_n	
VM2_2n	

VM2_n	
VM3_4	
VM3_3n	
VM3_n	
VM4_4n	
VM6_6n	
VM6_n	
VM7_7n	
VM30_30n	
VM47_47n	
VM_END	

12.377.3 Constructor & Destructor Documentation

12.377.3.1 VM()

```
gdcm::VM::VM (
            VMType type = VM0)  [inline]
```

References VM0.

Referenced by Compatible(), GetLength(), and operator<<.

12.377.4 Member Function Documentation

12.377.4.1 Compatible()

```
bool gdcm::VM::Compatible (
            VM const & vm) const
```

WARNING: Implementation deficiency The Compatible function is poorly implemented, the reference vm should be coming from the dictionary, while the passed in value is the value guess from the file.

References VM().

12.377.4.2 GetIndex()

```
unsigned int gdcm::VM::GetIndex (
            VMType vm)  [static], [protected]
```

12.377.4.3 GetLength()

```
unsigned int gdcm::VM::GetLength () const
```

References VM(), and operator<<.

12.377.4.4 GetNumberOfElementsFromArray()

```
size_t gdcm::VM::GetNumberOfElementsFromArray (
             const char * array,
             size_t length)  [static]
```

12.377.4.5 GetVMString()

```
const char * gdcm::VM::GetVMString (
             VMType vm)  [static]
```

Return the string as written in the official DICOM dict from a custom enum type

Referenced by operator<<.

12.377.4.6 GetVMType()

```
VMType gdcm::VM::GetVMType (
             const char * vm)  [static]
```

12.377.4.7 GetVMTypeFromLength()

```
VMType gdcm::VM::GetVMTypeFromLength (
             size_t length,
             unsigned int size)  [static]
```

12.377.4.8 IsValid()

```
bool gdcm::VM::IsValid (
             int vm1,
             VMType vm2)  [static]
```

Check if vm1 is valid compare to vm2, i.e vm1 is element of vm2 vm1 is typically deduce from counting in a ValueField

12.377.4.9 operator VMType()

```
gdcm::VM::operator VMType () const  [inline]
```

12.377.5 Friends And Related Symbol Documentation

12.377.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const VM & vm)  [friend]
```

References VM(), gdcm_assert, and GetVMString().

Referenced by GetLength().

The documentation for this class was generated from the following file:

- gdcmVM.h

12.378 gdcm::VMToLength< T > Struct Template Reference

The documentation for this struct was generated from the following file:

- gdcmVM.h

12.379 gdcm::VR Class Reference

VR class.

```
#include <gdcmVR.h>
```

Public Types

- enum VRType : long long {
  INVALID = 0 ,
  AE = 1 ,
  AS = 2 ,
  AT = 4 ,
  CS = 8 ,
  DA = 16 ,
  DS = 32 ,
  DT = 64 ,
  FD = 128 ,
  FL = 256 ,
  IS = 512 ,
  LO = 1024 ,
  LT = 2048 ,
  OB = 4096 ,
  OD = 134217728 ,

OF = 8192 ,
OL = 268435456 ,
OV = 2147483648 ,
OW = 16384 ,
PN = 32768 ,
SH = 65536 ,
SL = 131072 ,
SQ = 262144 ,
SS = 524288 ,
ST = 1048576 ,
SV = 4294967296 ,
TM = 2097152 ,
UC = 536870912 ,
UI = 4194304 ,
UL = 8388608 ,
UN = 16777216 ,
UR = 1073741824 ,
US = 33554432 ,
UT = 67108864 ,
UV = 8589934592 ,
OB_OW = OB | OW ,
US_SS = US | SS ,
US_SS_OW = US | SS | OW ,
US_OW = US | OW ,
VL16 = AE | AS | AT | CS | DA | DS | DT | FD | FL | IS | LO | LT | PN | SH | SL | SS | ST | TM | UI | UL | US ,
VL32 = OB | OW | OD | OF | OL | OV | SQ | SV | UC | UN | UR | UT | UV ,
VRASCII = AE | AS | CS | DA | DS | DT | IS | LO | LT | PN | SH | ST | TM | UC | UI | UR | UT ,
VRBINARY = AT | FL | FD | OB | OD | OF | OL | OV | OW | SL | SQ | SS | SV | UL | UN | US | UV ,
VR_VM1 = AS | LT | ST | UT | SQ | OF | OL | OV | OD | OW | OB | UN ,
VRALL = VRASCII | VRBINARY ,
VR_END = UV+1 }

Public Member Functions

- VR (VRType vr=INVALID)
- bool Compatible (VR const &vr) const
- int GetLength () const
- unsigned int GetSize () const
- unsigned int GetSizeof () const
- bool IsDual () const
- bool IsVRFile () const
- operator VRType () const
- std::istream & Read (std::istream &is)
- const std::ostream & Write (std::ostream &os) const

Static Public Member Functions

- static bool CanDisplay (VRType vr)
- static uint32_t GetLength (VRType vr)
- static const char * GetVRString (VRType vr)
- static const char * GetVRStringFromFile (VRType vr)

- static VRType GetVRType (const char *vr)
- static VRType GetVRTypeFromFile (const char *vr)
- static bool IsASCII (VRType vr)
- static bool IsASCII2 (VRType vr)
- static bool IsBinary (VRType vr)
- static bool IsBinary2 (VRType vr)
- static bool IsSwap (const char *vr)
- static bool IsValid (const char *vr)
- static bool IsValid (const char *vr1, VRType vr2)

Friends

- std::ostream & operator<< (std::ostream &os, const VR &vr)

12.379.1 Detailed Description

VR class.

This is adapted from DICOM standard The biggest difference is the INVALID VR and the composite one that differ from standard (more like an addition) This allow us to represent all the possible case express in the DICOMV3 dict

Note

VALUE REPRESENTATION (VR) Specifies the data type and format of the Value(s) contained in the Value Field of a Data Element. VALUE REPRESENTATION FIELD: The field where the Value Representation of a Data Element is stored in the encoding of a Data Element structure with explicit VR.

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, and SimplePrint.cs.

12.379.2 Member Enumeration Documentation

12.379.2.1 VRType

```
enum gdcm::VR::VRType :  long long
```

Enumerator

INVALID	
AE	
AS	
AT	
CS	

DA	
DS	
DT	
FD	
FL	
IS	
LO	
LT	
OB	
OD	
OF	
OL	
OV	
OW	
PN	
SH	
SL	
SQ	
SS	
ST	
SV	
TM	
UC	
UI	
UL	
UN	
UR	
US	
UT	
UV	
OB_OW	
US_SS	
US_SS_OW	
US_OW	
VL16	
VL32	
VRASCII	
VRBINARY	
VR_VM1	

VRALL	
VR_END	

Examples

NewSequence.cs, and SimplePrint.cs.

12.379.3 Constructor & Destructor Documentation

12.379.3.1 VR()

```
gdcm::VR::VR (
            VRType vr = INVALID)  [inline]
```

References INVALID.

Referenced by Compatible(), and operator<<.

12.379.4 Member Function Documentation

12.379.4.1 CanDisplay()

```
bool gdcm::VR::CanDisplay (
            VRType vr)  [static]
```

12.379.4.2 Compatible()

```
bool gdcm::VR::Compatible (
            VR const & vr) const
```

Examples

SimplePrint.cs.

References VR().

12.379.4.3 GetLength() [1/2]

```
int gdcm::VR::GetLength () const  [inline]
```

References GetLength().

Referenced by GetLength().

12.379.4.4 GetLength() [2/2]

```
uint32_t gdcm::VR::GetLength (
            VRType vr)  [inline], [static]
```

References VL32.

12.379.4.5 GetSize()

```
unsigned int gdcm::VR::GetSize () const  [inline]
```

References AE, AS, AT, CS, DA, DS, DT, FD, FL, gdcm_assert, INVALID, IS, LO, LT, OB, OB_OW, OD, OF, OL, OV, OW, PN, SH, SL, SQ, SS, ST, SV, TM, UC, UI, UL, UN, UR, US, US_OW, US_SS, US_SS_OW, UT, UV, VL16, VL32, VR_END, VR_VM1, VRALL, VRASCII, VRBINARY, and VRTypeTemplateCase.

12.379.4.6 GetSizeof()

```
unsigned int gdcm::VR::GetSizeof () const
```

12.379.4.7 GetVRString()

```
const char * gdcm::VR::GetVRString (
            VRType vr)  [static]
```

Referenced by operator<<, and Write().

12.379.4.8 GetVRStringFromFile()

```
const char * gdcm::VR::GetVRStringFromFile (
            VRType vr)  [static]
```

12.379.4.9 GetVRType()

```
VRType gdcm::VR::GetVRType (
            const char * vr)  [static]
```

12.379.4.10 GetVRTypeFromFile()

```
VRType gdcm::VR::GetVRTypeFromFile (
            const char * vr)  [static]
```

Referenced by Read().

12.379.4.11 IsASCII()

```
bool gdcm::VR::IsASCII (
            VRType vr)  [static]
```

12.379.4.12 IsASCII2()

```
bool gdcm::VR::IsASCII2 (
            VRType vr)  [static]
```

12.379.4.13 IsBinary()

```
bool gdcm::VR::IsBinary (
            VRType vr)  [static]
```

12.379.4.14 IsBinary2()

```
bool gdcm::VR::IsBinary2 (
            VRType vr)  [static]
```

12.379.4.15 IsDual()

```
bool gdcm::VR::IsDual () const
```

Referenced by Write().

12.379.4.16 IsSwap()

```
bool gdcm::VR::IsSwap (
            const char * vr)  [static]
```

12.379.4.17 IsValid() [1/2]

```
bool gdcm::VR::IsValid (
            const char * vr)  [static]
```

12.379.4.18 IsValid() [2/2]

```
bool gdcm::VR::IsValid (
            const char * vr1,
            VRType vr2)  [static]
```

12.379.4.19 IsVRFile()

```
bool gdcm::VR::IsVRFile () const
```

Referenced by gdcm::DataElement::SetVR().

12.379.4.20 operator VRType()

```
gdcm::VR::operator VRType () const  [inline]
```

12.379.4.21 Read()

```
std::istream & gdcm::VR::Read (
            std::istream & is)  [inline]
```

References gdcm_assert, gdcmDebugMacro, GetVRTypeFromFile(), INVALID, VL32, and VR_END.

12.379.4.22 Write()

```
const std::ostream & gdcm::VR::Write (
            std::ostream & os) const  [inline]
```

References gdcm_assert, gdcmAssertAlwaysMacro, GetVRString(), INVALID, IsDual(), and VL32.

12.379.5 Friends And Related Symbol Documentation

12.379.5.1 operator<<

```
std::ostream & operator<< (
            std::ostream & os,
            const VR & vr)  [friend]
```

References VR(), and GetVRString().

The documentation for this class was generated from the following file:

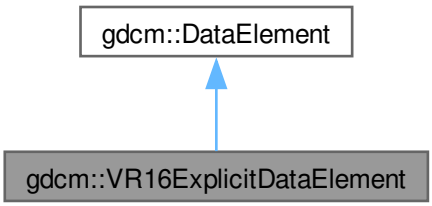
- gdcmVR.h

12.380 gdcm::VR16ExplicitDataElement Class Reference

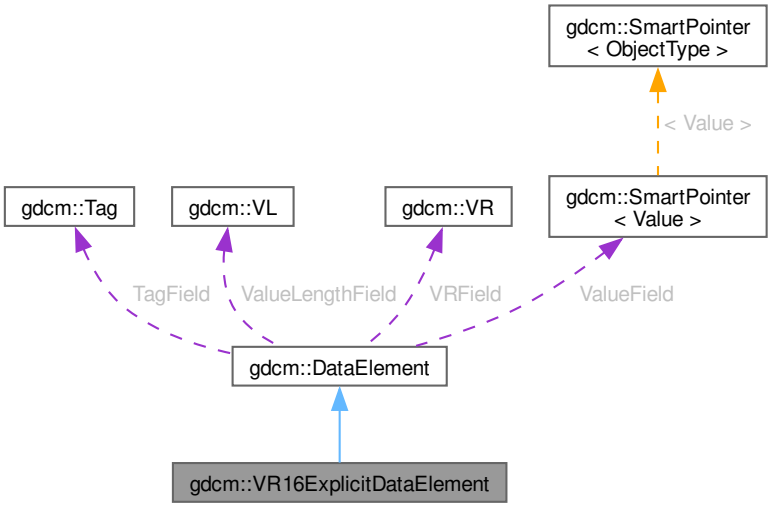
Class to read/write a DataElement as Explicit Data Element.

`#include <gdcmVR16ExplicitDataElement.h>`

Inheritance diagram for gdcm::VR16ExplicitDataElement:



Collaboration diagram for gdcm::VR16ExplicitDataElement:



Public Member Functions

- VL GetLength () const

- template<typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TSwap>
  std::istream & ReadPreValue (std::istream &is)
- template<typename TSwap>
  std::istream & ReadValue (std::istream &is, bool readvalues=true)
- template<typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)

Public Member Functions inherited from gdcm::DataElement

- DataElement (const DataElement &_val)
- DataElement (const Tag &t=Tag(0), const VL &vl=0, const VR &vr=VR::INVALID)
- void Clear ()

  Clear Data Element (make Value empty and invalidate Tag + VR).
- void Empty ()

  Make Data Element empty (no Value).
- const ByteValue * GetByteValue () const
- template<typename TDE>
  VL GetLength () const
- SequenceOfFragments * GetSequenceOfFragments ()
- const SequenceOfFragments * GetSequenceOfFragments () const
- Tag & GetTag ()
- const Tag & GetTag () const

  Get Tag.
- Value & GetValue ()
- Value const & GetValue () const

  Set/Get Value (bytes array, SQ of items, SQ of fragments):
- SmartPointer< SequenceOfItems > GetValueAsSQ () const
- VL & GetVL ()
- const VL & GetVL () const

  Get VL.
- VR const & GetVR () const
- bool IsEmpty () const

  Check if Data Element is empty.
- bool IsUndefinedLength () const

  return if Value Length if of undefined length
- bool operator< (const DataElement &de) const
- DataElement & operator= (const DataElement &)=default
- bool operator== (const DataElement &de) const
- template<typename TDE, typename TSwap>
  std::istream & Read (std::istream &is)
- template<typename TDE, typename TSwap>
  std::istream & ReadOrSkip (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadPreValue (std::istream &is, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadValue (std::istream &is, std::set< Tag > const &skiptags)

- template<typename TDE, typename TSwap>
  std::istream & ReadValueWithLength (std::istream &is, VL &length, std::set< Tag > const &skiptags)
- template<typename TDE, typename TSwap>
  std::istream & ReadWithLength (std::istream &is, VL &length)
- void SetByteValue (const char *array, VL length)
- void SetTag (const Tag &t)
- void SetValue (Value const &vl)
- void SetVL (const VL &vl)
- void SetVLToUndefined ()
- void SetVR (VR const &vr)
- template<typename TDE, typename TSwap>
  const std::ostream & Write (std::ostream &os) const

Additional Inherited Members

Protected Types inherited from gdcm::DataElement

- typedef SmartPointer< Value > ValuePtr

Protected Member Functions inherited from gdcm::DataElement

- void SetValueFieldLength (VL vl, bool readvalues)

Protected Attributes inherited from gdcm::DataElement

- Tag TagField
- ValuePtr ValueField
- VL ValueLengthField
- VR VRField

12.380.1 Detailed Description

Class to read/write a DataElement as Explicit Data Element.

Note

This class support 16 bits when finding an unknown VR: For instance: Siemens_CT_Sensation64_has_VR_RT.↩dcm

12.380.2 Member Function Documentation

12.380.2.1 GetLength()

```
VL gdcm::VR16ExplicitDataElement::GetLength () const
```

12.380.2.2 Read()

```
template<typename TSwap>
std::istream & gdcm::VR16ExplicitDataElement::Read (
             std::istream & is)
```

12.380.2.3 ReadPreValue()

```
template<typename TSwap>
std::istream & gdcm::VR16ExplicitDataElement::ReadPreValue (
             std::istream & is)
```

12.380.2.4 ReadValue()

```
template<typename TSwap>
std::istream & gdcm::VR16ExplicitDataElement::ReadValue (
             std::istream & is,
             bool readvalues = true)
```

12.380.2.5 ReadWithLength()

```
template<typename TSwap>
std::istream & gdcm::VR16ExplicitDataElement::ReadWithLength (
             std::istream & is,
             VL & length)
```

The documentation for this class was generated from the following file:

- gdcmVR16ExplicitDataElement.h

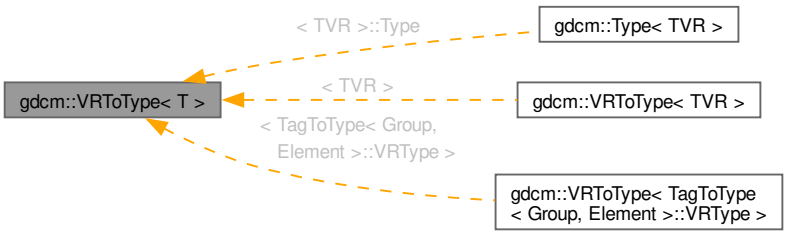
12.381 gdcm::VRToEncoding< T > Struct Template Reference

The documentation for this struct was generated from the following file:

- gdcmVR.h

12.382 gdcm::VRToType< T > Struct Template Reference

Inheritance diagram for gdcm::VRToType< T >:



12.382.1 Detailed Description

template<long long T>
struct gdcm::VRToType< T >

Examples

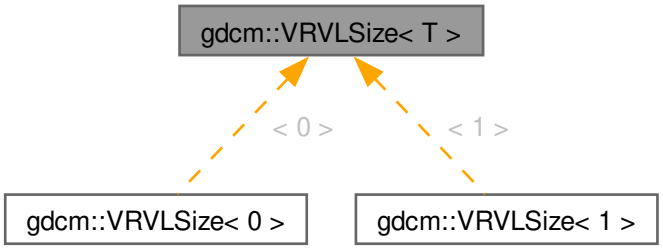
DumpGEMSMovieGroup.cxx.

The documentation for this struct was generated from the following file:

- gdcmVR.h

12.383 gdcm::VRVLSize< T > Class Template Reference

Inheritance diagram for gdcm::VRVLSize< T >:



The documentation for this class was generated from the following file:

- gdcmAttribute.h

12.384 gdcm::VRVLSize< 0 > Class Reference

`#include <gdcmAttribute.h>`

Inheritance diagram for gdcm::VRVLSize< 0 >:

Collaboration diagram for gdcm::VRVLSize< 0 >:

Static Public Member Functions

- static uint16_t Read (std::istream &_is)
- static void Write (std::ostream &os)

12.384.1 Member Function Documentation

12.384.1.1 Read()

```
uint16_t gdcm::VRVLSize< 0 >::Read (
            std::istream & _is)  [inline], [static]
```

12.384.1.2 Write()

```
void gdcm::VRVLSize< 0 >::Write (
            std::ostream & os)  [inline], [static]
```

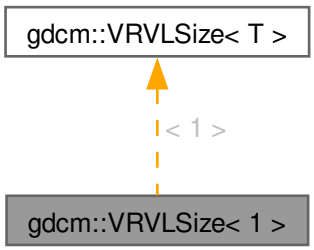
The documentation for this class was generated from the following file:

- gdcmAttribute.h

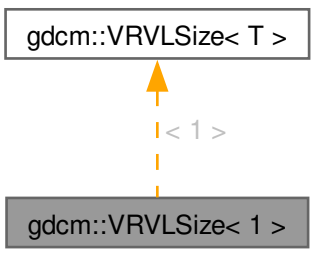
12.385 gdcm::VRVLSize< 1 > Class Reference

```
#include <gdcmAttribute.h>
```

Inheritance diagram for gdcm::VRVLSize< 1 >:



Collaboration diagram for gdcm::VRVLSize< 1 >:



Static Public Member Functions

- static uint32_t Read (std::istream &_is)
- static void Write (std::ostream &os)

12.385.1 Member Function Documentation

12.385.1.1 Read()

```
uint32_t gdcm::VRVLSize< 1 >::Read (
            std::istream & _is)  [inline], [static]
```

12.385.1.2 Write()

```
void gdcm::VRVLSize< 1 >::Write (
            std::ostream & os)  [inline], [static]
```

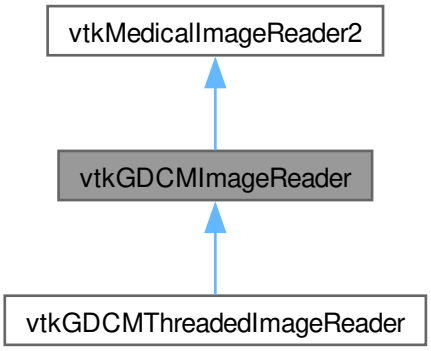
The documentation for this class was generated from the following file:

- gdcmAttribute.h

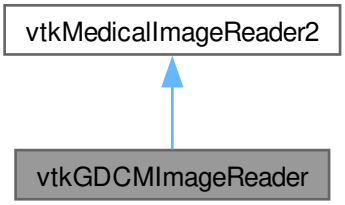
12.386 vtkGDCMImageReader Class Reference

```
#include <vtkGDCMImageReader.h>
```

Inheritance diagram for vtkGDCMImageReader:



Collaboration diagram for vtkGDCMImageReader:



Public Member Functions

- virtual int CanReadFile (const char ∗fname)
- virtual const char ∗ GetDescriptiveName ()
- virtual const char ∗ GetFileExtensions ()
- vtkImageData ∗ GetIconImage ()
- vtkImageData ∗ GetOverlay (int i)
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetCurve (vtkPolyData ∗pd)
- virtual void SetFileNames (vtkStringArray ∗)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties ∗pd)
- vtkBooleanMacro (ApplyLookupTable, int)
- int vtkBooleanMacro (ApplyYBRToRGB, int)
- vtkBooleanMacro (LoadIconImage, int)
- vtkBooleanMacro (LoadOverlays, int)
- vtkBooleanMacro (LossyFlag, int)
- vtkGetMacro (ApplyLookupTable, int)
- vtkGetMacro (ApplyYBRToRGB, int) vtkSetMacro(ApplyYBRToRGB
- vtkGetMacro (ImageFormat, int)
- vtkGetMacro (LoadIconImage, int)
- vtkGetMacro (LoadOverlays, int)
- vtkGetMacro (LossyFlag, int)
- vtkGetMacro (NumberOfIconImages, int)
- vtkGetMacro (NumberOfOverlays, int)
- vtkGetMacro (PlanarConfiguration, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetObjectMacro (Curve, vtkPolyData)
- vtkGetObjectMacro (DirectionCosines, vtkMatrix4x4)
- vtkGetObjectMacro (FileNames, vtkStringArray)
- vtkGetObjectMacro (MedicalImageProperties, vtkMedicalImageProperties)
- vtkGetVector3Macro (ImagePositionPatient, double)
- vtkGetVector6Macro (ImageOrientationPatient, double)
- vtkSetMacro (ApplyLookupTable, int)

- vtkSetMacro (LoadIconImage, int)
- vtkSetMacro (LoadOverlays, int)
- vtkSetMacro (LossyFlag, int)
- vtkTypeMacro (vtkGDCMImageReader, vtkMedicalImageReader2)

Static Public Member Functions

- static vtkGDCMImageReader * New ()

Protected Member Functions

- vtkGDCMImageReader ()
- ~vtkGDCMImageReader ()
- void ExecuteData (vtkDataObject *out)
- void ExecuteInformation ()
- void FillMedicalImageInformation (const gdcm::ImageReader &reader)
- int LoadSingleFile (const char *filename, char *pointer, unsigned long &outlen)
- int RequestDataCompat ()
- int RequestInformationCompat ()
- void SetFilePattern (const char *)
- void SetFilePrefix (const char *)
- vtkGetStringMacro (FilePattern)
- vtkGetStringMacro (FilePrefix)
- vtkSetVector6Macro (ImageOrientationPatient, double)

Protected Attributes

- int ApplyInverseVideo
- int ApplyLookupTable
- int ApplyPlanarConfiguration
- int ApplyShiftScale
- int ApplyYBRToRGB
- vtkPolyData * Curve
- vtkMatrix4x4 * DirectionCosines
- vtkStringArray * FileNames
- int ForceRescale
- int IconDataScalarType
- int IconImageDataExtent [6]
- int IconNumberOfScalarComponents
- int ImageFormat
- double ImageOrientationPatient [6]
- double ImagePositionPatient [3]
- int LoadIconImage
- int LoadOverlays
- int LossyFlag
- vtkMedicalImageProperties * MedicalImageProperties
- int NumberOfIconImages
- int NumberOfOverlays
- int PlanarConfiguration
- double Scale
- double Shift

12.386.1 Detailed Description

Examples

AWTMedical3.java, Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, HelloActiviz.cs, HelloActiviz2.cs, HelloActiviz3.cs, HelloActiviz4.cs, HelloActiviz5.cs, HelloVTKWorld.cs, HelloVTKWorld.java, MIPViewer.java, MPRViewer.java, MPRViewer2.java, MagnifyFile.cxx, MetaImageMD5Activiz.cs, ReadSeriesIntoVTK.java, RefCounting.cs, gdcmorthoplanes.cxx, gdcmreslice.cxx, gdcmtexture.cxx, gdcmvolume.cxx, and offscreenimage.cxx.

12.386.2 Constructor & Destructor Documentation

12.386.2.1 vtkGDCMImageReader()

```
vtkGDCMImageReader::vtkGDCMImageReader ()  [protected]
```

Examples

HelloActiviz2.cs.

References vtkGDCMImageReader().

Referenced by vtkGDCMImageReader(), ~vtkGDCMImageReader(), New(), vtkGetStringMacro(), vtkTypeMacro(), and vtkGDCMThreadedImageReader::vtkTypeMacro().

12.386.2.2 ~vtkGDCMImageReader()

```
vtkGDCMImageReader::~vtkGDCMImageReader ()  [protected]
```

References vtkGDCMImageReader().

12.386.3 Member Function Documentation

12.386.3.1 CanReadFile()

```
virtual int vtkGDCMImageReader::CanReadFile (
            const char * fname)  [virtual]
```

Examples

AWTMedical3.java, and MetaImageMD5Activiz.cs.

12.386.3.2 ExecuteData()

```
void vtkGDCMImageReader::ExecuteData (
            vtkDataObject * out)  [protected]
```

12.386.3.3 ExecuteInformation()

```
void vtkGDCMImageReader::ExecuteInformation ()  [protected]
```

12.386.3.4 FillMedicalImageInformation()

```
void vtkGDCMImageReader::FillMedicalImageInformation (
            const gdcm::ImageReader & reader)  [protected]
```

References FillMedicalImageInformation().

Referenced by FillMedicalImageInformation().

12.386.3.5 GetDescriptiveName()

```
virtual const char * vtkGDCMImageReader::GetDescriptiveName ()  [inline], [virtual]
```

12.386.3.6 GetFileExtensions()

```
virtual const char * vtkGDCMImageReader::GetFileExtensions ()  [inline], [virtual]
```

12.386.3.7 GetIconImage()

```
vtkImageData * vtkGDCMImageReader::GetIconImage ()
```

12.386.3.8 GetOverlay()

```
vtkImageData * vtkGDCMImageReader::GetOverlay (
            int i)
```

12.386.3.9 LoadSingleFile()

```
int vtkGDCMImageReader::LoadSingleFile (
            const char * filename,
            char * pointer,
            unsigned long & outlen)  [protected]
```

12.386.3.10 New()

```
vtkGDCMImageReader * vtkGDCMImageReader::New ()  [static]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, HelloActiviz.cs, HelloActiviz3.cs, HelloActiviz4.cs, HelloActiviz5.cs, HelloVTKWorld.cs, MagnifyFile.cxx, MetaImageMD5Activiz.cs, RefCounting.cs, gdcmorthoplanes.cxx, gdcmreslice.cxx, gdcmtexture.cxx, gdcmvolume.cxx, offscreenimage.cxx, and reslicesphere.cxx.

References vtkGDCMImageReader().

12.386.3.11 PrintSelf()

```
virtual void vtkGDCMImageReader::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

Reimplemented in vtkGDCMThreadedImageReader.

12.386.3.12 RequestDataCompat()

```
int vtkGDCMImageReader::RequestDataCompat ()  [protected]
```

References RequestDataCompat().

Referenced by RequestDataCompat().

12.386.3.13 RequestInformationCompat()

```
int vtkGDCMImageReader::RequestInformationCompat ()  [protected]
```

References RequestInformationCompat().

Referenced by RequestInformationCompat().

12.386.3.14 SetCurve()

```
virtual void vtkGDCMImageReader::SetCurve (
            vtkPolyData * pd)  [virtual]
```

References SetCurve().

Referenced by SetCurve().

12.386.3.15 SetFileNames()

```
virtual void vtkGDCMImageReader::SetFileNames (
            vtkStringArray * )  [virtual]
```

Examples

AWTMedical3.java, HelloActiviz3.cs, HelloActiviz4.cs, HelloActiviz5.cs, MIPViewer.java, MPRViewer.java, MPRViewer2.java, ReadSeriesIntoVTK.java, and gdcmorthoplanes.cxx.

12.386.3.16 SetFilePattern()

```
void vtkGDCMImageReader::SetFilePattern (
            const char * )  [inline], [protected]
```

12.386.3.17 SetFilePrefix()

```
void vtkGDCMImageReader::SetFilePrefix (
            const char * )  [inline], [protected]
```

12.386.3.18 SetMedicalImageProperties()

```
virtual void vtkGDCMImageReader::SetMedicalImageProperties (
            vtkMedicalImageProperties * pd)  [virtual]
```

12.386.3.19 vtkBooleanMacro() [1/5]

```
vtkGDCMImageReader::vtkBooleanMacro (
            ApplyLookupTable ,
            int )
```

References ApplyLookupTable.

12.386.3.20 vtkBooleanMacro() [2/5]

```
int vtkGDCMImageReader::vtkBooleanMacro (
            ApplyYBRToRGB ,
            int )
```

References ApplyYBRToRGB, and vtkBooleanMacro().

12.386.3.21 vtkBooleanMacro() [3/5]

```
vtkGDCMImageReader::vtkBooleanMacro (
            LoadIconImage ,
            int )
```

References LoadIconImage.

12.386.3.22 vtkBooleanMacro() [4/5]

```
vtkGDCMImageReader::vtkBooleanMacro (
            LoadOverlays ,
            int )
```

References LoadOverlays.

Referenced by vtkBooleanMacro().

12.386.3.23 vtkBooleanMacro() [5/5]

```
vtkGDCMImageReader::vtkBooleanMacro (
            LossyFlag ,
            int )
```

References LossyFlag.

12.386.3.24 vtkGetMacro() [1/11]

```
vtkGDCMImageReader::vtkGetMacro (
            ApplyLookupTable ,
            int )
```

References ApplyLookupTable.

12.386.3.25 vtkGetMacro() [2/11]

```
vtkGDCMImageReader::vtkGetMacro (
            ApplyYBRToRGB ,
            int )
```

References ApplyYBRToRGB, and vtkSetMacro().

12.386.3.26 vtkGetMacro() [3/11]

```
vtkGDCMImageReader::vtkGetMacro (
            ImageFormat ,
            int )
```

References ImageFormat, and vtkGetMacro().

12.386.3.27 vtkGetMacro() [4/11]

```
vtkGDCMImageReader::vtkGetMacro (
            LoadIconImage ,
            int )
```

References LoadIconImage.

12.386.3.28 vtkGetMacro() [5/11]

```
vtkGDCMImageReader::vtkGetMacro (
            LoadOverlays ,
            int )
```

References LoadOverlays.

Referenced by vtkGetMacro(), vtkGetMacro(), vtkGetMacro(), and vtkGetMacro().

12.386.3.29 vtkGetMacro() [6/11]

```
vtkGDCMImageReader::vtkGetMacro (
            LossyFlag ,
            int )
```

References LossyFlag.

12.386.3.30 vtkGetMacro() [7/11]

```
vtkGDCMImageReader::vtkGetMacro (
            NumberOfIconImages ,
            int )
```

References NumberOfIconImages.

12.386.3.31 vtkGetMacro() [8/11]

```
vtkGDCMImageReader::vtkGetMacro (
            NumberOfOverlays ,
            int )
```

References NumberOfOverlays.

12.386.3.32 vtkGetMacro() [9/11]

```
vtkGDCMImageReader::vtkGetMacro (
            PlanarConfiguration ,
            int )
```

References PlanarConfiguration, and vtkGetMacro().

12.386.3.33 vtkGetMacro() [10/11]

```
vtkGDCMImageReader::vtkGetMacro (
            Scale ,
            double )
```

References Scale, and vtkGetMacro().

12.386.3.34 vtkGetMacro() [11/11]

```
vtkGDCMImageReader::vtkGetMacro (
            Shift ,
            double )
```

References Shift, and vtkGetMacro().

12.386.3.35 vtkGetObjectMacro() [1/4]

```
vtkGDCMImageReader::vtkGetObjectMacro (
            Curve ,
            vtkPolyData )
```

References Curve, and vtkGetObjectMacro().

12.386.3.36 vtkGetObjectMacro() [2/4]

```
vtkGDCMImageReader::vtkGetObjectMacro (
            DirectionCosines ,
            vtkMatrix4x4 )
```

References DirectionCosines.

Referenced by vtkGetObjectMacro().

12.386.3.37 vtkGetObjectMacro() [3/4]

```
vtkGDCMImageReader::vtkGetObjectMacro (
            FileNames ,
            vtkStringArray )
```

References FileNames.

12.386.3.38 vtkGetObjectMacro() [4/4]

```
vtkGDCMImageReader::vtkGetObjectMacro (
            MedicalImageProperties ,
            vtkMedicalImageProperties )
```

References MedicalImageProperties.

12.386.3.39 vtkGetStringMacro() [1/2]

```
vtkGDCMImageReader::vtkGetStringMacro (
            FilePattern )  [protected]
```

References vtkGDCMImageReader().

12.386.3.40 vtkGetStringMacro() [2/2]

```
vtkGDCMImageReader::vtkGetStringMacro (
            FilePrefix )  [protected]
```

12.386.3.41 vtkGetVector3Macro()

```
vtkGDCMImageReader::vtkGetVector3Macro (
            ImagePositionPatient ,
            double )
```

References ImagePositionPatient, and vtkGetVector3Macro().

Referenced by vtkGetVector3Macro().

12.386.3.42 vtkGetVector6Macro()

```
vtkGDCMImageReader::vtkGetVector6Macro (
            ImageOrientationPatient ,
            double )
```

References ImageOrientationPatient, and vtkGetVector6Macro().

Referenced by vtkGetVector6Macro().

12.386.3.43 vtkSetMacro() [1/4]

```
vtkGDCMImageReader::vtkSetMacro (
            ApplyLookupTable ,
            int )
```

References ApplyLookupTable.

12.386.3.44 vtkSetMacro() [2/4]

```
vtkGDCMImageReader::vtkSetMacro (
            LoadIconImage ,
            int )
```

References LoadIconImage.

12.386.3.45 vtkSetMacro() [3/4]

```
vtkGDCMImageReader::vtkSetMacro (
            LoadOverlays ,
            int )
```

References LoadOverlays.

Referenced by vtkGetMacro().

12.386.3.46 vtkSetMacro() [4/4]

```
vtkGDCMImageReader::vtkSetMacro (
            LossyFlag ,
            int )
```

References LossyFlag.

12.386.3.47 vtkSetVector6Macro()

```
vtkGDCMImageReader::vtkSetVector6Macro (
            ImageOrientationPatient ,
            double )  [protected]
```

References ImageOrientationPatient, and vtkSetVector6Macro().

Referenced by vtkSetVector6Macro().

12.386.3.48 vtkTypeMacro()

```
vtkGDCMImageReader::vtkTypeMacro (
             vtkGDCMImageReader ,
             vtkMedicalImageReader2 )
```

References vtkGDCMImageReader().

12.386.4 Member Data Documentation

12.386.4.1 ApplyInverseVideo

```
int vtkGDCMImageReader::ApplyInverseVideo  [protected]
```

12.386.4.2 ApplyLookupTable

```
int vtkGDCMImageReader::ApplyLookupTable  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.386.4.3 ApplyPlanarConfiguration

```
int vtkGDCMImageReader::ApplyPlanarConfiguration  [protected]
```

12.386.4.4 ApplyShiftScale

```
int vtkGDCMImageReader::ApplyShiftScale  [protected]
```

12.386.4.5 ApplyYBRToRGB

```
int vtkGDCMImageReader::ApplyYBRToRGB  [protected]
```

Referenced by vtkBooleanMacro(), and vtkGetMacro().

12.386.4.6 Curve

```
vtkPolyData* vtkGDCMImageReader::Curve  [protected]
```

Referenced by vtkGetObjectMacro().

12.386.4.7 DirectionCosines

```
vtkMatrix4x4* vtkGDCMImageReader::DirectionCosines  [protected]
```

Referenced by vtkGetObjectMacro().

12.386.4.8 FileNames

```
vtkStringArray* vtkGDCMImageReader::FileNames  [protected]
```

Referenced by vtkGetObjectMacro().

12.386.4.9 ForceRescale

```
int vtkGDCMImageReader::ForceRescale  [protected]
```

12.386.4.10 IconDataScalarType

```
int vtkGDCMImageReader::IconDataScalarType  [protected]
```

12.386.4.11 IconImageDataExtent

```
int vtkGDCMImageReader::IconImageDataExtent[6]  [protected]
```

12.386.4.12 IconNumberOfScalarComponents

```
int vtkGDCMImageReader::IconNumberOfScalarComponents  [protected]
```

12.386.4.13 ImageFormat

```
int vtkGDCMImageReader::ImageFormat  [protected]
```

Referenced by vtkGetMacro().

12.386.4.14 ImageOrientationPatient

```
double vtkGDCMImageReader::ImageOrientationPatient[6]  [protected]
```

Referenced by vtkGetVector6Macro(), and vtkSetVector6Macro().

12.386.4.15 ImagePositionPatient

```
double vtkGDCMImageReader::ImagePositionPatient[3]  [protected]
```

Referenced by vtkGetVector3Macro().

12.386.4.16 LoadIconImage

```
int vtkGDCMImageReader::LoadIconImage  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.386.4.17 LoadOverlays

```
int vtkGDCMImageReader::LoadOverlays  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.386.4.18 LossyFlag

```
int vtkGDCMImageReader::LossyFlag  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.386.4.19 MedicalImageProperties

```
vtkMedicalImageProperties* vtkGDCMImageReader::MedicalImageProperties  [protected]
```

Referenced by vtkGetObjectMacro().

12.386.4.20 NumberOfIconImages

```
int vtkGDCMImageReader::NumberOfIconImages  [protected]
```

Referenced by vtkGetMacro().

12.386.4.21 NumberOfOverlays

```
int vtkGDCMImageReader::NumberOfOverlays  [protected]
```

Referenced by vtkGetMacro().

12.386.4.22 PlanarConfiguration

```
int vtkGDCMImageReader::PlanarConfiguration  [protected]
```

Referenced by vtkGetMacro().

12.386.4.23 Scale

```
double vtkGDCMImageReader::Scale  [protected]
```

Referenced by vtkGetMacro(), and vtkGDCMThreadedImageReader::vtkSetMacro().

12.386.4.24 Shift

```
double vtkGDCMImageReader::Shift  [protected]
```

Referenced by vtkGetMacro(), and vtkGDCMThreadedImageReader::vtkSetMacro().

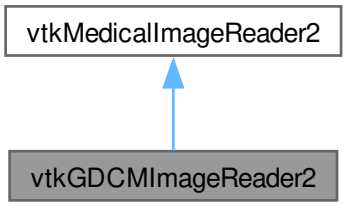
The documentation for this class was generated from the following file:

- vtkGDCMImageReader.h

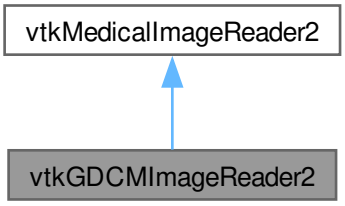
12.387 vtkGDCMImageReader2 Class Reference

```
#include <vtkGDCMImageReader2.h>
```

Inheritance diagram for vtkGDCMImageReader2:



Collaboration diagram for vtkGDCMImageReader2:



Public Member Functions

- virtual int CanReadFile (const char ∗fname)
- virtual const char ∗ GetDescriptiveName ()
- virtual const char ∗ GetFileExtensions ()
- vtkImageData ∗ GetIconImage ()
- vtkAlgorithmOutput ∗ GetIconImagePort ()
- vtkImageData ∗ GetOverlay (int i)
- vtkAlgorithmOutput ∗ GetOverlayPort (int index)
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetCurve (vtkPolyData ∗pd)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties ∗pd)
- vtkBooleanMacro (ApplyLookupTable, int)
- int vtkBooleanMacro (ApplyYBRToRGB, int)
- vtkBooleanMacro (LoadIconImage, int)
- vtkBooleanMacro (LoadOverlays, int)
- vtkBooleanMacro (LossyFlag, int)
- vtkGetMacro (ApplyLookupTable, int)
- vtkGetMacro (ApplyYBRToRGB, int) vtkSetMacro(ApplyYBRToRGB
- vtkGetMacro (ImageFormat, int)
- vtkGetMacro (LoadIconImage, int)
- vtkGetMacro (LoadOverlays, int)
- vtkGetMacro (LossyFlag, int)
- vtkGetMacro (NumberOfIconImages, int)
- vtkGetMacro (NumberOfOverlays, int)
- vtkGetMacro (PlanarConfiguration, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetObjectMacro (Curve, vtkPolyData)
- vtkGetObjectMacro (DirectionCosines, vtkMatrix4x4)
- vtkGetVector3Macro (ImagePositionPatient, double)
- vtkGetVector6Macro (ImageOrientationPatient, double)
- vtkSetMacro (ApplyLookupTable, int)
- vtkSetMacro (LoadIconImage, int)
- vtkSetMacro (LoadOverlays, int)
- vtkSetMacro (LossyFlag, int)
- vtkTypeMacro (vtkGDCMImageReader2, vtkMedicalImageReader2)

Static Public Member Functions

- static vtkGDCMImageReader2 * New ()

Protected Member Functions

- vtkGDCMImageReader2 ()
- ~vtkGDCMImageReader2 ()
- void FillMedicalImageInformation (const gdcm::ImageReader &reader)
- int LoadSingleFile (const char *filename, char *pointer, unsigned long &outlen)
- int ProcessRequest (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *output↩ Vector)
- int RequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *output↩ Vector)
- int RequestDataCompat ()
- int RequestInformation (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)
- int RequestInformationCompat ()
- void SetFilePattern (const char *)
- void SetFilePrefix (const char *)
- vtkGetStringMacro (FilePattern)
- vtkGetStringMacro (FilePrefix)
- vtkSetVector6Macro (ImageOrientationPatient, double)

Protected Attributes

- int ApplyInverseVideo
- int ApplyLookupTable
- int ApplyPlanarConfiguration
- int ApplyShiftScale
- int ApplyYBRToRGB
- vtkPolyData * Curve
- vtkMatrix4x4 * DirectionCosines
- int ForceRescale
- int IconDataScalarType
- int IconImageDataExtent [6]
- int IconNumberOfScalarComponents
- int ImageFormat
- double ImageOrientationPatient [6]
- double ImagePositionPatient [3]
- int LoadIconImage
- int LoadOverlays
- int LossyFlag
- int NumberOfIconImages
- int NumberOfOverlays
- int PlanarConfiguration
- double Scale
- double Shift

12.387.1 Detailed Description

Examples

Compute3DSpacing.cxx.

12.387.2 Constructor & Destructor Documentation

12.387.2.1 vtkGDCMImageReader2()

```
vtkGDCMImageReader2::vtkGDCMImageReader2 ()  [protected]
```

References vtkGDCMImageReader2().

Referenced by vtkGDCMImageReader2(), ~vtkGDCMImageReader2(), New(), vtkGetStringMacro(), and vtkTypeMacro().

12.387.2.2 ~vtkGDCMImageReader2()

```
vtkGDCMImageReader2::~vtkGDCMImageReader2 ()  [protected]
```

References vtkGDCMImageReader2().

12.387.3 Member Function Documentation

12.387.3.1 CanReadFile()

```
virtual int vtkGDCMImageReader2::CanReadFile (
            const char * fname)  [virtual]
```

12.387.3.2 FillMedicalImageInformation()

```
void vtkGDCMImageReader2::FillMedicalImageInformation (
            const gdcm::ImageReader & reader)  [protected]
```

References FillMedicalImageInformation().

Referenced by FillMedicalImageInformation().

12.387.3.3 GetDescriptiveName()

```
virtual const char * vtkGDCMImageReader2::GetDescriptiveName ()  [inline], [virtual]
```

12.387.3.4 GetFileExtensions()

```
virtual const char * vtkGDCMImageReader2::GetFileExtensions ()  [inline], [virtual]
```

12.387.3.5 GetIconImage()

```
vtkImageData * vtkGDCMImageReader2::GetIconImage ()
```

12.387.3.6 GetIconImagePort()

```
vtkAlgorithmOutput * vtkGDCMImageReader2::GetIconImagePort ()
```

12.387.3.7 GetOverlay()

```
vtkImageData * vtkGDCMImageReader2::GetOverlay (
            int i)
```

12.387.3.8 GetOverlayPort()

```
vtkAlgorithmOutput * vtkGDCMImageReader2::GetOverlayPort (
            int index)
```

12.387.3.9 LoadSingleFile()

```
int vtkGDCMImageReader2::LoadSingleFile (
            const char * filename,
            char * pointer,
            unsigned long & outlen)  [protected]
```

References LoadSingleFile().

Referenced by LoadSingleFile().

12.387.3.10 New()

```
vtkGDCMImageReader2 * vtkGDCMImageReader2::New ()  [static]
```

Examples

Compute3DSpacing.cxx.

References vtkGDCMImageReader2().

12.387.3.11 PrintSelf()

```
virtual void vtkGDCMImageReader2::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

12.387.3.12 ProcessRequest()

```
int vtkGDCMImageReader2::ProcessRequest (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector)  [protected]
```

References ProcessRequest().

Referenced by ProcessRequest().

12.387.3.13 RequestData()

```
int vtkGDCMImageReader2::RequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector)  [protected]
```

References RequestData().

Referenced by RequestData().

12.387.3.14 RequestDataCompat()

```
int vtkGDCMImageReader2::RequestDataCompat ()  [protected]
```

References RequestDataCompat().

Referenced by RequestDataCompat().

12.387.3.15 RequestInformation()

```
int vtkGDCMImageReader2::RequestInformation (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector)  [protected]
```

References RequestInformation().

Referenced by RequestInformation().

12.387.3.16 RequestInformationCompat()

```
int vtkGDCMImageReader2::RequestInformationCompat ()  [protected]
```

References RequestInformationCompat().

Referenced by RequestInformationCompat().

12.387.3.17 SetCurve()

```
virtual void vtkGDCMImageReader2::SetCurve (
            vtkPolyData * pd)  [virtual]
```

References SetCurve().

Referenced by SetCurve().

12.387.3.18 SetFilePattern()

```
void vtkGDCMImageReader2::SetFilePattern (
            const char * )  [inline], [protected]
```

12.387.3.19 SetFilePrefix()

```
void vtkGDCMImageReader2::SetFilePrefix (
            const char * )  [inline], [protected]
```

References SetFilePrefix().

Referenced by SetFilePrefix().

12.387.3.20 SetMedicalImageProperties()

```
virtual void vtkGDCMImageReader2::SetMedicalImageProperties (
            vtkMedicalImageProperties * pd)  [virtual]
```

12.387.3.21 vtkBooleanMacro() [1/5]

```
vtkGDCMImageReader2::vtkBooleanMacro (
            ApplyLookupTable ,
            int )
```

References ApplyLookupTable.

12.387.3.22 vtkBooleanMacro() [2/5]

```
int vtkGDCMImageReader2::vtkBooleanMacro (
            ApplyYBRToRGB ,
            int )
```

References ApplyYBRToRGB, and vtkBooleanMacro().

12.387.3.23 vtkBooleanMacro() [3/5]

```
vtkGDCMImageReader2::vtkBooleanMacro (
            LoadIconImage ,
            int )
```

References LoadIconImage.

12.387.3.24 vtkBooleanMacro() [4/5]

```
vtkGDCMImageReader2::vtkBooleanMacro (
            LoadOverlays ,
            int )
```

References LoadOverlays.

Referenced by vtkBooleanMacro().

12.387.3.25 vtkBooleanMacro() [5/5]

```
vtkGDCMImageReader2::vtkBooleanMacro (
            LossyFlag ,
            int )
```

References LossyFlag.

12.387.3.26 vtkGetMacro() [1/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            ApplyLookupTable ,
            int )
```

References ApplyLookupTable.

12.387.3.27 vtkGetMacro() [2/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            ApplyYBRToRGB ,
            int )
```

References ApplyYBRToRGB, and vtkSetMacro().

12.387.3.28 vtkGetMacro() [3/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            ImageFormat ,
            int )
```

References ImageFormat, and vtkGetMacro().

12.387.3.29 vtkGetMacro() [4/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            LoadIconImage ,
            int )
```

References LoadIconImage.

12.387.3.30 vtkGetMacro() [5/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            LoadOverlays ,
            int )
```

References LoadOverlays.

Referenced by vtkGetMacro(), vtkGetMacro(), vtkGetMacro(), and vtkGetMacro().

12.387.3.31 vtkGetMacro() [6/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            LossyFlag ,
            int )
```

References LossyFlag.

12.387.3.32 vtkGetMacro() [7/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            NumberOfIconImages ,
            int )
```

References NumberOfIconImages.

12.387.3.33 vtkGetMacro() [8/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            NumberOfOverlays ,
            int )
```

References NumberOfOverlays.

12.387.3.34 vtkGetMacro() [9/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            PlanarConfiguration ,
            int )
```

References PlanarConfiguration, and vtkGetMacro().

12.387.3.35 vtkGetMacro() [10/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            Scale ,
            double )
```

References Scale, and vtkGetMacro().

12.387.3.36 vtkGetMacro() [11/11]

```
vtkGDCMImageReader2::vtkGetMacro (
            Shift ,
            double )
```

References Shift, and vtkGetMacro().

12.387.3.37 vtkGetObjectMacro() [1/2]

```
vtkGDCMImageReader2::vtkGetObjectMacro (
            Curve ,
            vtkPolyData )
```

References Curve, and vtkGetObjectMacro().

12.387.3.38 vtkGetObjectMacro() [2/2]

```
vtkGDCMImageReader2::vtkGetObjectMacro (
            DirectionCosines ,
            vtkMatrix4x4 )
```

References DirectionCosines.

Referenced by vtkGetObjectMacro().

12.387.3.39 vtkGetStringMacro() [1/2]

```
vtkGDCMImageReader2::vtkGetStringMacro (
            FilePattern )  [protected]
```

References vtkGDCMImageReader2().

12.387.3.40 vtkGetStringMacro() [2/2]

```
vtkGDCMImageReader2::vtkGetStringMacro (
            FilePrefix )  [protected]
```

12.387.3.41 vtkGetVector3Macro()

```
vtkGDCMImageReader2::vtkGetVector3Macro (
            ImagePositionPatient ,
            double )
```

References ImagePositionPatient, and vtkGetVector3Macro().

Referenced by vtkGetVector3Macro().

12.387.3.42 vtkGetVector6Macro()

```
vtkGDCMImageReader2::vtkGetVector6Macro (
            ImageOrientationPatient ,
            double )
```

References ImageOrientationPatient, and vtkGetVector6Macro().

Referenced by vtkGetVector6Macro().

12.387.3.43 vtkSetMacro() [1/4]

```
vtkGDCMImageReader2::vtkSetMacro (
            ApplyLookupTable ,
            int )
```

References ApplyLookupTable.

12.387.3.44 vtkSetMacro() [2/4]

```
vtkGDCMImageReader2::vtkSetMacro (
            LoadIconImage ,
            int )
```

References LoadIconImage.

12.387.3.45 vtkSetMacro() [3/4]

```
vtkGDCMImageReader2::vtkSetMacro (
            LoadOverlays ,
            int )
```

References LoadOverlays.

Referenced by vtkGetMacro().

12.387.3.46 vtkSetMacro() [4/4]

```
vtkGDCMImageReader2::vtkSetMacro (
            LossyFlag ,
            int )
```

References LossyFlag.

12.387.3.47 vtkSetVector6Macro()

```
vtkGDCMImageReader2::vtkSetVector6Macro (
            ImageOrientationPatient ,
            double )  [protected]
```

References ImageOrientationPatient, and vtkSetVector6Macro().

Referenced by vtkSetVector6Macro().

12.387.3.48 vtkTypeMacro()

```
vtkGDCMImageReader2::vtkTypeMacro (
            vtkGDCMImageReader2 ,
            vtkMedicalImageReader2 )
```

References vtkGDCMImageReader2().

12.387.4 Member Data Documentation

12.387.4.1 ApplyInverseVideo

```
int vtkGDCMImageReader2::ApplyInverseVideo  [protected]
```

12.387.4.2 ApplyLookupTable

```
int vtkGDCMImageReader2::ApplyLookupTable  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.387.4.3 ApplyPlanarConfiguration

```
int vtkGDCMImageReader2::ApplyPlanarConfiguration  [protected]
```

12.387.4.4 ApplyShiftScale

```
int vtkGDCMImageReader2::ApplyShiftScale  [protected]
```

12.387.4.5 ApplyYBRToRGB

```
int vtkGDCMImageReader2::ApplyYBRToRGB  [protected]
```

Referenced by vtkBooleanMacro(), and vtkGetMacro().

12.387.4.6 Curve

```
vtkPolyData* vtkGDCMImageReader2::Curve  [protected]
```

Referenced by vtkGetObjectMacro().

12.387.4.7 DirectionCosines

```
vtkMatrix4x4* vtkGDCMImageReader2::DirectionCosines  [protected]
```

Referenced by vtkGetObjectMacro().

12.387.4.8 ForceRescale

```
int vtkGDCMImageReader2::ForceRescale  [protected]
```

12.387.4.9 IconDataScalarType

```
int vtkGDCMImageReader2::IconDataScalarType  [protected]
```

12.387.4.10 IconImageDataExtent

```
int vtkGDCMImageReader2::IconImageDataExtent[6]  [protected]
```

12.387.4.11 IconNumberOfScalarComponents

```
int vtkGDCMImageReader2::IconNumberOfScalarComponents  [protected]
```

12.387.4.12 ImageFormat

```
int vtkGDCMImageReader2::ImageFormat  [protected]
```

Referenced by vtkGetMacro().

12.387.4.13 ImageOrientationPatient

```
double vtkGDCMImageReader2::ImageOrientationPatient[6]  [protected]
```

Referenced by vtkGetVector6Macro(), and vtkSetVector6Macro().

12.387.4.14 ImagePositionPatient

```
double vtkGDCMImageReader2::ImagePositionPatient[3]  [protected]
```

Referenced by vtkGetVector3Macro().

12.387.4.15 LoadIconImage

```
int vtkGDCMImageReader2::LoadIconImage  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.387.4.16 LoadOverlays

```
int vtkGDCMImageReader2::LoadOverlays  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.387.4.17 LossyFlag

```
int vtkGDCMImageReader2::LossyFlag  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

12.387.4.18 NumberOfIconImages

```
int vtkGDCMImageReader2::NumberOfIconImages  [protected]
```

Referenced by vtkGetMacro().

12.387.4.19 NumberOfOverlays

```
int vtkGDCMImageReader2::NumberOfOverlays  [protected]
```

Referenced by vtkGetMacro().

12.387.4.20 PlanarConfiguration

```
int vtkGDCMImageReader2::PlanarConfiguration  [protected]
```

Referenced by vtkGetMacro().

12.387.4.21 Scale

```
double vtkGDCMImageReader2::Scale  [protected]
```

Referenced by vtkGetMacro().

12.387.4.22 Shift

```
double vtkGDCMImageReader2::Shift  [protected]
```

Referenced by vtkGetMacro().

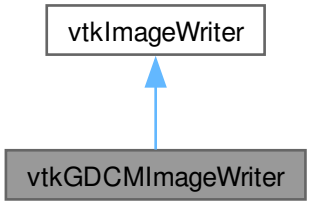
The documentation for this class was generated from the following file:

- vtkGDCMImageReader2.h

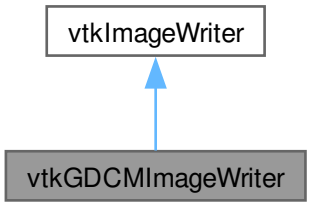
12.388 vtkGDCMImageWriter Class Reference

```
#include <vtkGDCMImageWriter.h>
```

Inheritance diagram for vtkGDCMImageWriter:



Collaboration diagram for vtkGDCMImageWriter:



Public Types

- enum CompressionTypes {
  NO_COMPRESSION = 0 ,
  JPEG_COMPRESSION ,
  JPEG2000_COMPRESSION ,
  JPEGLS_COMPRESSION ,
  RLE_COMPRESSION }

Public Member Functions

- virtual const char * GetDescriptiveName ()
- virtual const char * GetFileExtensions ()
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetDirectionCosines (vtkMatrix4x4 *matrix)
- virtual void SetDirectionCosinesFromImageOrientationPatient (const double dircos[6])
- virtual void SetFileNames (vtkStringArray *)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties *)
- vtkBooleanMacro (FileLowerLeft, int)
- vtkBooleanMacro (LossyFlag, int)
- vtkGetMacro (CompressionType, int)
- vtkGetMacro (FileLowerLeft, int)
- vtkGetMacro (ImageFormat, int)
- vtkGetMacro (LossyFlag, int)
- vtkGetMacro (PlanarConfiguration, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetObjectMacro (DirectionCosines, vtkMatrix4x4)
- vtkGetObjectMacro (FileNames, vtkStringArray)
- vtkGetObjectMacro (MedicalImageProperties, vtkMedicalImageProperties)
- vtkGetStringMacro (SeriesUID)
- vtkGetStringMacro (StudyUID)
- vtkSetMacro (CompressionType, int)
- vtkSetMacro (FileLowerLeft, int)
- vtkSetMacro (ImageFormat, int)
- vtkSetMacro (LossyFlag, int)
- vtkSetMacro (PlanarConfiguration, int)
- vtkSetMacro (Scale, double)
- vtkSetMacro (Shift, double)
- vtkSetStringMacro (SeriesUID)
- vtkSetStringMacro (StudyUID)
- vtkTypeMacro (vtkGDCMImageWriter, vtkImageWriter)
- virtual void Write ()

Static Public Member Functions

- static vtkGDCMImageWriter * New ()

Protected Member Functions

- vtkGDCMImageWriter ()
- ~vtkGDCMImageWriter ()
- virtual char * GetFileName ()
- int WriteGDCMData (vtkImageData *data, int timeStep)
- void WriteSlice (vtkImageData *data)

12.388.1 Detailed Description

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, CreateFakePET.cxx, CreateFakeRTDOSE.cxx, HelloActiviz.cs, HelloActiviz2.cs, HelloVTKWorld.cs, HelloVTKWorld.java, HelloVTKWorld2.cs, MagnifyFile.cxx, RefCounting.cs, and gdcmorthoplanes.cxx.

12.388.2 Member Enumeration Documentation

12.388.2.1 CompressionTypes

```
enum vtkGDCMImageWriter::CompressionTypes
```

Enumerator

NO_COMPRESSION	
JPEG_COMPRESSION	
JPEG2000_COMPRESSION	
JPEGLS_COMPRESSION	
RLE_COMPRESSION	

12.388.3 Constructor & Destructor Documentation

12.388.3.1 vtkGDCMImageWriter()

```
vtkGDCMImageWriter::vtkGDCMImageWriter ()  [protected]
```

Referenced by GetFileName(), New(), and vtkTypeMacro().

12.388.3.2 ~vtkGDCMImageWriter()

```
vtkGDCMImageWriter::~vtkGDCMImageWriter ()  [protected]
```

12.388.4 Member Function Documentation

12.388.4.1 GetDescriptiveName()

```
virtual const char * vtkGDCMImageWriter::GetDescriptiveName ()  [inline], [virtual]
```

12.388.4.2 GetFileExtensions()

```
virtual const char * vtkGDCMImageWriter::GetFileExtensions ()  [inline], [virtual]
```

12.388.4.3 GetFileName()

```
virtual char * vtkGDCMImageWriter::GetFileName ()  [protected], [virtual]
```

References vtkGDCMImageWriter().

12.388.4.4 New()

```
vtkGDCMImageWriter * vtkGDCMImageWriter::New ()  [static]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, CreateFakePET.cxx, CreateFakeRTDOSE.cxx, HelloActiviz.cs, HelloVTKWorld.cs, HelloVTKWorld2.cs, MagnifyFile.cxx, RefCounting.cs, and gdcmorthoplanes.cxx.

References vtkGDCMImageWriter().

12.388.4.5 PrintSelf()

```
virtual void vtkGDCMImageWriter::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

12.388.4.6 SetDirectionCosines()

```
virtual void vtkGDCMImageWriter::SetDirectionCosines (
            vtkMatrix4x4 * matrix)  [virtual]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, HelloActiviz2.cs, HelloVTKWorld.cs, HelloVTKWorld.java, MagnifyFile.cxx, and gdcmorthoplanes.cxx.

12.388.4.7 SetDirectionCosinesFromImageOrientationPatient()

```
virtual void vtkGDCMImageWriter::SetDirectionCosinesFromImageOrientationPatient (
            const double dircos[6])  [virtual]
```

12.388.4.8 SetFileNames()

```
virtual void vtkGDCMImageWriter::SetFileNames (
            vtkStringArray * )  [virtual]
```

Examples

ConvertMultiFrameToSingleFrame.cxx, and CreateFakePET.cxx.

12.388.4.9 SetMedicalImageProperties()

```
virtual void vtkGDCMImageWriter::SetMedicalImageProperties (
            vtkMedicalImageProperties * )  [virtual]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, HelloActiviz.cs, HelloActiviz2.cs, HelloVTKWorld.cs, HelloVTKWorld.java, MagnifyFile.cxx, and gdcmorthoplanes.cxx.

12.388.4.10 vtkBooleanMacro() [1/2]

```
vtkGDCMImageWriter::vtkBooleanMacro (
            FileLowerLeft ,
            int )
```

12.388.4.11 vtkBooleanMacro() [2/2]

```
vtkGDCMImageWriter::vtkBooleanMacro (
            LossyFlag ,
            int )
```

12.388.4.12 vtkGetMacro() [1/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            CompressionType ,
            int )
```

12.388.4.13 vtkGetMacro() [2/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            FileLowerLeft ,
            int )
```

12.388.4.14 vtkGetMacro() [3/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            ImageFormat ,
            int )
```

12.388.4.15 vtkGetMacro() [4/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            LossyFlag ,
            int )
```

12.388.4.16 vtkGetMacro() [5/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            PlanarConfiguration ,
            int )
```

12.388.4.17 vtkGetMacro() [6/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            Scale ,
            double )
```

12.388.4.18 vtkGetMacro() [7/7]

```
vtkGDCMImageWriter::vtkGetMacro (
            Shift ,
            double )
```

12.388.4.19 vtkGetObjectMacro() [1/3]

```
vtkGDCMImageWriter::vtkGetObjectMacro (
            DirectionCosines ,
            vtkMatrix4x4 )
```

12.388.4.20 vtkGetObjectMacro() [2/3]

```
vtkGDCMImageWriter::vtkGetObjectMacro (
            FileNames ,
            vtkStringArray )
```

12.388.4.21 vtkGetObjectMacro() [3/3]

```
vtkGDCMImageWriter::vtkGetObjectMacro (
            MedicalImageProperties ,
            vtkMedicalImageProperties )
```

12.388.4.22 vtkGetStringMacro() [1/2]

```
vtkGDCMImageWriter::vtkGetStringMacro (
            SeriesUID )
```

12.388.4.23 vtkGetStringMacro() [2/2]

```
vtkGDCMImageWriter::vtkGetStringMacro (
            StudyUID )
```

12.388.4.24 vtkSetMacro() [1/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            CompressionType ,
            int )
```

12.388.4.25 vtkSetMacro() [2/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            FileLowerLeft ,
            int )
```

12.388.4.26 vtkSetMacro() [3/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            ImageFormat ,
            int )
```

12.388.4.27 vtkSetMacro() [4/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            LossyFlag ,
            int )
```

12.388.4.28 vtkSetMacro() [5/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            PlanarConfiguration ,
            int )
```

12.388.4.29 vtkSetMacro() [6/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            Scale ,
            double )
```

12.388.4.30 vtkSetMacro() [7/7]

```
vtkGDCMImageWriter::vtkSetMacro (
            Shift ,
            double )
```

12.388.4.31 vtkSetStringMacro() [1/2]

```
vtkGDCMImageWriter::vtkSetStringMacro (
            SeriesUID )
```

12.388.4.32 vtkSetStringMacro() [2/2]

```
vtkGDCMImageWriter::vtkSetStringMacro (
            StudyUID )
```

12.388.4.33 vtkTypeMacro()

```
vtkGDCMImageWriter::vtkTypeMacro (
            vtkGDCMImageWriter ,
            vtkImageWriter )
```

References vtkGDCMImageWriter().

12.388.4.34 Write()

```
virtual void vtkGDCMImageWriter::Write ()  [virtual]
```

Examples

Convert16BitsTo8Bits.cxx, ConvertMultiFrameToSingleFrame.cxx, ConvertRGBToLuminance.cxx, ConvertSingleBitTo8Bits.cxx, CreateFakePET.cxx, CreateFakeRTDOSE.cxx, HelloActiviz.cs, HelloActiviz2.cs, HelloVTKWorld.cs, HelloVTKWorld.java, HelloVTKWorld2.cs, MagnifyFile.cxx, and gdcmorthoplanes.cxx.

12.388.4.35 WriteGDCMData()

```
int vtkGDCMImageWriter::WriteGDCMData (
            vtkImageData * data,
            int timeStep)  [protected]
```

12.388.4.36 WriteSlice()

```
void vtkGDCMImageWriter::WriteSlice (
            vtkImageData * data)  [protected]
```

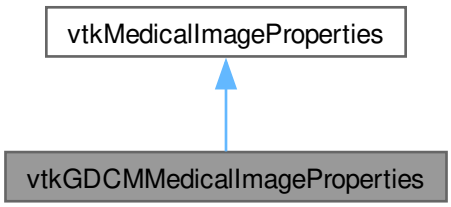
The documentation for this class was generated from the following file:

- vtkGDCMImageWriter.h

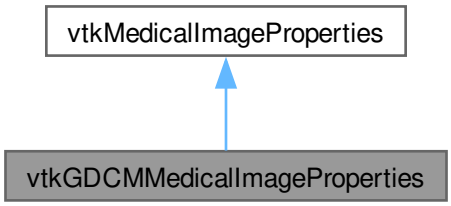
12.389 vtkGDCMMedicalImageProperties Class Reference

```
#include <vtkGDCMMedicalImageProperties.h>
```

Inheritance diagram for vtkGDCMMedicalImageProperties:



Collaboration diagram for vtkGDCMMedicalImageProperties:



Public Member Functions

- virtual void Clear ()
- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkGDCMMedicalImageProperties, vtkMedicalImageProperties)

Static Public Member Functions

- static vtkGDCMMedicalImageProperties * New ()

Protected Member Functions

- vtkGDCMMedicalImageProperties ()
- ~vtkGDCMMedicalImageProperties ()
- gdcm::File const & GetFile (unsigned int t)
- void PushBackFile (gdcm::File const &f)

Friends

- class vtkGDCMImageReader
- class vtkGDCMImageReader2
- class vtkGDCMImageWriter

12.389.1 Constructor & Destructor Documentation

12.389.1.1 vtkGDCMMedicalImageProperties()

```
vtkGDCMMedicalImageProperties::vtkGDCMMedicalImageProperties ()  [protected]
```

Referenced by GetFile(), New(), and vtkTypeMacro().

12.389.1.2 ~vtkGDCMMedicalImageProperties()

```
vtkGDCMMedicalImageProperties::~vtkGDCMMedicalImageProperties ()  [protected]
```

12.389.2 Member Function Documentation

12.389.2.1 Clear()

```
virtual void vtkGDCMMedicalImageProperties::Clear ()  [virtual]
```

12.389.2.2 GetFile()

```
gdcm::File const & vtkGDCMMedicalImageProperties::GetFile (
            unsigned int t)  [protected]
```

References vtkGDCMMedicalImageProperties().

12.389.2.3 New()

```
vtkGDCMMedicalImageProperties * vtkGDCMMedicalImageProperties::New ()  [static]
```

References vtkGDCMMedicalImageProperties().

12.389.2.4 PrintSelf()

```
void vtkGDCMMedicalImageProperties::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.389.2.5 PushBackFile()

```
void vtkGDCMMedicalImageProperties::PushBackFile (
            gdcm::File const & f)  [protected]
```

12.389.2.6 vtkTypeMacro()

```
vtkGDCMMedicalImageProperties::vtkTypeMacro (
            vtkGDCMMedicalImageProperties ,
            vtkMedicalImageProperties )
```

References vtkGDCMMedicalImageProperties().

12.389.3 Friends And Related Symbol Documentation

12.389.3.1 vtkGDCMImageReader

```
friend class vtkGDCMImageReader  [friend]
```

References vtkGDCMImageReader.

Referenced by vtkGDCMImageReader.

12.389.3.2 vtkGDCMImageReader2

```
friend class vtkGDCMImageReader2  [friend]
```

References vtkGDCMImageReader2.

Referenced by vtkGDCMImageReader2.

12.389.3.3 vtkGDCMImageWriter

```
friend class vtkGDCMImageWriter  [friend]
```

References vtkGDCMImageWriter.

Referenced by vtkGDCMImageWriter.

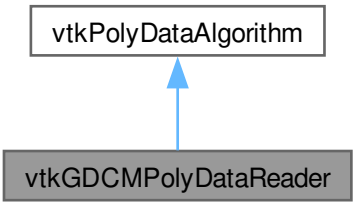
The documentation for this class was generated from the following file:

- vtkGDCMMedicalImageProperties.h

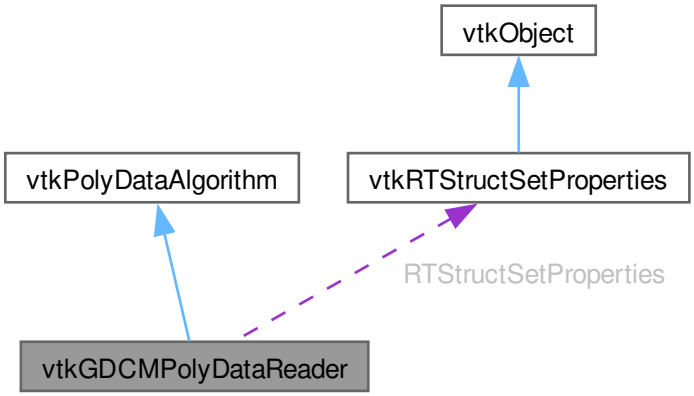
12.390 vtkGDCMPolyDataReader Class Reference

```
#include <vtkGDCMPolyDataReader.h>
```

Inheritance diagram for vtkGDCMPolyDataReader:



Collaboration diagram for vtkGDCMPolyDataReader:



Public Member Functions

- virtual void PrintSelf (ostream &os, vtkIndent indent)
- vtkGetObjectMacro (MedicalImageProperties, vtkMedicalImageProperties)
- vtkGetObjectMacro (RTStructSetProperties, vtkRTStructSetProperties)
- vtkGetStringMacro (FileName)
- vtkSetStringMacro (FileName)
- vtkTypeMacro (vtkGDCMPolyDataReader, vtkPolyDataAlgorithm)

Static Public Member Functions

- static vtkGDCMPolyDataReader * New ()

Protected Member Functions

- vtkGDCMPolyDataReader ()
- ~vtkGDCMPolyDataReader ()
- void FillMedicalImageInformation (const gdcm::Reader &reader)
- int RequestData (vtkInformation *, vtkInformationVector **, vtkInformationVector *)
- int RequestData_HemodynamicWaveformStorage (gdcm::Reader const &reader, vtkInformationVector *output↩ Vector)
- int RequestData_RTStructureSetStorage (gdcm::Reader const &reader, vtkInformationVector *outputVector)
- int RequestInformation (vtkInformation *vtkNotUsed(request), vtkInformationVector **vtkNotUsed(inputVector), vtkInformationVector *outputVector)
- int RequestInformation_HemodynamicWaveformStorage (gdcm::Reader const &reader)
- int RequestInformation_RTStructureSetStorage (gdcm::Reader const &reader)

Protected Attributes

- char * FileName
- vtkMedicalImageProperties * MedicalImageProperties
- vtkRTStructSetProperties * RTStructSetProperties

12.390.1 Detailed Description

Examples

GenerateRTSTRUCT.cxx, gdcmscene.cxx, and rtstructapp.cxx.

12.390.2 Constructor & Destructor Documentation

12.390.2.1 vtkGDCMPolyDataReader()

```
vtkGDCMPolyDataReader::vtkGDCMPolyDataReader ()  [protected]
```

Referenced by New(), RequestData_HemodynamicWaveformStorage(), and vtkTypeMacro().

12.390.2.2 ~vtkGDCMPolyDataReader()

```
vtkGDCMPolyDataReader::~vtkGDCMPolyDataReader ()  [protected]
```

12.390.3 Member Function Documentation

12.390.3.1 FillMedicalImageInformation()

```
void vtkGDCMPolyDataReader::FillMedicalImageInformation (
            const gdcm::Reader & reader)  [protected]
```

12.390.3.2 New()

```
vtkGDCMPolyDataReader * vtkGDCMPolyDataReader::New ()  [static]
```

Examples

GenerateRTSTRUCT.cxx, gdcmscene.cxx, and rtstructapp.cxx.

References vtkGDCMPolyDataReader().

12.390.3.3 PrintSelf()

```
virtual void vtkGDCMPolyDataReader::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

12.390.3.4 RequestData()

```
int vtkGDCMPolyDataReader::RequestData (
            vtkInformation * ,
            vtkInformationVector ** ,
            vtkInformationVector * )  [protected]
```

12.390.3.5 RequestData_HemodynamicWaveformStorage()

```
int vtkGDCMPolyDataReader::RequestData_HemodynamicWaveformStorage (
            gdcm::Reader const & reader,
            vtkInformationVector * outputVector)  [protected]
```

References vtkGDCMPolyDataReader().

12.390.3.6 RequestData_RTStructureSetStorage()

```
int vtkGDCMPolyDataReader::RequestData_RTStructureSetStorage (
            gdcm::Reader const & reader,
            vtkInformationVector * outputVector)  [protected]
```

12.390.3.7 RequestInformation()

```
int vtkGDCMPolyDataReader::RequestInformation (
            vtkInformation * vtkNotUsedrequest,
            vtkInformationVector ** vtkNotUsedinputVector,
            vtkInformationVector * outputVector)  [protected]
```

12.390.3.8 RequestInformation_HemodynamicWaveformStorage()

```
int vtkGDCMPolyDataReader::RequestInformation_HemodynamicWaveformStorage (
            gdcm::Reader const & reader)  [protected]
```

12.390.3.9 RequestInformation_RTStructureSetStorage()

```
int vtkGDCMPolyDataReader::RequestInformation_RTStructureSetStorage (
            gdcm::Reader const & reader)  [protected]
```

12.390.3.10 vtkGetObjectMacro() [1/2]

```
vtkGDCMPolyDataReader::vtkGetObjectMacro (
            MedicalImageProperties ,
            vtkMedicalImageProperties )
```

References MedicalImageProperties.

12.390.3.11 vtkGetObjectMacro() [2/2]

```
vtkGDCMPolyDataReader::vtkGetObjectMacro (
            RTStructSetProperties ,
            vtkRTStructSetProperties )
```

References RTStructSetProperties.

12.390.3.12 vtkGetStringMacro()

```
vtkGDCMPolyDataReader::vtkGetStringMacro (
            FileName )
```

References FileName.

12.390.3.13 vtkSetStringMacro()

```
vtkGDCMPolyDataReader::vtkSetStringMacro (
            FileName )
```

References FileName.

12.390.3.14 vtkTypeMacro()

```
vtkGDCMPolyDataReader::vtkTypeMacro (
            vtkGDCMPolyDataReader ,
            vtkPolyDataAlgorithm )
```

References vtkGDCMPolyDataReader().

12.390.4 Member Data Documentation

12.390.4.1 FileName

```
char* vtkGDCMPolyDataReader::FileName  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.390.4.2 MedicalImageProperties

```
vtkMedicalImageProperties* vtkGDCMPolyDataReader::MedicalImageProperties  [protected]
```

Referenced by vtkGetObjectMacro().

12.390.4.3 RTStructSetProperties

```
vtkRTStructSetProperties* vtkGDCMPolyDataReader::RTStructSetProperties  [protected]
```

Referenced by vtkGetObjectMacro().

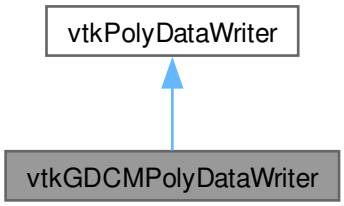
The documentation for this class was generated from the following file:

- vtkGDCMPolyDataReader.h

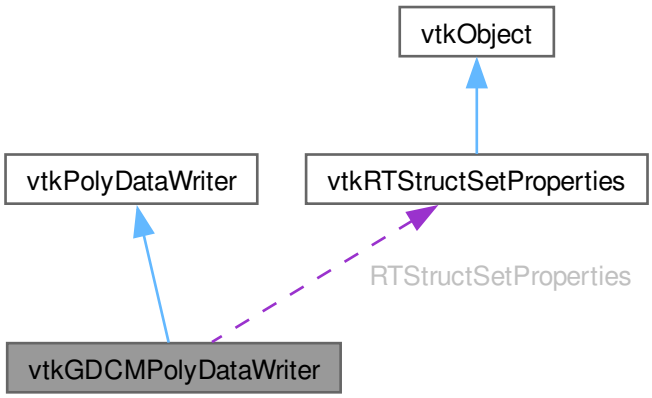
12.391 vtkGDCMPolyDataWriter Class Reference

```
#include <vtkGDCMPolyDataWriter.h>
```

Inheritance diagram for vtkGDCMPolyDataWriter:



Collaboration diagram for vtkGDCMPolyDataWriter:



Public Member Functions

- void InitializeRTStructSet (vtkStdString inDirectory, vtkStdString inStructLabel, vtkStdString inStructName, vtkStringArray *inROINames, vtkStringArray *inROIAlgorithmName, vtkStringArray *inROIType)
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties *pd)
- void SetNumberOfInputPorts (int n)
- virtual void SetRTStructSetProperties (vtkRTStructSetProperties *pd)
- vtkTypeMacro (vtkGDCMPolyDataWriter, vtkPolyDataWriter)

Static Public Member Functions

- static vtkGDCMPolyDataWriter * New ()

Protected Member Functions

- vtkGDCMPolyDataWriter ()
- ~vtkGDCMPolyDataWriter ()
- void WriteData ()
- void WriteRTSTRUCTData (gdcm::File &file, int num)
- void WriteRTSTRUCTInfo (gdcm::File &file)

Protected Attributes

- vtkMedicalImageProperties * MedicalImageProperties
- vtkRTStructSetProperties * RTStructSetProperties

12.391.1 Detailed Description

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

12.391.2 Constructor & Destructor Documentation

12.391.2.1 vtkGDCMPolyDataWriter()

```
vtkGDCMPolyDataWriter::vtkGDCMPolyDataWriter ()  [protected]
```

Referenced by New(), vtkTypeMacro(), and WriteRTSTRUCTData().

12.391.2.2 ~vtkGDCMPolyDataWriter()

```
vtkGDCMPolyDataWriter::~vtkGDCMPolyDataWriter ()  [protected]
```

12.391.3 Member Function Documentation

12.391.3.1 InitializeRTStructSet()

```
void vtkGDCMPolyDataWriter::InitializeRTStructSet (
            vtkStdString inDirectory,
            vtkStdString inStructLabel,
            vtkStdString inStructName,
            vtkStringArray * inROINames,
            vtkStringArray * inROIAlgorithmName,
            vtkStringArray * inROIType)
```

Examples

GenerateRTSTRUCT.cxx.

12.391.3.2 New()

```
vtkGDCMPolyDataWriter * vtkGDCMPolyDataWriter::New ()  [static]
```

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

References vtkGDCMPolyDataWriter().

12.391.3.3 PrintSelf()

```
virtual void vtkGDCMPolyDataWriter::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

12.391.3.4 SetMedicalImageProperties()

```
virtual void vtkGDCMPolyDataWriter::SetMedicalImageProperties (
            vtkMedicalImageProperties * pd)  [virtual]
```

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

12.391.3.5 SetNumberOfInputPorts()

```
void vtkGDCMPolyDataWriter::SetNumberOfInputPorts (
            int n)
```

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

12.391.3.6 SetRTStructSetProperties()

```
virtual void vtkGDCMPolyDataWriter::SetRTStructSetProperties (
            vtkRTStructSetProperties * pd)  [virtual]
```

Examples

GenerateRTSTRUCT.cxx, and rtstructapp.cxx.

12.391.3.7 vtkTypeMacro()

```
vtkGDCMPolyDataWriter::vtkTypeMacro (
            vtkGDCMPolyDataWriter ,
            vtkPolyDataWriter )
```

References vtkGDCMPolyDataWriter().

12.391.3.8 WriteData()

```
void vtkGDCMPolyDataWriter::WriteData ()  [protected]
```

12.391.3.9 WriteRTSTRUCTData()

```
void vtkGDCMPolyDataWriter::WriteRTSTRUCTData (
            gdcm::File & file,
            int num)  [protected]
```

References vtkGDCMPolyDataWriter().

12.391.3.10 WriteRTSTRUCTInfo()

```
void vtkGDCMPolyDataWriter::WriteRTSTRUCTInfo (
            gdcm::File & file)  [protected]
```

12.391.4 Member Data Documentation

12.391.4.1 MedicalImageProperties

```
vtkMedicalImageProperties* vtkGDCMPolyDataWriter::MedicalImageProperties  [protected]
```

12.391.4.2 RTStructSetProperties

```
vtkRTStructSetProperties* vtkGDCMPolyDataWriter::RTStructSetProperties  [protected]
```

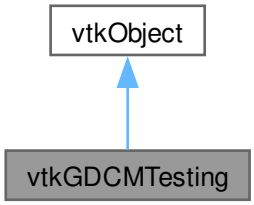
The documentation for this class was generated from the following file:

- vtkGDCMPolyDataWriter.h

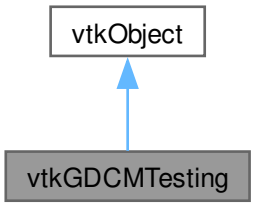
12.392 vtkGDCMTesting Class Reference

`#include <vtkGDCMTesting.h>`

Inheritance diagram for vtkGDCMTesting:



Collaboration diagram for vtkGDCMTesting:



Public Types

- typedef const char ∗const (∗ MD5MetaImagesType)[3]

Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkGDCMTesting, vtkObject)

Static Public Member Functions

- static const char * GetGDCMDataRoot ()
- static const char *const * GetMD5MetaImage (unsigned int file)
- static const char * GetMHDMD5FromFile (const char *filepath)
- static unsigned int GetNumberOfMD5MetaImages ()
- static const char * GetRAWMD5FromFile (const char *filepath)
- static const char * GetVTKDataRoot ()
- static vtkGDCMTesting * New ()

Protected Member Functions

- vtkGDCMTesting ()
- ~vtkGDCMTesting ()

12.392.1 Detailed Description

Examples

HelloActiviz5.cs, HelloVTKWorld2.cs, MetaImageMD5Activiz.cs, ReadSeriesIntoVTK.java, and RefCounting.cs.

12.392.2 Member Typedef Documentation

12.392.2.1 MD5MetaImagesType

```
typedef const char* const(* vtkGDCMTesting::MD5MetaImagesType)[3]
```

12.392.3 Constructor & Destructor Documentation

12.392.3.1 vtkGDCMTesting()

```
vtkGDCMTesting::vtkGDCMTesting ()  [protected]
```

Referenced by ~vtkGDCMTesting(), New(), and vtkTypeMacro().

12.392.3.2 ~vtkGDCMTesting()

```
vtkGDCMTesting::~vtkGDCMTesting ()  [protected]
```

References vtkGDCMTesting().

12.392.4 Member Function Documentation

12.392.4.1 GetGDCMDataRoot()

```
const char * vtkGDCMTesting::GetGDCMDataRoot ()  [static]
```

Examples

HelloActiviz5.cs, and ReadSeriesIntoVTK.java.

12.392.4.2 GetMD5MetaImage()

```
const char *const * vtkGDCMTesting::GetMD5MetaImage (
            unsigned int file)  [static]
```

12.392.4.3 GetMHDMD5FromFile()

```
const char * vtkGDCMTesting::GetMHDMD5FromFile (
            const char * filepath)  [static]
```

Examples

MetaImageMD5Activiz.cs.

12.392.4.4 GetNumberOfMD5MetaImages()

```
unsigned int vtkGDCMTesting::GetNumberOfMD5MetaImages ()  [static]
```

12.392.4.5 GetRAWMD5FromFile()

```
const char * vtkGDCMTesting::GetRAWMD5FromFile (
            const char * filepath)  [static]
```

Examples

MetaImageMD5Activiz.cs.

12.392.4.6 GetVTKDataRoot()

```
const char * vtkGDCMTesting::GetVTKDataRoot ()  [static]
```

Examples

HelloActiviz5.cs, and HelloVTKWorld2.cs.

12.392.4.7 New()

```
vtkGDCMTesting * vtkGDCMTesting::New ()  [static]
```

Examples

RefCounting.cs.

References vtkGDCMTesting().

12.392.4.8 PrintSelf()

```
void vtkGDCMTesting::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.392.4.9 vtkTypeMacro()

```
vtkGDCMTesting::vtkTypeMacro (
            vtkGDCMTesting ,
            vtkObject )
```

References vtkGDCMTesting().

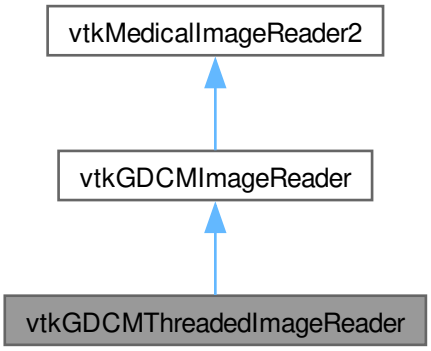
The documentation for this class was generated from the following file:

- vtkGDCMTesting.h

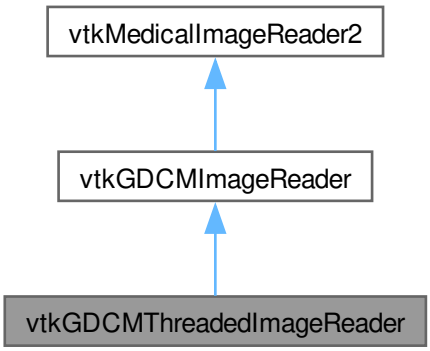
12.393 vtkGDCMThreadedImageReader Class Reference

```
#include <vtkGDCMThreadedImageReader.h>
```

Inheritance diagram for vtkGDCMThreadedImageReader:



Collaboration diagram for vtkGDCMThreadedImageReader:



Public Member Functions

- virtual void PrintSelf (ostream &os, vtkIndent indent)
- vtkBooleanMacro (UseShiftScale, int)
- vtkGetMacro (UseShiftScale, int)
- vtkSetMacro (Scale, double)
- vtkSetMacro (Shift, double)
- vtkSetMacro (UseShiftScale, int)
- vtkTypeMacro (vtkGDCMThreadedImageReader, vtkGDCMImageReader)

Public Member Functions inherited from vtkGDCMImageReader

- virtual int CanReadFile (const char ∗fname)
- virtual const char ∗ GetDescriptiveName ()
- virtual const char ∗ GetFileExtensions ()
- vtkImageData ∗ GetIconImage ()
- vtkImageData ∗ GetOverlay (int i)
- virtual void SetCurve (vtkPolyData ∗pd)
- virtual void SetFileNames (vtkStringArray ∗)
- virtual void SetMedicalImageProperties (vtkMedicalImageProperties ∗pd)
- vtkBooleanMacro (ApplyLookupTable, int)
- int vtkBooleanMacro (ApplyYBRToRGB, int)
- vtkBooleanMacro (LoadIconImage, int)
- vtkBooleanMacro (LoadOverlays, int)
- vtkBooleanMacro (LossyFlag, int)
- vtkGetMacro (ApplyLookupTable, int)
- vtkGetMacro (ApplyYBRToRGB, int) vtkSetMacro(ApplyYBRToRGB
- vtkGetMacro (ImageFormat, int)
- vtkGetMacro (LoadIconImage, int)

- vtkGetMacro (LoadOverlays, int)
- vtkGetMacro (LossyFlag, int)
- vtkGetMacro (NumberOfIconImages, int)
- vtkGetMacro (NumberOfOverlays, int)
- vtkGetMacro (PlanarConfiguration, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetObjectMacro (Curve, vtkPolyData)
- vtkGetObjectMacro (DirectionCosines, vtkMatrix4x4)
- vtkGetObjectMacro (FileNames, vtkStringArray)
- vtkGetObjectMacro (MedicalImageProperties, vtkMedicalImageProperties)
- vtkGetVector3Macro (ImagePositionPatient, double)
- vtkGetVector6Macro (ImageOrientationPatient, double)
- vtkSetMacro (ApplyLookupTable, int)
- vtkSetMacro (LoadIconImage, int)
- vtkSetMacro (LoadOverlays, int)
- vtkSetMacro (LossyFlag, int)
- vtkTypeMacro (vtkGDCMImageReader, vtkMedicalImageReader2)

Static Public Member Functions

- static vtkGDCMThreadedImageReader * New ()

Static Public Member Functions inherited from vtkGDCMImageReader

- static vtkGDCMImageReader * New ()

Protected Member Functions

- vtkGDCMThreadedImageReader ()
- ~vtkGDCMThreadedImageReader ()
- void ExecuteData (vtkDataObject *out)
- void ExecuteInformation ()
- void ReadFiles (unsigned int nfiles, const char *filenames[])
- void RequestDataCompat ()

Protected Member Functions inherited from vtkGDCMImageReader

- vtkGDCMImageReader ()
- ~vtkGDCMImageReader ()
- void ExecuteData (vtkDataObject *out)
- void ExecuteInformation ()
- void FillMedicalImageInformation (const gdcm::ImageReader &reader)
- int LoadSingleFile (const char *filename, char *pointer, unsigned long &outlen)
- int RequestDataCompat ()
- int RequestInformationCompat ()
- void SetFilePattern (const char *)
- void SetFilePrefix (const char *)
- vtkGetStringMacro (FilePattern)
- vtkGetStringMacro (FilePrefix)
- vtkSetVector6Macro (ImageOrientationPatient, double)

Additional Inherited Members

Protected Attributes inherited from vtkGDCMImageReader

- int ApplyInverseVideo
- int ApplyLookupTable
- int ApplyPlanarConfiguration
- int ApplyShiftScale
- int ApplyYBRToRGB
- vtkPolyData * Curve
- vtkMatrix4x4 * DirectionCosines
- vtkStringArray * FileNames
- int ForceRescale
- int IconDataScalarType
- int IconImageDataExtent [6]
- int IconNumberOfScalarComponents
- int ImageFormat
- double ImageOrientationPatient [6]
- double ImagePositionPatient [3]
- int LoadIconImage
- int LoadOverlays
- int LossyFlag
- vtkMedicalImageProperties * MedicalImageProperties
- int NumberOfIconImages
- int NumberOfOverlays
- int PlanarConfiguration
- double Scale
- double Shift

12.393.1 Constructor & Destructor Documentation

12.393.1.1 vtkGDCMThreadedImageReader()

```
vtkGDCMThreadedImageReader::vtkGDCMThreadedImageReader ()  [protected]
```

Referenced by New(), RequestDataCompat(), and vtkTypeMacro().

12.393.1.2 ~vtkGDCMThreadedImageReader()

```
vtkGDCMThreadedImageReader::~vtkGDCMThreadedImageReader ()  [protected]
```

12.393.2 Member Function Documentation

12.393.2.1 ExecuteData()

```
void vtkGDCMThreadedImageReader::ExecuteData (
            vtkDataObject * out)  [protected]
```

12.393.2.2 ExecuteInformation()

```
void vtkGDCMThreadedImageReader::ExecuteInformation ()  [protected]
```

12.393.2.3 New()

```
vtkGDCMThreadedImageReader * vtkGDCMThreadedImageReader::New ()  [static]
```

References vtkGDCMThreadedImageReader().

12.393.2.4 PrintSelf()

```
virtual void vtkGDCMThreadedImageReader::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

Reimplemented from vtkGDCMImageReader.

12.393.2.5 ReadFiles()

```
void vtkGDCMThreadedImageReader::ReadFiles (
            unsigned int nfiles,
            const char * filenames[])  [protected]
```

12.393.2.6 RequestDataCompat()

```
void vtkGDCMThreadedImageReader::RequestDataCompat ()  [protected]
```

References vtkGDCMThreadedImageReader().

12.393.2.7 vtkBooleanMacro()

```
vtkGDCMThreadedImageReader::vtkBooleanMacro (
            UseShiftScale ,
            int )
```

12.393.2.8 vtkGetMacro()

```
vtkGDCMThreadedImageReader::vtkGetMacro (
            UseShiftScale ,
            int )
```

12.393.2.9 vtkSetMacro() [1/3]

```
vtkGDCMThreadedImageReader::vtkSetMacro (
            Scale ,
            double )
```

References vtkGDCMImageReader::Scale.

12.393.2.10 vtkSetMacro() [2/3]

```
vtkGDCMThreadedImageReader::vtkSetMacro (
            Shift ,
            double )
```

References vtkGDCMImageReader::Shift.

12.393.2.11 vtkSetMacro() [3/3]

```
vtkGDCMThreadedImageReader::vtkSetMacro (
            UseShiftScale ,
            int )
```

12.393.2.12 vtkTypeMacro()

```
vtkGDCMThreadedImageReader::vtkTypeMacro (
            vtkGDCMThreadedImageReader ,
            vtkGDCMImageReader )
```

References vtkGDCMImageReader::vtkGDCMImageReader(), and vtkGDCMThreadedImageReader().

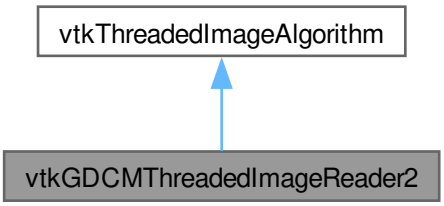
The documentation for this class was generated from the following file:

- vtkGDCMThreadedImageReader.h

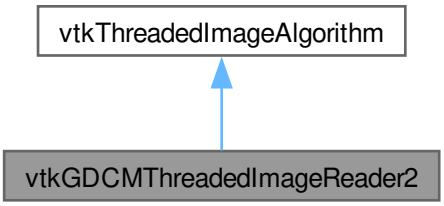
12.394 vtkGDCMThreadedImageReader2 Class Reference

`#include <vtkGDCMThreadedImageReader2.h>`

Inheritance diagram for vtkGDCMThreadedImageReader2:



Collaboration diagram for vtkGDCMThreadedImageReader2:



Public Member Functions

- virtual const char * GetFileName (int i=0)
- virtual void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetFileName (const char *filename)
- virtual void SetFileNames (vtkStringArray *)
- int SplitExtent (int splitExt[6], int startExt[6], int num, int total)
- vtkBooleanMacro (FileLowerLeft, int)
- vtkBooleanMacro (LoadOverlays, int)
- vtkBooleanMacro (UseShiftScale, int)
- vtkGetMacro (DataScalarType, int)
- vtkGetMacro (FileLowerLeft, int)
- vtkGetMacro (LoadOverlays, int)

- vtkGetMacro (NumberOfOverlays, int)
- vtkGetMacro (NumberOfScalarComponents, int)
- vtkGetMacro (Scale, double)
- vtkGetMacro (Shift, double)
- vtkGetMacro (UseShiftScale, int)
- vtkGetObjectMacro (FileNames, vtkStringArray)
- vtkGetVector3Macro (DataOrigin, double)
- vtkGetVector3Macro (DataSpacing, double)
- vtkGetVector6Macro (DataExtent, int)
- vtkSetMacro (DataScalarType, int)
- vtkSetMacro (FileLowerLeft, int)
- vtkSetMacro (LoadOverlays, int)
- vtkSetMacro (NumberOfScalarComponents, int)
- vtkSetMacro (Scale, double)
- vtkSetMacro (Shift, double)
- vtkSetMacro (UseShiftScale, int)
- vtkSetVector3Macro (DataOrigin, double)
- vtkSetVector3Macro (DataSpacing, double)
- vtkSetVector6Macro (DataExtent, int)
- vtkTypeMacro (vtkGDCMThreadedImageReader2, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static vtkGDCMThreadedImageReader2 * New ()

Protected Member Functions

- vtkGDCMThreadedImageReader2 ()
- ~vtkGDCMThreadedImageReader2 ()
- int RequestInformation (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)
- void ThreadedRequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector, vtkImageData ***inData, vtkImageData **outData, int outExt[6], int id)

12.394.1 Constructor & Destructor Documentation

12.394.1.1 vtkGDCMThreadedImageReader2()

```
vtkGDCMThreadedImageReader2::vtkGDCMThreadedImageReader2 ()  [protected]
```

Referenced by New(), ThreadedRequestData(), and vtkTypeMacro().

12.394.1.2 ~vtkGDCMThreadedImageReader2()

```
vtkGDCMThreadedImageReader2::~vtkGDCMThreadedImageReader2 ()  [protected]
```

12.394.2 Member Function Documentation

12.394.2.1 GetFileName()

```
virtual const char * vtkGDCMThreadedImageReader2::GetFileName (
            int i = 0)  [virtual]
```

12.394.2.2 New()

```
vtkGDCMThreadedImageReader2 * vtkGDCMThreadedImageReader2::New ()  [static]
```

References vtkGDCMThreadedImageReader2().

12.394.2.3 PrintSelf()

```
virtual void vtkGDCMThreadedImageReader2::PrintSelf (
            ostream & os,
            vtkIndent indent)  [virtual]
```

12.394.2.4 RequestInformation()

```
int vtkGDCMThreadedImageReader2::RequestInformation (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector)  [protected]
```

12.394.2.5 SetFileName()

```
virtual void vtkGDCMThreadedImageReader2::SetFileName (
            const char * filename)  [virtual]
```

12.394.2.6 SetFileNames()

```
virtual void vtkGDCMThreadedImageReader2::SetFileNames (
            vtkStringArray * )  [virtual]
```

12.394.2.7 SplitExtent()

```
int vtkGDCMThreadedImageReader2::SplitExtent (
            int splitExt[6],
            int startExt[6],
            int num,
            int total)
```

12.394.2.8 ThreadedRequestData()

```
void vtkGDCMThreadedImageReader2::ThreadedRequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector,
            vtkImageData *** inData,
            vtkImageData ** outData,
            int outExt[6],
            int id)  [protected]
```

References vtkGDCMThreadedImageReader2().

12.394.2.9 vtkBooleanMacro() [1/3]

```
vtkGDCMThreadedImageReader2::vtkBooleanMacro (
            FileLowerLeft ,
            int )
```

12.394.2.10 vtkBooleanMacro() [2/3]

```
vtkGDCMThreadedImageReader2::vtkBooleanMacro (
            LoadOverlays ,
            int )
```

12.394.2.11 vtkBooleanMacro() [3/3]

```
vtkGDCMThreadedImageReader2::vtkBooleanMacro (
            UseShiftScale ,
            int )
```

12.394.2.12 vtkGetMacro() [1/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            DataScalarType ,
            int )
```

12.394.2.13 vtkGetMacro() [2/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            FileLowerLeft ,
            int )
```

12.394.2.14 vtkGetMacro() [3/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            LoadOverlays ,
            int )
```

12.394.2.15 vtkGetMacro() [4/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            NumberOfOverlays ,
            int )
```

12.394.2.16 vtkGetMacro() [5/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            NumberOfScalarComponents ,
            int )
```

12.394.2.17 vtkGetMacro() [6/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            Scale ,
            double )
```

12.394.2.18 vtkGetMacro() [7/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            Shift ,
            double )
```

12.394.2.19 vtkGetMacro() [8/8]

```
vtkGDCMThreadedImageReader2::vtkGetMacro (
            UseShiftScale ,
            int )
```

12.394.2.20 vtkGetObjectMacro()

```
vtkGDCMThreadedImageReader2::vtkGetObjectMacro (
            FileNames ,
            vtkStringArray )
```

12.394.2.21 vtkGetVector3Macro() [1/2]

```
vtkGDCMThreadedImageReader2::vtkGetVector3Macro (
            DataOrigin ,
            double )
```

12.394.2.22 vtkGetVector3Macro() [2/2]

```
vtkGDCMThreadedImageReader2::vtkGetVector3Macro (
            DataSpacing ,
            double )
```

12.394.2.23 vtkGetVector6Macro()

```
vtkGDCMThreadedImageReader2::vtkGetVector6Macro (
            DataExtent ,
            int )
```

12.394.2.24 vtkSetMacro() [1/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            DataScalarType ,
            int )
```

12.394.2.25 vtkSetMacro() [2/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            FileLowerLeft ,
            int )
```

12.394.2.26 vtkSetMacro() [3/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            LoadOverlays ,
            int )
```

12.394.2.27 vtkSetMacro() [4/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            NumberOfScalarComponents ,
            int )
```

12.394.2.28 vtkSetMacro() [5/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            Scale ,
            double )
```

12.394.2.29 vtkSetMacro() [6/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            Shift ,
            double )
```

12.394.2.30 vtkSetMacro() [7/7]

```
vtkGDCMThreadedImageReader2::vtkSetMacro (
            UseShiftScale ,
            int )
```

12.394.2.31 vtkSetVector3Macro() [1/2]

```
vtkGDCMThreadedImageReader2::vtkSetVector3Macro (
            DataOrigin ,
            double )
```

12.394.2.32 vtkSetVector3Macro() [2/2]

```
vtkGDCMThreadedImageReader2::vtkSetVector3Macro (
            DataSpacing ,
            double )
```

12.394.2.33 vtkSetVector6Macro()

```
vtkGDCMThreadedImageReader2::vtkSetVector6Macro (
            DataExtent ,
            int )
```

12.394.2.34 vtkTypeMacro()

```
vtkGDCMThreadedImageReader2::vtkTypeMacro (
            vtkGDCMThreadedImageReader2 ,
            vtkThreadedImageAlgorithm )
```

References vtkGDCMThreadedImageReader2().

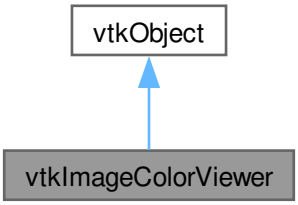
The documentation for this class was generated from the following file:

- vtkGDCMThreadedImageReader2.h

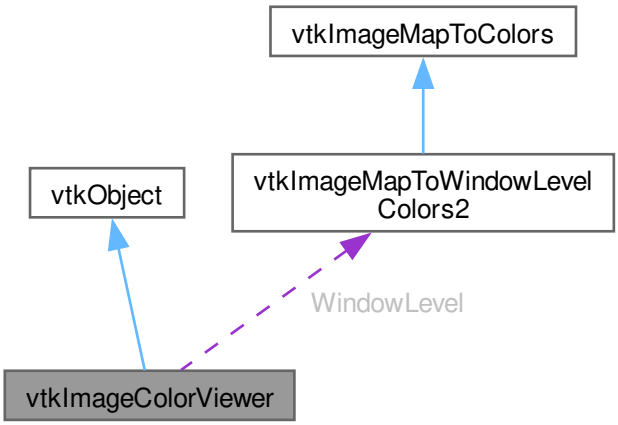
12.395 vtkImageColorViewer Class Reference

`#include <vtkImageColorViewer.h>`

Inheritance diagram for vtkImageColorViewer:



Collaboration diagram for vtkImageColorViewer:



Public Types

- enum {
  SLICE_ORIENTATION_YZ = 0 ,
  SLICE_ORIENTATION_XZ = 1 ,
  SLICE_ORIENTATION_XY = 2 }

Public Member Functions

- virtual void AddInput (vtkImageData ∗input)
- virtual void AddInputConnection (vtkAlgorithmOutput ∗input)
- virtual double GetColorLevel ()
- virtual double GetColorWindow ()
- virtual vtkImageData ∗ GetInput ()
- virtual int GetOffScreenRendering ()
- double GetOverlayVisibility ()
- virtual int ∗ GetPosition ()
- virtual int ∗ GetSize ()
- virtual int GetSliceMax ()
- virtual int GetSliceMin ()
- virtual int ∗ GetSliceRange ()
- virtual void GetSliceRange (int &min, int &max)
- virtual void GetSliceRange (int range[2])
- virtual const char ∗ GetWindowName ()
- void PrintSelf (ostream &os, vtkIndent indent)
- virtual void Render (void)
- virtual void SetColorLevel (double s)
- virtual void SetColorWindow (double s)
- virtual void SetDisplayId (void ∗a)
- virtual void SetInput (vtkImageData ∗in)
- virtual void SetInputConnection (vtkAlgorithmOutput ∗input)
- virtual void SetOffScreenRendering (int)
- void SetOverlayVisibility (double vis)
- virtual void SetParentId (void ∗a)
- virtual void SetPosition (int a, int b)
- virtual void SetPosition (int a[2])
- virtual void SetRenderer (vtkRenderer ∗arg)
- virtual void SetRenderWindow (vtkRenderWindow ∗arg)
- virtual void SetSize (int a, int b)
- virtual void SetSize (int a[2])
- virtual void SetSlice (int s)
- virtual void SetSliceOrientation (int orientation)
- virtual void SetSliceOrientationToXY ()
- virtual void SetSliceOrientationToXZ ()
- virtual void SetSliceOrientationToYZ ()
- virtual void SetupInteractor (vtkRenderWindowInteractor ∗)
- virtual void SetWindowId (void ∗a)
- virtual void UpdateDisplayExtent ()
- vtkBooleanMacro (OffScreenRendering, int)
- vtkGetMacro (Slice, int)
- vtkGetMacro (SliceOrientation, int)
- vtkGetObjectMacro (ImageActor, vtkImageActor)
- vtkGetObjectMacro (InteractorStyle, vtkInteractorStyleImage)
- vtkGetObjectMacro (Renderer, vtkRenderer)
- vtkGetObjectMacro (RenderWindow, vtkRenderWindow)
- vtkGetObjectMacro (WindowLevel, vtkImageMapToWindowLevelColors2)
- vtkTypeMacro (vtkImageColorViewer, vtkObject)

Static Public Member Functions

- static vtkImageColorViewer * New ()

Protected Member Functions

- vtkImageColorViewer ()
- ~vtkImageColorViewer ()
- virtual void InstallPipeline ()
- virtual void UnInstallPipeline ()
- virtual void UpdateOrientation ()

Protected Attributes

- int FirstRender
- vtkImageActor * ImageActor
- vtkRenderWindowInteractor * Interactor
- vtkInteractorStyleImage * InteractorStyle
- vtkImageActor * OverlayImageActor
- vtkRenderer * Renderer
- vtkRenderWindow * RenderWindow
- int Slice
- int SliceOrientation
- vtkImageMapToWindowLevelColors2 * WindowLevel

Friends

- class vtkImageColorViewerCallback

12.395.1 Detailed Description

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.395.2 Member Enumeration Documentation

12.395.2.1 anonymous enum

```
anonymous enum
```

Enumerator

SLICE_ORIENTATION_YZ	

SLICE_ORIENTATION_XZ	
SLICE_ORIENTATION_XY	

12.395.3 Constructor & Destructor Documentation

12.395.3.1 vtkImageColorViewer()

```
vtkImageColorViewer::vtkImageColorViewer ()  [protected]
```

Referenced by New(), vtkImageColorViewerCallback, and vtkTypeMacro().

12.395.3.2 ~vtkImageColorViewer()

```
vtkImageColorViewer::~vtkImageColorViewer ()  [protected]
```

12.395.4 Member Function Documentation

12.395.4.1 AddInput()

```
virtual void vtkImageColorViewer::AddInput (
            vtkImageData * input)  [virtual]
```

12.395.4.2 AddInputConnection()

```
virtual void vtkImageColorViewer::AddInputConnection (
            vtkAlgorithmOutput * input)  [virtual]
```

12.395.4.3 GetColorLevel()

```
virtual double vtkImageColorViewer::GetColorLevel ()  [virtual]
```

12.395.4.4 GetColorWindow()

```
virtual double vtkImageColorViewer::GetColorWindow ()  [virtual]
```

12.395.4.5 GetInput()

```
virtual vtkImageData * vtkImageColorViewer::GetInput ()  [virtual]
```

12.395.4.6 GetOffScreenRendering()

```
virtual int vtkImageColorViewer::GetOffScreenRendering ()  [virtual]
```

12.395.4.7 GetOverlayVisibility()

```
double vtkImageColorViewer::GetOverlayVisibility ()
```

12.395.4.8 GetPosition()

```
virtual int * vtkImageColorViewer::GetPosition ()  [virtual]
```

12.395.4.9 GetSize()

```
virtual int * vtkImageColorViewer::GetSize ()  [virtual]
```

12.395.4.10 GetSliceMax()

```
virtual int vtkImageColorViewer::GetSliceMax ()  [virtual]
```

12.395.4.11 GetSliceMin()

```
virtual int vtkImageColorViewer::GetSliceMin ()  [virtual]
```

12.395.4.12 GetSliceRange() [1/3]

```
virtual int * vtkImageColorViewer::GetSliceRange ()  [virtual]
```

12.395.4.13 GetSliceRange() [2/3]

```
virtual void vtkImageColorViewer::GetSliceRange (
            int & min,
            int & max)  [virtual]
```

12.395.4.14 GetSliceRange() [3/3]

```
virtual void vtkImageColorViewer::GetSliceRange (
            int range[2])  [inline], [virtual]
```

References GetSliceRange().

Referenced by GetSliceRange().

12.395.4.15 GetWindowName()

```
virtual const char * vtkImageColorViewer::GetWindowName ()  [virtual]
```

12.395.4.16 InstallPipeline()

```
virtual void vtkImageColorViewer::InstallPipeline ()  [protected], [virtual]
```

12.395.4.17 New()

```
vtkImageColorViewer * vtkImageColorViewer::New ()  [static]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

References vtkImageColorViewer().

12.395.4.18 PrintSelf()

```
void vtkImageColorViewer::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.395.4.19 Render()

```
virtual void vtkImageColorViewer::Render (
            void )  [virtual]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.395.4.20 SetColorLevel()

```
virtual void vtkImageColorViewer::SetColorLevel (
            double s)  [virtual]
```

12.395.4.21 SetColorWindow()

```
virtual void vtkImageColorViewer::SetColorWindow (
            double s)  [virtual]
```

12.395.4.22 SetDisplayId()

```
virtual void vtkImageColorViewer::SetDisplayId (
            void * a)  [virtual]
```

12.395.4.23 SetInput()

```
virtual void vtkImageColorViewer::SetInput (
            vtkImageData * in)  [virtual]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.395.4.24 SetInputConnection()

```
virtual void vtkImageColorViewer::SetInputConnection (
            vtkAlgorithmOutput * input)  [virtual]
```

12.395.4.25 SetOffScreenRendering()

```
virtual void vtkImageColorViewer::SetOffScreenRendering (
            int )  [virtual]
```

12.395.4.26 SetOverlayVisibility()

```
void vtkImageColorViewer::SetOverlayVisibility (
            double vis)
```

12.395.4.27 SetParentId()

```
virtual void vtkImageColorViewer::SetParentId (
            void * a)  [virtual]
```

12.395.4.28 SetPosition() [1/2]

```
virtual void vtkImageColorViewer::SetPosition (
            int a,
            int b)  [virtual]
```

12.395.4.29 SetPosition() [2/2]

```
virtual void vtkImageColorViewer::SetPosition (
            int a[2])  [inline], [virtual]
```

References SetPosition().

Referenced by SetPosition().

12.395.4.30 SetRenderer()

```
virtual void vtkImageColorViewer::SetRenderer (
            vtkRenderer * arg)  [virtual]
```

12.395.4.31 SetRenderWindow()

```
virtual void vtkImageColorViewer::SetRenderWindow (
            vtkRenderWindow * arg)  [virtual]
```

12.395.4.32 SetSize() [1/2]

```
virtual void vtkImageColorViewer::SetSize (
            int a,
            int b)  [virtual]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.395.4.33 SetSize() [2/2]

```
virtual void vtkImageColorViewer::SetSize (
            int a[2])  [inline], [virtual]
```

References SetSize().

Referenced by SetSize().

12.395.4.34 SetSlice()

```
virtual void vtkImageColorViewer::SetSlice (
            int s)  [virtual]
```

12.395.4.35 SetSliceOrientation()

```
virtual void vtkImageColorViewer::SetSliceOrientation (
            int orientation)  [virtual]
```

Referenced by SetSliceOrientationToXY(), SetSliceOrientationToXZ(), and SetSliceOrientationToYZ().

12.395.4.36 SetSliceOrientationToXY()

```
virtual void vtkImageColorViewer::SetSliceOrientationToXY ()  [inline], [virtual]
```

References SetSliceOrientation(), and SLICE_ORIENTATION_XY.

12.395.4.37 SetSliceOrientationToXZ()

```
virtual void vtkImageColorViewer::SetSliceOrientationToXZ ()  [inline], [virtual]
```

References SetSliceOrientation(), and SLICE_ORIENTATION_XZ.

12.395.4.38 SetSliceOrientationToYZ()

```
virtual void vtkImageColorViewer::SetSliceOrientationToYZ ()  [inline], [virtual]
```

References SetSliceOrientation(), and SLICE_ORIENTATION_YZ.

12.395.4.39 SetupInteractor()

```
virtual void vtkImageColorViewer::SetupInteractor (
            vtkRenderWindowInteractor * )  [virtual]
```

Examples

gdcmrtionplan.cxx, and gdcmrtplan.cxx.

12.395.4.40 SetWindowId()

```
virtual void vtkImageColorViewer::SetWindowId (
            void * a)  [virtual]
```

12.395.4.41 UnInstallPipeline()

```
virtual void vtkImageColorViewer::UnInstallPipeline ()  [protected], [virtual]
```

12.395.4.42 UpdateDisplayExtent()

```
virtual void vtkImageColorViewer::UpdateDisplayExtent ()  [virtual]
```

12.395.4.43 UpdateOrientation()

```
virtual void vtkImageColorViewer::UpdateOrientation ()  [protected], [virtual]
```

12.395.4.44 vtkBooleanMacro()

```
vtkImageColorViewer::vtkBooleanMacro (
            OffScreenRendering ,
            int )
```

12.395.4.45 vtkGetMacro() [1/2]

```
vtkImageColorViewer::vtkGetMacro (
            Slice ,
            int )
```

References Slice.

12.395.4.46 vtkGetMacro() [2/2]

```
vtkImageColorViewer::vtkGetMacro (
            SliceOrientation ,
            int )
```

References SliceOrientation.

12.395.4.47 vtkGetObjectMacro() [1/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            ImageActor ,
            vtkImageActor )
```

References ImageActor.

12.395.4.48 vtkGetObjectMacro() [2/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            InteractorStyle ,
            vtkInteractorStyleImage )
```

References InteractorStyle.

12.395.4.49 vtkGetObjectMacro() [3/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            Renderer ,
            vtkRenderer )
```

References Renderer.

12.395.4.50 vtkGetObjectMacro() [4/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            RenderWindow ,
            vtkRenderWindow )
```

References RenderWindow.

12.395.4.51 vtkGetObjectMacro() [5/5]

```
vtkImageColorViewer::vtkGetObjectMacro (
            WindowLevel ,
            vtkImageMapToWindowLevelColors2 )
```

References WindowLevel.

12.395.4.52 vtkTypeMacro()

```
vtkImageColorViewer::vtkTypeMacro (
            vtkImageColorViewer ,
            vtkObject )
```

References vtkImageColorViewer().

12.395.5 Friends And Related Symbol Documentation

12.395.5.1 vtkImageColorViewerCallback

```
friend class vtkImageColorViewerCallback  [friend]
```

References vtkImageColorViewer(), and vtkImageColorViewerCallback.

Referenced by vtkImageColorViewerCallback.

12.395.6 Member Data Documentation

12.395.6.1 FirstRender

```
int vtkImageColorViewer::FirstRender  [protected]
```

12.395.6.2 ImageActor

```
vtkImageActor* vtkImageColorViewer::ImageActor  [protected]
```

Referenced by vtkGetObjectMacro().

12.395.6.3 Interactor

```
vtkRenderWindowInteractor* vtkImageColorViewer::Interactor  [protected]
```

12.395.6.4 InteractorStyle

```
vtkInteractorStyleImage* vtkImageColorViewer::InteractorStyle  [protected]
```

Referenced by vtkGetObjectMacro().

12.395.6.5 OverlayImageActor

```
vtkImageActor* vtkImageColorViewer::OverlayImageActor  [protected]
```

12.395.6.6 Renderer

```
vtkRenderer* vtkImageColorViewer::Renderer  [protected]
```

Referenced by vtkGetObjectMacro().

12.395.6.7 RenderWindow

```
vtkRenderWindow* vtkImageColorViewer::RenderWindow  [protected]
```

Referenced by vtkGetObjectMacro().

12.395.6.8 Slice

```
int vtkImageColorViewer::Slice  [protected]
```

Referenced by vtkGetMacro().

12.395.6.9 SliceOrientation

```
int vtkImageColorViewer::SliceOrientation  [protected]
```

Referenced by vtkGetMacro().

12.395.6.10 WindowLevel

```
vtkImageMapToWindowLevelColors2* vtkImageColorViewer::WindowLevel  [protected]
```

Referenced by vtkGetObjectMacro().

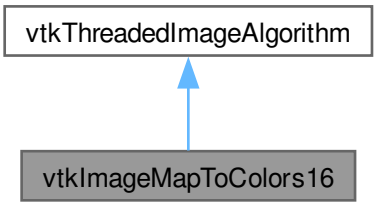
The documentation for this class was generated from the following file:

- vtkImageColorViewer.h

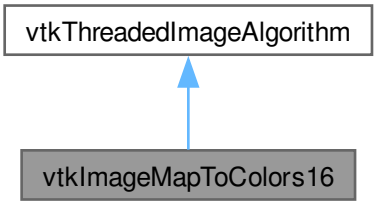
12.396 vtkImageMapToColors16 Class Reference

```
#include <vtkImageMapToColors16.h>
```

Inheritance diagram for vtkImageMapToColors16:



Collaboration diagram for vtkImageMapToColors16:



Public Member Functions

- virtual unsigned long GetMTime ()
- void PrintSelf (ostream &os, vtkIndent indent)
- virtual void SetLookupTable (vtkScalarsToColors *)
- void SetOutputFormatToLuminance ()
- void SetOutputFormatToLuminanceAlpha ()
- void SetOutputFormatToRGB ()
- void SetOutputFormatToRGBA ()
- vtkBooleanMacro (PassAlphaToOutput, int)
- vtkGetMacro (ActiveComponent, int)
- vtkGetMacro (OutputFormat, int)
- vtkGetMacro (PassAlphaToOutput, int)
- vtkGetObjectMacro (LookupTable, vtkScalarsToColors)
- vtkSetMacro (ActiveComponent, int)
- vtkSetMacro (OutputFormat, int)
- vtkSetMacro (PassAlphaToOutput, int)
- vtkTypeMacro (vtkImageMapToColors16, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static vtkImageMapToColors16 * New ()

Protected Member Functions

- vtkImageMapToColors16 ()
- ~vtkImageMapToColors16 ()
- virtual int RequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)
- virtual int RequestInformation (vtkInformation *, vtkInformationVector **, vtkInformationVector *)
- void ThreadedRequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector, vtkImageData ***inData, vtkImageData **outData, int extent[6], int id)

Protected Attributes

- int ActiveComponent
- int DataWasPassed
- vtkScalarsToColors * LookupTable
- int OutputFormat
- int PassAlphaToOutput

12.396.1 Constructor & Destructor Documentation

12.396.1.1 vtkImageMapToColors16()

```
vtkImageMapToColors16::vtkImageMapToColors16 ()  [protected]
```

Referenced by New(), and vtkTypeMacro().

12.396.1.2 ~vtkImageMapToColors16()

```
vtkImageMapToColors16::~vtkImageMapToColors16 ()  [protected]
```

12.396.2 Member Function Documentation

12.396.2.1 GetMTime()

```
virtual unsigned long vtkImageMapToColors16::GetMTime ()  [virtual]
```

Referenced by vtkGetMacro().

12.396.2.2 New()

```
vtkImageMapToColors16 * vtkImageMapToColors16::New ()  [static]
```

References vtkImageMapToColors16().

12.396.2.3 PrintSelf()

```
void vtkImageMapToColors16::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.396.2.4 RequestData()

```
virtual int vtkImageMapToColors16::RequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector)  [protected], [virtual]
```

12.396.2.5 RequestInformation()

```
virtual int vtkImageMapToColors16::RequestInformation (
            vtkInformation * ,
            vtkInformationVector ** ,
            vtkInformationVector * )  [protected], [virtual]
```

12.396.2.6 SetLookupTable()

```
virtual void vtkImageMapToColors16::SetLookupTable (
            vtkScalarsToColors * )  [virtual]
```

12.396.2.7 SetOutputFormatToLuminance()

```
void vtkImageMapToColors16::SetOutputFormatToLuminance ()  [inline]
```

References OutputFormat.

12.396.2.8 SetOutputFormatToLuminanceAlpha()

```
void vtkImageMapToColors16::SetOutputFormatToLuminanceAlpha ()  [inline]
```

References OutputFormat.

12.396.2.9 SetOutputFormatToRGB()

```
void vtkImageMapToColors16::SetOutputFormatToRGB ()  [inline]
```

References OutputFormat.

12.396.2.10 SetOutputFormatToRGBA()

```
void vtkImageMapToColors16::SetOutputFormatToRGBA ()  [inline]
```

References OutputFormat.

12.396.2.11 ThreadedRequestData()

```
void vtkImageMapToColors16::ThreadedRequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector,
            vtkImageData *** inData,
            vtkImageData ** outData,
            int extent[6],
            int id)  [protected]
```

12.396.2.12 vtkBooleanMacro()

```
vtkImageMapToColors16::vtkBooleanMacro (
            PassAlphaToOutput ,
            int )
```

References PassAlphaToOutput.

12.396.2.13 vtkGetMacro() [1/3]

```
vtkImageMapToColors16::vtkGetMacro (
            ActiveComponent ,
            int )
```

References ActiveComponent.

12.396.2.14 vtkGetMacro() [2/3]

```
vtkImageMapToColors16::vtkGetMacro (
            OutputFormat ,
            int )
```

References OutputFormat.

12.396.2.15 vtkGetMacro() [3/3]

```
vtkImageMapToColors16::vtkGetMacro (
            PassAlphaToOutput ,
            int )
```

References GetMTime(), and PassAlphaToOutput.

12.396.2.16 vtkGetObjectMacro()

```
vtkImageMapToColors16::vtkGetObjectMacro (
            LookupTable ,
            vtkScalarsToColors )
```

References LookupTable.

12.396.2.17 vtkSetMacro() [1/3]

```
vtkImageMapToColors16::vtkSetMacro (
            ActiveComponent ,
            int )
```

References ActiveComponent.

12.396.2.18 vtkSetMacro() [2/3]

```
vtkImageMapToColors16::vtkSetMacro (
            OutputFormat ,
            int )
```

References OutputFormat.

12.396.2.19 vtkSetMacro() [3/3]

```
vtkImageMapToColors16::vtkSetMacro (
            PassAlphaToOutput ,
            int )
```

References PassAlphaToOutput.

12.396.2.20 vtkTypeMacro()

```
vtkImageMapToColors16::vtkTypeMacro (
            vtkImageMapToColors16 ,
            vtkThreadedImageAlgorithm )
```

References vtkImageMapToColors16().

12.396.3 Member Data Documentation

12.396.3.1 ActiveComponent

```
int vtkImageMapToColors16::ActiveComponent  [protected]
```

Referenced by vtkGetMacro(), and vtkSetMacro().

12.396.3.2 DataWasPassed

```
int vtkImageMapToColors16::DataWasPassed  [protected]
```

12.396.3.3 LookupTable

```
vtkScalarsToColors* vtkImageMapToColors16::LookupTable  [protected]
```

Referenced by vtkGetObjectMacro().

12.396.3.4 OutputFormat

```
int vtkImageMapToColors16::OutputFormat  [protected]
```

Referenced by SetOutputFormatToLuminance(), SetOutputFormatToLuminanceAlpha(), SetOutputFormatToRGB(), SetOutputFormatToRGBA(), vtkGetMacro(), and vtkSetMacro().

12.396.3.5 PassAlphaToOutput

```
int vtkImageMapToColors16::PassAlphaToOutput  [protected]
```

Referenced by vtkBooleanMacro(), vtkGetMacro(), and vtkSetMacro().

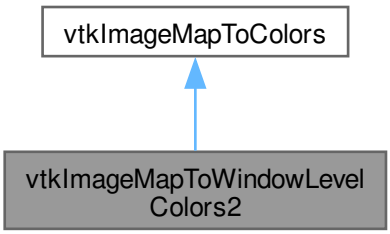
The documentation for this class was generated from the following file:

- vtkImageMapToColors16.h

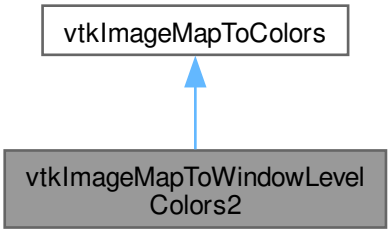
12.397 vtkImageMapToWindowLevelColors2 Class Reference

```
#include <vtkImageMapToWindowLevelColors2.h>
```

Inheritance diagram for vtkImageMapToWindowLevelColors2:



Collaboration diagram for vtkImageMapToWindowLevelColors2:



Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkGetMacro (Level, double)
- vtkGetMacro (Window, double)
- vtkSetMacro (Level, double)
- vtkSetMacro (Window, double)
- vtkTypeMacro (vtkImageMapToWindowLevelColors2, vtkImageMapToColors)

Static Public Member Functions

- static vtkImageMapToWindowLevelColors2 * New ()

Protected Member Functions

- vtkImageMapToWindowLevelColors2 ()
- ~vtkImageMapToWindowLevelColors2 ()
- virtual int RequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector)
- virtual int RequestInformation (vtkInformation *, vtkInformationVector **, vtkInformationVector *)
- void ThreadedRequestData (vtkInformation *request, vtkInformationVector **inputVector, vtkInformationVector *outputVector, vtkImageData ***inData, vtkImageData **outData, int extent[6], int id)

Protected Attributes

- double Level
- double Window

12.397.1 Constructor & Destructor Documentation

12.397.1.1 vtkImageMapToWindowLevelColors2()

```
vtkImageMapToWindowLevelColors2::vtkImageMapToWindowLevelColors2 ()  [protected]
```

Referenced by New(), and vtkTypeMacro().

12.397.1.2 ~vtkImageMapToWindowLevelColors2()

```
vtkImageMapToWindowLevelColors2::~vtkImageMapToWindowLevelColors2 ()  [protected]
```

12.397.2 Member Function Documentation

12.397.2.1 New()

```
vtkImageMapToWindowLevelColors2 * vtkImageMapToWindowLevelColors2::New ()  [static]
```

References vtkImageMapToWindowLevelColors2().

12.397.2.2 PrintSelf()

```
void vtkImageMapToWindowLevelColors2::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.397.2.3 RequestData()

```
virtual int vtkImageMapToWindowLevelColors2::RequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector)  [protected], [virtual]
```

12.397.2.4 RequestInformation()

```
virtual int vtkImageMapToWindowLevelColors2::RequestInformation (
            vtkInformation * ,
            vtkInformationVector ** ,
            vtkInformationVector * )  [protected], [virtual]
```

12.397.2.5 ThreadedRequestData()

```
void vtkImageMapToWindowLevelColors2::ThreadedRequestData (
            vtkInformation * request,
            vtkInformationVector ** inputVector,
            vtkInformationVector * outputVector,
            vtkImageData *** inData,
            vtkImageData ** outData,
            int extent[6],
            int id)  [protected]
```

12.397.2.6 vtkGetMacro() [1/2]

```
vtkImageMapToWindowLevelColors2::vtkGetMacro (
            Level ,
            double )
```

References Level.

12.397.2.7 vtkGetMacro() [2/2]

```
vtkImageMapToWindowLevelColors2::vtkGetMacro (
            Window ,
            double )
```

References Window.

12.397.2.8 vtkSetMacro() [1/2]

```
vtkImageMapToWindowLevelColors2::vtkSetMacro (
            Level ,
            double )
```

References Level.

12.397.2.9 vtkSetMacro() [2/2]

```
vtkImageMapToWindowLevelColors2::vtkSetMacro (
            Window ,
            double )
```

References Window.

12.397.2.10 vtkTypeMacro()

```
vtkImageMapToWindowLevelColors2::vtkTypeMacro (
            vtkImageMapToWindowLevelColors2 ,
            vtkImageMapToColors )
```

References vtkImageMapToWindowLevelColors2().

12.397.3 Member Data Documentation

12.397.3.1 Level

```
double vtkImageMapToWindowLevelColors2::Level  [protected]
```

Referenced by vtkGetMacro(), and vtkSetMacro().

12.397.3.2 Window

```
double vtkImageMapToWindowLevelColors2::Window  [protected]
```

Referenced by vtkGetMacro(), and vtkSetMacro().

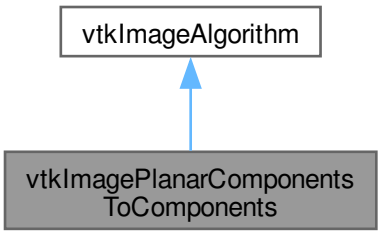
The documentation for this class was generated from the following file:

- vtkImageMapToWindowLevelColors2.h

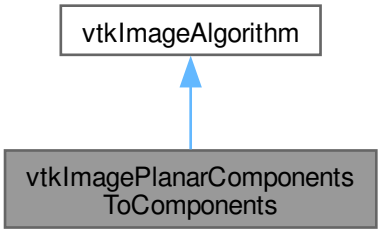
12.398 vtkImagePlanarComponentsToComponents Class Reference

```
#include <vtkImagePlanarComponentsToComponents.h>
```

Inheritance diagram for vtkImagePlanarComponentsToComponents:



Collaboration diagram for vtkImagePlanarComponentsToComponents:



Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkImagePlanarComponentsToComponents, vtkImageAlgorithm)

Static Public Member Functions

- static vtkImagePlanarComponentsToComponents * New ()

Protected Member Functions

- vtkImagePlanarComponentsToComponents ()
- ~vtkImagePlanarComponentsToComponents ()
- virtual int RequestData (vtkInformation *, vtkInformationVector **, vtkInformationVector *)

12.398.1 Constructor & Destructor Documentation

12.398.1.1 vtkImagePlanarComponentsToComponents()

```
vtkImagePlanarComponentsToComponents::vtkImagePlanarComponentsToComponents () [protected]
```

Referenced by New(), RequestData(), and vtkTypeMacro().

12.398.1.2 ~vtkImagePlanarComponentsToComponents()

```
vtkImagePlanarComponentsToComponents::~vtkImagePlanarComponentsToComponents () [inline], [protected]
```

12.398.2 Member Function Documentation

12.398.2.1 New()

```
vtkImagePlanarComponentsToComponents * vtkImagePlanarComponentsToComponents::New ()  [static]
```

References vtkImagePlanarComponentsToComponents().

12.398.2.2 PrintSelf()

```
void vtkImagePlanarComponentsToComponents::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.398.2.3 RequestData()

```
virtual int vtkImagePlanarComponentsToComponents::RequestData (
            vtkInformation * ,
            vtkInformationVector ** ,
            vtkInformationVector * )  [protected], [virtual]
```

References vtkImagePlanarComponentsToComponents().

12.398.2.4 vtkTypeMacro()

```
vtkImagePlanarComponentsToComponents::vtkTypeMacro (
            vtkImagePlanarComponentsToComponents ,
            vtkImageAlgorithm )
```

References vtkImagePlanarComponentsToComponents().

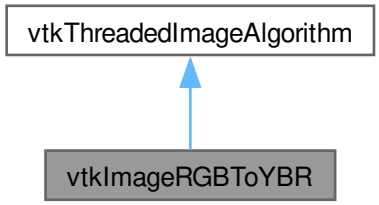
The documentation for this class was generated from the following file:

- vtkImagePlanarComponentsToComponents.h

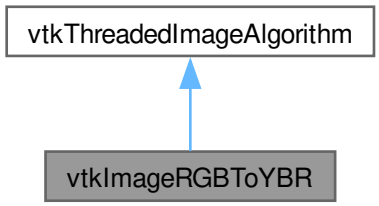
12.399 vtkImageRGBToYBR Class Reference

`#include <vtkImageRGBToYBR.h>`

Inheritance diagram for vtkImageRGBToYBR:



Collaboration diagram for vtkImageRGBToYBR:



Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkImageRGBToYBR, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static vtkImageRGBToYBR * New ()

Protected Member Functions

- vtkImageRGBToYBR ()
- ~vtkImageRGBToYBR ()
- void ThreadedExecute (vtkImageData *inData, vtkImageData *outData, int ext[6], int id)

12.399.1 Constructor & Destructor Documentation

12.399.1.1 vtkImageRGBToYBR()

```
vtkImageRGBToYBR::vtkImageRGBToYBR ()  [protected]
```

Referenced by New(), ThreadedExecute(), and vtkTypeMacro().

12.399.1.2 ~vtkImageRGBToYBR()

```
vtkImageRGBToYBR::~vtkImageRGBToYBR ()  [inline], [protected]
```

12.399.2 Member Function Documentation

12.399.2.1 New()

```
vtkImageRGBToYBR * vtkImageRGBToYBR::New ()  [static]
```

References vtkImageRGBToYBR().

12.399.2.2 PrintSelf()

```
void vtkImageRGBToYBR::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.399.2.3 ThreadedExecute()

```
void vtkImageRGBToYBR::ThreadedExecute (
            vtkImageData * inData,
            vtkImageData * outData,
            int ext[6],
            int id)  [protected]
```

References vtkImageRGBToYBR().

12.399.2.4 vtkTypeMacro()

```
vtkImageRGBToYBR::vtkTypeMacro (
            vtkImageRGBToYBR ,
            vtkThreadedImageAlgorithm )
```

References vtkImageRGBToYBR().

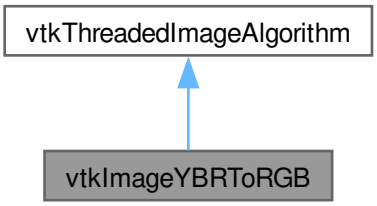
The documentation for this class was generated from the following file:

- vtkImageRGBToYBR.h

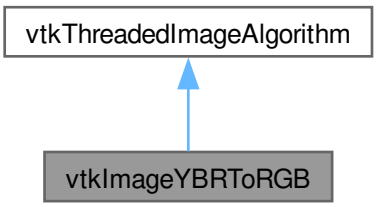
12.400 vtkImageYBRToRGB Class Reference

```
#include <vtkImageYBRToRGB.h>
```

Inheritance diagram for vtkImageYBRToRGB:



Collaboration diagram for vtkImageYBRToRGB:



Public Member Functions

- void PrintSelf (ostream &os, vtkIndent indent)
- vtkTypeMacro (vtkImageYBRToRGB, vtkThreadedImageAlgorithm)

Static Public Member Functions

- static vtkImageYBRToRGB * New ()

Protected Member Functions

- vtkImageYBRToRGB ()
- ~vtkImageYBRToRGB ()
- void ThreadedExecute (vtkImageData *inData, vtkImageData *outData, int ext[6], int id)

12.400.1 Constructor & Destructor Documentation

12.400.1.1 vtkImageYBRToRGB()

```
vtkImageYBRToRGB::vtkImageYBRToRGB ()  [protected]
```

Referenced by New(), ThreadedExecute(), and vtkTypeMacro().

12.400.1.2 ~vtkImageYBRToRGB()

```
vtkImageYBRToRGB::~vtkImageYBRToRGB ()  [inline], [protected]
```

12.400.2 Member Function Documentation

12.400.2.1 New()

```
vtkImageYBRToRGB * vtkImageYBRToRGB::New ()  [static]
```

References vtkImageYBRToRGB().

12.400.2.2 PrintSelf()

```
void vtkImageYBRToRGB::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.400.2.3 ThreadedExecute()

```
void vtkImageYBRToRGB::ThreadedExecute (
             vtkImageData * inData,
             vtkImageData * outData,
             int ext[6],
             int id)  [protected]
```

References vtkImageYBRToRGB().

12.400.2.4 vtkTypeMacro()

```
vtkImageYBRToRGB::vtkTypeMacro (
             vtkImageYBRToRGB ,
             vtkThreadedImageAlgorithm )
```

References vtkImageYBRToRGB().

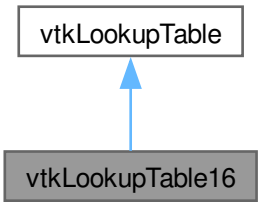
The documentation for this class was generated from the following file:

- vtkImageYBRToRGB.h

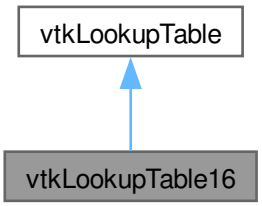
12.401 vtkLookupTable16 Class Reference

```
#include <vtkLookupTable16.h>
```

Inheritance diagram for vtkLookupTable16:



Collaboration diagram for vtkLookupTable16:



Public Member Functions

- void Build ()
- unsigned short * GetPointer (const vtkIdType id)
- void PrintSelf (ostream &os, vtkIndent indent)
- void SetNumberOfTableValues (vtkIdType number)
- vtkTypeMacro (vtkLookupTable16, vtkLookupTable)
- unsigned char * WritePointer (const vtkIdType id, const int number)

Static Public Member Functions

- static vtkLookupTable16 * New ()

Protected Member Functions

- vtkLookupTable16 (int sze=256, int ext=256)
- ~vtkLookupTable16 ()
- void MapScalarsThroughTable2 (void *input, unsigned char *output, int inputDataType, int numberOfValues, int inputIncrement, int outputFormat)

Protected Attributes

- vtkUnsignedShortArray * Table16

12.401.1 Constructor & Destructor Documentation

12.401.1.1 vtkLookupTable16()

```
vtkLookupTable16::vtkLookupTable16 (
            int sze = 256,
            int ext = 256)  [protected]
```

Referenced by MapScalarsThroughTable2(), New(), and vtkTypeMacro().

12.401.1.2 ~vtkLookupTable16()

```
vtkLookupTable16::~vtkLookupTable16 ()  [protected]
```

12.401.2 Member Function Documentation

12.401.2.1 Build()

```
void vtkLookupTable16::Build ()
```

12.401.2.2 GetPointer()

```
unsigned short * vtkLookupTable16::GetPointer (
            const vtkIdType id)  [inline]
```

References Table16.

12.401.2.3 MapScalarsThroughTable2()

```
void vtkLookupTable16::MapScalarsThroughTable2 (
            void * input,
            unsigned char * output,
            int inputDataType,
            int numberOfValues,
            int inputIncrement,
            int outputFormat)  [protected]
```

References vtkLookupTable16().

12.401.2.4 New()

```
vtkLookupTable16 * vtkLookupTable16::New ()  [static]
```

References vtkLookupTable16().

12.401.2.5 PrintSelf()

```
void vtkLookupTable16::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.401.2.6 SetNumberOfTableValues()

```
void vtkLookupTable16::SetNumberOfTableValues (
            vtkIdType number)
```

References WritePointer().

12.401.2.7 vtkTypeMacro()

```
vtkLookupTable16::vtkTypeMacro (
            vtkLookupTable16 ,
            vtkLookupTable )
```

References vtkLookupTable16().

12.401.2.8 WritePointer()

```
unsigned char * vtkLookupTable16::WritePointer (
            const vtkIdType id,
            const int number)  [inline]
```

References Table16.

Referenced by SetNumberOfTableValues().

12.401.3 Member Data Documentation

12.401.3.1 Table16

```
vtkUnsignedShortArray* vtkLookupTable16::Table16  [protected]
```

Referenced by GetPointer(), and WritePointer().

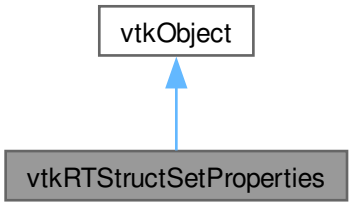
The documentation for this class was generated from the following file:

- vtkLookupTable16.h

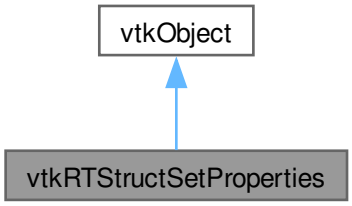
12.402 vtkRTStructSetProperties Class Reference

`#include <vtkRTStructSetProperties.h>`

Inheritance diagram for vtkRTStructSetProperties:



Collaboration diagram for vtkRTStructSetProperties:



Public Member Functions

- void AddContourReferencedFrameOfReference (vtkIdType pdnum, const char ∗classuid, const char ∗instanceuid)
- void AddReferencedFrameOfReference (const char ∗classuid, const char ∗instanceuid)
- void AddStructureSetROI (int roinumber, const char ∗reframerefuid, const char ∗roiname, const char ∗ROIGenerationAlgorithm, const char ∗ROIDescription=0)
- void AddStructureSetROIObservation (int refnumber, int observationnumber, const char ∗rtroiinterpretedtype, const char ∗roiinterpreter, const char ∗roiobservationlabel=0)
- virtual void Clear ()
- virtual void DeepCopy (vtkRTStructSetProperties ∗p)
- const char ∗ GetContourReferencedFrameOfReferenceClassUID (vtkIdType pdnum, vtkIdType id)
- const char ∗ GetContourReferencedFrameOfReferenceInstanceUID (vtkIdType pdnum, vtkIdType id)
- vtkIdType GetNumberOfContourReferencedFrameOfReferences ()

- vtkIdType GetNumberOfContourReferencedFrameOfReferences (vtkIdType pdnum)
- vtkIdType GetNumberOfReferencedFrameOfReferences ()
- vtkIdType GetNumberOfStructureSetROIs ()
- const char * GetReferencedFrameOfReferenceClassUID (vtkIdType id)
- const char * GetReferencedFrameOfReferenceInstanceUID (vtkIdType id)
- int GetStructureSetObservationNumber (vtkIdType id)
- const char * GetStructureSetROIDescription (vtkIdType id)
- const char * GetStructureSetROIGenerationAlgorithm (vtkIdType)
- const char * GetStructureSetROIName (vtkIdType)
- int GetStructureSetROINumber (vtkIdType id)
- const char * GetStructureSetROIObservationLabel (vtkIdType id)
- const char * GetStructureSetROIRefFrameRefUID (vtkIdType)
- const char * GetStructureSetRTROIInterpretedType (vtkIdType id)
- void PrintSelf (ostream &os, vtkIndent indent)
- vtkGetStringMacro (ReferenceFrameOfReferenceUID)
- vtkGetStringMacro (ReferenceSeriesInstanceUID)
- vtkGetStringMacro (SeriesInstanceUID)
- vtkGetStringMacro (SOPInstanceUID)
- vtkGetStringMacro (StructureSetDate)
- vtkGetStringMacro (StructureSetLabel)
- vtkGetStringMacro (StructureSetName)
- vtkGetStringMacro (StructureSetTime)
- vtkGetStringMacro (StudyInstanceUID)
- vtkSetStringMacro (ReferenceFrameOfReferenceUID)
- vtkSetStringMacro (ReferenceSeriesInstanceUID)
- vtkSetStringMacro (SeriesInstanceUID)
- vtkSetStringMacro (SOPInstanceUID)
- vtkSetStringMacro (StructureSetDate)
- vtkSetStringMacro (StructureSetLabel)
- vtkSetStringMacro (StructureSetName)
- vtkSetStringMacro (StructureSetTime)
- vtkSetStringMacro (StudyInstanceUID)
- vtkTypeMacro (vtkRTStructSetProperties, vtkObject)

Static Public Member Functions

- static vtkRTStructSetProperties * New ()

Protected Member Functions

- vtkRTStructSetProperties ()
- ~vtkRTStructSetProperties ()

Protected Attributes

- vtkRTStructSetPropertiesInternals * Internals
- char * ReferenceFrameOfReferenceUID
- char * ReferenceSeriesInstanceUID
- char * SeriesInstanceUID
- char * SOPInstanceUID
- char * StructureSetDate
- char * StructureSetLabel
- char * StructureSetName
- char * StructureSetTime
- char * StudyInstanceUID

12.402.1 Detailed Description

Examples

GenerateRTSTRUCT.cxx.

12.402.2 Constructor & Destructor Documentation

12.402.2.1 vtkRTStructSetProperties()

```
vtkRTStructSetProperties::vtkRTStructSetProperties ()  [protected]
```

Referenced by DeepCopy(), New(), and vtkTypeMacro().

12.402.2.2 ~vtkRTStructSetProperties()

```
vtkRTStructSetProperties::~vtkRTStructSetProperties ()  [protected]
```

12.402.3 Member Function Documentation

12.402.3.1 AddContourReferencedFrameOfReference()

```
void vtkRTStructSetProperties::AddContourReferencedFrameOfReference (
            vtkIdType pdnum,
            const char * classuid,
            const char * instanceuid)
```

12.402.3.2 AddReferencedFrameOfReference()

```
void vtkRTStructSetProperties::AddReferencedFrameOfReference (
            const char * classuid,
            const char * instanceuid)
```

12.402.3.3 AddStructureSetROI()

```
void vtkRTStructSetProperties::AddStructureSetROI (
            int roinumber,
            const char * reframerefuid,
            const char * roiname,
            const char * ROIGenerationAlgorithm,
            const char * ROIDescription = 0)
```

12.402.3.4 AddStructureSetROIObservation()

```
void vtkRTStructSetProperties::AddStructureSetROIObservation (
            int refnumber,
            int observationnumber,
            const char * rtroiinterpretedtype,
            const char * roiinterpreter,
            const char * roiobservationlabel = 0)
```

12.402.3.5 Clear()

```
virtual void vtkRTStructSetProperties::Clear ()  [virtual]
```

12.402.3.6 DeepCopy()

```
virtual void vtkRTStructSetProperties::DeepCopy (
            vtkRTStructSetProperties * p)  [virtual]
```

References vtkRTStructSetProperties().

12.402.3.7 GetContourReferencedFrameOfReferenceClassUID()

```
const char * vtkRTStructSetProperties::GetContourReferencedFrameOfReferenceClassUID (
            vtkIdType pdnum,
            vtkIdType id)
```

12.402.3.8 GetContourReferencedFrameOfReferenceInstanceUID()

```
const char * vtkRTStructSetProperties::GetContourReferencedFrameOfReferenceInstanceUID (
            vtkIdType pdnum,
            vtkIdType id)
```

12.402.3.9 GetNumberOfContourReferencedFrameOfReferences() [1/2]

```
vtkIdType vtkRTStructSetProperties::GetNumberOfContourReferencedFrameOfReferences ()
```

12.402.3.10 GetNumberOfContourReferencedFrameOfReferences() [2/2]

```
vtkIdType vtkRTStructSetProperties::GetNumberOfContourReferencedFrameOfReferences (
            vtkIdType pdnum)
```

12.402.3.11 GetNumberOfReferencedFrameOfReferences()

```
vtkIdType vtkRTStructSetProperties::GetNumberOfReferencedFrameOfReferences ()
```

12.402.3.12 GetNumberOfStructureSetROIs()

```
vtkIdType vtkRTStructSetProperties::GetNumberOfStructureSetROIs ()
```

12.402.3.13 GetReferencedFrameOfReferenceClassUID()

```
const char * vtkRTStructSetProperties::GetReferencedFrameOfReferenceClassUID (
            vtkIdType id)
```

12.402.3.14 GetReferencedFrameOfReferenceInstanceUID()

```
const char * vtkRTStructSetProperties::GetReferencedFrameOfReferenceInstanceUID (
            vtkIdType id)
```

12.402.3.15 GetStructureSetObservationNumber()

```
int vtkRTStructSetProperties::GetStructureSetObservationNumber (
            vtkIdType id)
```

12.402.3.16 GetStructureSetROIDescription()

```
const char * vtkRTStructSetProperties::GetStructureSetROIDescription (
            vtkIdType id)
```

12.402.3.17 GetStructureSetROIGenerationAlgorithm()

```
const char * vtkRTStructSetProperties::GetStructureSetROIGenerationAlgorithm (
            vtkIdType )
```

12.402.3.18 GetStructureSetROIName()

```
const char * vtkRTStructSetProperties::GetStructureSetROIName (
            vtkIdType )
```

12.402.3.19 GetStructureSetROINumber()

```
int vtkRTStructSetProperties::GetStructureSetROINumber (
            vtkIdType id)
```

12.402.3.20 GetStructureSetROIObservationLabel()

```
const char * vtkRTStructSetProperties::GetStructureSetROIObservationLabel (
            vtkIdType id)
```

12.402.3.21 GetStructureSetROIRefFrameRefUID()

```
const char * vtkRTStructSetProperties::GetStructureSetROIRefFrameRefUID (
            vtkIdType )
```

12.402.3.22 GetStructureSetRTROIInterpretedType()

```
const char * vtkRTStructSetProperties::GetStructureSetRTROIInterpretedType (
            vtkIdType id)
```

12.402.3.23 New()

```
vtkRTStructSetProperties * vtkRTStructSetProperties::New ()  [static]
```

Examples

GenerateRTSTRUCT.cxx.

References vtkRTStructSetProperties().

12.402.3.24 PrintSelf()

```
void vtkRTStructSetProperties::PrintSelf (
            ostream & os,
            vtkIndent indent)
```

12.402.3.25 vtkGetStringMacro() [1/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            ReferenceFrameOfReferenceUID )
```

References ReferenceFrameOfReferenceUID.

12.402.3.26 vtkGetStringMacro() [2/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            ReferenceSeriesInstanceUID )
```

References ReferenceSeriesInstanceUID.

12.402.3.27 vtkGetStringMacro() [3/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            SeriesInstanceUID )
```

References SeriesInstanceUID.

12.402.3.28 vtkGetStringMacro() [4/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            SOPInstanceUID )
```

References SOPInstanceUID.

12.402.3.29 vtkGetStringMacro() [5/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StructureSetDate )
```

References StructureSetDate.

12.402.3.30 vtkGetStringMacro() [6/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StructureSetLabel )
```

References StructureSetLabel.

12.402.3.31 vtkGetStringMacro() [7/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StructureSetName )
```

References StructureSetName.

12.402.3.32 vtkGetStringMacro() [8/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StructureSetTime )
```

References StructureSetTime.

12.402.3.33 vtkGetStringMacro() [9/9]

```
vtkRTStructSetProperties::vtkGetStringMacro (
            StudyInstanceUID )
```

References StudyInstanceUID.

12.402.3.34 vtkSetStringMacro() [1/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            ReferenceFrameOfReferenceUID )
```

References ReferenceFrameOfReferenceUID.

12.402.3.35 vtkSetStringMacro() [2/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            ReferenceSeriesInstanceUID )
```

References ReferenceSeriesInstanceUID.

12.402.3.36 vtkSetStringMacro() [3/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            SeriesInstanceUID )
```

References SeriesInstanceUID.

12.402.3.37 vtkSetStringMacro() [4/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            SOPInstanceUID )
```

References SOPInstanceUID.

12.402.3.38 vtkSetStringMacro() [5/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StructureSetDate )
```

References StructureSetDate.

12.402.3.39 vtkSetStringMacro() [6/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StructureSetLabel )
```

References StructureSetLabel.

12.402.3.40 vtkSetStringMacro() [7/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StructureSetName )
```

References StructureSetName.

12.402.3.41 vtkSetStringMacro() [8/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StructureSetTime )
```

References StructureSetTime.

12.402.3.42 vtkSetStringMacro() [9/9]

```
vtkRTStructSetProperties::vtkSetStringMacro (
            StudyInstanceUID )
```

References StudyInstanceUID.

12.402.3.43 vtkTypeMacro()

```
vtkRTStructSetProperties::vtkTypeMacro (
            vtkRTStructSetProperties ,
            vtkObject )
```

References vtkRTStructSetProperties().

12.402.4 Member Data Documentation

12.402.4.1 Internals

```
vtkRTStructSetPropertiesInternals* vtkRTStructSetProperties::Internals  [protected]
```

12.402.4.2 ReferenceFrameOfReferenceUID

```
char* vtkRTStructSetProperties::ReferenceFrameOfReferenceUID  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.402.4.3 ReferenceSeriesInstanceUID

```
char* vtkRTStructSetProperties::ReferenceSeriesInstanceUID  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.402.4.4 SeriesInstanceUID

```
char* vtkRTStructSetProperties::SeriesInstanceUID  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.402.4.5 SOPInstanceUID

```
char* vtkRTStructSetProperties::SOPInstanceUID  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.402.4.6 StructureSetDate

```
char* vtkRTStructSetProperties::StructureSetDate  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.402.4.7 StructureSetLabel

```
char* vtkRTStructSetProperties::StructureSetLabel  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.402.4.8 StructureSetName

```
char* vtkRTStructSetProperties::StructureSetName  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.402.4.9 StructureSetTime

```
char* vtkRTStructSetProperties::StructureSetTime  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

12.402.4.10 StudyInstanceUID

```
char* vtkRTStructSetProperties::StudyInstanceUID  [protected]
```

Referenced by vtkGetStringMacro(), and vtkSetStringMacro().

The documentation for this class was generated from the following file:

- vtkRTStructSetProperties.h

12.403 gdcm::Waveform Class Reference

Waveform class.

```
#include <gdcmWaveform.h>
```

Public Member Functions

- Waveform ()=default

12.403.1 Detailed Description

Waveform class.

12.403.2 Constructor & Destructor Documentation

12.403.2.1 Waveform()

```
gdcm::Waveform::Waveform ()  [default]
```

The documentation for this class was generated from the following file:

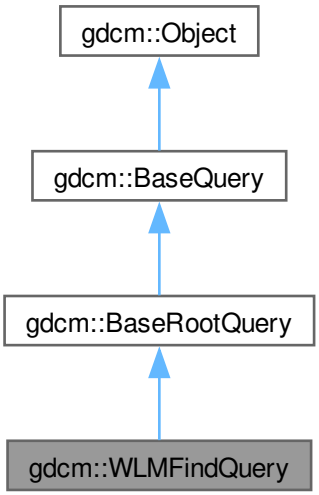
- gdcmWaveform.h

12.404 gdcm::WLMFindQuery Class Reference

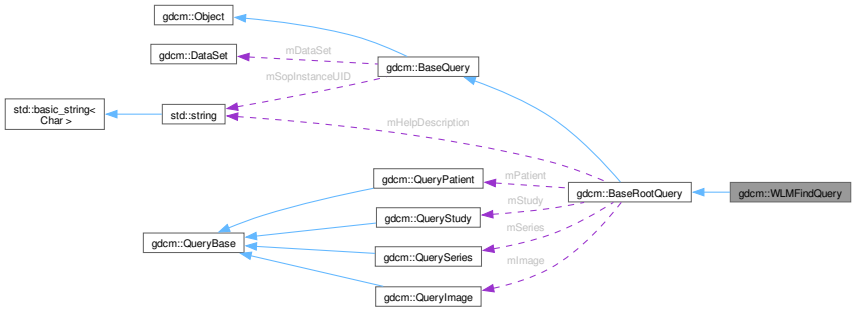
PatientRootQuery.

```
#include <gdcmWLMFindQuery.h>
```

Inheritance diagram for gdcm::WLMFindQuery:



Collaboration diagram for gdcm::WLMFindQuery:



Public Member Functions

- WLMFindQuery ()
- UIDs::TSName GetAbstractSyntaxUID () const override
- std::vector< Tag > GetTagListByLevel (const EQueryLevel &inQueryLevel) override
- void InitializeDataSet (const EQueryLevel &inQueryLevel) override
- bool ValidateQuery (bool inStrict=true) const override

Public Member Functions inherited from gdcm::BaseRootQuery

- ~BaseRootQuery () override=default
- EQueryLevel GetQueryLevelFromQueryRoot (ERootType roottype)

Public Member Functions inherited from gdcm::BaseQuery

- ~BaseQuery () override
- void AddQueryDataSet (const DataSet &ds)
- DataSet & GetQueryDataSet ()
- DataSet const & GetQueryDataSet () const

  Set/Get the internal representation of the query as a DataSet.
- std::string GetSOPInstanceUID () const
- void Print (std::ostream &os) const override
- void SetSearchParameter (const std::string &inKeyword, const std::string &inValue)
- void SetSearchParameter (const Tag &inTag, const std::string &inValue)
- void SetSOPInstanceUID (const std::string &iSopInstanceUID)
- const std::ostream & WriteHelpFile (std::ostream &os)
- bool WriteQuery (const std::string &inFileName)

Public Member Functions inherited from gdcm::Object

- Object ()
- Object (const Object &)

  Special requirement for copy/cstor, assignment operator.
- virtual ~Object ()
- void operator= (const Object &)

Protected Member Functions

- DataSet GetValidDataSet () const

Protected Member Functions inherited from gdcm::BaseRootQuery

- BaseRootQuery ()

Protected Member Functions inherited from gdcm::BaseQuery

- BaseQuery ()
- void SetSearchParameter (const Tag &inTag, const DictEntry &inDictEntry, const std::string &inValue)
- bool ValidDataSet (const DataSet &dataSetToValid, const DataSet &dataSetReference) const

Protected Member Functions inherited from gdcm::Object

- void Register ()
- void UnRegister ()

Friends

- class QueryFactory

Additional Inherited Members

Static Public Member Functions inherited from gdcm::BaseRootQuery

- static QueryBase * Construct (ERootType inRootType, EQueryLevel qlevel)
- static int GetQueryLevelFromString (const char *str)
- static const char * GetQueryLevelString (EQueryLevel ql)

Protected Attributes inherited from gdcm::BaseRootQuery

- std::string mHelpDescription
- QueryImage mImage
- QueryPatient mPatient
- ERootType mRootType
- QuerySeries mSeries
- QueryStudy mStudy

Protected Attributes inherited from gdcm::BaseQuery

- DataSet mDataSet
- std::string mSopInstanceUID

12.404.1 Detailed Description

PatientRootQuery.

contains: the class which will produce a dataset for c-find with patient root

12.404.2 Constructor & Destructor Documentation

12.404.2.1 WLMFindQuery()

```
gdcm::WLMFindQuery::WLMFindQuery ()
```

12.404.3 Member Function Documentation

12.404.3.1 GetAbstractSyntaxUID()

```
UIDs::TSName gdcm::WLMFindQuery::GetAbstractSyntaxUID () const  [override], [virtual]
```

Implements gdcm::BaseQuery.

12.404.3.2 GetTagListByLevel()

```
std::vector< Tag > gdcm::WLMFindQuery::GetTagListByLevel (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function will return all tags at a given query level, so that they maybe selected for searching. The boolean forFind is true if the query is a find query, or false for a move query.

Implements gdcm::BaseRootQuery.

12.404.3.3 GetValidDataSet()

```
DataSet gdcm::WLMFindQuery::GetValidDataSet () const  [protected]
```

12.404.3.4 InitializeDataSet()

```
void gdcm::WLMFindQuery::InitializeDataSet (
            const EQueryLevel & inQueryLevel)  [override], [virtual]
```

this function sets tag 8,52 to the appropriate value based on query level also fills in the right unique tags, as per the standard's requirements should allow for connection with dcmtk

Implements gdcm::BaseRootQuery.

12.404.3.5 ValidateQuery()

```
bool gdcm::WLMFindQuery::ValidateQuery (
            bool inStrict = true) const  [override], [virtual]
```

have to be able to ensure that 0x8,0x52 is set (which will be true if InitializeDataSet is called...) that the level is appropriate (ie, not setting PATIENT for a study query that the tags in the query match the right level (either required, unique, optional) by default, this function checks to see if the query is for finding, which is more permissive than for moving. For moving, only the unique tags are allowed. 10 Jan 2011: adding in the 'strict' mode. according to the standard (at least, how I've read it), only tags for a particular level should be allowed in a particular query (ie, just series level tags in a series level query). However, it seems that dcm4chee doesn't share that interpretation. So, if 'inStrict' is false, then tags from the current level and all higher levels are now considered valid. So, if you're doing a non-strict series-level query, tags from the patient and study level can be passed along as well.

Implements gdcm::BaseRootQuery.

12.404.4 Friends And Related Symbol Documentation

12.404.4.1 QueryFactory

```
friend class QueryFactory  [friend]
```

References QueryFactory.

Referenced by QueryFactory.

The documentation for this class was generated from the following file:

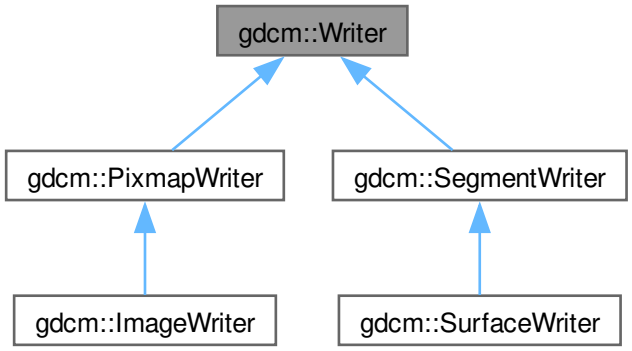
- gdcmWLMFindQuery.h

12.405 gdcm::Writer Class Reference

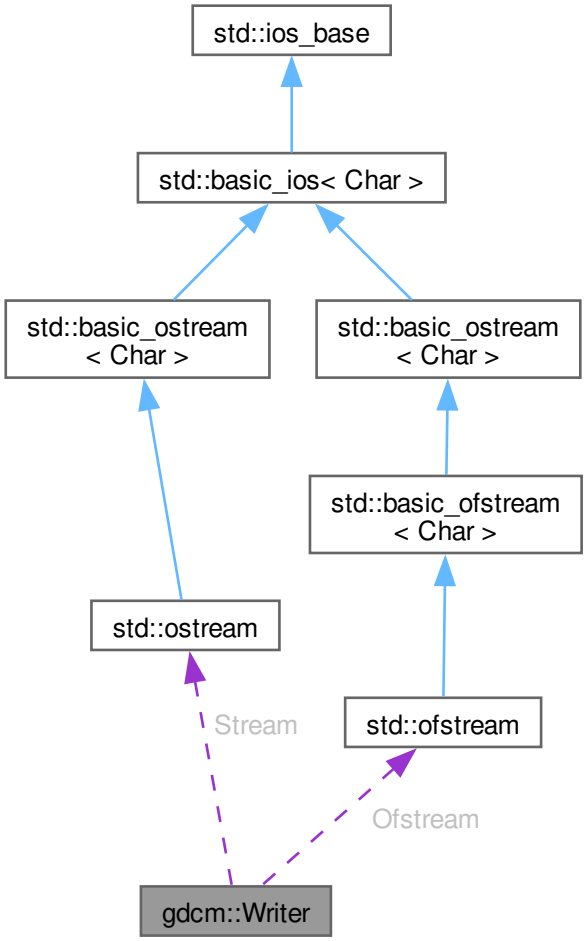
Writer ala DOM (Document Object Model).

```
#include <gdcmWriter.h>
```

Inheritance diagram for gdcm::Writer:



Collaboration diagram for gdcm::Writer:



Public Member Functions

- Writer ()
- virtual ~Writer ()
- void CheckFileMetaInformationOff ()
- void CheckFileMetaInformationOn ()
- File & GetFile ()
- void SetCheckFileMetaInformation (bool b)

  Undocumented function, do not use (= leave default).
- void SetFile (const File &f)

  Set/Get the DICOM file (DataSet + Header).
- void SetFileName (const char *filename_native)

Set the filename of DICOM file to write:

- void SetStream (std::ostream &output_stream)

  Set user ostream buffer.

- virtual bool Write ()

  Main function to tell the writer to write.

Protected Member Functions

- bool GetCheckFileMetaInformation () const
- std::ostream * GetStreamPtr () const
- void SetWriteDataSetOnly (bool b)

Protected Attributes

- std::ofstream * Ofstream
- std::ostream * Stream

Friends

- class StreamImageWriter

12.405.1 Detailed Description

Writer ala DOM (Document Object Model).

This class is a non-validating writer, it will only performs well- formedness check only.

Detailed description here To avoid GDCM being yet another broken DICOM lib we try to be user level and avoid writing illegal stuff (odd length, non-zero value for Item start/end length ...) Therefore you cannot (well unless you are really smart) write DICOM with even length tag. All the checks are consider basics:

- Correct Meta Information Header (see gdcm::FileMetaInformation)
- Zero value for Item Length (0xfffe, 0xe00d/0xe0dd)
- Even length for any elements
- Alphabetical order for elements (guaranteed by design of internals)
- 32bits VR will be rewritten with 00

Warning

gdcm::Writer cannot write a DataSet if no SOP Instance UID (0008,0018) is found, unless a DICOMDIR is being written out

See also

Reader DataSet File

Examples

ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, ClinicalTrialAnnotate.cxx, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GenerateDICOMDIR.cs, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReformatFile.cs, StreamImageReaderTest.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.405.2 Constructor & Destructor Documentation

12.405.2.1 Writer()

```
gdcm::Writer::Writer ()
```

12.405.2.2 ~Writer()

```
virtual gdcm::Writer::~Writer ()  [virtual]
```

12.405.3 Member Function Documentation

12.405.3.1 CheckFileMetaInformationOff()

```
void gdcm::Writer::CheckFileMetaInformationOff ()  [inline]
```

Examples

CreateFakeRTDOSE.cxx, FixBrokenJ2K.cxx, and HelloWorld.cxx.

12.405.3.2 CheckFileMetaInformationOn()

```
void gdcm::Writer::CheckFileMetaInformationOn ()  [inline]
```

12.405.3.3 GetCheckFileMetaInformation()

```
bool gdcm::Writer::GetCheckFileMetaInformation () const  [inline], [protected]
```

12.405.3.4 GetFile()

```
File & gdcm::Writer::GetFile ()  [inline]
```

Examples

CreateJPIPDataSet.cxx, EncapsulateFileInRawData.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer
GenAllVR.cxx, GenFakeIdentifyFile.cxx, GetSubSequenceData.cxx, MpegVideoInfo.cs, QIDO-RS.cxx,
StreamImageReaderTest.cxx, TemplateEmptyImage.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.405.3.5 GetStreamPtr()

```
std::ostream * gdcm::Writer::GetStreamPtr () const  [inline], [protected]
```

References Stream.

12.405.3.6 SetCheckFileMetaInformation()

```
void gdcm::Writer::SetCheckFileMetaInformation (
            bool b)  [inline]
```

Undocumented function, do not use (= leave default).

Examples

GenAllVR.cxx, GenFakeIdentifyFile.cxx, and PatchFile.cxx.

12.405.3.7 SetFile()

```
void gdcm::Writer::SetFile (
            const File & f)  [inline]
```

Set/Get the DICOM file (DataSet + Header).

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateFakeRTDOSE.cxx, DecompressImage.cs, DeriveSeries.cxx, DuplicatePCDE.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GenerateDICOMDIR.cs, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, NewSequence.cs, PatchFile.cxx, ReformatFile.cs, StandardizeFiles.cs, pmsct_rgb1.cxx, and rle2img.cxx.

12.405.3.8 SetFileName()

```
void gdcm::Writer::SetFileName (
            const char * filename_native)
```

Set the filename of DICOM file to write:

Examples

BasicAnonymizer.cs, BasicImageAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CompressImage.cxx, CompressLossyJPEG.cs, CreateARGBImage.cxx, CreateCMYKImage.cxx, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DecompressImage.cs, DeriveSeries.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenFakeImage.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GenerateDICOMDIR.cs, GetSubSequenceData.cxx, HelloVizWorld.cxx, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, MergeTwoFiles.cxx, MpegVideoInfo.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReformatFile.cs, StandardizeFiles.cs, TemplateEmptyImage.cxx, csa2img.cxx, iU22tomultisc.cxx, pmsct_rgb1.cxx, and rle2img.cxx.

12.405.3.9 SetStream()

```
void gdcm::Writer::SetStream (
            std::ostream & output_stream)  [inline]
```

Set user ostream buffer.

References Stream.

12.405.3.10 SetWriteDataSetOnly()

```
void gdcm::Writer::SetWriteDataSetOnly (
            bool b)  [inline], [protected]
```

12.405.3.11 Write()

```
virtual bool gdcm::Writer::Write ()  [virtual]
```

Main function to tell the writer to write.

Reimplemented in gdcm::ImageWriter, gdcm::PixmapWriter, gdcm::SegmentWriter, and gdcm::SurfaceWriter.

Examples

BasicAnonymizer.cs, ChangePrivateTags.cxx, ChangeSequenceUltrasound.cxx, Cleaner.cs, ClinicalTrialAnnotate.cxx, ClinicalTrialIdentificationWorkflow.cs, CreateFakeRTDOSE.cxx, CreateJPIPDataSet.cxx, DeriveSeries.cxx, DuplicatePCDE.cxx, EncapsulateFileInRawData.cxx, FixBrokenJ2K.cxx, FixJAIBugJPEGLS.cxx, FixOrientation.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GenLongSeqs.cxx, GenSeqs.cxx, GenerateDICOMDIR.cs, HelloWorld.cxx, LargeVRDSExplicit.cxx, MakeTemplate.cxx, ManipulateFile.cs, NewSequence.cs, PatchFile.cxx, QIDO-RS.cxx, ReformatFile.cs, pmsct_rgb1.cxx, and rle2img.cxx.

12.405.4 Friends And Related Symbol Documentation

12.405.4.1 StreamImageWriter

```
friend class StreamImageWriter  [friend]
```

References StreamImageWriter.

Referenced by StreamImageWriter.

12.405.5 Member Data Documentation

12.405.5.1 Ofstream

```
std::ofstream* gdcm::Writer::Ofstream  [protected]
```

12.405.5.2 Stream

```
std::ostream* gdcm::Writer::Stream  [protected]
```

Referenced by GetStreamPtr(), and SetStream().

The documentation for this class was generated from the following file:

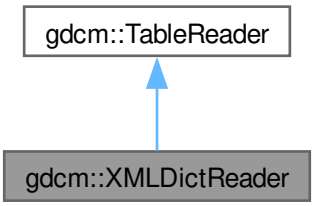
- gdcmWriter.h

12.406 gdcm::XMLDictReader Class Reference

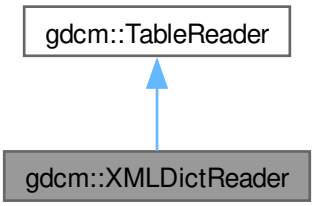
Class for representing a XMLDictReader.

```
#include <gdcmXMLDictReader.h>
```

Inheritance diagram for gdcm::XMLDictReader:



Collaboration diagram for gdcm::XMLDictReader:



Public Member Functions

- XMLDictReader ()
- ~XMLDictReader ()
- void CharacterDataHandler (const char *data, int length)
- void EndElement (const char *name)
- const Dict & GetDict ()
- void StartElement (const char *name, const char **atts)

Public Member Functions inherited from gdcm::TableReader

- TableReader (Defs &defs)
- virtual ~TableReader ()=default
- const Defs & GetDefs () const
- const char * GetFilename ()
- void HandleIOD (const char **atts)
- void HandleIODEntry (const char **atts)
- void HandleMacro (const char **atts)
- void HandleMacroEntry (const char **atts)
- void HandleMacroEntryDescription (const char **atts)
- void HandleModule (const char **atts)
- void HandleModuleEntry (const char **atts)
- void HandleModuleEntryDescription (const char **atts)
- void HandleModuleInclude (const char **atts)
- int Read ()
- void SetFilename (const char *filename)

Protected Member Functions

- void HandleDescription (const char **atts)
- void HandleEntry (const char **atts)

12.406.1 Detailed Description

Class for representing a XMLDictReader.

Note

bla Will read the DICOMV3.xml file

12.406.2 Constructor & Destructor Documentation

12.406.2.1 XMLDictReader()

```
gdcm::XMLDictReader::XMLDictReader ()
```

12.406.2.2 ~XMLDictReader()

```
gdcm::XMLDictReader::~XMLDictReader ()  [inline]
```

12.406.3 Member Function Documentation

12.406.3.1 CharacterDataHandler()

```
void gdcm::XMLDictReader::CharacterDataHandler (
            const char * data,
            int length)  [virtual]
```

Reimplemented from gdcm::TableReader.

12.406.3.2 EndElement()

```
void gdcm::XMLDictReader::EndElement (
            const char * name)  [virtual]
```

Reimplemented from gdcm::TableReader.

12.406.3.3 GetDict()

```
const Dict & gdcm::XMLDictReader::GetDict ()  [inline]
```

12.406.3.4 HandleDescription()

```
void gdcm::XMLDictReader::HandleDescription (
            const char ** atts)  [protected]
```

12.406.3.5 HandleEntry()

```
void gdcm::XMLDictReader::HandleEntry (
            const char ** atts)  [protected]
```

12.406.3.6 StartElement()

```
void gdcm::XMLDictReader::StartElement (
            const char * name,
            const char ** atts)  [virtual]
```

Reimplemented from gdcm::TableReader.

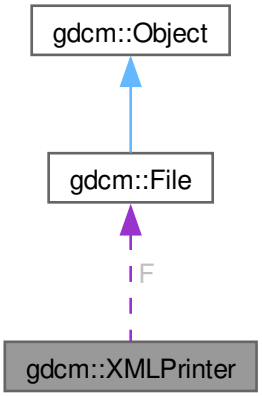
The documentation for this class was generated from the following file:

- gdcmXMLDictReader.h

12.407 gdcm::XMLPrinter Class Reference

`#include <gdcmXMLPrinter.h>`

Collaboration diagram for gdcm::XMLPrinter:



Public Types

- enum PrintStyles {
  OnlyUUID = 0 ,
  LOADBULKDATA = 1 }

Public Member Functions

- XMLPrinter ()
- virtual ~XMLPrinter ()
- PrintStyles GetPrintStyle () const
- virtual void HandleBulkData (const char *uuid, const TransferSyntax &ts, const char *bulkdata, size_t bulklen)
- void Print (std::ostream &os)
- void PrintDataSet (const DataSet &ds, const TransferSyntax &ts, std::ostream &os)
- void SetFile (File const &f)
- void SetStyle (PrintStyles ps)

Protected Member Functions

- VR PrintDataElement (std::ostream &os, const Dicts &dicts, const DataSet &ds, const DataElement &de, const TransferSyntax &ts)
- void PrintSQ (const SequenceOfItems *sqi, const TransferSyntax &ts, std::ostream &os)

Protected Attributes

- const File * F
- PrintStyles PrintStyle

12.407.1 Member Enumeration Documentation

12.407.1.1 PrintStyles

```
enum gdcm::XMLPrinter::PrintStyles
```

Enumerator

OnlyUUID	
LOADBULKDATA	

12.407.2 Constructor & Destructor Documentation

12.407.2.1 XMLPrinter()

```
gdcm::XMLPrinter::XMLPrinter ()
```

12.407.2.2 ~XMLPrinter()

```
virtual gdcm::XMLPrinter::~XMLPrinter ()  [virtual]
```

12.407.3 Member Function Documentation

12.407.3.1 GetPrintStyle()

```
PrintStyles gdcm::XMLPrinter::GetPrintStyle () const  [inline]
```

References PrintStyle.

12.407.3.2 HandleBulkData()

```
virtual void gdcm::XMLPrinter::HandleBulkData (
            const char * uuid,
            const TransferSyntax & ts,
            const char * bulkdata,
            size_t bulklen)  [virtual]
```

Virtual function mechanism to allow application programmer to override the default mechanism for BulkData handling. By default GDCM will simply discard the BulkData and only write the UUID

12.407.3.3 Print()

```
void gdcm::XMLPrinter::Print (
            std::ostream & os)
```

12.407.3.4 PrintDataElement()

```
VR gdcm::XMLPrinter::PrintDataElement (
            std::ostream & os,
            const Dicts & dicts,
            const DataSet & ds,
            const DataElement & de,
            const TransferSyntax & ts)  [protected]
```

12.407.3.5 PrintDataSet()

```
void gdcm::XMLPrinter::PrintDataSet (
            const DataSet & ds,
            const TransferSyntax & ts,
            std::ostream & os)
```

12.407.3.6 PrintSQ()

```
void gdcm::XMLPrinter::PrintSQ (
            const SequenceOfItems * sqi,
            const TransferSyntax & ts,
            std::ostream & os)  [protected]
```

12.407.3.7 SetFile()

```
void gdcm::XMLPrinter::SetFile (
            File const & f)  [inline]
```

References F.

12.407.3.8 SetStyle()

```
void gdcm::XMLPrinter::SetStyle (
            PrintStyles ps)  [inline]
```

References PrintStyle.

12.407.4 Member Data Documentation

12.407.4.1 F

```
const File* gdcm::XMLPrinter::F  [protected]
```

Referenced by SetFile().

12.407.4.2 PrintStyle

```
PrintStyles gdcm::XMLPrinter::PrintStyle  [protected]
```

Referenced by GetPrintStyle(), and SetStyle().

The documentation for this class was generated from the following file:

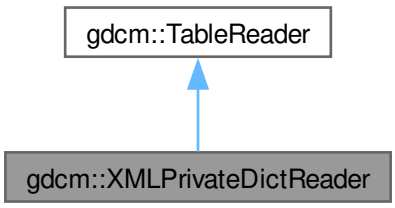
- gdcmXMLPrinter.h

12.408 gdcm::XMLPrivateDictReader Class Reference

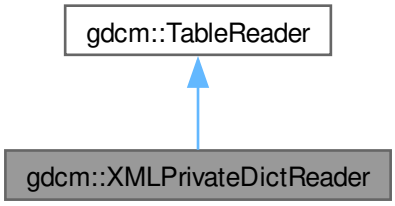
Class for representing a XMLPrivateDictReader.

```
#include <gdcmXMLPrivateDictReader.h>
```

Inheritance diagram for gdcm::XMLPrivateDictReader:



Collaboration diagram for gdcm::XMLPrivateDictReader:



Public Member Functions

- XMLPrivateDictReader ()
- ~XMLPrivateDictReader ()
- void CharacterDataHandler (const char *data, int length)
- void EndElement (const char *name)
- const PrivateDict & GetPrivateDict ()
- void StartElement (const char *name, const char **atts)

Public Member Functions inherited from gdcm::TableReader

- TableReader (Defs &defs)
- virtual ~TableReader ()=default
- const Defs & GetDefs () const
- const char * GetFilename ()
- void HandleIOD (const char **atts)
- void HandleIODEntry (const char **atts)
- void HandleMacro (const char **atts)
- void HandleMacroEntry (const char **atts)
- void HandleMacroEntryDescription (const char **atts)
- void HandleModule (const char **atts)
- void HandleModuleEntry (const char **atts)
- void HandleModuleEntryDescription (const char **atts)
- void HandleModuleInclude (const char **atts)
- int Read ()
- void SetFilename (const char *filename)

Protected Member Functions

- void HandleDescription (const char **atts)
- void HandleEntry (const char **atts)

12.408.1 Detailed Description

Class for representing a XMLPrivateDictReader.

Note

bla Will read the Private.xml file

12.408.2 Constructor & Destructor Documentation

12.408.2.1 XMLPrivateDictReader()

```
gdcm::XMLPrivateDictReader::XMLPrivateDictReader ()
```

12.408.2.2 ~XMLPrivateDictReader()

```
gdcm::XMLPrivateDictReader::~XMLPrivateDictReader ()  [inline]
```

12.408.3 Member Function Documentation

12.408.3.1 CharacterDataHandler()

```
void gdcm::XMLPrivateDictReader::CharacterDataHandler (
            const char * data,
            int length)  [virtual]
```

Reimplemented from gdcm::TableReader.

12.408.3.2 EndElement()

```
void gdcm::XMLPrivateDictReader::EndElement (
            const char * name)  [virtual]
```

Reimplemented from gdcm::TableReader.

12.408.3.3 GetPrivateDict()

```
const PrivateDict & gdcm::XMLPrivateDictReader::GetPrivateDict ()  [inline]
```

12.408.3.4 HandleDescription()

```
void gdcm::XMLPrivateDictReader::HandleDescription (
             const char ** atts)  [protected]
```

12.408.3.5 HandleEntry()

```
void gdcm::XMLPrivateDictReader::HandleEntry (
             const char ** atts)  [protected]
```

12.408.3.6 StartElement()

```
void gdcm::XMLPrivateDictReader::StartElement (
             const char * name,
             const char ** atts)  [virtual]
```

Reimplemented from gdcm::TableReader.

The documentation for this class was generated from the following file:

- gdcmXMLPrivateDictReader.h

Chapter 13

File Documentation

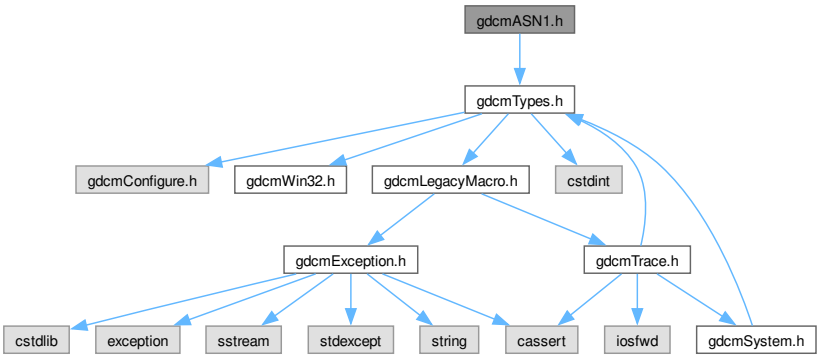
13.1 README.txt File Reference

13.2 TestsList.txt File Reference

13.3 gdcmASN1.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmASN1.h:



Classes

- class gdcm::ASN1

  Class for ASN1.

Namespaces

- namespace gdcm

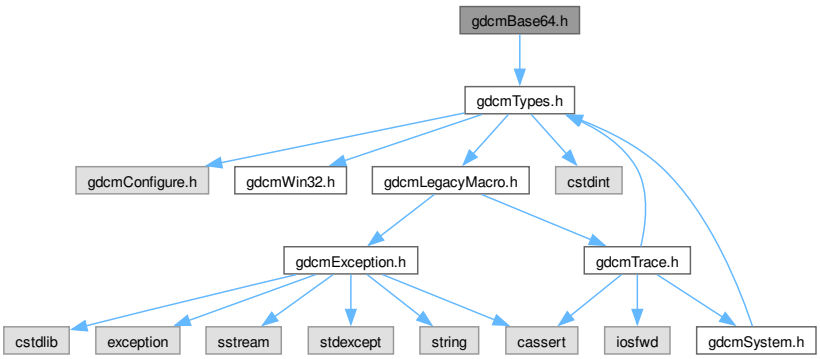
13.4 gdcmASN1.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMASN1_H
00015 #define GDCMASN1_H
00016
00017 #include "gdcmTypes.h"
00018
00019
00020 namespace gdcm
00021 {
00022 //-----------------------------------------------------------------------------
00023 class ASN1Internals;
00028 class GDCM_EXPORT ASN1
00029 {
00030 public :
00031   ASN1();
00032   ~ASN1();
00033
00034   static bool ParseDumpFile(const char *filename);
00035
00036   static bool ParseDump(const char *array, size_t length);
00037
00038   ASN1(const ASN1&) = delete;
00039   void operator=(const ASN1&) = delete;
00040 protected:
00041   int TestPBKDF2();
00042
00043 private:
00044   ASN1Internals *Internals;
00045 };
00046 } // end namespace gdcm
00047 //-----------------------------------------------------------------------------
00048 #endif //GDCMASN1_H
```

13.5 gdcmBase64.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmBase64.h:



Classes

- class gdcm::Base64

  Class for Base64.

Namespaces

- namespace gdcm

13.6 gdcmBase64.h

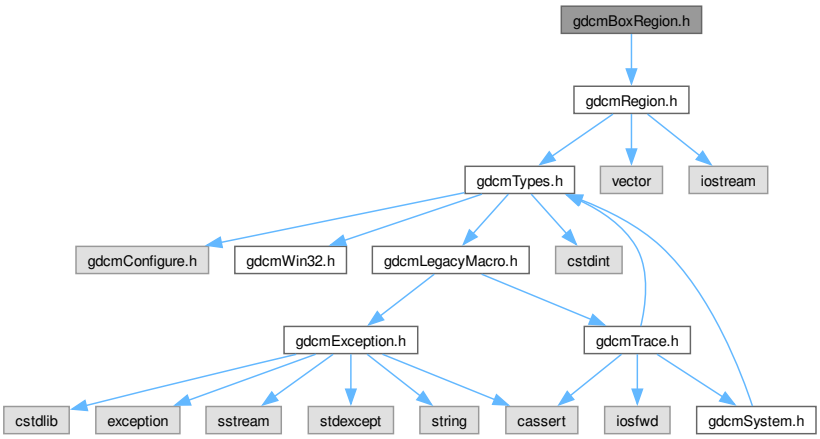
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBASE64_H
00015 #define GDCMBASE64_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT Base64
```

```
00026 {
00027 public:
00028
00032   static size_t GetEncodeLength(const char *src, size_t srclen );
00033
00045   static size_t Encode( char *dst, size_t dlen, const char *src, size_t slen );
00046
00050   static size_t GetDecodeLength( const char *src, size_t len );
00051
00062   static size_t Decode( char *dst, size_t dlen, const char *src, size_t slen );
00063
00064   Base64(const Base64&) = delete;
00065   void operator=(const Base64&) = delete;
00066 };
00067
00068 } // end namespace gdcm
00069
00070 #endif // GDCMBASE64_H
```

13.7 gdcmBoxRegion.h File Reference

`#include "gdcmRegion.h"`
Include dependency graph for gdcmBoxRegion.h:



Classes

- class gdcm::BoxRegion

  Class for manipulation box region.

Namespaces

- namespace gdcm

13.8 gdcmBoxRegion.h

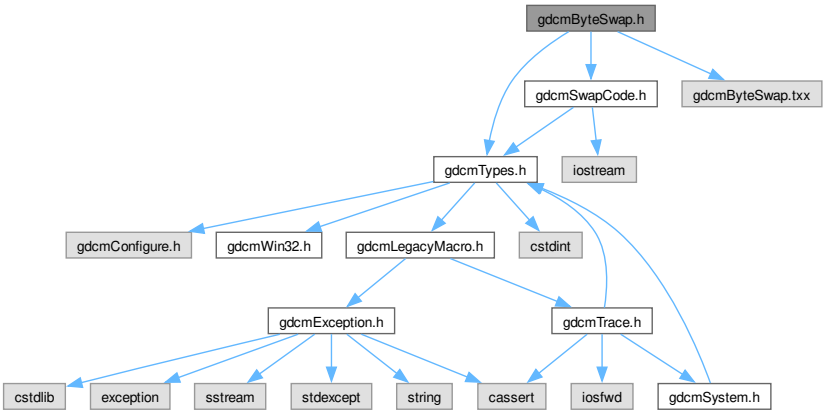
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBOXREGION_H
00015 #define GDCMBOXREGION_H
00016
00017 #include "gdcmRegion.h"
00018
00019 namespace gdcm
00020 {
00021 class BoxRegionInternals;
00029 //-----------------------------------------------------------------------------
00030 class GDCM_EXPORT BoxRegion : public Region
00031 {
00032 public :
00033   BoxRegion();
00034   ~BoxRegion() override;
00035
00037   void SetDomain(unsigned int xmin, unsigned int xmax,
00038     unsigned int ymin, unsigned int ymax,
00039     unsigned int zmin, unsigned int zmax);
00040
00042   unsigned int GetXMin() const;
00043   unsigned int GetXMax() const;
00044   unsigned int GetYMin() const;
00045   unsigned int GetYMax() const;
00046   unsigned int GetZMin() const;
00047   unsigned int GetZMax() const;
00048
00049   // Satisfy pure virtual parent class
00050   Region *Clone() const override;
00051   bool Empty() const override;
00052   bool IsValid() const override;
00053   size_t Area() const override;
00054   BoxRegion ComputeBoundingBox() override;
00055
00056   void Print(std::ostream &os = std::cout) const override;
00057
00059   static BoxRegion BoundingBox(BoxRegion const & b1, BoxRegion const & b2 );
00060
00062   BoxRegion(const BoxRegion&);
00063   void operator=(const BoxRegion&);
00064 private:
00065   BoxRegionInternals *Internals;
00066 };
00067
00068 } // end namespace gdcm
00069 //-----------------------------------------------------------------------------
00070 #endif //GDCMREGION_H
```

13.9 gdcmByteSwap.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmSwapCode.h"
```

`#include "gdcmByteSwap.txx"`
Include dependency graph for gdcmByteSwap.h:



Classes

- class gdcm::ByteSwap< T >
  ByteSwap.

Namespaces

- namespace gdcm

13.10 gdcmByteSwap.h

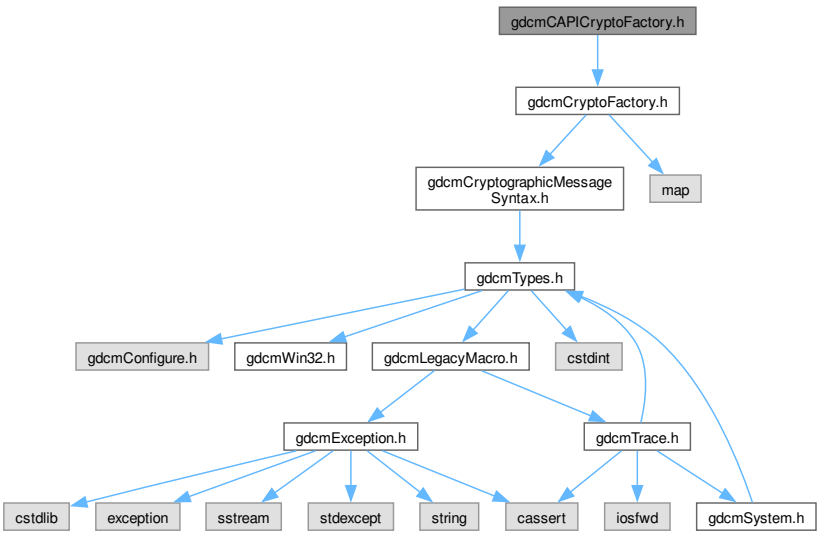
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBYTESWAP_H
00015 #define GDCMBYTESWAP_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmSwapCode.h"
00019
00020 namespace gdcm
00021 {
00022
00029 template<class T>
```

```
00030 class ByteSwap
00031 {
00032 public:
00034   static bool SystemIsBigEndian ();
00035   static bool SystemIsLittleEndian ();
00036
00037   static void Swap(T &p);
00038   static void SwapFromSwapCodeIntoSystem(T &p, SwapCode const &sc);
00039   static void SwapRange(T *p, unsigned int num);
00040   static void SwapRangeFromSwapCodeIntoSystem(T *p, SwapCode const &sc,
00041     std::streamoff num);
00042
00043 protected:
00044 //  ByteSwap() {}
00045 //  ~ByteSwap() {}
00046
00047 private:
00048
00049 };
00050
00055
00056 } // end namespace gdcm
00057
00058 #include "gdcmByteSwap.txx"
00059
00060 #endif //GDCMBYTESWAP_H
```

13.11 gdcmCAPICryptoFactory.h File Reference

`#include "gdcmCryptoFactory.h"`
Include dependency graph for gdcmCAPICryptoFactory.h:



Classes

- class gdcm::CAPICryptoFactory

Namespaces

- namespace gdcm

13.12 gdcmCAPICryptoFactory.h

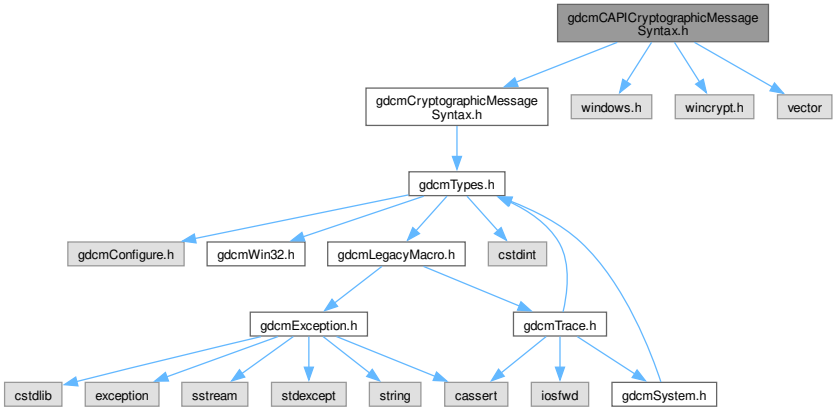
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCAPICRYPTOFACTORY_H
00015 #define GDCMCAPICRYPTOFACTORY_H
00016
00017 #include "gdcmCryptoFactory.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class GDCM_EXPORT CAPICryptoFactory : public CryptoFactory
00023 {
00024 public:
00025   CAPICryptoFactory(CryptoLib id);
00026   CryptographicMessageSyntax* CreateCMSProvider();
00027
00028 private:
00029   CAPICryptoFactory() {}
00030 };
00031
00032 } // end namespace gdcm
00033
00034 #endif //GDCMCAPICRYPTOFACTORY_H
```

13.13 gdcmCAPICryptographicMessageSyntax.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include <windows.h>
#include <wincrypt.h>
#include <vector>
```

Include dependency graph for gdcmCAPICryptographicMessageSyntax.h:



Classes

- class gdcm::CAPICryptographicMessageSyntax

Namespaces

- namespace gdcm

13.14 gdcmCAPICryptographicMessageSyntax.h

Go to the documentation of this file.

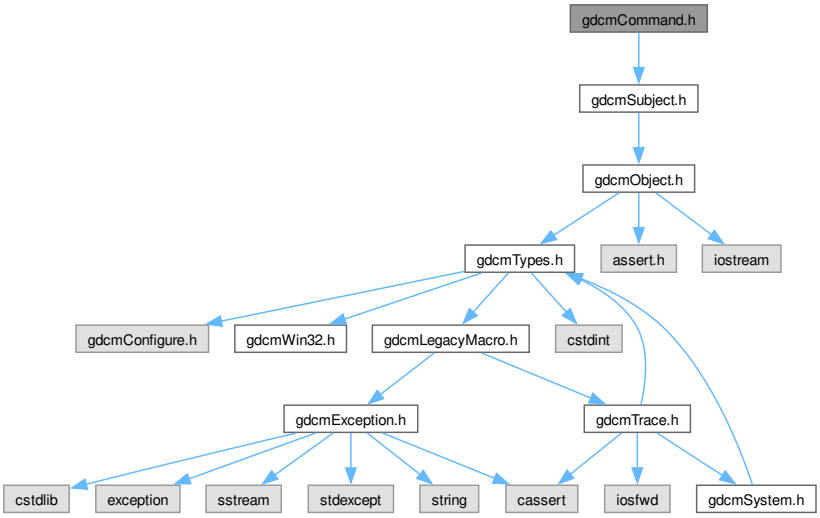
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCAPICRYPTOGRAPHICMESSAGESYNTAX_H
00015 #define GDCMCAPICRYPTOGRAPHICMESSAGESYNTAX_H
00016
00017 #include "gdcmCryptographicMessageSyntax.h"
00018 #include <windows.h>
00019 #include <wincrypt.h>
00020 #include <vector>
00021
00022 namespace gdcm
00023 {
00024
00025 class GDCM_EXPORT CAPICryptographicMessageSyntax : public CryptographicMessageSyntax
00026 {
00027 public:
```

```
00028   CAPICryptographicMessageSyntax();
00029   ~CAPICryptographicMessageSyntax();
00030
00031   // X.509
00032   bool ParseCertificateFile( const char *filename );
00033   bool ParseKeyFile( const char *filename );
00034
00035   // PBE
00036   bool SetPassword(const char * pass, size_t passLen);
00037
00038   void SetCipherType(CipherTypes type);
00039
00040   CipherTypes GetCipherType() const;
00041
00043   bool Encrypt(char *output, size_t &outlen, const char *array, size_t len) const;
00045   bool Decrypt(char *output, size_t &outlen, const char *array, size_t len) const;
00046
00047   bool GetInitialized() const
00048   {
00049     return initialized;
00050   }
00051
00052 private:
00053   bool Initialize();
00054   static ALG_ID GetAlgIdByObjId(const char * pszObjId);
00055   const char *GetCipherObjId() const;
00056   static void ReverseBytes(unsigned char* data, DWORD len);
00057   static bool LoadFile(const char * filename, unsigned char* & buffer, DWORD & bufLen);
00058
00059 private:
00060   bool initialized;
00061   HCRYPTPROV hProv;
00062   std::vector<PCCERT_CONTEXT> certifList;
00063   HCRYPTKEY hRsaPrivK;
00064   CipherTypes cipherType;
00065 };
00066
00067 } // end namespace gdcm
00068
00069 #endif //GDCMCAPICRYPTOGRAPHICMESSAGESYNTAX_H
```

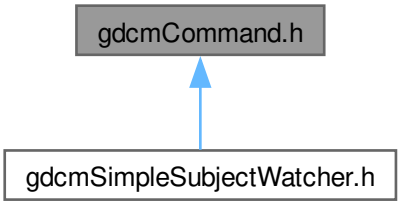
13.15 gdcmCommand.h File Reference

```
#include "gdcmSubject.h"
```

Include dependency graph for gdcmCommand.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Command

  Command superclass for callback/observer methods.
- class gdcm::MemberCommand< T >

  Command subclass that calls a pointer to a member function.
- class gdcm::SimpleMemberCommand< T >

  Command subclass that calls a pointer to a member function.

Namespaces

- namespace gdcm

13.16 gdcmCommand.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCOMMAND_H
00015 #define GDCMCOMMAND_H
00016
00017 #include "gdcmSubject.h"
00018
00019 namespace gdcm
00020 {
00021 class Event;
00022
00027 class GDCM_EXPORT Command : public Subject
00028 {
00029 public :
00030   Command(const Command&) = delete;
00031   void operator=(const Command&) = delete;
00032
00034   virtual void Execute(Subject *caller, const Event & event ) = 0;
00035
00040   virtual void Execute(const Subject *caller, const Event & event ) = 0;
00041
00042 protected:
00043   Command();
00044   ~Command() override;
00045 };
00046
00054 template <class T>
00055 class MemberCommand : public Command
00056 {
00057 public:
00058
00060   typedef  void (T::*TMemberFunctionPointer)(Subject*, const Event &);
00061   typedef  void (T::*TConstMemberFunctionPointer)(const Subject*,
00062                                                   const Event &);
00063
00065   typedef MemberCommand       Self;
00066   //typedef SmartPointer<Self>  Pointer;
00067
00068   MemberCommand(const Self&) = delete;
00069   void operator=(const Self&) = delete;
00070
00072   static SmartPointer<MemberCommand> New()
00073     {
00074     return new MemberCommand;
00075     }
00076
00078   //gdcmTypeMacro(MemberCommand,Command);
00079
00082   void SetCallbackFunction(T* object,
00083                            TMemberFunctionPointer memberFunction)
00084     {
00085     m_This = object;
00086     m_MemberFunction = memberFunction;
00087     }
00088   void SetCallbackFunction(T* object,
```

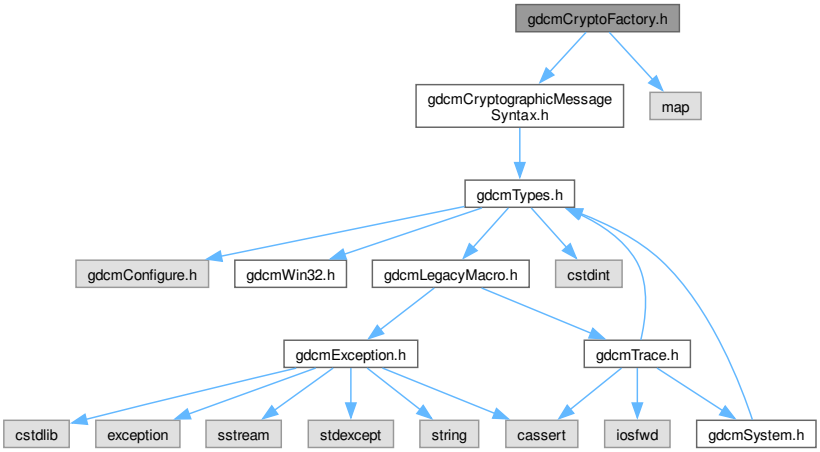
```
00089                           TConstMemberFunctionPointer memberFunction)
00090     {
00091     m_This = object;
00092     m_ConstMemberFunction = memberFunction;
00093     }
00094
00096   void Execute(Subject *caller, const Event & event ) override
00097     {
00098     if( m_MemberFunction )
00099       {
00100       ((*m_This).*(m_MemberFunction))(caller, event);
00101       }
00102     }
00103
00105   void Execute( const Subject *caller, const Event & event ) override
00106     {
00107     if( m_ConstMemberFunction )
00108       {
00109       ((*m_This).*(m_ConstMemberFunction))(caller, event);
00110       }
00111     }
00112
00113 protected:
00114
00115   T* m_This;
00116   TMemberFunctionPointer m_MemberFunction;
00117   TConstMemberFunctionPointer m_ConstMemberFunction;
00118   MemberCommand():m_This(nullptr),m_MemberFunction(nullptr),m_ConstMemberFunction(nullptr) {}
00119   ~MemberCommand() override= default;
00120
00121 };
00122
00129 template <typename T>
00130 class SimpleMemberCommand : public Command
00131 {
00132 public:
00133
00135   typedef  void (T::*TMemberFunctionPointer)();
00136
00138   typedef SimpleMemberCommand   Self;
00139   //typedef SmartPointer<Self>    Pointer;
00140
00141   SimpleMemberCommand(const Self&) = delete;
00142   void operator=(const Self&) = delete;
00143
00145   //gdcmTypeMacro(SimpleMemberCommand,Command);
00146
00148   static SmartPointer<SimpleMemberCommand> New()
00149     {
00150     return new SimpleMemberCommand;
00151     }
00152
00154   void SetCallbackFunction(T* object,
00155                            TMemberFunctionPointer memberFunction)
00156     {
00157     m_This = object;
00158     m_MemberFunction = memberFunction;
00159     }
00160
00162   void Execute(Subject *,const Event & ) override
00163     {
00164     if( m_MemberFunction )
00165       {
00166       ((*m_This).*(m_MemberFunction))();
00167       }
00168     }
00169   void Execute(const Subject *,const Event & ) override
00170     {
00171     if( m_MemberFunction )
00172       {
00173       ((*m_This).*(m_MemberFunction))();
00174       }
00175     }
00176
00177 protected:
00178   T* m_This;
00179   TMemberFunctionPointer m_MemberFunction;
00180   SimpleMemberCommand():m_This(nullptr),m_MemberFunction(nullptr) {}
00181   ~SimpleMemberCommand() override = default;
00182 };
00183
```

```
00184 } // end namespace gdcm
00185 //-----------------------------------------------------------------------------
00186 #endif //GDCMCOMMAND_H
```

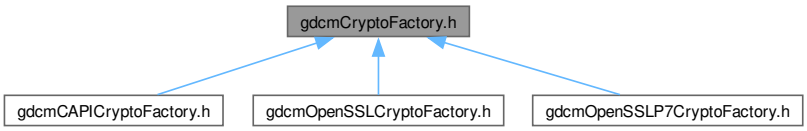
13.17 gdcmCryptoFactory.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include <map>
```

Include dependency graph for gdcmCryptoFactory.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CryptoFactory

  Class to do handle the crypto factory.

Namespaces

- namespace gdcm

13.18 gdcmCryptoFactory.h

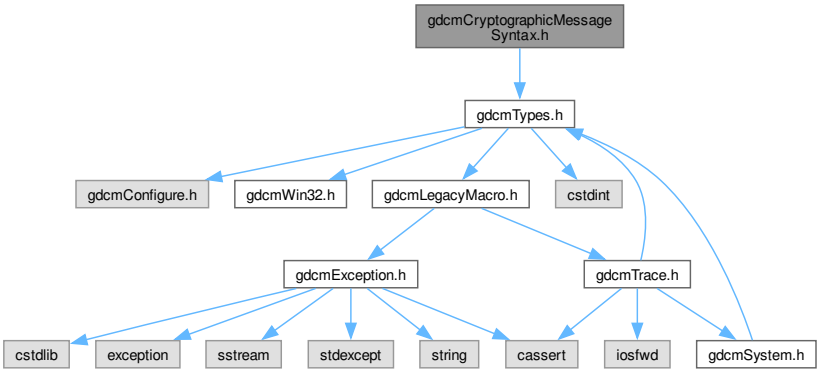
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCRYPTOFACTORY_H
00015 #define GDCMCRYPTOFACTORY_H
00016
00017 #include "gdcmCryptographicMessageSyntax.h"
00018 #include <map>
00019
00020 namespace gdcm
00021 {
00022
00035 class GDCM_EXPORT CryptoFactory
00036 {
00037 public:
00038   enum CryptoLib {DEFAULT = 0, OPENSSL = 1, CAPI = 2, OPENSSLP7 = 3};
00039
00040   virtual CryptographicMessageSyntax* CreateCMSProvider() = 0;
00041   static CryptoFactory* GetFactoryInstance(CryptoLib id = DEFAULT);
00042
00043 protected:
00044   CryptoFactory(CryptoLib id)
00045   {
00046     AddLib(id, this);
00047   }
00048
00049 private:
00050   static std::map<CryptoLib, CryptoFactory*>& getInstanceMap()
00051   {
00052     static std::map<CryptoLib, CryptoFactory*> libs;
00053     return libs;
00054   }
00055
00056   static void AddLib(CryptoLib id, CryptoFactory* f)
00057   {
00058     if (getInstanceMap().insert(std::pair<CryptoLib, CryptoFactory*>(id, f)).second == false)
00059       {
00060       gdcmErrorMacro( "Library already registered under id " « (int)id );
00061       }
00062   }
00063
00064 protected:
00065   CryptoFactory()= default;
00066   ~CryptoFactory()= default;
00067 };
00068
00069 } // end namespace gdcm
00070
00071 #endif // GDCMCRYPTOFACTORY_H
```

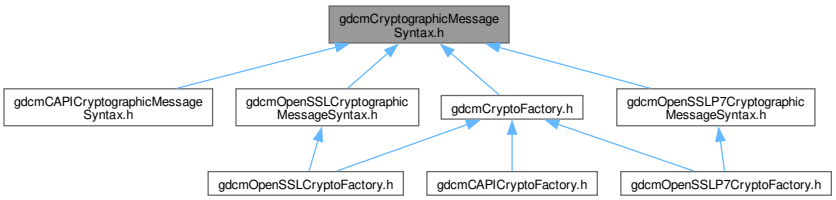
13.19 gdcmCryptographicMessageSyntax.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmCryptographicMessageSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CryptographicMessageSyntax

Namespaces

- namespace gdcm

13.20 gdcmCryptographicMessageSyntax.h

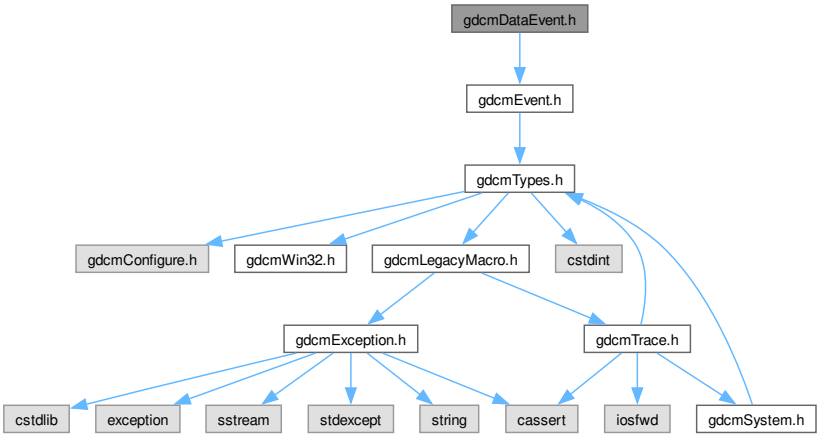
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCRYPTOGRAPHICMESSAGESYNTAX_H
00015 #define GDCMCRYPTOGRAPHICMESSAGESYNTAX_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class GDCM_EXPORT CryptographicMessageSyntax
00023 {
00024 public:
00025   CryptographicMessageSyntax() = default;
00026
00027   virtual ~CryptographicMessageSyntax() = default;
00028   CryptographicMessageSyntax(const CryptographicMessageSyntax&) = delete;
00029   void operator=(const CryptographicMessageSyntax&) = delete;
00030
00031   typedef enum {
00032     DES3_CIPHER,   // Triple DES
00033     AES128_CIPHER, // CBC AES
00034     AES192_CIPHER, // '   '
00035     AES256_CIPHER  // '   '
00036   } CipherTypes;
00037
00038     // X.509
00039   virtual bool ParseCertificateFile( const char *filename ) = 0;
00040   virtual bool ParseKeyFile( const char *filename ) = 0;
00041
00042   // PBE
00043   virtual bool SetPassword(const char * pass, size_t passLen) = 0;
00044
00046   virtual bool Encrypt(char *output, size_t &outlen, const char *array, size_t len) const = 0;
00048   virtual bool Decrypt(char *output, size_t &outlen, const char *array, size_t len) const = 0;
00049
00050   virtual void SetCipherType(CipherTypes type) = 0;
00051
00052   virtual CipherTypes GetCipherType() const = 0;
00053 };
00054
00055 } // end namespace gdcm
00056
00057 #endif //GDCMCRYPTOGRAPHICMESSAGESYNTAX_H
```

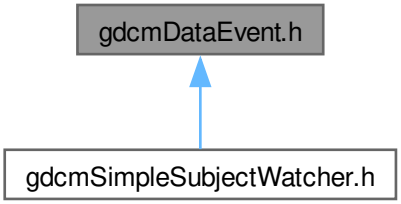
13.21 gdcmDataEvent.h File Reference

```
#include "gdcmEvent.h"
```

Include dependency graph for gdcmDataEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::DataEvent

  DataEvent.

Namespaces

- namespace gdcm

13.22 gdcmDataEvent.h

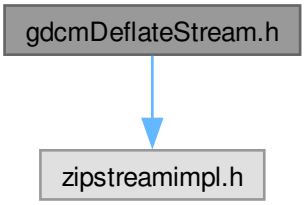
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDATAEVENT_H
00015 #define GDCMDATAEVENT_H
00016
00017 #include "gdcmEvent.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class DataEvent : public AnyEvent
00026 {
00027 public:
00028   typedef DataEvent Self;
00029   typedef AnyEvent Superclass;
00030   DataEvent(const char *bytes = nullptr, size_t len = 0):Bytes(bytes),Length(len) {}
00031   ~DataEvent() override = default;
00032   DataEvent(const Self&s) : AnyEvent(s), Bytes(nullptr), Length(0) {}
00033   void operator=(const Self&) = delete;
00034
00035   const char * GetEventName() const override { return "DataEvent"; }
00036   bool CheckEvent(const ::gdcm::Event* e) const override
00037   { return (dynamic_cast<const Self*>(e) == nullptr ? false : true) ; }
00038   ::gdcm::Event* MakeObject() const override
00039     { return new Self; }
00040
00041   void SetData(const char *bytes, size_t len) {
00042     Bytes = bytes;
00043     Length = len;
00044   }
00045   size_t GetDataLength() const { return Length; }
00046   const char *GetData() const { return Bytes; }
00047
00048   //std::string GetValueAsString() const { return; }
00049
00050 private:
00051   const char *Bytes;
00052   size_t Length;
00053 };
00054
00055
00056 } // end namespace gdcm
00057
00058 #endif //GDCMDATAEVENT_H
```

13.23 gdcmDeflateStream.h File Reference

```
#include "zipstreamimpl.h"
```

Include dependency graph for gdcmDeflateStream.h:



13.24 gdcmDeflateStream.h

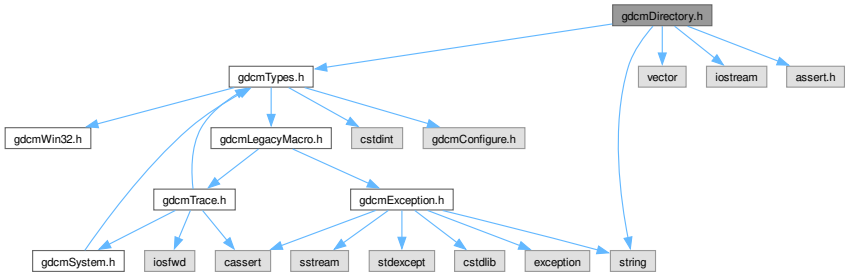
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDEFLATESTREAM_H
00015 #define GDCMDEFLATESTREAM_H
00016
00017 #include "zipstreamimpl.h"
00018
00019 #endif //GDCMDEFLATESTREAM_H
```

13.25 gdcmDirectory.h File Reference

```
#include "gdcmTypes.h"
#include <string>
#include <vector>
#include <iostream>
```

`#include <assert.h>`
Include dependency graph for gdcmDirectory.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Directory

  Class for manipulation directories.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Directory &d)

13.26 gdcmDirectory.h

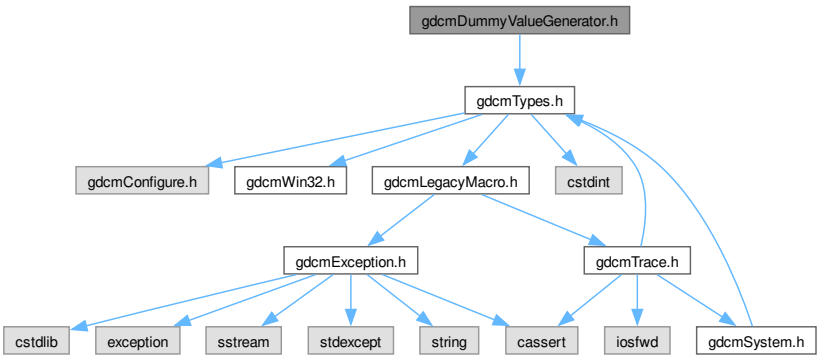
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
```

```
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDIRECTORY_H
00015 #define GDCMDIRECTORY_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <string>
00020 #include <vector>
00021 #include <iostream>
00022 #include <assert.h>
00023
00024 namespace gdcm
00025 {
00041 //-----------------------------------------------------------------------------
00042 class GDCM_EXPORT Directory
00043 {
00044   friend std::ostream& operator<<(std::ostream &_os, const Directory &d);
00045 public :
00046   Directory() = default;
00047   ~Directory() = default;
00048   typedef std::string FilenameType;
00049   typedef std::vector<FilenameType> FilenamesType;
00050
00052   void Print(std::ostream &os = std::cout) const;
00053
00055   FilenameType const &GetToplevel() const { return Toplevel; }
00056
00058   FilenamesType const &GetFilenames() const {
00059     gdcm_assert( !(Toplevel.empty()) && "Need to call Explore first" );
00060     return Filenames; }
00061
00063   FilenamesType const &GetDirectories() const { return Directories; }
00064
00067   unsigned int Load(FilenameType const &name, bool recursive = false);
00068
00069   // \todo later: GLOB
00070   // The glob() function searches for all the pathnames matching pattern according to
00071   // the rules used by the shell (see glob(7)).  No tilde expansion or parameter
00072   // substitution is done; if you want these, use wordexp(3).
00073   // int Glob(...);
00074
00075 protected:
00077   unsigned int Explore(FilenameType const &name, bool recursive);
00078
00079 private :
00081   FilenamesType Filenames;
00082   FilenamesType Directories;
00083
00085   FilenameType Toplevel;
00086 };
00087 //-----------------------------------------------------------------------------
00088 inline std::ostream& operator<<(std::ostream &os, const Directory &d)
00089 {
00090   d.Print( os );
00091   return os;
00092 }
00093
00094 } // end namespace gdcm
00095 //-----------------------------------------------------------------------------
00096 #endif //GDCMDIRECTORY_H
```

13.27 gdcmDummyValueGenerator.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmDummyValueGenerator.h:



Classes

- class gdcm::DummyValueGenerator

  Class for generating dummy value.

Namespaces

- namespace gdcm

13.28 gdcmDummyValueGenerator.h

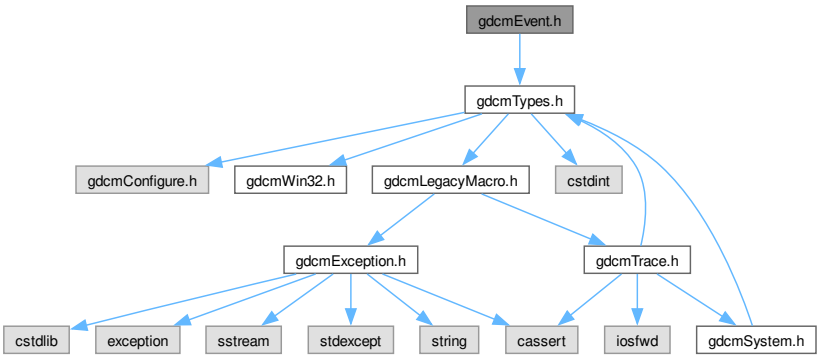
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDUMMYVALUEGENERATOR_H
00015 #define GDCMDUMMYVALUEGENERATOR_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
```

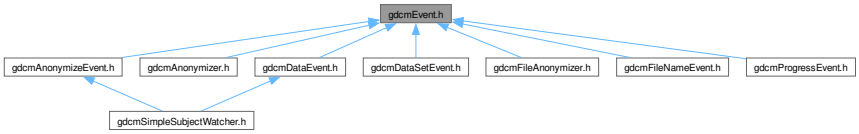
```
00026 class GDCM_EXPORT DummyValueGenerator
00027 {
00028 public:
00029
00035   static const char* Generate(const char *input);
00036
00037 private:
00038 };
00039
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMDUMMYVALUEGENERATOR_H
```

13.29 gdcmEvent.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::AbortEvent
- class gdcm::AnyEvent
- class gdcm::EndEvent
- class gdcm::Event

  superclass for callback/observer methods

- class gdcm::ExitEvent
- class gdcm::InitializeEvent
- class gdcm::IterationEvent
- class gdcm::ModifiedEvent
- class gdcm::NoEvent
- class gdcm::StartEvent
- class gdcm::UserEvent

Namespaces

- namespace gdcm

Macros

- #define gdcmEventMacro(classname, super)

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Event &e)

  Generic inserter operator for Event and its subclasses.

13.29.1 Macro Definition Documentation

13.29.1.1 gdcmEventMacro

```
#define gdcmEventMacro(
              classname,
              super)
```

Value:

```
  \
class  classname : public super { \
  public: \
    typedef classname Self; \
    typedef super Superclass; \
    classname() {} \
    virtual ~classname() override = default; \
    virtual const char * GetEventName() const override { return #classname; } \
    virtual bool CheckEvent(const ::gdcm::Event* e) const override \
      { return dynamic_cast<const Self*>(e) ? true : false; } \
    virtual ::gdcm::Event* MakeObject() const override \
      { return new Self; } \
    classname(const Self&s) : super(s){} \
  private: \
    void operator=(const Self&); \
}
```

13.30 gdcmEvent.h

Go to the documentation of this file.

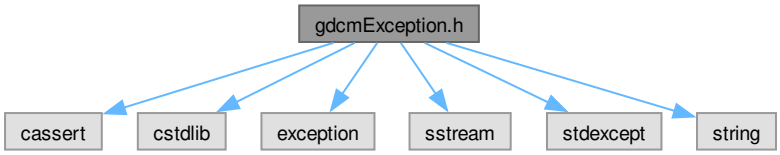
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMEVENT_H
00015 #define GDCMEVENT_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021 //-----------------------------------------------------------------------------
00026 class GDCM_EXPORT Event
00027 {
00028 public :
00029   Event();
00030   virtual ~Event();
00031   Event(const Event&);
00032   void operator=(const Event&) = delete;
00033
00036   virtual Event* MakeObject() const = 0;
00037
00041   virtual void Print(std::ostream& os) const;
00042
00044   virtual const char * GetEventName() const = 0;
00045
00047   virtual bool CheckEvent(const Event*) const = 0;
00048
00049 };
00050
00052 inline std::ostream& operator<<(std::ostream& os, const Event &e)
00053 {
00054   e.Print(os);
00055   return os;
00056 }
00057
00058 /*
00059  *  Macro for creating new Events
00060  */
00061 #define gdcmEventMacro( classname , super ) \
00062   \
00063  class  classname : public super { \
00064    public: \
00065      typedef classname Self; \
00066      typedef super Superclass; \
00067      classname() {} \
00068      virtual ~classname() override = default; \
00069      virtual const char * GetEventName() const override { return #classname; } \
00070      virtual bool CheckEvent(const ::gdcm::Event* e) const override \
00071        { return dynamic_cast<const Self*>(e) ? true : false; } \
00072      virtual ::gdcm::Event* MakeObject() const override \
00073        { return new Self; } \
00074      classname(const Self&s) : super(s){} \
00075    private: \
00076      void operator=(const Self&); \
00077  }
00078
00082 gdcmEventMacro( NoEvent            , Event );
00083 gdcmEventMacro( AnyEvent           , Event );
00084 gdcmEventMacro( StartEvent         , AnyEvent );
00085 gdcmEventMacro( EndEvent           , AnyEvent );
00086 //gdcmEventMacro( ProgressEvent      , AnyEvent );
00087 gdcmEventMacro( ExitEvent          , AnyEvent );
00088 gdcmEventMacro( AbortEvent         , AnyEvent );
00089 gdcmEventMacro( ModifiedEvent      , AnyEvent );
00090 gdcmEventMacro( InitializeEvent    , AnyEvent );
```

```
00091 gdcmEventMacro( IterationEvent     , AnyEvent );
00092 //gdcmEventMacro( AnonymizeEvent     , AnyEvent );
00093 gdcmEventMacro( UserEvent          , AnyEvent );
00094
00095
00096 } // end namespace gdcm
00097 //-----------------------------------------------------------------------------
00098 #endif //GDCMEVENT_H
```

13.31 gdcmException.h File Reference

```
#include <cassert>
#include <cstdlib>
#include <exception>
#include <sstream>
#include <stdexcept>
#include <string>
```

Include dependency graph for gdcmException.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Exception
  Exception.

Namespaces

- namespace gdcm

Macros

- #define gdcm_assert(cond)
- #define gdcm_debug_assert(cond)
- #define gdcm_forced_assert(cond)

13.31.1 Macro Definition Documentation

13.31.1.1 gdcm_assert

```
#define gdcm_assert(
                cond)
```

Value:

```
if (!(cond)) throw gdcm::Exception("An invalid logic behavior occurred" #cond, __FILE__ , __LINE__)
```

Examples

CStoreQtProgress.cxx, CheckBigEndianBug.cxx, DiscriminateVolume.cxx, DumpADAC.cxx, DumpExamCard.cxx, DumpGEMSMovieGroup.cxx, DumpImageHeaderInfo.cxx, DumpPhilipsECHO.cxx, DumpSiemensBase64.cxx, ELSCINT1WaveToText.cxx, ExtractIconFromFile.cxx, Extracting_All_Resolution.cxx, Fake_Image_Using_Stream_Image_Writer.cxx, GenAllVR.cxx, GenFakeIdentifyFile.cxx, GetSubSequenceData.cxx, LargeVRDSExplicit.cxx, ReadAndPrintAttributes.cxx, StreamImageReaderTest.cxx, VolumeSorter.cxx, and pmsct_rgb1.cxx.

Referenced by gdcm::network::AAssociateRQPDU::AAssociateRQPDU(), gdcm::CSAHeaderDict::CSAHeaderDict(), gdcm::Dict::Dict(), gdcm::LookupTable::LookupTable(), gdcm::CSAHeaderDict::AddCSAHeaderDictEntry(), gdcm::Dict::AddDictEntry(), gdcm::PrivateDict::AddDictEntry(), gdcm::Macros::AddMacro(), gdcm::Modules::AddModule(), gdcm::network::PDataTFPDU::AddPresent gdcm::Clamp(), gdcm::DataSet::Clear(), gdcm::DataSet::ComputeGroupLength(), gdcm::ByteBuffer::Get(), gdcm::Attribute< Group, Elem gdcm::Attribute< Group, Element, TVR, VM::VM1 >::GetAsDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetA gdcm::Element< TVR, TVM >::GetAsDataElement(), gdcm::Element< TVR, VM::VM1_n >::GetAsDataElement(), gdcm::PixelFormat::GetBitsStored(), gdcm::Pixmap::GetCurve(), gdcm::Pixmap::GetCurve(), gdcm::Dict::GetDictEntry(), gdcm::PrivateDict::GetDictEntry(), gdcm::Dict::GetDictEntryByKeyword(), gdcm::Dict::GetDictEntryByName(), gdcm::Directory::GetFilena gdcm::FilenameGenerator::GetFilenames(), gdcm::PixelFormat::GetHighBit(), gdcm::IODs::GetIOD(), gdcm::Dict::GetKeywordFromTag(), gdcm::DataSet::GetLength(), gdcm::Macros::GetMacro(), gdcm::network::PresentationDataValue::GetMessageHeader(), gdcm::Modules::GetModule(), gdcm::Pixmap::GetOverlay(), gdcm::Pixmap::GetOverlay(), gdcm::network::AAssociateRQPDU::GetPreser gdcm::network::AAssociateACPDU::GetPresentationContextAC(), gdcm::network::PDataTFPDU::GetPresentationDataValue(), gdcm::VR::GetSize(), gdcm::Table::GetTableEntry(), gdcm::Attribute< Group, Element, TVR, TVM >::GetValue(), gdcm::Attribute< Group, Element, TVR, TVM >::GetValue(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValue(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::GetValue(), gdcm::Element< TVR, TVM >::GetValue(), gdcm::Element< TVR, TVM >::GetValue(), gdcm::Element< TVR, VM::VM1_n >::GetValue(), gdcm::DataSet::InsertDataElement(), gdcm::Item::InsertDataElement(), gdcm::Table::InsertEntry(), gdcm::ByteValue::IsEmpty(), gdcm::ByteValue::IsPrintable(), gdcm::Scanner2::ltstr::operator()(), gdcm::Scanner::ltstr::operator()(), gdcm::StrictScanner2::ltstr::operator()(), gdcm::StrictScanner::ltstr::operator()(), gdcm::SmartPointer< Value >::operator*(), gdcm::BasicOffsetTable::operator<<, gdcm::CSAElement::operator<<, gdcm::File::operator<<, gdcm::VM::operator<<, gdcm::network::PresentationContextRQ::operator== gdcm::PresentationContext::operator==(), gdcm::Tag::operator[ ](), gdcm::Tag::operator[ ](), gdcm::ApplicationEntity::Print(), gdcm::Element< TVR, VM::VM1_n >::Print(), gdcm::SequenceOfFragments::Print(), gdcm::ByteValue::PrintGroupLength(), gdcm::BasicOffsetTable::Read(), gdcm::ByteValue::Read(), gdcm::EncodingImplementation< VR::VRASCII >::Read(), gdcm::EncodingImplementation< VR::VRBINARY >::Read(), gdcm::Item::Read(), gdcm::SequenceOfFragments::Read(), gdcm::SequenceOfItems::Read(), gdcm::VR::Read(), gdcm::VL::Read16(), gdcm::Fragment::ReadBacktrack(), gdcm::EncodingImplementation< VR::VRASCII >::ReadComputeLength(), gdcm::EncodingImplementation< VR::VRBINARY >::ReadC gdcm::EncodingImplementation< VR::VRBINARY >::ReadNoSwap(), gdcm::SequenceOfFragments::ReadValue(), gdcm::SurfaceHelper::RecommendedDisplayCIELabToRGB(), gdcm::Object::Register(), gdcm::DataSet::Remove(), gdcm::PrivateDict::RemoveDictEntry(), gdcm::Pixmap::RemoveOverlay(), gdcm::ImageChangePhotometricInterpretation::RGB2YBR(), gdcm::ImageChangePlanarConfiguration::RGBPixelsToRGBPlanes(), gdcm::ImageChangePlanarConfiguration::RGBPlanesToRGBPixels gdcm::SurfaceHelper::RGBToRecommendedDisplayCIELab(), gdcm::SurfaceHelper::RGBToRecommendedDisplayGrayscale(), gdcm::Element< TVR, VM::VM1_n >::Set(), gdcm::Element< TVR, VM::VM1_n >::SetArray(), gdcm::ApplicationEntity::SetBlob(), gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetByteValue(), gdcm::Attribute< Group, Element, TVR, TVM >::SetByteValueN

gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetByteValueNoSwap(), gdcm::PersonName::SetComponents(), gdcm::Attribute< Group, Element, TVR, TVM >::SetFromDataElement(), gdcm::Attribute< Group, Element, TVR, VM::VM1 >::SetFromD gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetFromDataElement(), gdcm::Element< TVR, VM::VM1_n >::SetLength(), gdcm::network::PresentationDataValue::SetMessageHeader(), gdcm::Element< TVR, TVM >::SetNoSwap(), gdcm::Element< TVR, VM gdcm::ImageCodec::SetPlanarConfiguration(), gdcm::network::PresentationDataValue::SetPresentationContextID(), gdcm::Tag::SetPrivateCreator(), gdcm::PixelFormat::SetSamplesPerPixel(), gdcm::Attribute< Group, Element, TVR, TVM >::SetValue(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValue(), gdcm::Element< TVR, TVM >::SetValue(), gdcm::Element< TVR, VM::VM1_n >::SetValue(), gdcm::Attribute< Group, Element, TVR, TVM >::SetValues(), gdcm::Attribute< Group, Element, TVR, VM::VM1_n >::SetValues(), gdcm::GroupDict::Size(), gdcm::Object::UnRegister(), gdcm::ByteValue::Write(), gdcm::EncodingImplementation< VR::VRASCII >::Write(), gdcm::EncodingImplementation< VR::VRASCII >: gdcm::EncodingImplementation< VR::VRBINARY >::Write(), gdcm::Fragment::Write(), gdcm::Item::Write(), gdcm::SequenceOfFragment gdcm::VR::Write(), gdcm::VL::Write16(), gdcm::ByteValue::WriteBuffer(), and gdcm::ImageChangePhotometricInterpretation::YBR2RGB()

13.31.1.2 gdcm_debug_assert

```
#define gdcm_debug_assert(
              cond)
```

Value:

```
gdcm_assert(cond)
```

13.31.1.3 gdcm_forced_assert

```
#define gdcm_forced_assert(
              cond)
```

Value:

```
assert(cond)
```

Referenced by gdcm::Object::~Object().

13.32 gdcmException.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMEXCEPTION_H
00015 #define GDCMEXCEPTION_H
00016
00017 #include <cassert>
00018 #include <cstdlib> // NULL
00019 #include <exception>
00020 #include <sstream> // ostringstream
00021 #include <stdexcept> // logic_error
```

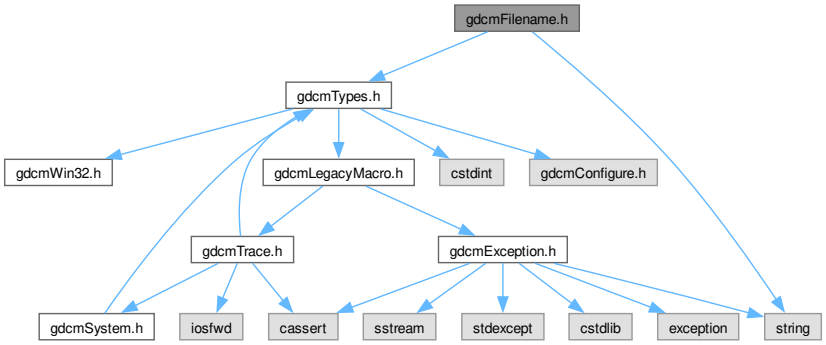
```
00022 #include <string>
00023
00024 // Disable clang warning "dynamic exception specifications are deprecated".
00025 // We need to be C++03 and C++11 compatible, and if we remove the 'throw()'
00026 // specifier we'll get an error in C++03 by not matching the superclass.
00027 #if defined(__clang__) && defined(__has_warning)
00028 # if __has_warning("-Wdeprecated")
00029 #  pragma clang diagnostic push
00030 #  pragma clang diagnostic ignored "-Wdeprecated"
00031 # endif
00032 #endif
00033
00034 #define gdcm_forced_assert(cond) assert(cond)
00035
00036 namespace gdcm
00037 {
00038
00045 class Exception : public std::exception
00046 {
00051   typedef std::logic_error StringHolder;
00052
00054   static StringHolder CreateWhat(const char* const desc,
00055                                  const char* const file,
00056                                  const unsigned int lineNumber,
00057                                  const char* const func)
00058   {
00059     gdcm_forced_assert(desc != nullptr);
00060     gdcm_forced_assert(file != nullptr);
00061     gdcm_forced_assert(func != nullptr);
00062     std::ostringstream oswhat;
00063     oswhat « file « ":" « lineNumber « " (" « func « "):\n";
00064     oswhat « desc;
00065     return StringHolder( oswhat.str() );
00066   }
00067
00068 public:
00074   explicit Exception(const char *desc = "None",
00075             const char *file = __FILE__,
00076             unsigned int lineNumber = __LINE__,
00077             // FIXME:  __PRETTY_FUNCTION__ is the non-mangled version for __GNUC__ compiler
00078             const char *func = "" /*__FUNCTION__*/)
00079   :
00080   What( CreateWhat(desc, file, lineNumber, func) ),
00081   Description(desc)
00082   {
00083   }
00084
00085   ~Exception() throw() override {}
00086
00088   const char* what() const throw() override
00089     {
00090     return What.what();
00091     }
00092
00094   const char * GetDescription() const { return Description.what(); }
00095
00096 private:
00097   StringHolder  What;
00098   StringHolder  Description;
00099 };
00100
00101 } // end namespace gdcm
00102
00103 // Always defined
00104 #define gdcm_assert(cond) \
00105   if (!(cond)) throw gdcm::Exception("An invalid logic behavior occurred" #cond, __FILE__ , __LINE__)
00106
00107 /* Asserts that should only exist in debug builds. */
00108 #ifndef NDEBUG // checks in debug builds and elision in release builds (like assert)
00109 #define gdcm_debug_assert(cond) gdcm_assert(cond)
00110 #else
00111 #define gdcm_debug_assert(cond) ((void)0)
00112 #endif
00113
00114 // Undo warning suppression.
00115 #if defined(__clang__) && defined(__has_warning)
00116 # if __has_warning("-Wdeprecated")
00117 #  pragma clang diagnostic pop
00118 # endif
00119 #endif
00120
```

```
00121 #endif
```

13.33 gdcmFilename.h File Reference

```
#include "gdcmTypes.h"
#include <string>
```

Include dependency graph for gdcmFilename.h:



Classes

- class gdcm::Filename

  Class to manipulate file name's.

Namespaces

- namespace gdcm

13.34 gdcmFilename.h

Go to the documentation of this file.

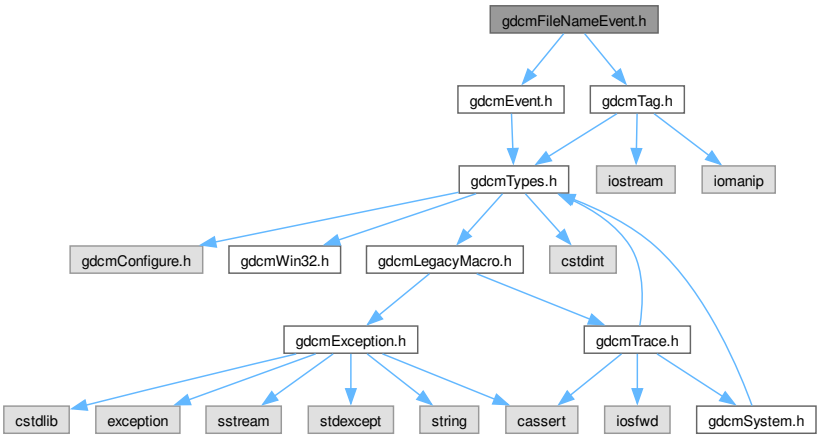
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILENAME_H
00015 #define GDCMFILENAME_H
```

```
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <string>
00020
00021 namespace gdcm
00022 {
00027 class GDCM_EXPORT Filename
00028 {
00029 public:
00030   Filename(const char* filename = ""):FileName(filename ? filename : ""),Path(),Conversion() {}
00031
00033   const char *GetFileName() const { return FileName.c_str(); }
00035   const char *GetPath();
00037   const char *GetName();
00039   const char *GetExtension();
00041   const char *ToUnixSlashes();
00043   const char *ToWindowsSlashes();
00044
00047   static const char *Join(const char *path, const char *filename);
00048
00050   bool IsEmpty() const { return FileName.empty(); }
00051
00055   operator const char * () const { return GetFileName(); }
00056
00057   // FIXME: I don't like this function
00058   // It hides the realpath call (maybe useful)
00059   // and it forces file to exist on the disk whereas Filename
00060   // should be independent from file existence.
00061   bool IsIdentical(Filename const &fn) const;
00062
00064   bool EndWith(const char ending[]) const;
00065
00066 private:
00067   std::string FileName;
00068   std::string Path;
00069   std::string Conversion;
00070 };
00071
00072 } // end namespace gdcm
00073
00074 #endif //GDCMFILENAME_H
```

13.35 gdcmFileNameEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmFileNameEvent.h:



Classes

- class gdcm::FileNameEvent

  FileNameEvent.

Namespaces

- namespace gdcm

13.36 gdcmFileNameEvent.h

Go to the documentation of this file.

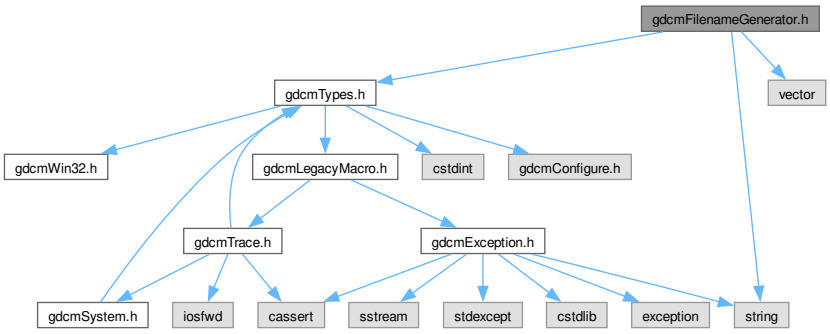
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILENAMEEVENT_H
00015 #define GDCMFILENAMEEVENT_H
00016
00017 #include "gdcmEvent.h"
00018 #include "gdcmTag.h"
00019
00020 namespace gdcm
00021 {
00022
00029 class FileNameEvent : public AnyEvent
```

```
00030 {
00031 public:
00032   typedef FileNameEvent Self;
00033   typedef AnyEvent Superclass;
00034   FileNameEvent(const char *s = ""):m_FileName(s) {}
00035   ~FileNameEvent() override = default;
00036
00037   FileNameEvent(const Self&s) : AnyEvent(s){}
00038   void operator=(const Self&) = delete;
00039
00040
00041   const char * GetEventName() const override { return "FileNameEvent"; }
00042   bool CheckEvent(const ::gdcm::Event* e) const override
00043     { return dynamic_cast<const Self*>(e) ? true : false; }
00044   ::gdcm::Event* MakeObject() const override
00045     { return new Self; }
00046
00047   void SetFileName(const char *f) { m_FileName = f; }
00048   const char *GetFileName() const { return m_FileName.c_str(); }
00049 private:
00050   std::string m_FileName;
00051 };
00052
00053
00054 } // end namespace gdcm
00055
00056 #endif //GDCMFILENAMEEVENT_H
```

13.37 gdcmFilenameGenerator.h File Reference

```
#include "gdcmTypes.h"
#include <string>
#include <vector>
```

Include dependency graph for gdcmFilenameGenerator.h:



Classes

- class gdcm::FilenameGenerator

  FilenameGenerator.

Namespaces

- namespace gdcm

13.38 gdcmFilenameGenerator.h

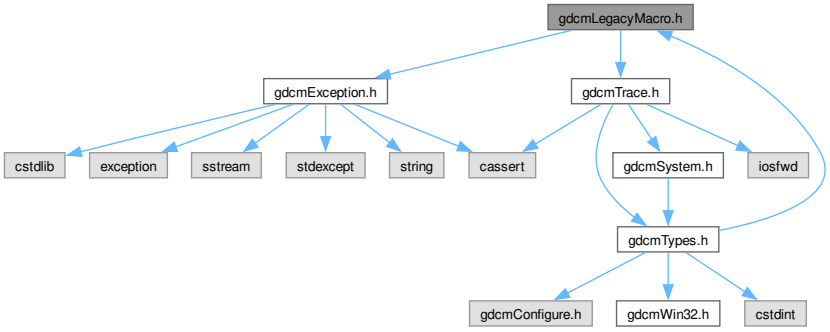
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILENAMEGENERATOR_H
00015 #define GDCMFILENAMEGENERATOR_H
00016
00017 #include "gdcmTypes.h"
00018 #include <string>
00019 #include <vector>
00020
00021
00022 namespace gdcm
00023 {
00035
00036 class GDCM_EXPORT FilenameGenerator
00037 {
00038 public:
00039   FilenameGenerator():Pattern(),Prefix(),Filenames() {}
00040   ~FilenameGenerator() = default;
00041   // FIXME: already defines in gdcm::Directory
00042   typedef std::string FilenameType;
00043   typedef std::vector<FilenameType> FilenamesType;
00044   typedef FilenamesType::size_type  SizeType;
00045
00047   void SetPattern(const char *pattern) { Pattern = pattern; }
00048   const char *GetPattern() const { return Pattern.c_str(); }
00049
00051   void SetPrefix(const char *prefix) { Prefix = prefix; }
00052   const char *GetPrefix() const { return Prefix.c_str(); }
00053
00055   bool Generate();
00056
00058   void SetNumberOfFilenames(SizeType nfiles);
00059   SizeType GetNumberOfFilenames() const;
00060
00062   const char * GetFilename(SizeType n) const;
00063
00065   FilenamesType const & GetFilenames() const { gdcm_assert( !Pattern.empty() ); return Filenames; }
00066
00067 private:
00068   FilenameType Pattern;
00069   FilenameType Prefix;
00070   FilenamesType Filenames;
00071 };
00072
00073 } // end namespace gdcm
00074
00075 #endif //GDCMFILENAMEGENERATOR_H
```

13.39 gdcmLegacyMacro.h File Reference

```
#include "gdcmException.h"
#include "gdcmTrace.h"
```

Include dependency graph for gdcmLegacyMacro.h:



This graph shows which files directly or indirectly include this file:

Macros

- #define GDCM_LEGACY(method)
- #define GDCM_LEGACY_BODY(method, version)
- #define GDCM_LEGACY_REPLACED_BODY(method, version, replace)
- #define GDCM_NOOP_STATEMENT static_assert(true, "")

13.39.1 Macro Definition Documentation

13.39.1.1 GDCM_LEGACY

```
#define GDCM_LEGACY(
              method)
```

Value:

```
method;
```

13.39.1.2 GDCM_LEGACY_BODY

```
#define GDCM_LEGACY_BODY(
              method,
              version)
```

Value:

```
gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version.")
```

13.39.1.3 GDCM_LEGACY_REPLACED_BODY

```
#define GDCM_LEGACY_REPLACED_BODY(
              method,
              version,
              replace)
```

Value:

```
gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version.  Use "
      #replace " instead.")
```

13.39.1.4 GDCM_NOOP_STATEMENT

```
#define GDCM_NOOP_STATEMENT static_assert(true, "")
```

The `static_assert(true, "")` idiom is commonly employed for C++11 or greater to ensure that it is compile-time only check that can not be part of the binary file. This allows a macro to be used anywhere that a statement is expected, and to enforce consistent use of ; after a macro. The static_assert is a constexpr that can be used in places where raw statements (i.e. 'do{} while(0)') are not allowed (i.e. after class member function definitions).

13.40 gdcmLegacyMacro.h

Go to the documentation of this file.

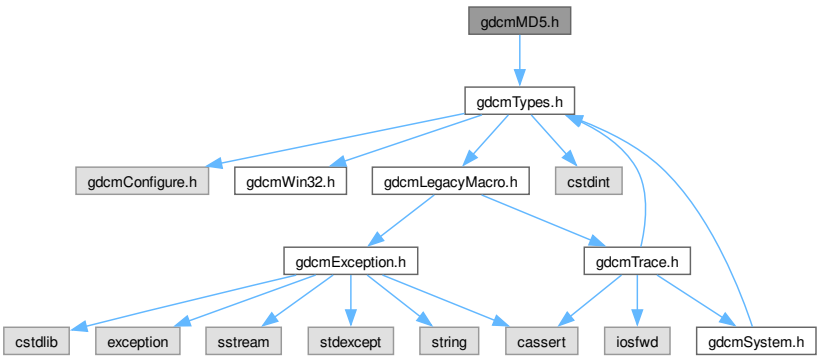
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMLEGACYMACRO_H
00015 #define GDCMLEGACYMACRO_H
00016
00017 #if !defined(GDCMTYPES_H) && !defined(SWIG)
00018 #error you need to include gdcmTypes.h instead
00019 #endif
00020
00021 #include "gdcmException.h"
00022
00023 //-----------------------------------------------------------------------------
00024 // Setup legacy code policy.
00025
00026 // Define GDCM_LEGACY macro to mark legacy methods where they are
00027 // declared in their class.  Example usage:
00028 //
00029 //   // @deprecated Replaced by MyOtherMethod() as of GDCM 2.0.
00030 //   GDCM_LEGACY(void MyMethod());
00031 #if defined(GDCM_LEGACY_REMOVE)
00032 # define GDCM_LEGACY(method)
00033 #elif defined(GDCM_LEGACY_SILENT) || defined(SWIG)
00034   // Provide legacy methods with no warnings.
00035 # define GDCM_LEGACY(method) method;
00036 #else
00037   // Setup compile-time warnings for uses of deprecated methods if
00038   // possible on this compiler.
00039 # if defined(__GNUC__) && !defined(__INTEL_COMPILER) && (__GNUC__ > 3 || (__GNUC__ == 3 && __GNUC_MINOR__
      >= 1))
```

```
00040 #  define GDCM_LEGACY(method) method __attribute__((deprecated));
00041 # elif defined(_MSC_VER) && _MSC_VER >= 1300
00042 #  define GDCM_LEGACY(method) __declspec(deprecated) method;
00043 # else
00044 #  define GDCM_LEGACY(method) method;
00045 # endif
00046 #endif
00047
00057 #  define GDCM_NOOP_STATEMENT static_assert(true, "")
00058
00059 // Macros to create runtime deprecation warning messages in function
00060 // bodies.  Example usage:
00061 //
00062 //   #if !defined(GDCM_LEGACY_REMOVE)
00063 //   void gdcm::MyClass::MyOldMethod()
00064 //   {
00065 //     GDCM_LEGACY_BODY(gdcm::MyClass::MyOldMethod, "GDCM 2.0");
00066 //   }
00067 //   #endif
00068 //
00069 //   #if !defined(GDCM_LEGACY_REMOVE)
00070 //   void gdcm::MyClass::MyMethod()
00071 //   {
00072 //     GDCM_LEGACY_REPLACED_BODY(gdcm::MyClass::MyMethod, "GDCM 2.0",
00073 //                               gdcm::MyClass::MyOtherMethod);
00074 //   }
00075 //   #endif
00076 #if defined(GDCM_LEGACY_REMOVE) || defined(GDCM_LEGACY_SILENT)
00077 # define GDCM_LEGACY_BODY(method, version)
00078 # define GDCM_LEGACY_REPLACED_BODY(method, version, replace)
00079 #else
00080 # define GDCM_LEGACY_BODY(method, version) \
00081   gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version.")
00082 # define GDCM_LEGACY_REPLACED_BODY(method, version, replace) \
00083   gdcmWarningMacro(#method " was deprecated for " version " and will be removed in a future version.  Use
     " #replace " instead.")
00084 #endif
00085
00086 #include "gdcmTrace.h"
00087
00088 #endif // GDCMLEGACYMACRO_H
```

13.41 gdcmMD5.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmMD5.h:



Classes

- class gdcm::MD5

  Class for MD5.

Namespaces

- namespace gdcm

13.42 gdcmMD5.h

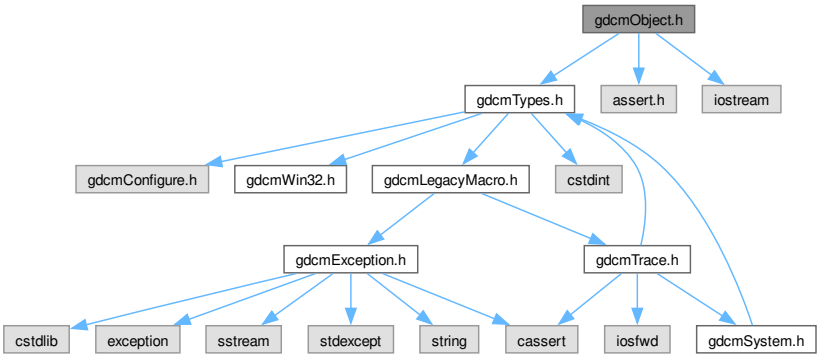
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMD5_H
00015 #define GDCMMD5_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021 //-----------------------------------------------------------------------------
00032 class GDCM_EXPORT MD5
00033 {
00034 public :
00035   // Compute md5 from memory pointed by `pointer' of size `buf_len'
00036   static bool Compute(const char *buffer, size_t buf_len, char digest_str[33]);
00037
00039   static bool ComputeFile(const char *filename, char digest_str[33]);
00040 };
00041 } // end namespace gdcm
00042 //-----------------------------------------------------------------------------
00043 #endif //GDCMMD5_H
```

13.43 gdcmObject.h File Reference

```
#include "gdcmTypes.h"
#include <assert.h>
```

`#include <iostream>`
Include dependency graph for gdcmObject.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Object
  Object.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Object &obj)

13.44 gdcmObject.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
```

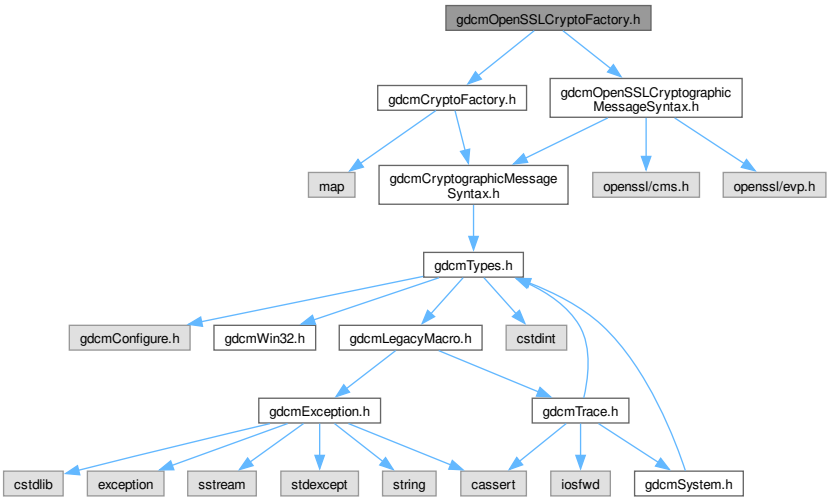
```
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOBJECT_H
00015 #define GDCMOBJECT_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <assert.h>
00020 #include <iostream> // grrrr
00021
00022 //namespace std { class ostream; }
00023 namespace gdcm
00024 {
00025
00026 template<class ObjectType> class SmartPointer;
00027
00036 class GDCM_EXPORT Object
00037 {
00038   template <class ObjectType> friend class SmartPointer;
00039   friend std::ostream& operator<<(std::ostream &os, const Object &obj);
00040
00041 public:
00042   Object():ReferenceCount(0) {}
00043
00044   // Implementation note:
00045   // If I move ~Object in the protected section I can prevent people
00046   // from writing:
00047   // SmartPointer<Object> p = new Object;
00048   // delete p; // due to SmartPointer::operator ObjectType * () const
00049   // but on the other hand one could not define an Object on the stack
00050   // Object obj;
00051   // Furthermore it would not prevent anyone from doing:
00052   // class MyObject : public Object {};
00053   // SmartPointer<MyObject> o = new MyObject;
00054   // delete o; // grrrrrr
00055   virtual ~Object() {
00056     // If your debugger reach here it means you are doing something silly
00057     // like using SmartPointer on object allocated on the stack (vs heap)
00058     gdcm_forced_assert(ReferenceCount == 0);
00059     }
00060
00061   // http://www.parashift.com/c++-faq-lite/freestore-mgmt.html#faq-16.24
00062   // Set the ref count to 0
00063   // Do NOT copy the reference count !
00065   Object(const Object&):ReferenceCount(0){}
00066   void operator=(const Object&){}
00067
00068   //static Object* New() { return new Object; }
00069
00070 protected:
00071   // For the purpose of the invasive SmartPointer implementation
00072   void Register() {
00073     ReferenceCount++;
00074     gdcm_assert( ReferenceCount > 0 );
00075   }
00076   void UnRegister() {
00077     gdcm_assert( ReferenceCount > 0 );
00078     ReferenceCount--;
00079     if(!ReferenceCount)
00080       {
00081       delete this;
00082       }
00083     }
00084
00085 public:
00086   // For dealing with printing of object and polymorphism
00087   virtual void Print(std::ostream &) const {}
00088
00089 private:
00090   long ReferenceCount;
00091 };
00092
00093 //---------------------------------------------------------------------------
00094 // function do not carry vtable. Thus define in the base class the operator
00095 // and use the member function ->Print() to call the appropriate function
00096 // NOTE: All subclass of Object needs to implement the Print function
```

```
00097 inline std::ostream& operator«(std::ostream &os, const Object &obj)
00098 {
00099   obj.Print(os);
00100   return os;
00101 }
00102
00103 } // end namespace gdcm
00104
00105 #endif //GDCMOBJECT_H
```

13.45 gdcmOpenSSLCryptoFactory.h File Reference

```
#include "gdcmCryptoFactory.h"
#include "gdcmOpenSSLCryptographicMessageSyntax.h"
```

Include dependency graph for gdcmOpenSSLCryptoFactory.h:



Classes

- class gdcm::OpenSSLCryptoFactory

Namespaces

- namespace gdcm

13.46 gdcmOpenSSLCryptoFactory.h

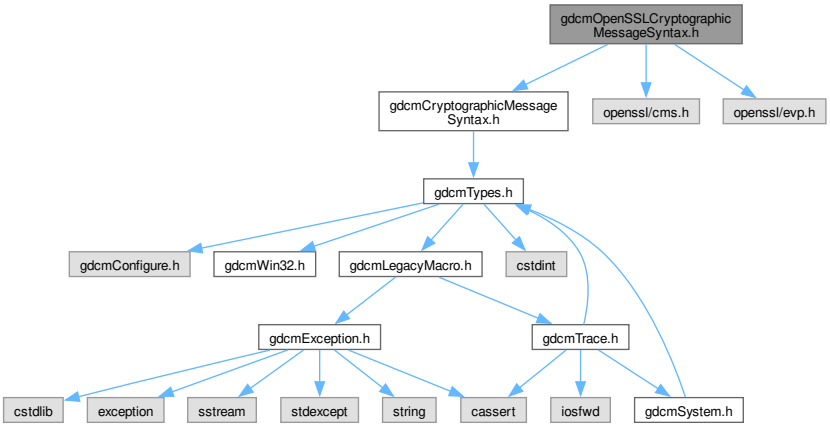
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOPENSSLCRYPTOFACTORY_H
00015 #define GDCMOPENSSLCRYPTOFACTORY_H
00016
00017 #include "gdcmCryptoFactory.h"
00018 #include "gdcmOpenSSLCryptographicMessageSyntax.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class GDCM_EXPORT OpenSSLCryptoFactory : public CryptoFactory
00024 {
00025 public:
00026   OpenSSLCryptoFactory(CryptoLib id) : CryptoFactory(id)
00027   {
00028     gdcmDebugMacro( "OpenSSL Factory registered." );
00029   }
00030
00031 public:
00032   CryptographicMessageSyntax* CreateCMSProvider()
00033   {
00034     InitOpenSSL();
00035     return new OpenSSLCryptographicMessageSyntax();
00036   }
00037
00038 protected:
00039   void InitOpenSSL();
00040
00041 private:
00042   OpenSSLCryptoFactory(){}
00043 };
00044
00045 } // end namespace gdcm
00046
00047 #endif //GDCMOPENSSLCRYPTOFACTORY_H
```

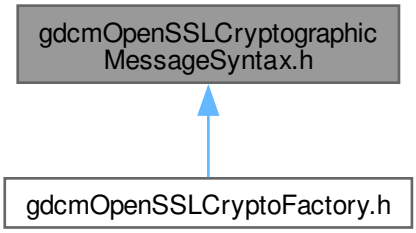
13.47 gdcmOpenSSLCryptographicMessageSyntax.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include <openssl/cms.h>
#include <openssl/evp.h>
```

Include dependency graph for gdcmOpenSSLCryptographicMessageSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::OpenSSLCryptographicMessageSyntax

Namespaces

- namespace gdcm

13.48 gdcmOpenSSLCryptographicMessageSyntax.h

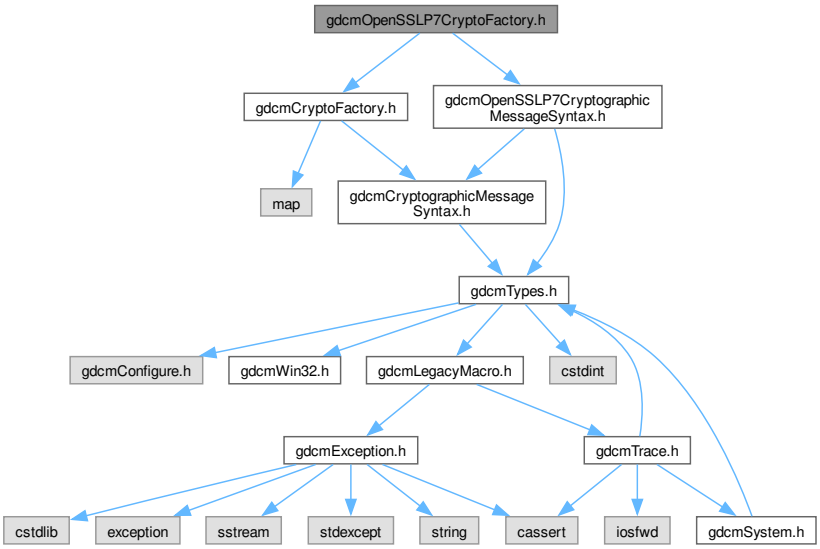
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOPENSSLCRYPTOGRAPHICMESSAGESYNTAX_H
00015 #define GDCMOPENSSLCRYPTOGRAPHICMESSAGESYNTAX_H
00016
00017 #include "gdcmCryptographicMessageSyntax.h"
00018 #include <openssl/cms.h>
00019 #include <openssl/evp.h>
00020
00021 namespace gdcm
00022 {
00023
00024 class GDCM_EXPORT OpenSSLCryptographicMessageSyntax : public CryptographicMessageSyntax
00025 {
00026 public:
00027   OpenSSLCryptographicMessageSyntax();
00028   ~OpenSSLCryptographicMessageSyntax();
00029
00030   // X.509
00031   bool ParseCertificateFile( const char *filename );
00032   bool ParseKeyFile( const char *filename );
00033
00034   // PBE
00035   bool SetPassword(const char * pass, size_t passLen);
00036
00039   void SetCipherType(CipherTypes type);
00040   CipherTypes GetCipherType() const;
00042   bool Encrypt(char *output, size_t &outlen, const char *array, size_t len) const;
00044   bool Decrypt(char *output, size_t &outlen, const char *array, size_t len) const;
00045
00046 private:
00047 //#ifdef GDCM_HAVE_CMS_RECIPIENT_PASSWORD
00048 //  ::stack_st_X509 *recips;
00049 //#else
00050   STACK_OF(X509) *recips;
00051 //#endif
00052   ::EVP_PKEY *pkey;
00053   const EVP_CIPHER *internalCipherType;
00054   char * password;
00055   size_t passwordLength;
00056   CipherTypes cipherType;
00057
00058 private:
00059   OpenSSLCryptographicMessageSyntax(const OpenSSLCryptographicMessageSyntax&);  // Not implemented.
00060   void operator=(const OpenSSLCryptographicMessageSyntax&);  // Not implemented.
00061   const EVP_CIPHER *CreateCipher( CryptographicMessageSyntax::CipherTypes ciphertype);
00062
00063 };
00064
00065 } // end namespace gdcm
00066
00067 #endif //GDCMOPENSSLCRYPTOGRAPHICMESSAGESYNTAX_H
```

13.49 gdcmOpenSSLP7CryptoFactory.h File Reference

```
#include "gdcmCryptoFactory.h"
#include "gdcmOpenSSLP7CryptographicMessageSyntax.h"
```

Include dependency graph for gdcmOpenSSLP7CryptoFactory.h:



Classes

- class gdcm::OpenSSLP7CryptoFactory

Namespaces

- namespace gdcm

13.50 gdcmOpenSSLP7CryptoFactory.h

Go to the documentation of this file.

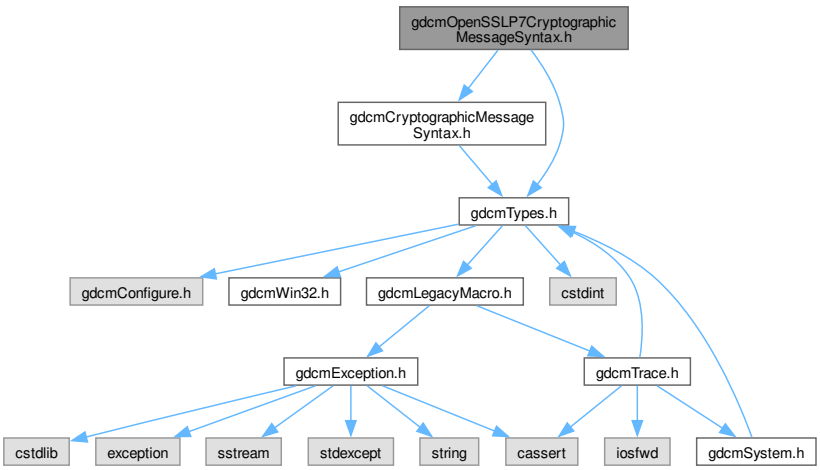
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOPENSSLP7CRYPTOFACTORY_H
00015 #define GDCMOPENSSLP7CRYPTOFACTORY_H
00016
00017 #include "gdcmCryptoFactory.h"
00018 #include "gdcmOpenSSLP7CryptographicMessageSyntax.h"
00019
00020 namespace gdcm
```

```
00021 {
00022 class GDCM_EXPORT OpenSSLP7CryptoFactory : public CryptoFactory
00023 {
00024 public:
00025   OpenSSLP7CryptoFactory(CryptoLib id) : CryptoFactory(id)
00026   {
00027     gdcmDebugMacro( "OpenSSL (PKCS7) Factory registered." );
00028   }
00029
00030 public:
00031   CryptographicMessageSyntax* CreateCMSProvider()
00032   {
00033     return new OpenSSLP7CryptographicMessageSyntax();
00034   }
00035
00036 private:
00037   OpenSSLP7CryptoFactory(){}
00038 };
00039 }
00040
00041 #endif //GDCMOPENSSLP7CRYPTOFACTORY_H
```

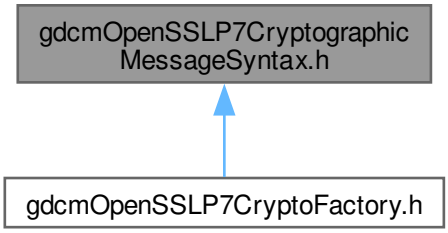
13.51 gdcmOpenSSLP7CryptographicMessageSyntax.h File Reference

```
#include "gdcmCryptographicMessageSyntax.h"
#include "gdcmTypes.h"
```

Include dependency graph for gdcmOpenSSLP7CryptographicMessageSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::OpenSSLP7CryptographicMessageSyntax

Namespaces

- namespace gdcm

13.52 gdcmOpenSSLP7CryptographicMessageSyntax.h

Go to the documentation of this file.

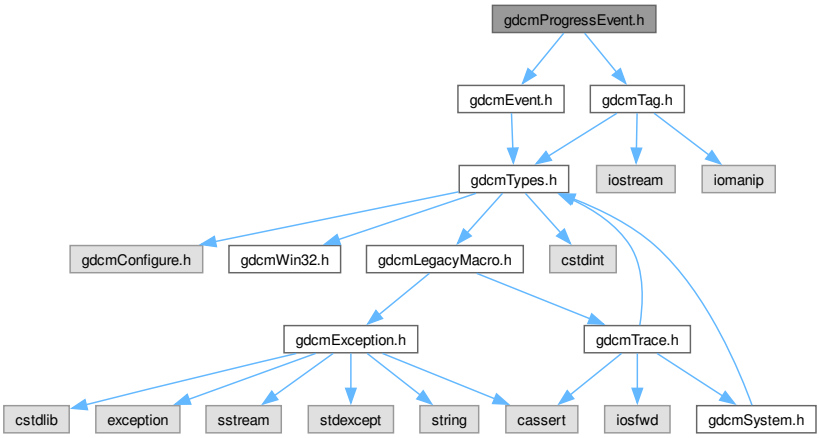
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOPENSSLP7CRYPTOGRAPHICMESSAGESYNTAX_H
00015 #define GDCMOPENSSLP7CRYPTOGRAPHICMESSAGESYNTAX_H
00016
00017 #include "gdcmCryptographicMessageSyntax.h"
00018 #include "gdcmTypes.h"
00019
00020 namespace gdcm
00021 {
00022 class CryptographicMessageSyntaxInternals;
00023 //-----------------------------------------------------------------------------
00024
00034 class GDCM_EXPORT OpenSSLP7CryptographicMessageSyntax : public CryptographicMessageSyntax
00035 {
00036 public:
00037   OpenSSLP7CryptographicMessageSyntax();
00038   ~OpenSSLP7CryptographicMessageSyntax();
00039
```

```
00040     // X.509
00041   bool ParseCertificateFile( const char *filename );
00042   bool ParseKeyFile( const char *filename );
00043
00044   // PBE
00045   bool SetPassword(const char * /*pass*/, size_t /*passLen*/)
00046   {
00047     gdcmWarningMacro( "Openssl using PKCS7 does not support Password Based Encryption." );
00048     return false;
00049   }
00050
00053   void SetCipherType(CipherTypes type);
00054   CipherTypes GetCipherType() const;
00055
00057   bool Encrypt(char *output, size_t &outlen, const char *array, size_t len) const;
00058
00060   bool Decrypt(char *output, size_t &outlen, const char *array, size_t len) const;
00061
00062 private:
00063   CryptographicMessageSyntaxInternals *Internals;
00064 private:
00065   OpenSSLP7CryptographicMessageSyntax(const OpenSSLP7CryptographicMessageSyntax&);  // Not implemented.
00066   void operator=(const OpenSSLP7CryptographicMessageSyntax&);  // Not implemented.
00067 };
00068 } // end namespace gdcm
00069 //-----------------------------------------------------------------------------
00070 #endif //GDCMOPENSSLP7CRYPTOGRAPHICMESSAGESYNTAX_H
```

13.53 gdcmProgressEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmProgressEvent.h:



Classes

- class gdcm::ProgressEvent

  ProgressEvent.

Namespaces

- namespace gdcm

13.54 gdcmProgressEvent.h

Go to the documentation of this file.

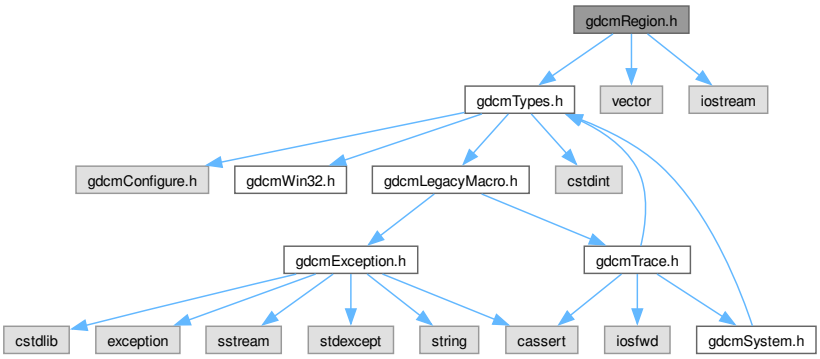
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPROGRESSEVENT_H
00015 #define GDCMPROGRESSEVENT_H
00016
00017 #include "gdcmEvent.h"
00018 #include "gdcmTag.h"
00019
00020 namespace gdcm
00021 {
00022
00029 class ProgressEvent : public AnyEvent
00030 {
00031 public:
00032   typedef ProgressEvent Self;
00033   typedef AnyEvent Superclass;
00034   ProgressEvent(double p = 0):m_Progress(p) {}
00035   ~ProgressEvent() override = default;
00036
00037   ProgressEvent(const Self&s) : AnyEvent(s), m_Progress(0.0) {}
00038   void operator=(const Self&) = delete;
00039
00040   const char * GetEventName() const override { return "ProgressEvent"; }
00041   bool CheckEvent(const ::gdcm::Event* e) const override
00042     { return dynamic_cast<const Self*>(e) ? true : false; }
00043   ::gdcm::Event* MakeObject() const override
00044     { return new Self; }
00045
00046   void SetProgress(double p) { m_Progress = p; }
00047   double GetProgress() const { return m_Progress; }
00048 private:
00049   double m_Progress;
00050 };
00051
00052
00053 } // end namespace gdcm
00054
00055 #endif //GDCMPROGRESSEVENT_H
```

13.55 gdcmRegion.h File Reference

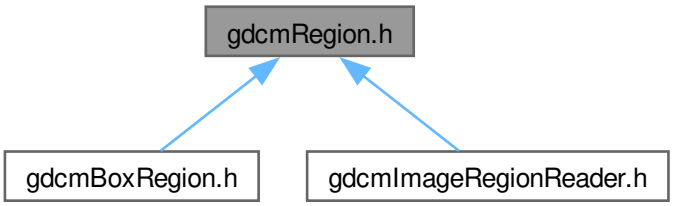
```
#include "gdcmTypes.h"
#include <vector>
```

```
#include <iostream>
```

Include dependency graph for gdcmRegion.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Region

  Class for manipulation region.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Region &r)

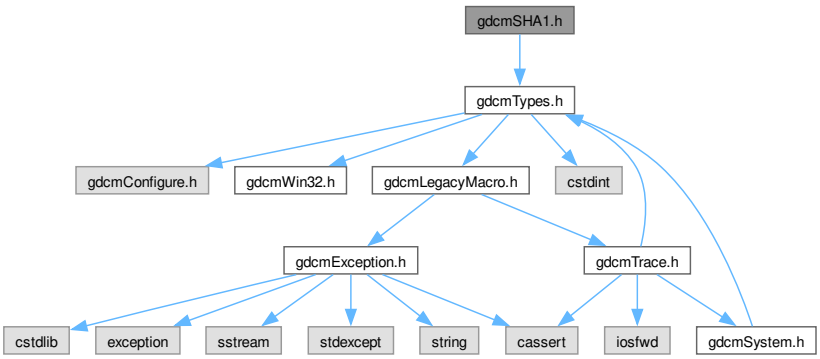
13.56 gdcmRegion.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMREGION_H
00015 #define GDCMREGION_H
00016
00017 #include "gdcmTypes.h"
00018 #include <vector>
00019 #include <iostream>
00020
00021 namespace gdcm
00022 {
00023 class BoxRegion;
00027 //-----------------------------------------------------------------------------
00028 class GDCM_EXPORT Region
00029 {
00030 public :
00031   Region();
00032   virtual ~Region();
00033
00035   virtual void Print(std::ostream &os = std::cout) const;
00036
00038   virtual bool Empty() const = 0;
00039
00041   virtual bool IsValid() const = 0;
00042
00044   virtual size_t Area() const = 0;
00045
00046   // implementation detail of heterogeneous container in C++
00047   virtual Region *Clone() const = 0;
00048
00050   virtual BoxRegion ComputeBoundingBox() = 0;
00051 private:
00052 };
00053 //-----------------------------------------------------------------------------
00054 inline std::ostream& operator<<(std::ostream &os, const Region&r)
00055 {
00056   r.Print( os );
00057   return os;
00058 }
00059
00060 } // end namespace gdcm
00061 //-----------------------------------------------------------------------------
00062 #endif //GDCMREGION_H
```

13.57 gdcmSHA1.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmSHA1.h:



Classes

- class gdcm::SHA1
  Class for SHA1.

Namespaces

- namespace gdcm

13.58 gdcmSHA1.h

Go to the documentation of this file.

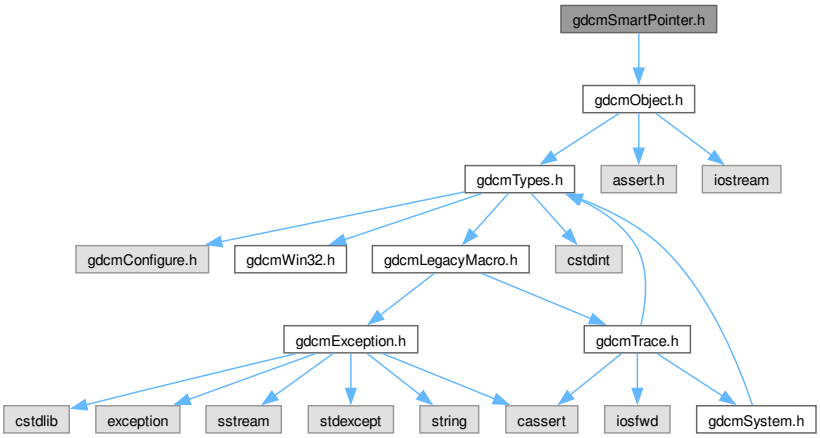
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSHA1_H
00015 #define GDCMSHA1_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021 //-----------------------------------------------------------------------------
```

```
00022 class SHA1Internals;
00032 class GDCM_EXPORT SHA1
00033 {
00034 public :
00035   SHA1();
00036   ~SHA1();
00037   SHA1(const SHA1&) = delete;
00038   void operator=(const SHA1&) = delete;
00039
00040   static bool Compute(const char *buffer, unsigned long buf_len, char digest_str[20*2+1]);
00041
00042   static bool ComputeFile(const char *filename, char digest_str[20*2+1]);
00043
00044 private:
00045   SHA1Internals *Internals;
00046 };
00047 } // end namespace gdcm
00048 //-----------------------------------------------------------------------------
00049 #endif //GDCMSHA1_H
```

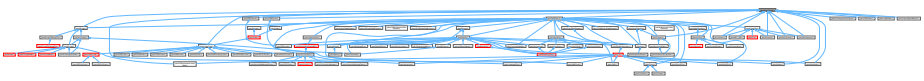
13.59 gdcmSmartPointer.h File Reference

`#include "gdcmObject.h"`

Include dependency graph for gdcmSmartPointer.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::SmartPointer< ObjectType >

  Class for Smart Pointer.

Namespaces

- namespace gdcm

13.60 gdcmSmartPointer.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSMARTPOINTER_H
00015 #define GDCMSMARTPOINTER_H
00016
00017 #include "gdcmObject.h"
00018
00019 namespace gdcm
00020 {
00038 template<class ObjectType>
00039 class SmartPointer
00040 {
00041 public:
00042   SmartPointer():Pointer(nullptr) {}
00043   SmartPointer(const SmartPointer<ObjectType>& p):Pointer(p.Pointer)
00044     { Register(); }
00045   SmartPointer(ObjectType* p):Pointer(p)
00046     { Register(); }
00047   SmartPointer(ObjectType const & p)
00048     {
00049     Pointer = const_cast<ObjectType*>(&p);
00050     Register();
00051     }
00052   ~SmartPointer() {
00053     UnRegister();
00054     Pointer = nullptr;
00055   }
00056
00058   ObjectType *operator -> () const
00059     { return Pointer; }
00060
00061   ObjectType& operator * () const
00062     {
00063     gdcm_assert( Pointer );
00064     return *Pointer;
00065     }
00066
00068   operator ObjectType * () const
00069     { return Pointer; }
00070
00072   SmartPointer &operator = (SmartPointer const &r)
00073     { return operator = (r.Pointer); }
00074
00076   SmartPointer &operator = (ObjectType *r)
00077     {
00078     // http://www.parashift.com/c++-faq-lite/freestore-mgmt.html#faq-16.22
00079     // DO NOT CHANGE THE ORDER OF THESE STATEMENTS!
00080     // (This order properly handles self-assignment)
00081     // (This order also properly handles recursion, e.g., if a ObjectType contains
      SmartPointer<ObjectType>s)
00082     if( Pointer != r )
00083       {
00084       ObjectType* old = Pointer;
00085       Pointer = r;
00086       Register();
```

```
00087       if ( old ) { old->UnRegister(); }
00088       }
00089     return *this;
00090     }
00091
00092   SmartPointer &operator = (ObjectType const &r)
00093     {
00094     ObjectType* tmp = const_cast<ObjectType*>(&r);
00095     return operator = (tmp);
00096     }
00097
00099   ObjectType *GetPointer() const
00100     { return Pointer; }
00101
00102 private:
00103   void Register()
00104     {
00105     if(Pointer) Pointer->Register();
00106     }
00107
00108   void UnRegister()
00109     {
00110     if(Pointer) Pointer->UnRegister();
00111     }
00112
00113   ObjectType* Pointer;
00114 };
00115
00116 } // end namespace gdcm
00117
00118 #endif //GDCMSMARTPOINTER_H
```

13.61 gdcmStaticAssert.h File Reference

This graph shows which files directly or indirectly include this file:

Classes

- struct gdcm::static_assert_test< x >
- struct gdcm::STATIC_ASSERTION_FAILURE< true >

Namespaces

- namespace gdcm

Macros

- #define GDCM_DO_JOIN(X, Y)
- #define GDCM_DO_JOIN2(X, Y)
- #define GDCM_JOIN(X, Y)
- #define GDCM_STATIC_ASSERT(B)

  *The GDCM_JOIN + **LINE** is needed to create a uniq identifier.*

13.61.1 Macro Definition Documentation

13.61.1.1 GDCM_DO_JOIN

```
#define GDCM_DO_JOIN(
                X,
                Y)
```

Value:

```
GDCM_DO_JOIN2(X,Y)
```

13.61.1.2 GDCM_DO_JOIN2

```
#define GDCM_DO_JOIN2(
                X,
                Y)
```

Value:

```
X##Y
```

13.61.1.3 GDCM_JOIN

```
#define GDCM_JOIN(
                X,
                Y)
```

Value:

```
GDCM_DO_JOIN( X, Y )
```

13.61.1.4 GDCM_STATIC_ASSERT

```
#define GDCM_STATIC_ASSERT(
                B)
```

Value:

```
typedef ::gdcm::static_assert_test<\
  sizeof(::gdcm::STATIC_ASSERTION_FAILURE< (bool)( B ) >)>\
    GDCM_JOIN(gdcm_static_assert_typedef_, __LINE__)
```

The GDCM_JOIN + **LINE** is needed to create a uniq identifier.

13.62 gdcmStaticAssert.h

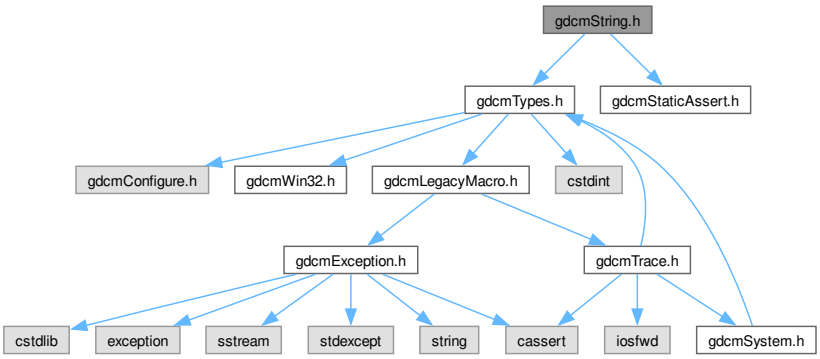
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSTATICASSERT_H
00015 #define GDCMSTATICASSERT_H
00016
00017
00018 // the following was shamelessly borowed from BOOST static assert:
00019 namespace gdcm
00020 {
00021   template <bool x>
00022   struct STATIC_ASSERTION_FAILURE;
00023
00024   template <>
00025   struct STATIC_ASSERTION_FAILURE<true> { enum { value = 1 }; };
00026
00027   template <int x>
00028   struct static_assert_test {};
00029 }
00030
00031 #define GDCM_JOIN( X, Y ) GDCM_DO_JOIN( X, Y )
00032 #define GDCM_DO_JOIN( X, Y ) GDCM_DO_JOIN2(X,Y)
00033 #define GDCM_DO_JOIN2( X, Y ) X##Y
00034
00036 #define GDCM_STATIC_ASSERT( B ) \
00037   typedef ::gdcm::static_assert_test<\
00038     sizeof(::gdcm::STATIC_ASSERTION_FAILURE< (bool)( B ) >)>\
00039       GDCM_JOIN(gdcm_static_assert_typedef_, __LINE__)
00040
00041
00042 /* Example of use:
00043  *
00044  * template <class T>
00045  * struct must_not_be_instantiated
00046  * {
00047  * // this will be triggered if this type is instantiated
00048  * GDCM_STATIC_ASSERT(sizeof(T) == 0);
00049  * };
00050  *
00051  */
00052 #endif // GDCMSTATICASSERT_H
```

13.63 gdcmString.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmStaticAssert.h"
```

Include dependency graph for gdcmString.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::String< TDelimiter, TMaxLength, TPadChar >
  String.

Namespaces

- namespace gdcm

Functions

- template<char TDelimiter, unsigned int TMaxLength, char TPadChar>
  std::istream & gdcm::operator>> (std::istream &is, String< TDelimiter, TMaxLength, TPadChar > &ms)

13.64 gdcmString.h

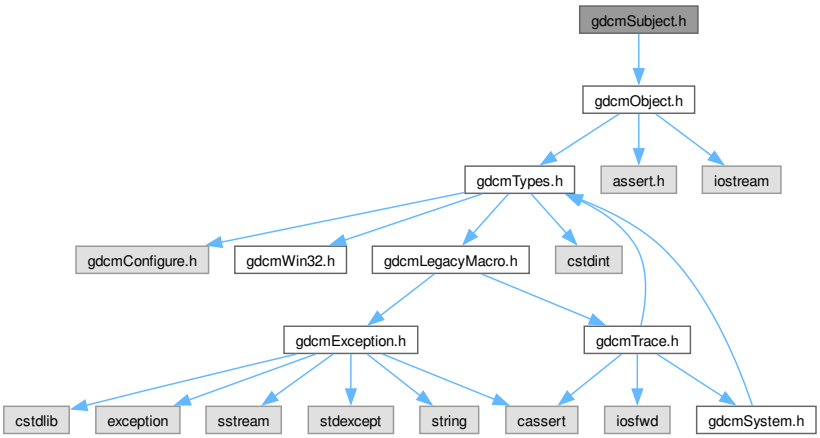
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSTRING_H
00015 #define GDCMSTRING_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmStaticAssert.h"
00019
00020 namespace gdcm
00021 {
00022
00030 template <char TDelimiter = '\\', unsigned int TMaxLength = 64, char TPadChar = ' '>
00031 class /*GDCM_EXPORT*/ String : public std::string /* PLEASE do not export me */
00032 {
00033   // UI wants \0 for pad character, while ASCII ones wants space char... do not allow anything else
00034   GDCM_STATIC_ASSERT( TPadChar == ' ' || TPadChar == 0 );
00035
00036 public:
00037   // typedef are not inherited:
00038   typedef std::string::value_type             value_type;
00039   typedef std::string::pointer                pointer;
00040   typedef std::string::reference              reference;
00041   typedef std::string::const_reference        const_reference;
00042   typedef std::string::size_type              size_type;
00043   typedef std::string::difference_type        difference_type;
00044   typedef std::string::iterator               iterator;
00045   typedef std::string::const_iterator         const_iterator;
00046   typedef std::string::reverse_iterator       reverse_iterator;
00047   typedef std::string::const_reverse_iterator const_reverse_iterator;
00048
00050   String(): std::string() {}
00051   String(const value_type* s): std::string(s)
00052   {
00053   if( size() % 2 )
00054     {
00055     push_back( TPadChar );
00056     }
00057   }
00058   String(const value_type* s, size_type n): std::string(s, n)
00059   {
00060   // We are being passed a const char* pointer, so s[n] == 0 (guaranteed!)
00061   if( n % 2 )
00062     {
00063     push_back( TPadChar );
00064     }
00065   }
00066   String(const std::string& s, size_type pos=0, size_type n=npos):
00067     std::string(s, pos, n)
00068   {
00069   // FIXME: some users might already have padded the string 's' with a trailing \0...
00070   if( size() % 2 )
00071     {
00072     push_back( TPadChar );
00073     }
00074   }
00075
00077   operator const char *() const { return this->c_str(); }
00078
00080   bool IsValid() const {
00081     // Check Length:
00082     size_type l = size();
00083     if( l > TMaxLength ) return false;
00084     return true;
00085   }
```

```
00086
00087   gdcm::String<TDelimiter, TMaxLength, TPadChar> Truncate() const {
00088     if( IsValid() ) return *this;
00089     std::string str = *this; // copy
00090     str.resize( TMaxLength );
00091     return str;
00092   }
00093
00096   std::string Trim() const {
00097     std::string str = *this; // copy
00098     std::string::size_type pos1 = str.find_first_not_of(' ');
00099     std::string::size_type pos2 = str.find_last_not_of(' ');
00100     str = str.substr( (pos1 == std::string::npos) ? 0 : pos1,
00101       (pos2 == std::string::npos) ? (str.size() - 1) : (pos2 - pos1 + 1));
00102     return str;
00103   }
00104
00105   static std::string Trim(const char *input) {
00106     if( !input ) return "";
00107     std::string str = input;
00108     std::string::size_type pos1 = str.find_first_not_of(' ');
00109     std::string::size_type pos2 = str.find_last_not_of(' ');
00110     str = str.substr( (pos1 == std::string::npos) ? 0 : pos1,
00111       (pos2 == std::string::npos) ? (str.size() - 1) : (pos2 - pos1 + 1));
00112     return str;
00113   }
00114 };
00115 template <char TDelimiter, unsigned int TMaxLength, char TPadChar>
00116 inline std::istream& operator»(std::istream &is, String<TDelimiter,TMaxLength,TPadChar> &ms)
00117 {
00118   if(is)
00119     {
00120     std::getline(is, ms, TDelimiter);
00121     // no such thing as std::get where the delim char would be left, so I need to manually add it back...
00122     // hopefully this is the right thing to do (no overhead)
00123     if( !is.eof() ) is.putback( TDelimiter );
00124     }
00125   return is;
00126 }
00127 //template <char TDelimiter = EOF, unsigned int TMaxLength = 64, char TPadChar = ' '>
00128 //String String::Trim() const
00129 //{
00130 //  String s;
00131 //  return s;
00132 //}
00133
00134 } // end namespace gdcm
00135
00136 #endif //GDCMSTRING_H
```

13.65 gdcmSubject.h File Reference

`#include "gdcmObject.h"`
Include dependency graph for gdcmSubject.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Subject
  Subject.

Namespaces

- namespace gdcm

13.66 gdcmSubject.h

Go to the documentation of this file.

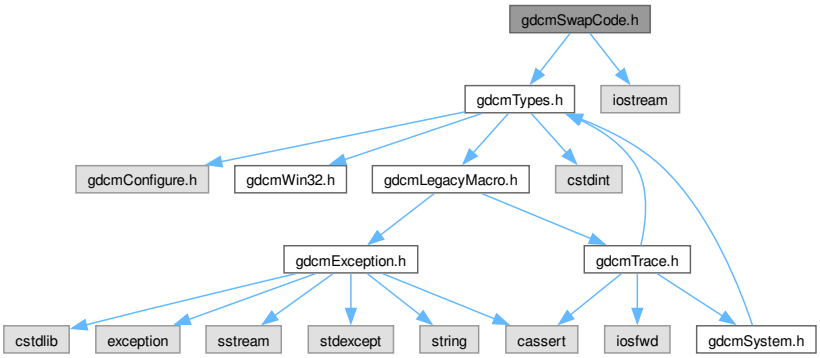
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
```

```
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSUBJECT_H
00015 #define GDCMSUBJECT_H
00016
00017 #include "gdcmObject.h"
00018
00019 namespace gdcm
00020 {
00021 class Event;
00022 class Command;
00023 class SubjectInternals;
00028 class GDCM_EXPORT Subject : public Object
00029 {
00030 public:
00031   Subject();
00032   ~Subject() override;
00033
00042   unsigned long AddObserver(const Event & event, Command *);
00043   unsigned long AddObserver(const Event & event, Command *) const;
00044
00050   Command* GetCommand(unsigned long tag);
00051
00053   void InvokeEvent( const Event & );
00054
00057   void InvokeEvent( const Event & ) const;
00058
00060   void RemoveObserver(unsigned long tag);
00061
00063   void RemoveAllObservers();
00064
00066   bool HasObserver( const Event & event ) const;
00067
00068 protected:
00069
00070 private:
00071   SubjectInternals *Internals;
00072 private:
00073 };
00074
00075 } // end namespace gdcm
00076
00077 #endif //GDCMSUBJECT_H
```

13.67 gdcmSwapCode.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmSwapCode.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::SwapCode

  SwapCode representation.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const SwapCode &sc)

13.68 gdcmSwapCode.h

Go to the documentation of this file.

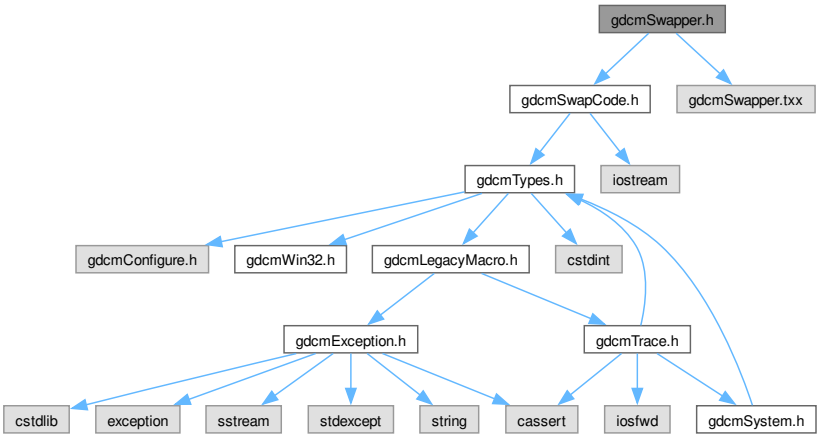
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSWAPCODE_H
00015 #define GDCMSWAPCODE_H
00016
00017 #include "gdcmTypes.h"
00018 #include <iostream>
00019
00020 namespace gdcm
00021 {
00022
00026 class GDCM_EXPORT SwapCode
00027 {
00028 public:
00029   typedef enum {
00030     Unknown         = 0,
00031     LittleEndian    = 1234,
00032     BigEndian       = 4321,
00033     BadLittleEndian = 3412,
00034     BadBigEndian    = 2143
00035   } SwapCodeType;
00036
00037   operator SwapCode::SwapCodeType() const { return SwapCodeValue; }
00038   SwapCode(SwapCodeType sc = Unknown):SwapCodeValue(sc) { }
00039   static const char* GetSwapCodeString(SwapCode const & sc);
00040
00041   friend std::ostream& operator<<(std::ostream& os, const SwapCode& sc);
00042 protected:
00043   static int GetIndex(SwapCode const & sc);
00044
00045 private:
00046   SwapCodeType SwapCodeValue;
00047 };
00048 //-----------------------------------------------------------------------------
00049 inline std::ostream& operator<<(std::ostream& os, const SwapCode& sc)
00050 {
00051   os << SwapCode::GetSwapCodeString(sc);
00052   return os;
00053 }
00054
00055 } // end namespace gdcm
00056
00057 #endif //GDCMSWAPCODE_H
```

13.69 gdcmSwapper.h File Reference

```
#include "gdcmSwapCode.h"
#include "gdcmSwapper.txx"
```

Include dependency graph for gdcmSwapper.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::SwapperDoOp
- class gdcm::SwapperNoOp

Namespaces

- namespace gdcm

13.70 gdcmSwapper.h

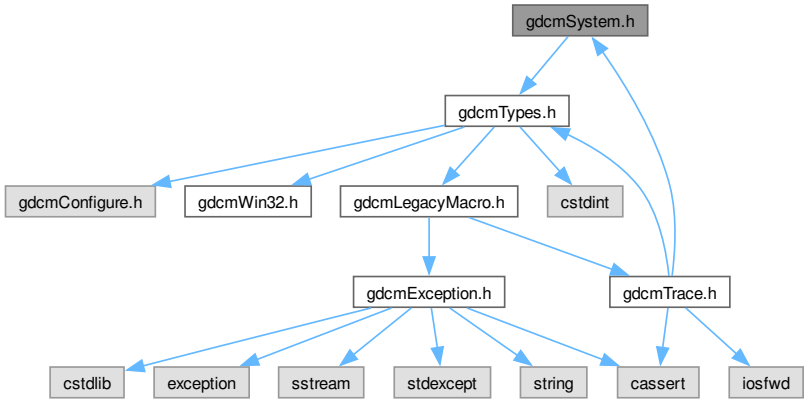
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
```

```
00013 =========================================================================*/
00014 #ifndef GDCMSWAPPER_H
00015 #define GDCMSWAPPER_H
00016
00017 #include "gdcmSwapCode.h"
00018
00019 namespace gdcm
00020 {
00021
00022
00023 #ifdef GDCM_WORDS_BIGENDIAN
00024 class SwapperDoOp
00025 {
00026 public:
00027   template <typename T> static T Swap(T val) {return val;}
00028   template <typename T> static void SwapArray(T *, size_t ) {}
00029 };
00030
00031 class SwapperNoOp
00032 {
00033 public:
00034   template <typename T> static T Swap(T val);
00035   template <typename T>
00036   static void SwapArray(T *array, size_t n)
00037   {
00038     // TODO: need to unroll loop:
00039     for(size_t i = 0; i < n; ++i)
00040     {
00041       array[i] = Swap<T>(array[i]);
00042     }
00043   }
00044 };
00045 #else
00046 class SwapperNoOp
00047 {
00048 public:
00049   template <typename T> static T Swap(T val) {return val;}
00050   template <typename T> static void SwapArray(T *, size_t ) {}
00051 };
00052
00053 class SwapperDoOp
00054 {
00055 public:
00056   template <typename T> static T Swap(T val);
00057   template <typename T>
00058   static void SwapArray(T *array, size_t n)
00059   {
00060     // TODO: need to unroll loop:
00061     for(size_t i = 0; i < n; ++i)
00062     {
00063       array[i] = Swap<T>(array[i]);
00064     }
00065   }
00066 };
00067 #endif
00068
00069
00070 } // end namespace gdcm
00071
00072 #include "gdcmSwapper.txx"
00073
00074 #endif //GDCMSWAPPER_H
```

13.71 gdcmSystem.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmSystem.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::System

  Class to do system operation.

Namespaces

- namespace gdcm

13.72 gdcmSystem.h

Go to the documentation of this file.

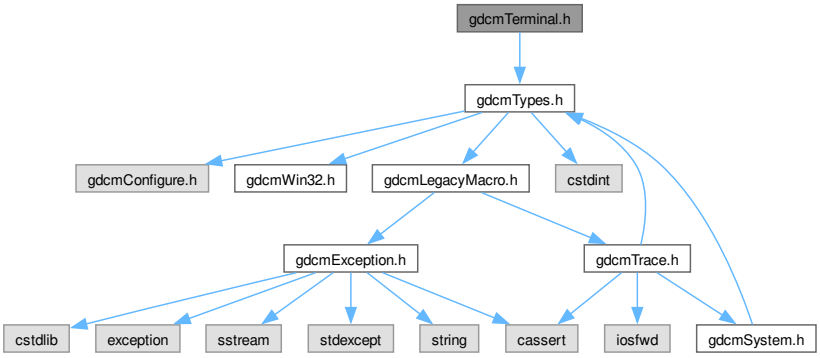
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
```

```
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSYSTEM_H
00015 #define GDCMSYSTEM_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00026 class GDCM_EXPORT System
00027 {
00028 public:
00030   static bool MakeDirectory(const char *path);
00032   static bool FileExists(const char* filename);
00034   static bool FileIsDirectory(const char* name);
00036   static bool FileIsSymlink(const char* name);
00038   static bool RemoveFile(const char* source);
00040   static bool DeleteDirectory(const char *source);
00041
00045   static std::wstring ConvertToUNC(const char *utf8path);
00046
00048   static const char *GetLastSystemError();
00049
00054   static size_t FileSize(const char* filename);
00055
00058   static time_t FileTime(const char* filename);
00059
00062   static const char *GetCurrentProcessFileName();
00063
00066   static const char *GetCurrentModuleFileName();
00067
00070   static const char *GetCurrentResourcesDirectory();
00071
00072   // TODO some system calls
00073   // Chdir
00074   // copy a file
00075
00078   static bool GetHostName(char hostname[255]);
00079
00080   // In the following the size '22' is explicitly listed. You need to pass in
00081   // at least 22bytes of array. If the string is an output it will be
00082   // automatically padded ( array[21] == 0 ) for you.
00083   // Those functions: GetCurrentDateTime / FormatDateTime / ParseDateTime do
00084   // not return the &YYZZ part of the DT structure as defined in DICOM PS 3.5 -
00085   // 2008 In this case it is simple to split the date[22] into a DA and TM
00086   // structure
00087
00092   static bool GetCurrentDateTime(char date[22]);
00093
00097   static bool FormatDateTime(char date[22], time_t t, long milliseconds = 0);
00098
00100   static bool ParseDateTime(time_t &timep, const char date[22]);
00101
00104   static bool ParseDateTime(time_t &timep, long &milliseconds, const char date[22]);
00105
00108   static const char *GetTimezoneOffsetFromUTC();
00109
00112   static size_t EncodeBytes(char *out, const unsigned char *data, int size);
00113
00115   static int StrCaseCmp(const char *s1, const char *s2);
00117   static int StrNCaseCmp(const char *s1, const char *s2, size_t n);
00118
00123   static const char * GetCWD();
00124
00126   static char *StrTokR(char *ptr, const char *sep, char **end);
00127
00131   static char *StrSep(char **stringp, const char *delim);
00132
00134   static const char *GetLocaleCharset();
00135
00137 /*
00138   static void SetArgv0(const char *);
00139   static const char* GetArgv0();
00140 */
00141
00142 protected:
00143   static bool GetPermissions(const char* file, unsigned short& mode);
```

```
00144   static bool SetPermissions(const char* file, unsigned short mode);
00145
00146 private:
00147 };
00148
00149 } // end namespace gdcm
00150
00151 #endif //GDCMSYSTEM_H
```

13.73 gdcmTerminal.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmTerminal.h:



Namespaces

- namespace gdcm
- namespace gdcm::terminal

  Class for Terminal.

Enumerations

- enum gdcm::terminal::Attribute {
  gdcm::terminal::reset = 0 ,
  gdcm::terminal::bright = 1 ,
  gdcm::terminal::dim = 2 ,
  gdcm::terminal::underline = 3 ,
  gdcm::terminal::blink = 5 ,
  gdcm::terminal::reverse = 7 ,
  gdcm::terminal::hidden = 8 }

- enum gdcm::terminal::Color {
  gdcm::terminal::black = 0 ,
  gdcm::terminal::red ,
  gdcm::terminal::green ,
  gdcm::terminal::yellow ,
  gdcm::terminal::blue ,
  gdcm::terminal::magenta ,
  gdcm::terminal::cyan ,
  gdcm::terminal::white }
- enum gdcm::terminal::Mode {
  gdcm::terminal::CONSOLE = 0 ,
  gdcm::terminal::VT100 }

Functions

- GDCM_EXPORT std::string gdcm::terminal::setattribute (Attribute att)
- GDCM_EXPORT std::string gdcm::terminal::setbgcolor (Color c)
- GDCM_EXPORT std::string gdcm::terminal::setfgcolor (Color c)
- GDCM_EXPORT void gdcm::terminal::setmode (Mode m)

13.74 gdcmTerminal.h

Go to the documentation of this file.

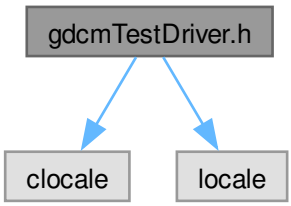
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTERMINAL_H
00015 #define GDCMTERMINAL_H
00016
00017 #include "gdcmTypes.h"
00018
00019
00020 namespace gdcm
00021 {
00028 //-----------------------------------------------------------------------------
00029
00030 namespace terminal
00031 {
00032   typedef enum
00033     {
00034     CONSOLE = 0,
00035     VT100
00036     } Mode;
00037   typedef enum
00038     {
00039     black = 0,
00040     red,
00041     green,
00042     yellow, // brown ??
00043     blue,
00044     magenta,
00045     cyan,
00046     white
```

```
00047     } Color;
00048   typedef enum
00049     {
00050     reset     = 0,
00051     bright    = 1, // bold
00052     dim       = 2,
00053     underline = 3,
00054     blink     = 5,
00055     reverse   = 7,
00056     hidden    = 8
00057     } Attribute;
00058   GDCM_EXPORT std::string setattribute( Attribute att );
00059   GDCM_EXPORT std::string setfgcolor( Color c );
00060   GDCM_EXPORT std::string setbgcolor( Color c );
00061   GDCM_EXPORT void setmode( Mode m);
00062 }
00063
00064 } // end namespace gdcm
00065 //-----------------------------------------------------------------------------
00066 #endif //GDCMTERMINAL_H
```

13.75 gdcmTestDriver.h File Reference

```
#include <clocale>
#include <locale>
```

Include dependency graph for gdcmTestDriver.h:



13.76 gdcmTestDriver.h

Go to the documentation of this file.

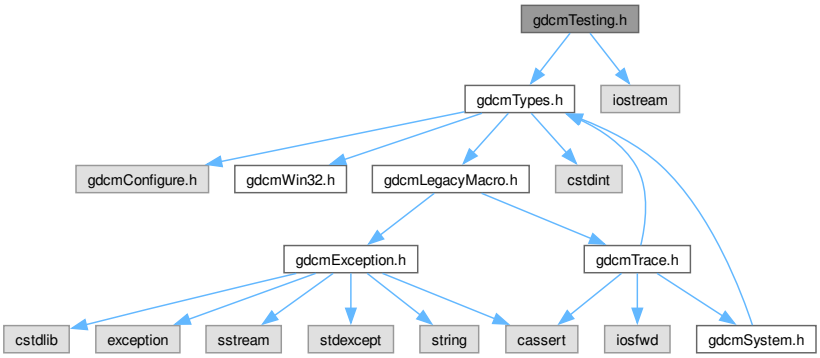
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // This header is included by all the C++ test drivers in GDCM.
00015 #ifndef GDCMTESTDRIVER_H
```

```
00016 #define GDCMTESTDRIVER_H
00017
00018 // CREATE_TEST_SOURCELIST supports the flag EXTRA_INCLUDE but only one per call.
00019 // So there is no way to specify we want to include two files... instead
00020 // gather the #include in a single file and include that one...
00021 #include <clocale> // C setlocale()
00022 #include <locale> // C++ locale
00023
00024 #endif // GDCMTESTDRIVER_H
```

13.77 gdcmTesting.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmTesting.h:



Classes

- class gdcm::Testing

  class for testing

Namespaces

- namespace gdcm

13.78 gdcmTesting.h

Go to the documentation of this file.

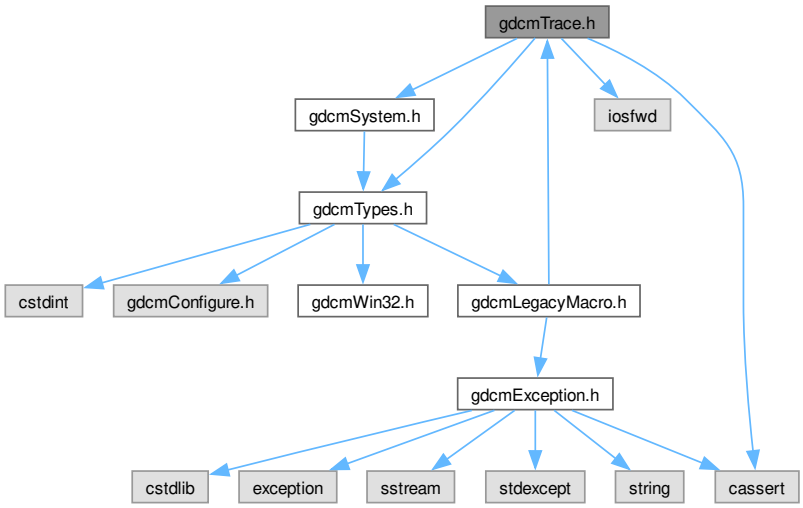
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
```

```
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTESTING_H
00015 #define GDCMTESTING_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <iostream>
00020
00021 namespace gdcm
00022 {
00030 //-----------------------------------------------------------------------------
00031 class GDCM_EXPORT Testing
00032 {
00033 public :
00034   Testing() = default;
00035   ~Testing() = default;
00036
00042   static bool ComputeMD5(const char *buffer, size_t buf_len,
00043     char digest_str[33]);
00044   static bool ComputeFileMD5(const char *filename, char digest_str[33]);
00045
00047   void Print(std::ostream &os = std::cout);
00048
00050   static const char * const * GetFileNames();
00051   static unsigned int GetNumberOfFileNames();
00052   static const char * GetFileName(unsigned int file);
00053
00055   typedef const char* const (*MediaStorageDataFilesType)[2];
00056   static MediaStorageDataFilesType GetMediaStorageDataFiles();
00057   static unsigned int GetNumberOfMediaStorageDataFiles();
00058   static const char * const * GetMediaStorageDataFile(unsigned int file);
00059   static const char * GetMediaStorageFromFile(const char *filepath);
00060
00063   typedef const char* const (*MD5DataImagesType)[2];
00064   static MD5DataImagesType GetMD5DataImages();
00065   static unsigned int GetNumberOfMD5DataImages();
00066   static const char * const * GetMD5DataImage(unsigned int file);
00067   static const char * GetMD5FromFile(const char *filepath);
00068
00071   static const char * GetMD5FromBrokenFile(const char *filepath);
00072
00075   static std::streamoff GetStreamOffsetFromFile(const char *filepath);
00076
00080   static std::streamoff GetSelectedTagsOffsetFromFile(const char *filepath);
00081
00085   static std::streamoff GetSelectedPrivateGroupOffsetFromFile(const char *filepath);
00086
00091   static int GetLossyFlagFromFile(const char *filepath);
00092
00094   static const char * GetDataRoot();
00095
00097   static const char * GetDataExtraRoot();
00098
00100   static const char * GetPixelSpacingDataRoot();
00101
00104   static const char * GetTempDirectory(const char * subdir = nullptr);
00105
00107   static const wchar_t *GetTempDirectoryW(const wchar_t * subdir = nullptr);
00108
00110   static const char * GetTempFilename(const char *filename, const char * subdir = nullptr);
00111
00113   static const wchar_t* GetTempFilenameW(const wchar_t *filename, const wchar_t* subdir = nullptr);
00114
00115   static const char *GetSourceDirectory();
00116 };
00117 } // end namespace gdcm
00118 //-----------------------------------------------------------------------------
00119 #endif //GDCMTESTING_H
```

13.79 gdcmTrace.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmSystem.h"
#include <iosfwd>
#include <cassert>
```

Include dependency graph for gdcmTrace.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Trace
  Trace.

Namespaces

- namespace gdcm

Macros

- #define GDCM_FUNCTION "<unknown>"
- #define gdcmAssertAlwaysMacro(arg)

  AssertAlways.
- #define gdcmAssertMacro(arg)

  Assert.
- #define gdcmDebugMacro(msg)

  Debug.
- #define gdcmErrorMacro(msg)

  Error this is pretty bad, more than just warning It could mean lost of data, something not handle...
- #define gdcmWarningMacro(msg)

  Warning.

13.79.1 Macro Definition Documentation

13.79.1.1 GDCM_FUNCTION

```
#define GDCM_FUNCTION "<unknown>"
```

13.79.1.2 gdcmAssertAlwaysMacro

```
#define gdcmAssertAlwaysMacro(
              arg)
```

Value:

```
gdcmAssertMacro(arg)
```

AssertAlways.

Parameters

arg	argument to test An easy solution to pass also a message is to do: gdcmAssertMacro("my message" && 2 < 3)

Referenced by gdcm::DataElement::GetValue(), gdcm::DataElement::GetValue(), gdcm::BasicOffsetTable::Read(), gdcm::SequenceOfFragments::ReadValue(), gdcm::DataSet::Replace(), gdcm::DataSet::ReplaceEmpty(), and gdcm::VR::Write().

13.79.1.3 gdcmAssertMacro

```
#define gdcmAssertMacro(
              arg)
```

Value:

```
{                                                                    \
   if( !(arg) )                                                      \
   {                                                                 \
   std::ostringstream osmacro;                                       \
   osmacro « "Assert: In " __FILE__ ", line " « __LINE__          \
           « ", function " « GDCM_FUNCTION                          \
           « "\n\n";                                                  \
   std::ostream &_os = gdcm::Trace::GetErrorStream();                \
   _os « osmacro.str() « std::endl;                                 \
   assert ( arg );                                                   \
   }                                                                 \
}                                                                    \
GDCM_NOOP_STATEMENT
```

Assert.

Parameters

arg	argument to test An easy solution to pass also a message is to do: gdcmAssertMacro("my message" && 2 < 3)

Referenced by gdcm::PixelFormat::SetSamplesPerPixel().

13.79.1.4 gdcmDebugMacro

```
#define gdcmDebugMacro(
              msg)
```

Value:

```
{                                                                    \
   if( gdcm::Trace::GetDebugFlag() )                                 \
   {                                                                 \
   std::ostringstream osmacro;                                       \
   osmacro « "Debug: In " __FILE__ ", line " « __LINE__           \
           « ", function " « GDCM_FUNCTION « '\n'                  \
           « "Last system error was: "                               \
           « gdcm::System::GetLastSystemError() « '\n' « msg;   \
   std::ostream &_os = gdcm::Trace::GetDebugStream();                \
   _os « osmacro.str() « "\n\n" « std::endl;                        \
   }                                                                 \
}                                                                    \
GDCM_NOOP_STATEMENT
```

Debug.

Parameters

msg	message part

Referenced by gdcm::OpenSSLCryptoFactory::OpenSSLCryptoFactory(), gdcm::OpenSSLP7CryptoFactory::OpenSSLP7CryptoFactory(), gdcm::Item::Read(), gdcm::SequenceOfItems::Read(), gdcm::VR::Read(), gdcm::SequenceOfFragments::ReadPreValue(), and gdcm::SequenceOfFragments::ReadValue().

13.79.1.5 gdcmErrorMacro

```
#define gdcmErrorMacro(
              msg)
```

Value:

```
{                                                                     \
   if( gdcm::Trace::GetErrorFlag() )                                  \
   {                                                                  \
   std::ostringstream osmacro;                                        \
   osmacro « "Error: In " __FILE__ ", line " « __LINE__          \
           « ", function " « GDCM_FUNCTION « '\n'                \
           « msg « "\n\n";                                         \
   std::ostream &_os = gdcm::Trace::GetErrorStream();                 \
   _os « osmacro.str() « std::endl;                                \
   }                                                                  \
}                                                                     \
GDCM_NOOP_STATEMENT
```

Error this is pretty bad, more than just warning It could mean lost of data, something not handle...

Parameters

msg	second message part

Referenced by gdcm::CommandDataSet::Insert(), gdcm::DataSet::Insert(), gdcm::FileMetaInformation::Insert(), gdcm::Item::Read(), and gdcm::Fragment::ReadBacktrack().

13.79.1.6 gdcmWarningMacro

```
#define gdcmWarningMacro(
              msg)
```

Value:

```
{                                                                     \
   if( gdcm::Trace::GetWarningFlag() )                                \
   {                                                                  \
   std::ostringstream osmacro;                                        \
   osmacro « "Warning: In " __FILE__ ", line " « __LINE__        \
           « ", function " « GDCM_FUNCTION « "\n"                \
           « msg « "\n\n";                                         \
   std::ostream &_os = gdcm::Trace::GetWarningStream();               \
   _os « osmacro.str() « std::endl;                                \
   }                                                                  \
}                                                                     \
GDCM_NOOP_STATEMENT
```

Warning.

Parameters

msg	message part

Referenced by gdcm::DataSet::InsertDataElement(), gdcm::Item::Read(), gdcm::SequenceOfItems::Read(), gdcm::Fragment::ReadBacktr
gdcm::Fragment::ReadValue(), gdcm::SequenceOfFragments::ReadValue(), gdcm::OpenSSLP7CryptographicMessageSyntax::SetPassw
and gdcm::Item::Write().

13.80 gdcmTrace.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTRACE_H
00015 #define GDCMTRACE_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmSystem.h"
00019
00020 #include <iosfwd>
00021 #include <cassert>
00022
00023 namespace gdcm
00024 {
00025
00041 class GDCM_EXPORT Trace
00042 {
00043 public :
00044   Trace();
00045   ~Trace();
00046
00049   static void SetStream(std::ostream &os);
00050   static std::ostream &GetStream();
00051
00053   static void SetDebugStream(std::ostream &os);
00054   static std::ostream &GetDebugStream();
00055
00057   static void SetWarningStream(std::ostream &os);
00058   static std::ostream &GetWarningStream();
00059
00061   static void SetErrorStream(std::ostream &os);
00062   static std::ostream &GetErrorStream();
00063
00066   static void SetStreamToFile( const char *filename );
00067
00069   static void SetDebug(bool debug);
00070   static void DebugOn();
00071   static void DebugOff();
00072   static bool GetDebugFlag();
00073
00075   static void SetWarning(bool debug);
00076   static void WarningOn();
00077   static void WarningOff();
00078   static bool GetWarningFlag();
00079
00081   static void SetError(bool debug);
00082   static void ErrorOn();
00083   static void ErrorOff();
00084   static bool GetErrorFlag();
00085
00086 protected:
00087 private:
00088 };
00089
00090 // Here we define function this is the only way to be able to pass
00091 // stuff with indirection like:
00092 // gdcmDebug( "my message:" « i « '\t' );
00093 // You cannot use function unless you use vnsprintf ...
00094
00095 // __FUNCTION is not always defined by preprocessor
00096 // In c++ we should use __PRETTY_FUNCTION__ instead...
00097 #ifdef GDCM_CXX_HAS_FUNCTION
00098 // Handle particular case for GNU C++ which also defines __PRETTY_FUNCTION__
00099 // which is a lot nice in C++
00100 #ifdef __BORLANDC__
```

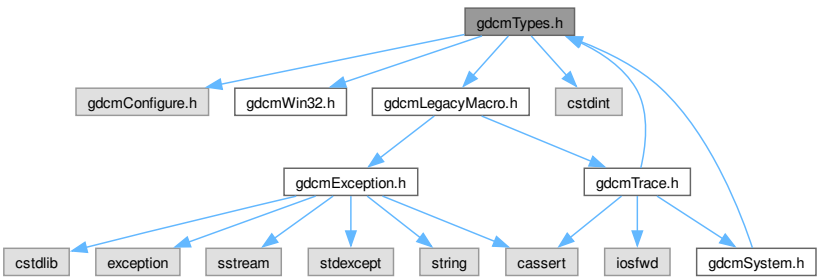
```
00101 #  define __FUNCTION__ __FUNC__
00102 #endif
00103 #ifdef __GNUC__
00104 #  define GDCM_FUNCTION __PRETTY_FUNCTION__
00105 #else
00106 #  define GDCM_FUNCTION __FUNCTION__
00107 #endif //__GNUC__
00108 #else
00109 #  define GDCM_FUNCTION "<unknown>"
00110 #endif //GDCM_CXX_HAS_FUNCTION
00111
00116 #if defined(NDEBUG) && !defined(GDCM_ALWAYS_TRACE_MACRO)
00117 #define gdcmDebugMacro(msg) GDCM_NOOP_STATEMENT
00118 #else
00119 #define gdcmDebugMacro(msg)                                          \
00120 {                                                                    \
00121    if( gdcm::Trace::GetDebugFlag() )                                 \
00122    {                                                                 \
00123    std::ostringstream osmacro;                                       \
00124    osmacro « "Debug: In " __FILE__ ", line " « __LINE__          \
00125            « ", function " « GDCM_FUNCTION « '\n'                \
00126            « "Last system error was: "                             \
00127            « gdcm::System::GetLastSystemError() « '\n' « msg;   \
00128    std::ostream &_os = gdcm::Trace::GetDebugStream();                \
00129    _os « osmacro.str() « "\n\n" « std::endl;                      \
00130    }                                                                 \
00131 }                                                                    \
00132 GDCM_NOOP_STATEMENT
00133 #endif //NDEBUG
00134
00139 #if defined(NDEBUG) && !defined(GDCM_ALWAYS_TRACE_MACRO)
00140 #define gdcmWarningMacro(msg) GDCM_NOOP_STATEMENT
00141 #else
00142 #define gdcmWarningMacro(msg)                                        \
00143 {                                                                    \
00144    if( gdcm::Trace::GetWarningFlag() )                               \
00145    {                                                                 \
00146    std::ostringstream osmacro;                                       \
00147    osmacro « "Warning: In " __FILE__ ", line " « __LINE__       \
00148            « ", function " « GDCM_FUNCTION « "\n"                \
00149            « msg « "\n\n";                                        \
00150    std::ostream &_os = gdcm::Trace::GetWarningStream();              \
00151    _os « osmacro.str() « std::endl;                               \
00152    }                                                                 \
00153 }                                                                    \
00154 GDCM_NOOP_STATEMENT
00155 #endif //NDEBUG
00156
00162 #if defined(NDEBUG) && !defined(GDCM_ALWAYS_TRACE_MACRO)
00163 #define gdcmErrorMacro(msg) GDCM_NOOP_STATEMENT
00164 #else
00165 #define gdcmErrorMacro(msg)                                          \
00166 {                                                                    \
00167    if( gdcm::Trace::GetErrorFlag() )                                 \
00168    {                                                                 \
00169    std::ostringstream osmacro;                                       \
00170    osmacro « "Error: In " __FILE__ ", line " « __LINE__          \
00171            « ", function " « GDCM_FUNCTION « '\n'                \
00172            « msg « "\n\n";                                        \
00173    std::ostream &_os = gdcm::Trace::GetErrorStream();                \
00174    _os « osmacro.str() « std::endl;                               \
00175    }                                                                 \
00176 }                                                                    \
00177 GDCM_NOOP_STATEMENT
00178 #endif //NDEBUG
00179
00186 #if defined(NDEBUG) && !defined(GDCM_ALWAYS_TRACE_MACRO)
00187 #define gdcmAssertMacro(arg) GDCM_NOOP_STATEMENT
00188 #else
00189 #define gdcmAssertMacro(arg)                                         \
00190 {                                                                    \
00191    if( !(arg) )                                                      \
00192    {                                                                 \
00193    std::ostringstream osmacro;                                       \
00194    osmacro « "Assert: In " __FILE__ ", line " « __LINE__          \
00195            « ", function " « GDCM_FUNCTION                        \
00196            « "\n\n";                                              \
00197    std::ostream &_os = gdcm::Trace::GetErrorStream();                \
00198    _os « osmacro.str() « std::endl;                               \
00199    assert ( arg );                                                   \
00200    }                                                                 \
```

```
00201 }                                                                       \
00202 GDCM_NOOP_STATEMENT
00203 #endif //NDEBUG
00204
00211 #if defined(NDEBUG)
00212 // User asked for release compilation, but still need to report
00213 // if grave issue.
00214 #define gdcmAssertAlwaysMacro(arg) \
00215 {                                                                       \
00216   if( !(arg) )                                                          \
00217   {                                                                     \
00218   std::ostringstream osmacro;                                           \
00219   osmacro « "Assert: In " __FILE__ ", line " « __LINE__                \
00220           « ", function " « GDCM_FUNCTION                               \
00221           « "\n\n";                                                     \
00222   throw osmacro.str();                                                  \
00223   }                                                                     \
00224 }                                                                       \
00225 GDCM_NOOP_STATEMENT
00226 #else
00227 // Simply reproduce gdcmAssertMacro behavior:
00228 #define gdcmAssertAlwaysMacro(arg) gdcmAssertMacro(arg)
00229 #endif //NDEBUG
00230
00231 } // end namespace gdcm
00232 //-----------------------------------------------------------------------------
00233 #endif //GDCMTRACE_H
```

13.81 gdcmTypes.h File Reference

```
#include "gdcmConfigure.h"
#include "gdcmWin32.h"
#include "gdcmLegacyMacro.h"
#include <cstdint>
```

Include dependency graph for gdcmTypes.h:



13.82 gdcmTypes.h

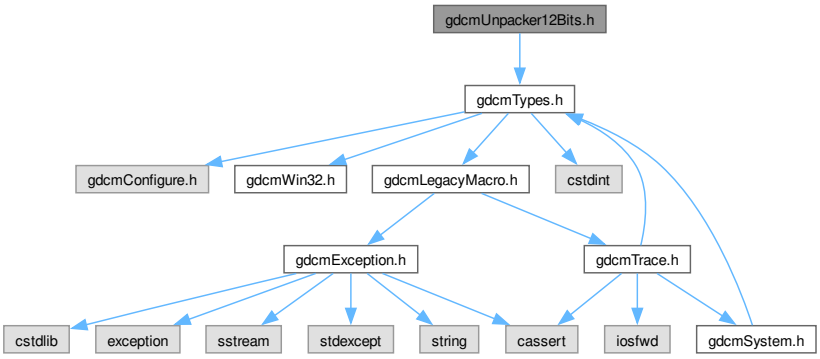
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
```

```
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTYPES_H
00015 #define GDCMTYPES_H
00016
00017 #include "gdcmConfigure.h"
00018 #include "gdcmWin32.h"
00019 #include "gdcmLegacyMacro.h"
00020
00021 //-----------------------------------------------------------------------------
00022 #include <cstdint>
00023
00024 //-----------------------------------------------------------------------------
00025 #endif //GDCMTYPES_H
```

13.83 gdcmUnpacker12Bits.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmUnpacker12Bits.h:



Classes

- class gdcm::Unpacker12Bits

  Pack/Unpack 12 bits pixel into 16bits.

Namespaces

- namespace gdcm

13.84 gdcmUnpacker12Bits.h

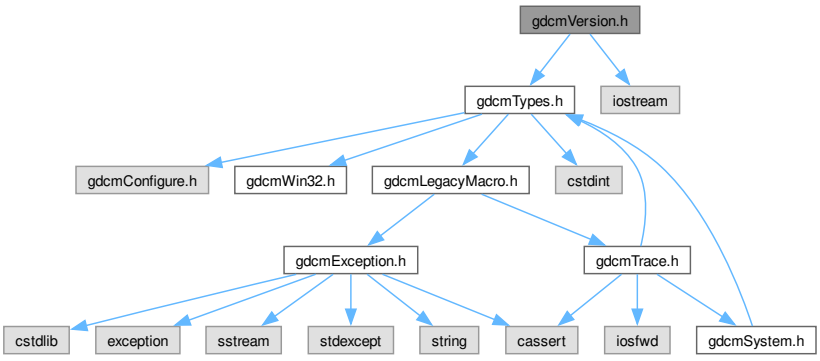
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUNPACKER12BITS_H
00015 #define GDCMUNPACKER12BITS_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00034 class GDCM_EXPORT Unpacker12Bits
00035 {
00036 public:
00040   static bool Pack(char *out, const char *in, size_t n);
00041
00045   static bool Unpack(char *out, const char *in, size_t n);
00046 };
00047
00048 } // end namespace gdcm
00049
00050 #endif //GDCMUNPACKER12BITS_H
```

13.85 gdcmVersion.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmVersion.h:



Classes

- class gdcm::Version

  major/minor and build version

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Version &v)

13.86 gdcmVersion.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVERSION_H
00015 #define GDCMVERSION_H
00016
00017 #include "gdcmTypes.h"
00018 #include <iostream>
00019
00020 namespace gdcm
00021 {
00026 //-----------------------------------------------------------------------------
00027 class GDCM_EXPORT Version
00028 {
00029   friend std::ostream& operator<<(std::ostream &_os, const Version &v);
00030 public :
00031   static const char *GetVersion();
00032   static int GetMajorVersion();
00033   static int GetMinorVersion();
00034   static int GetBuildVersion();
00035
00036   void Print(std::ostream &os = std::cout) const;
00037
00038 //protected:
00039   Version() = default;
00040   ~Version() = default;
00041 };
00042 //-----------------------------------------------------------------------------
00043 inline std::ostream& operator<<(std::ostream &os, const Version &v)
00044 {
00045   v.Print( os );
00046   return os;
00047 }
00048
00049 } // end namespace gdcm
00050 //-----------------------------------------------------------------------------
00051 #endif //GDCMVERSION_H
```

13.87 gdcmWin32.h File Reference

This graph shows which files directly or indirectly include this file:

Macros

- #define GDCM_EXPORT

13.87.1 Macro Definition Documentation

13.87.1.1 GDCM_EXPORT

```
#define GDCM_EXPORT
```

Referenced by gdcm::terminal::setattribute(), gdcm::terminal::setbgcolor(), gdcm::terminal::setfgcolor(), and gdcm::terminal::setmode().

13.88 gdcmWin32.h

Go to the documentation of this file.

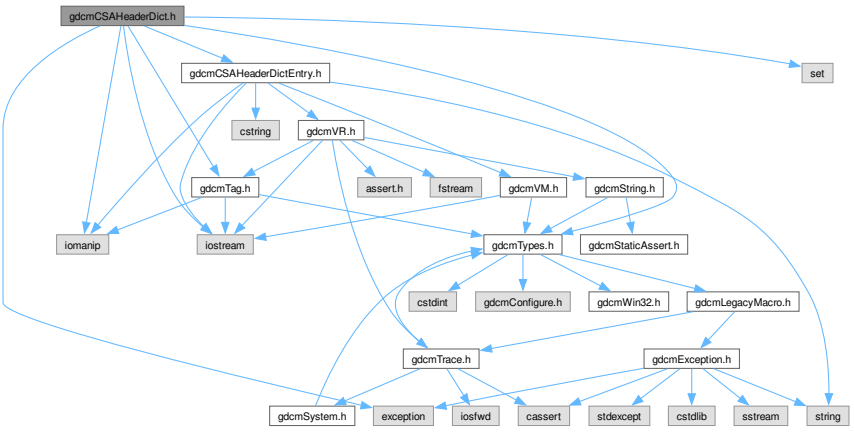
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMWIN32_H
00016 #define GDCMWIN32_H
00017
00018 #if !defined(GDCMTYPES_H)
00019 #error you need to include gdcmTypes.h instead
00020 #endif
00021 //-----------------------------------------------------------------------------
00022 // http://gcc.gnu.org/wiki/Visibility
00023 #if defined(_WIN32) && defined(GDCM_BUILD_SHARED_LIBS)
00024   #if (defined(gdcmCommon_EXPORTS) || defined(gdcmDICT_EXPORTS) || defined(gdcmDSED_EXPORTS) ||
      defined(gdcmIOD_EXPORTS) || defined(gdcmMSFF_EXPORTS) || defined(gdcmMEXD_EXPORTS)||
      defined(_gdcmswig_EXPORTS)) || defined(vtkgdcm_EXPORTS)
00025     #define GDCM_EXPORT __declspec( dllexport )
00026   #else
00027     #define GDCM_EXPORT __declspec( dllimport )
00028   #endif
00029 #else
00030   #if __GNUC__ >= 4 && defined(GDCM_BUILD_SHARED_LIBS)
00031     #define GDCM_EXPORT __attribute__ ((visibility ("default")))
00032     #define GDCM_LOCAL  __attribute__ ((visibility ("hidden")))
00033   #else
00034     #define GDCM_EXPORT
00035   #endif
00036 #endif
00037
00038 #if defined(GDCM_OVERRIDE_BROKEN_IMPLEMENTATION) && !defined(GDCM_FORCE_EXPORT)
00039 #undef GDCM_EXPORT
00040 #define GDCM_EXPORT
00041 #endif
00042
00043 // In VTK 4.2 vtkWrapPython does not like anything other than VTK_*EXPORT
00044 // [ 86%] Generating vtkGDCMImageReaderPython.cxx
00045 // syntax error
```

```
00046 // *** SYNTAX ERROR found in parsing the header file
      /usr/local/src/gdcm2/tags/gdcm-2-0-11/Utilities/VTK/vtkGDCMImageReader.h before line 128***
00047 // make[2]: *** [Utilities/VTK/vtkGDCMImageReaderPython.cxx] Error 1
00048 // make[1]: *** [Utilities/VTK/CMakeFiles/vtkgdcmPythonD.dir/all] Error 2
00049 // make: *** [all] Error 2
00050
00051 #if defined(VTK_MAJOR_VERSION) && ( VTK_MAJOR_VERSION == 4 )
00052 #undef VTK_EXPORT
00053 #define VTK_EXPORT GDCM_EXPORT
00054 #endif
00055
00056 //----------------------------------------------------------------------------
00057 //This is needed when compiling in debug mode
00058 #ifdef _MSC_VER
00059 // to allow construct such as: std::numeric_limits<int>::max() we need the following:
00060 // warning C4003: not enough actual parameters for macro 'max'
00061 #ifndef NOMINMAX
00062   #define NOMINMAX
00063 #endif
00064 # pragma warning ( default : 4263 ) /* no override, call convention differs */
00065 // 'identifier' : class 'type' needs to have dll-interface to be used by
00066 // clients of class 'type2'
00067 #pragma warning ( disable : 4251 )
00068 // non dll-interface class 'type' used as base for dll-interface class 'type2'
00069 #pragma warning ( disable : 4275 )
00070 // 'identifier' : identifier was truncated to 'number' characters in the
00071 // debug information
00072 #pragma warning ( disable : 4786 )
00073 //'identifier' : decorated name length exceeded, name was truncated
00074 #pragma warning ( disable : 4503 )
00075 #endif //_MSC_VER
00076
00077 //----------------------------------------------------------------------------
00078 #endif //GDCMWIN32_H
```

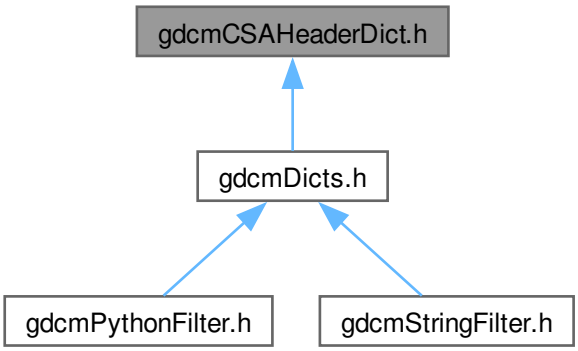
13.89 gdcmCSAHeaderDict.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmCSAHeaderDictEntry.h"
#include <iostream>
#include <iomanip>
#include <set>
#include <exception>
```

Include dependency graph for gdcmCSAHeaderDict.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CSAHeaderDict

  Class to represent a map of CSAHeaderDictEntry.
- class gdcm::CSAHeaderDictException

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CSAHeaderDict &val)

13.90 gdcmCSAHeaderDict.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCSAHEADERDICT_H
```

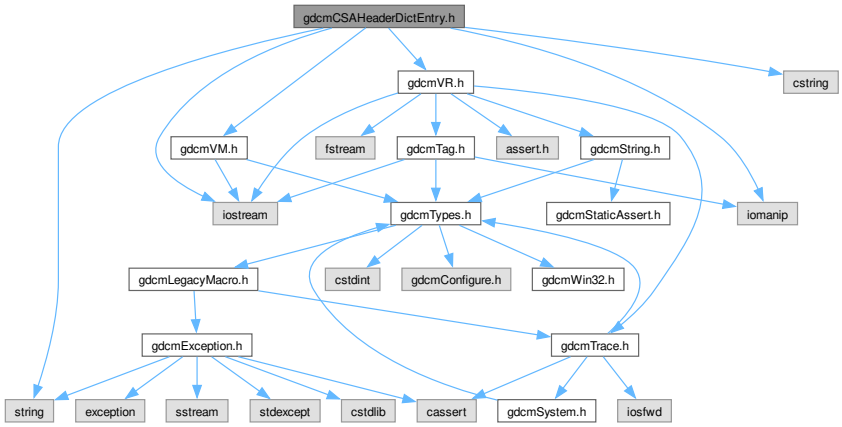
```
00015 #define GDCMCSAHEADERDICT_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include "gdcmCSAHeaderDictEntry.h"
00020
00021 #include <iostream>
00022 #include <iomanip>
00023 #include <set>
00024 #include <exception>
00025
00026 namespace gdcm
00027 {
00028
00029 class GDCM_EXPORT CSAHeaderDictException : public std::exception {};
00030
00034 class GDCM_EXPORT CSAHeaderDict
00035 {
00036 public:
00037   typedef std::set<CSAHeaderDictEntry> MapCSAHeaderDictEntry;
00038   typedef MapCSAHeaderDictEntry::iterator Iterator;
00039   typedef MapCSAHeaderDictEntry::const_iterator ConstIterator;
00040   //static CSAHeaderDictEntry GroupLengthCSAHeaderDictEntry; // = CSAHeaderDictEntry("Group
      Length",VR::UL,VM::VM1);
00041
00042   CSAHeaderDict():CSAHeaderDictInternal() {
00043     gdcm_assert( CSAHeaderDictInternal.empty() );
00044   }
00045   CSAHeaderDict &operator=(const CSAHeaderDict &_val) = delete;
00046   CSAHeaderDict(const CSAHeaderDict &_val) = delete;
00047
00048   friend std::ostream& operator«(std::ostream& _os, const CSAHeaderDict &_val);
00049
00050   ConstIterator Begin() const { return CSAHeaderDictInternal.begin(); }
00051   ConstIterator End() const { return CSAHeaderDictInternal.end(); }
00052
00053   bool IsEmpty() const { return CSAHeaderDictInternal.empty(); }
00054   void AddCSAHeaderDictEntry(const CSAHeaderDictEntry &de)
00055     {
00056 #ifndef NDEBUG
00057     MapCSAHeaderDictEntry::size_type s = CSAHeaderDictInternal.size();
00058 #endif
00059     CSAHeaderDictInternal.insert( de );
00060 #ifndef NDEBUG
00061     gdcm_assert( s < CSAHeaderDictInternal.size() );
00062 #endif
00063     }
00064
00065   const CSAHeaderDictEntry &GetCSAHeaderDictEntry(const char *name) const
00066     {
00067     MapCSAHeaderDictEntry::const_iterator it = CSAHeaderDictInternal.find( name );
00068     if( it != CSAHeaderDictInternal.end() )
00069       {
00070       return *it;
00071       }
00072     throw CSAHeaderDictException();
00073     }
00074
00075 protected:
00076   friend class Dicts;
00077   void LoadDefault();
00078
00079 private:
00080
00081   MapCSAHeaderDictEntry CSAHeaderDictInternal;
00082 };
00083 //-----------------------------------------------------------------------------
00084 inline std::ostream& operator«(std::ostream& os, const CSAHeaderDict &val)
00085 {
00086   CSAHeaderDict::MapCSAHeaderDictEntry::const_iterator it = val.CSAHeaderDictInternal.begin();
00087   for(;it != val.CSAHeaderDictInternal.end(); ++it)
00088     {
00089     const CSAHeaderDictEntry &de = *it;
00090     os « de « '\n';
00091     }
00092
00093
00094   return os;
00095 }
00096
00097
```

```
00098 } // end namespace gdcm
00099
00100 #endif //GDCMCSAHEADERDICT_H
```

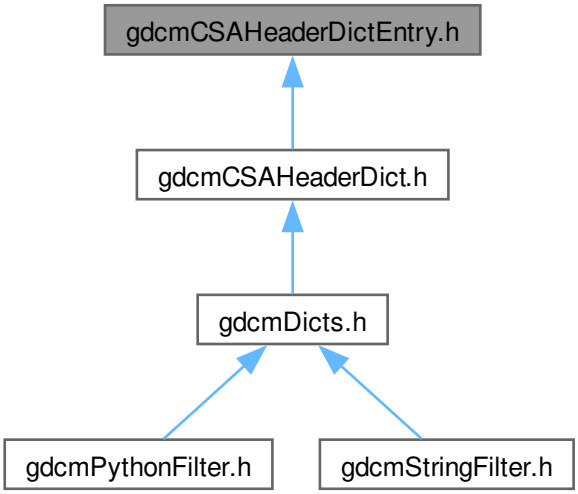
13.91 gdcmCSAHeaderDictEntry.h File Reference

```
#include "gdcmVR.h"
#include "gdcmVM.h"
#include <string>
#include <iostream>
#include <iomanip>
#include <cstring>
```

Include dependency graph for gdcmCSAHeaderDictEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CSAHeaderDictEntry

  Class to represent an Entry in the Dict.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CSAHeaderDictEntry &val)

13.92 gdcmCSAHeaderDictEntry.h

Go to the documentation of this file.

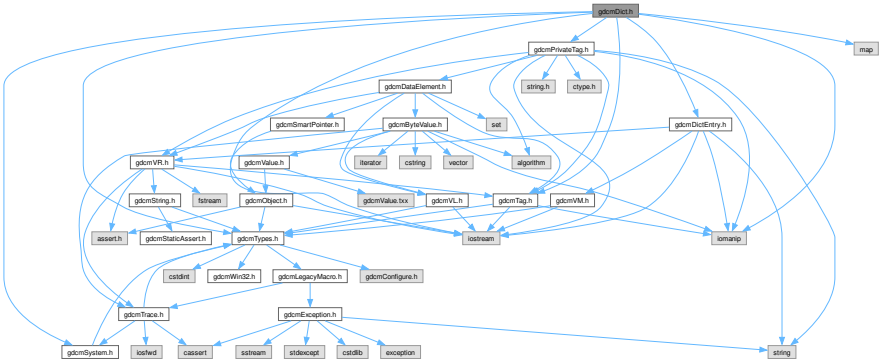
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
```

```
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCSAHEADERDICTENTRY_H
00015 #define GDCMCSAHEADERDICTENTRY_H
00016
00017 #include "gdcmVR.h"
00018 #include "gdcmVM.h"
00019
00020 #include <string>
00021 #include <iostream>
00022 #include <iomanip>
00023
00024 #include <cstring>
00025
00026 namespace gdcm
00027 {
00038 class GDCM_EXPORT CSAHeaderDictEntry
00039 {
00040 public:
00041   CSAHeaderDictEntry(const char *name = "", VR const &vr = VR::INVALID, VM const &vm = VM::VM0, const char
      *desc = ""):Name(name),ValueRepresentation(vr),ValueMultiplicity(vm),Description(desc) {
00042   }
00043
00044   friend std::ostream& operator«(std::ostream& _os, const CSAHeaderDictEntry &_val);
00045
00047   const VR &GetVR() const { return ValueRepresentation; }
00048   void SetVR(const VR & vr) { ValueRepresentation = vr; }
00049
00051   const VM &GetVM() const { return ValueMultiplicity; }
00052   void SetVM(VM const & vm) { ValueMultiplicity = vm; }
00053
00055   const char *GetName() const { return Name.c_str(); }
00056   void SetName(const char* name) { Name = name; }
00057
00059   const char *GetDescription() const { return Description.c_str(); }
00060   void SetDescription(const char* desc) { Description = desc; }
00061
00062   bool operator<(const CSAHeaderDictEntry &entry) const
00063     {
00064     return strcmp(GetName(),entry.GetName()) < 0;
00065     }
00066
00067 private:
00068   std::string Name;
00069   VR ValueRepresentation;
00070   VM ValueMultiplicity;
00071   std::string Description;
00072   std::string Type; // TODO
00073 };
00074
00075
00076 //-----------------------------------------------------------------------------
00077 inline std::ostream& operator«(std::ostream& os, const CSAHeaderDictEntry &val)
00078 {
00079   if( val.Name.empty() )
00080     {
00081     os « "[No name]";
00082     }
00083   else
00084     {
00085     os « val.Name;
00086     }
00087   os « "\t" « val.ValueRepresentation « "\t" « val.ValueMultiplicity;
00088   if( !val.Description.empty() )
00089     {
00090     os « "\t" « val.Description;
00091     }
00092   return os;
00093 }
00094
00095 } // end namespace gdcm
00096
00097 #endif //GDCMCSAHEADERDICTENTRY_H
```

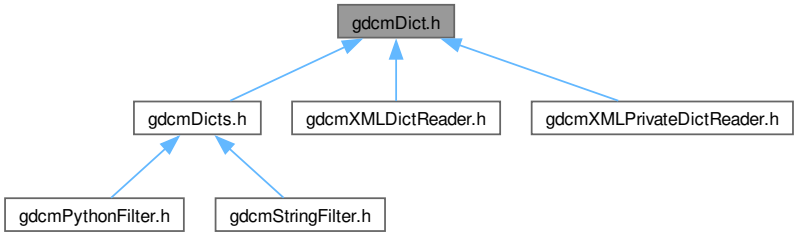
13.93 gdcmDict.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmDictEntry.h"
#include "gdcmSystem.h"
#include <iostream>
#include <iomanip>
#include <map>
```

Include dependency graph for gdcmDict.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Dict

  Class to represent a map of DictEntry.
- class gdcm::PrivateDict

  Private Dict.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Dict &val)
- std::ostream & gdcm::operator<< (std::ostream &os, const PrivateDict &val)

13.94 gdcmDict.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDICT_H
00015 #define GDCMDICT_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include "gdcmPrivateTag.h"
00020 #include "gdcmDictEntry.h"
00021 #include "gdcmSystem.h"
00022
00023 #include <iostream>
00024 #include <iomanip>
00025 #include <map>
00026
00027 /*
00028  * FIXME / TODO
00029  * I need to seriously rewrite this mess. a class template should work for both a public
00030  * and a private dict
00031  */
00032
00033 namespace gdcm
00034 {
00035 // Data Element Tag
00044 class GDCM_EXPORT Dict
00045 {
00046 public:
00047   typedef std::map<Tag, DictEntry> MapDictEntry;
00048   typedef MapDictEntry::iterator Iterator;
00049   typedef MapDictEntry::const_iterator ConstIterator;
00050   //static DictEntry GroupLengthDictEntry; // = DictEntry("Group Length",VR::UL,VM::VM1);
00051
00052   Dict():DictInternal() {
00053     gdcm_assert( DictInternal.empty() );
00054   }
00055   Dict &operator=(const Dict &_val) = delete;
00056   Dict(const Dict &_val) = delete;
00057
00058
00059   friend std::ostream& operator«(std::ostream& _os, const Dict &_val);
00060
00061   ConstIterator Begin() const { return DictInternal.begin(); }
00062   ConstIterator End() const { return DictInternal.end(); }
00063
00064   bool IsEmpty() const { return DictInternal.empty(); }
00065   void AddDictEntry(const Tag &tag, const DictEntry &de)
```

```
00066     {
00067 #ifndef NDEBUG
00068     MapDictEntry::size_type s = DictInternal.size();
00069 #endif
00070     DictInternal.insert(
00071       MapDictEntry::value_type(tag, de));
00072 #ifndef NDEBUG
00073     gdcm_assert( s < DictInternal.size() );
00074 #endif
00075     }
00076
00077   const DictEntry &GetDictEntry(const Tag &tag) const
00078     {
00079     MapDictEntry::const_iterator it =
00080       DictInternal.find(tag);
00081     if (it == DictInternal.end())
00082       {
00083 #ifdef UNKNOWNPUBLICTAG
00084       // test.acr
00085       if( tag != Tag(0x28,0x15)
00086         && tag != Tag(0x28,0x16)
00087         && tag != Tag(0x28,0x199)
00088         // gdcmData/TheralysGDCM1.dcm
00089         && tag != Tag(0x20,0x1)
00090         // gdcmData/0019004_Baseline_IMG1.dcm
00091         && tag != Tag(0x8348,0x339)
00092         && tag != Tag(0xb5e8,0x338)
00093         // gdcmData/dicomdir_Acusson_WithPrivate_WithSR
00094         && tag != Tag(0x40,0xa125)
00095       )
00096         {
00097         gdcm_assert( 0 && "Impossible" );
00098         }
00099 #endif
00100       it = DictInternal.find( Tag(0xffff,0xffff) );
00101       return it->second;
00102       }
00103     gdcm_assert( DictInternal.count(tag) == 1 );
00104     return it->second;
00105     }
00106
00108   const char *GetKeywordFromTag(Tag const & tag) const
00109     {
00110     MapDictEntry::const_iterator it =
00111       DictInternal.find(tag);
00112     if (it == DictInternal.end())
00113       {
00114       return nullptr;
00115       }
00116     gdcm_assert( DictInternal.count(tag) == 1 );
00117     return it->second.GetKeyword();
00118     }
00119
00124   const DictEntry &GetDictEntryByKeyword(const char *keyword, Tag & tag) const
00125     {
00126     MapDictEntry::const_iterator it =
00127       DictInternal.begin();
00128     if( keyword )
00129       {
00130       for(; it != DictInternal.end(); ++it)
00131         {
00132         if( strcmp( keyword, it->second.GetKeyword() ) == 0 )
00133           {
00134           // Found a match !
00135           tag = it->first;
00136           break;
00137           }
00138         }
00139       }
00140     else
00141       {
00142       it = DictInternal.end();
00143       }
00144     if (it == DictInternal.end())
00145       {
00146       tag = Tag(0xffff,0xffff);
00147       it = DictInternal.find( tag );
00148       return it->second;
00149       }
00150     gdcm_assert( DictInternal.count(tag) == 1 );
00151     return it->second;
```

```
00152     }
00153
00157   const DictEntry &GetDictEntryByName(const char *name, Tag & tag) const
00158     {
00159     MapDictEntry::const_iterator it =
00160       DictInternal.begin();
00161     if( name )
00162       {
00163       for(; it != DictInternal.end(); ++it)
00164         {
00165         if( strcmp( name, it->second.GetName() ) == 0 )
00166           {
00167           // Found a match !
00168           tag = it->first;
00169           break;
00170           }
00171         }
00172       }
00173     else
00174       {
00175       it = DictInternal.end();
00176       }
00177     if (it == DictInternal.end())
00178       {
00179       tag = Tag(0xffff,0xffff);
00180       it = DictInternal.find( tag );
00181       return it->second;
00182       }
00183     gdcm_assert( DictInternal.count(tag) == 1 );
00184     return it->second;
00185     }
00186
00187 protected:
00188   friend class Dicts;
00189   void LoadDefault();
00190
00191 private:
00192   MapDictEntry DictInternal;
00193 };
00194 //-----------------------------------------------------------------------------
00195 inline std::ostream& operator«(std::ostream& os, const Dict &val)
00196 {
00197   Dict::MapDictEntry::const_iterator it = val.DictInternal.begin();
00198   for(;it != val.DictInternal.end(); ++it)
00199     {
00200     const Tag &t = it->first;
00201     const DictEntry &de = it->second;
00202     os « t « " " « de « '\n';
00203     }
00204
00205   return os;
00206 }
00207
00208 // TODO
00209 // For private dict, element < 0x10 should automatically defined:
00210 // Name = "Private Creator"
00211 // ValueRepresentation = LO
00212 // ValueMultiplicity = 1
00213 // Owner = ""
00214
00218 class GDCM_EXPORT PrivateDict
00219 {
00220   typedef std::map<PrivateTag, DictEntry> MapDictEntry;
00221   friend std::ostream& operator«(std::ostream& os, const PrivateDict &val);
00222 public:
00223   PrivateDict() = default;
00224   ~PrivateDict() = default;
00225   void AddDictEntry(const PrivateTag &tag, const DictEntry &de)
00226     {
00227 #ifndef NDEBUG
00228     MapDictEntry::size_type s = DictInternal.size();
00229 #endif
00230     DictInternal.insert(
00231       MapDictEntry::value_type(tag, de));
00232 // The following code should only be used when manually constructing a Private.xml file by hand
00233 // it will get rid of VR::UN duplicate (ie. if a VR != VR::Un can be found)
00234 #if defined(NDEBUG) && 0
00235     if( s == DictInternal.size() )
00236       {
00237       MapDictEntry::iterator it =
00238         DictInternal.find(tag);
```

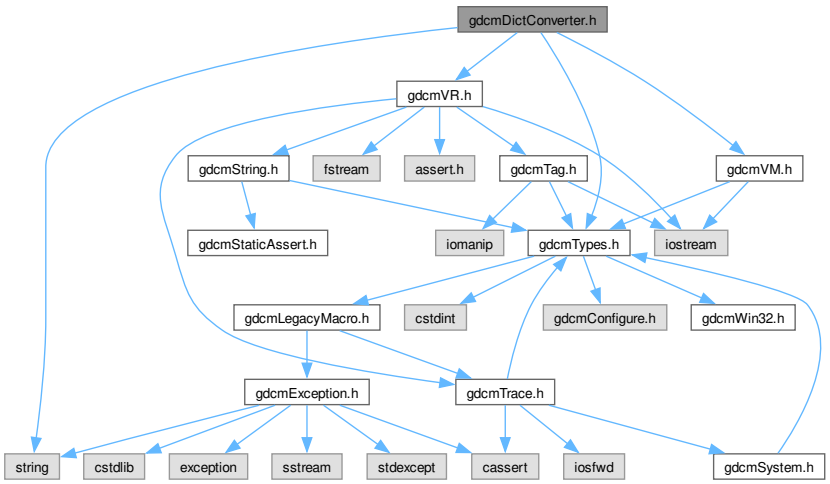
```
00239       gdcm_assert( it != DictInternal.end() );
00240       DictEntry &duplicate = it->second;
00241       gdcm_assert( de.GetVR() == VR::UN || duplicate.GetVR() == VR::UN );
00242       gdcm_assert( de.GetVR() != duplicate.GetVR() );
00243       if( duplicate.GetVR() == VR::UN )
00244         {
00245         gdcm_assert( de.GetVR() != VR::UN );
00246         duplicate.SetVR( de.GetVR() );
00247         duplicate.SetVM( de.GetVM() );
00248         gdcm_assert( GetDictEntry(tag).GetVR() != VR::UN );
00249         gdcm_assert( GetDictEntry(tag).GetVR() == de.GetVR() );
00250         gdcm_assert( GetDictEntry(tag).GetVM() == de.GetVM() );
00251         }
00252       return;
00253       }
00254 #endif
00255 #ifndef NDEBUG
00256     gdcm_assert( s < DictInternal.size() /*&& std::cout « tag « "," « de « std::endl*/ );
00257 #endif
00258     }
00261   bool RemoveDictEntry(const PrivateTag &tag)
00262     {
00263     MapDictEntry::size_type s =
00264       DictInternal.erase(tag);
00265     gdcm_assert( s == 1 || s == 0 );
00266     return s == 1;
00267     }
00268   bool FindDictEntry(const PrivateTag &tag) const
00269     {
00270     MapDictEntry::const_iterator it =
00271       DictInternal.find(tag);
00272     if (it == DictInternal.end())
00273       {
00274       return false;
00275       }
00276     return true;
00277     }
00278   const DictEntry &GetDictEntry(const PrivateTag &tag) const
00279     {
00280     // if 0x10 -> return Private Creator
00281     MapDictEntry::const_iterator it =
00282       DictInternal.find(tag);
00283     if (it == DictInternal.end())
00284       {
00285       //gdcm_assert( 0 && "Impossible" );
00286       it = DictInternal.find( PrivateTag(0xffff,0xffff,"GDCM Private Sentinel" ) );
00287       assert (it != DictInternal.end());
00288       return it->second;
00289       }
00290     gdcm_assert( DictInternal.count(tag) == 1 );
00291     return it->second;
00292     }
00293
00294
00295   void PrintXML() const
00296     {
00297     MapDictEntry::const_iterator it = DictInternal.begin();
00298     std::cout « "<dict edition=\"2008\">\n";
00299     for(;it != DictInternal.end(); ++it)
00300       {
00301       const PrivateTag &t = it->first;
00302       const DictEntry &de = it->second;
00303       std::cout « "  <entry group=\"" « std::hex « std::setw(4)
00304         « std::setfill('0') « t.GetGroup() « "\"" «
00305         " element=\"xx" « std::setw(2) « std::setfill('0')« t.GetElement() « "\"" « " vr=\""
00306         « de.GetVR() « "\" vm=\"" « de.GetVM() « "\" owner=\""
00307         « t.GetOwner();
00308       const char *name = de.GetName();
00309       if( *name == 0 )
00310         {
00311         std::cout « "\"/>\n";
00312         }
00313       else
00314         {
00315         std::cout « "\" name=\"" « de.GetName() « "\"/>\n";
00316         }
00317       }
00318     std::cout « "</dict>\n";
00319     }
00320
00321   bool IsEmpty() const { return DictInternal.empty(); }
```

```
00322 protected:
00323   friend class Dicts;
00324   void LoadDefault();
00325
00326 private:
00327   PrivateDict &operator=(const PrivateDict &_val) = delete;
00328   PrivateDict(const PrivateDict &_val) = delete;
00329
00330   MapDictEntry DictInternal;
00331 };
00332 //-----------------------------------------------------------------------------
00333 inline std::ostream& operator«(std::ostream& os, const PrivateDict &val)
00334 {
00335   PrivateDict::MapDictEntry::const_iterator it = val.DictInternal.begin();
00336   for(;it != val.DictInternal.end(); ++it)
00337     {
00338     const PrivateTag &t = it->first;
00339     const DictEntry &de = it->second;
00340     os « t « " " « de « '\n';
00341     }
00342
00343   return os;
00344 }
00345
00346 } // end namespace gdcm
00347
00348 #endif //GDCMDICT_H
```

13.95 gdcmDictConverter.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmVM.h"
#include <string>
```

Include dependency graph for gdcmDictConverter.h:



Classes

- class gdcm::DictConverter

  Class to convert a .dic file into something else:

Namespaces

- namespace gdcm

13.96 gdcmDictConverter.h

Go to the documentation of this file.

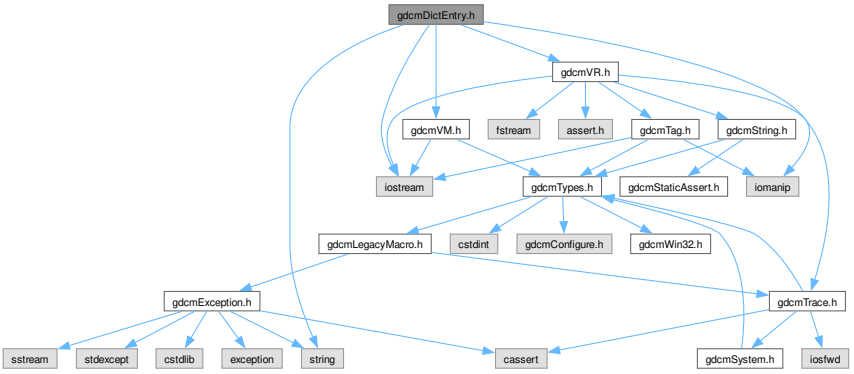
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMDICTCONVERTER_H
00016 #define GDCMDICTCONVERTER_H
00017
00018 #include "gdcmTypes.h"
00019 #include "gdcmVR.h"
00020 #include "gdcmVM.h"
00021
00022 #include <string>
00023
00024 namespace gdcm
00025 {
00026
00027 class DictConverterInternal;
00036 class GDCM_EXPORT DictConverter
00037 {
00038 public:
00039   DictConverter();
00040   ~DictConverter();
00041   void SetInputFileName(const char* filename);
00042   const std::string &GetInputFilename() const;
00043   void SetOutputFileName(const char* filename);
00044   const std::string &GetOutputFilename() const;
00045
00046   int GetOutputType() const {
00047     return OutputType;
00048   }
00049   void SetOutputType(int type) {
00050     OutputType = type;
00051   }
00052   const std::string &GetDictName() const;
00053   void SetDictName(const char *name);
00054
00055   void Convert();
00056
00057   // Leaving them public for now. Not really user oriented but may be
00058   // useful
00059   static bool ReadVR(const char *raw, VR::VRType &type);
00060   static bool ReadVM(const char *raw, VM::VMType &type);
00061   static bool Readuint16(const char *raw, uint16_t &ov);
00062
00063   enum OutputTypes {
00064     DICT_DEFAULT = 0,
00065     DICT_DEBUG,
00066     DICT_XML
00067   };
00068
00069 protected:
00070   void WriteHeader();
00071   void WriteFooter();
00072   bool ConvertToXML(const char *raw, std::string &cxx);
00073   bool ConvertToCXX(const char *raw, std::string &cxx);
00074   void AddGroupLength();
```

```
00075
00076 private:
00077   DictConverterInternal *Internal;
00078
00079   int OutputType;
00080 };
00081
00082 } // end namespace gdcm
00083
00084 #endif //GDCMDICTCONVERTER_H
```

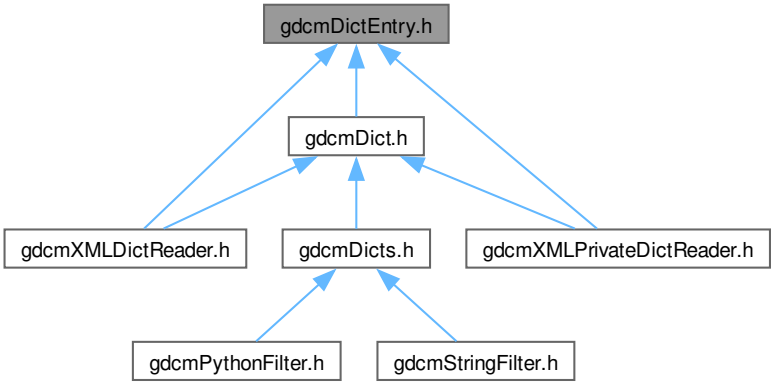
13.97 gdcmDictEntry.h File Reference

```
#include "gdcmVR.h"
#include "gdcmVM.h"
#include <string>
#include <iostream>
#include <iomanip>
```

Include dependency graph for gdcmDictEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::DictEntry

  Class to represent an Entry in the Dict.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const DictEntry &val)

13.98 gdcmDictEntry.h

Go to the documentation of this file.

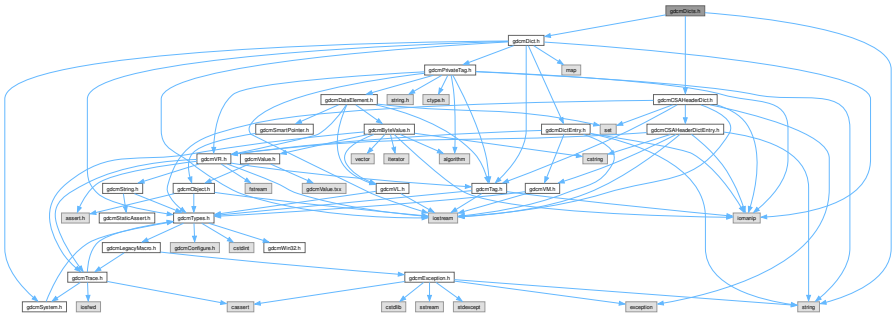
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDICTENTRY_H
00015 #define GDCMDICTENTRY_H
00016
00017 #include "gdcmVR.h"
00018 #include "gdcmVM.h"
00019
00020 #include <string>
00021 #include <iostream>
00022 #include <iomanip>
00023
00024 namespace gdcm
00025 {
00036 class GDCM_EXPORT DictEntry
00037 {
00038 public:
00039   DictEntry(const char *name = "", const char *keyword = "", VR const &vr = VR::INVALID, VM const &vm =
      VM::VM0, bool ret = false):
00040     Name(name),
00041     Keyword(keyword),
00042     ValueRepresentation(vr),
00043     ValueMultiplicity(vm),
00044     Retired(ret),
00045     GroupXX(false),
00046     ElementXX(false)
00047   {
00048   }
00049
00050   friend std::ostream& operator«(std::ostream& _os, const DictEntry &_val);
00051
00053   const VR &GetVR() const { return ValueRepresentation; }
00054   void SetVR(const VR & vr) { ValueRepresentation = vr; }
00055 //  bool IsValid() const { return ValueRepresentation != VR::VR_END; }
00056 //    !Name.empty() /*&& ValueRepresentation && ValueMultiplicity*/; }
00057
00059   const VM &GetVM() const { return ValueMultiplicity; }
00060   void SetVM(VM const & vm) { ValueMultiplicity = vm; }
```

```
00061
00063   const char *GetName() const { return Name.c_str(); }
00064   void SetName(const char* name) { Name = name; }
00065
00067   const char *GetKeyword() const { return Keyword.c_str(); }
00068   void SetKeyword(const char* keyword) { Keyword = keyword; }
00069
00071   bool GetRetired() const { return Retired; }
00072   void SetRetired(bool retired) { Retired = retired; }
00073
00074   // <entry group="50xx" element="0005" vr="US" vm="1" retired="true" version="3">
00076   void SetGroupXX(bool v) { GroupXX = v; }
00077
00078   // <entry group="0020" element="31xx" vr="CS" vm="1-n" retired="true" version="2">
00080   void SetElementXX(bool v) { ElementXX = v; }
00081
00084   bool IsUnique() const { return ElementXX == false && GroupXX == false; }
00085
00086 private:
00087   //
00088   friend class Dict;
00089   static bool CheckKeywordAgainstName(const char *name, const char *keyword);
00090
00091 private:
00092   std::string Name;
00093   std::string Keyword;
00094   VR ValueRepresentation;
00095   VM ValueMultiplicity;
00096   bool Retired : 1;
00097   bool GroupXX : 1;
00098   bool ElementXX : 1;
00099 };
00100
00101 #if 0
00102 class GDCM_EXPORT PrivateDictEntry : public DictEntry
00103 {
00104 public:
00105   PrivateDictEntry(const char *name = "", VR::VRType const &vr = VR::INVALID, VM::VMType const &vm =
      VM::VM0 , bool ret = false, const char *owner = ""):DictEntry(name,vr,vm,ret),Owner(owner) {}
00106   PrivateDictEntry(const char *name, const char *vr, const char *vm):DictEntry(name,vr,vm) {}
00107
00108   const char *GetOwner() const { return Owner.c_str(); }
00109   void SetOwner(const char *owner) { Owner = owner; }
00110
00111 private:
00112   // SIEMENS MED, GEMS_PETD_01 ...
00113   std::string Owner;
00114 };
00115 #endif
00116
00117 //-----------------------------------------------------------------------------
00118 inline std::ostream& operator<<(std::ostream& os, const DictEntry &val)
00119 {
00120   if( val.Name.empty() )
00121     {
00122     os << "[No name]";
00123     }
00124   else
00125     {
00126     os << val.Name;
00127     }
00128   if( val.Keyword.empty() )
00129     {
00130     os << "[No keyword]";
00131     }
00132   else
00133     {
00134     os << val.Keyword;
00135     }
00136   os << "\t" << val.ValueRepresentation << "\t" << val.ValueMultiplicity;
00137   if( val.Retired )
00138     {
00139     os << "\t(RET)";
00140     }
00141   return os;
00142 }
00143
00144 } // end namespace gdcm
00145
00146 #endif //GDCMDICTENTRY_H
```

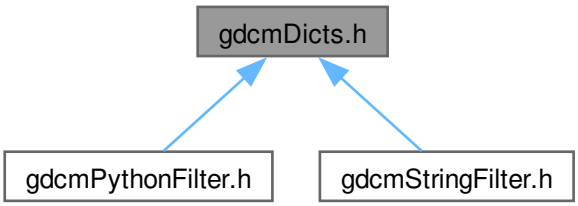
13.99 gdcmDicts.h File Reference

```
#include "gdcmDict.h"
#include "gdcmCSAHeaderDict.h"
#include <string>
```

Include dependency graph for gdcmDicts.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Dicts

  Class to manipulate the sum of knowledge (all the dict user load).

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Dicts &d)

13.100 gdcmDicts.h

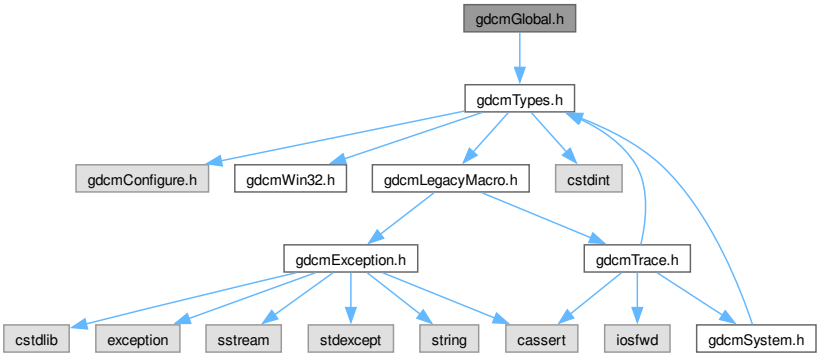
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDICTS_H
00015 #define GDCMDICTS_H
00016
00017 #include "gdcmDict.h"
00018 #include "gdcmCSAHeaderDict.h"
00019
00020 #include <string>
00021
00022 namespace gdcm
00023 {
00028 class GDCM_EXPORT Dicts
00029 {
00030   friend std::ostream& operator<<(std::ostream &_os, const Dicts &d);
00031 public:
00032   Dicts();
00033   ~Dicts();
00034   Dicts &operator=(const Dicts &_val) = delete;
00035   Dicts(const Dicts &_val) = delete;
00036
00040   // DataSet::GetPrivateCreator
00042   const DictEntry &GetDictEntry(const Tag& tag, const char *owner = nullptr) const;
00043
00044   const DictEntry &GetDictEntry(const PrivateTag& tag) const;
00045
00046   //enum PublicTypes {
00047   //  DICOMV3_DICT,
00048   //  ACRNEMA_DICT,
00049   //  NIH_DICT
00050   //};
00051   const Dict &GetPublicDict() const;
00052
00053   const PrivateDict &GetPrivateDict() const;
00054   PrivateDict &GetPrivateDict();
00055
00056   const CSAHeaderDict &GetCSAHeaderDict() const;
00057
00058   bool IsEmpty() const { return GetPublicDict().IsEmpty(); }
00059
00060 protected:
00061   typedef enum {
00062     PHILIPS,
00063     GEMS,
00064     SIEMENS
00065   //  ...
00066   } ConstructorType;
00067   static const char *GetConstructorString(ConstructorType type);
00068
00069   friend class Global;
00070   void LoadDefaults();
00071
00072 private:
00073   // Public dict:
00074   Dict PublicDict;
00075
00076   // Private Dicts:
00077   PrivateDict ShadowDict;
00078
00079   CSAHeaderDict CSADict;
00080 };
00081 //-----------------------------------------------------------------------------
00082 inline std::ostream& operator<<(std::ostream &os, const Dicts &d)
00083 {
```

```
00084   (void)d;
00085   return os;
00086 }
00087
00088
00089 } // end namespace gdcm
00090
00091 #endif //GDCMDICTS_H
```

13.101 gdcmGlobal.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmGlobal.h:



Classes

- class gdcm::Global
  Global.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Global &g)

Variables

- static Global gdcm::GlobalInstance

13.102 gdcmGlobal.h

Go to the documentation of this file.

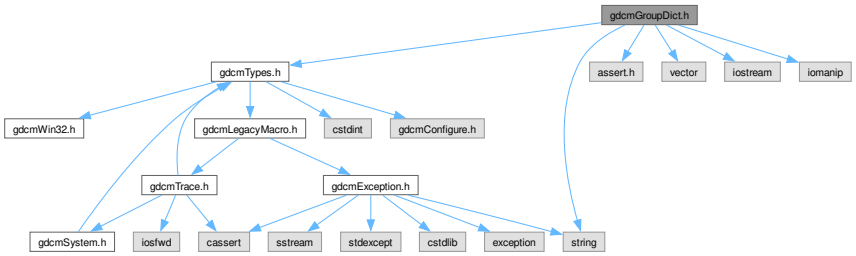
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // Implementation detail was shamelessly borowed from the VTK excellent
00015 // implementation of debug leak manager singleton:
00016 /*=========================================================================
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkDebugLeaks.cxx,v $
00020
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
00023   See Copyright.txt or http://www.kitware.com/Copyright.htm for details.
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 #ifndef GDCMGLOBAL_H
00031 #define GDCMGLOBAL_H
00032
00033 #include "gdcmTypes.h"
00034
00035 namespace gdcm
00036 {
00037 class GlobalInternal;
00038 class Dicts;
00039 class Defs;
00049 class GDCM_EXPORT Global // why expose the symbol I think I only need to expose the instance...
00050 {
00051   friend std::ostream& operator<<(std::ostream &_os, const Global &g);
00052 public:
00053   Global();
00054   ~Global();
00055   Global &operator=(const Global &_val) = delete;
00056   Global(const Global &_val) = delete;
00057
00060   Dicts const &GetDicts() const;
00061   Dicts &GetDicts();
00062
00065   Defs const &GetDefs() const;
00066
00068   static Global& GetInstance();
00069
00073   bool LoadResourcesFiles();
00074
00077   bool Append(const char *path);
00078
00081   bool Prepend(const char *path);
00082
00083 protected:
00085   const char *Locate(const char *resfile) const;
00086
00087 private:
00088   // PIMPL:
00089   // but we could have also directly exposed a Dicts *Internals;
00090   static GlobalInternal *Internals;
00091 };
00092 //-----------------------------------------------------------------------------
00093 inline std::ostream& operator<<(std::ostream &os, const Global &g)
00094 {
00095   (void)g;
00096   return os;
00097 }
```

```
00098
00099 // This instance will show up in any translation unit that uses
00100 // Global or that has a singleton.  It will make sure
00101 // Global is initialized before it is used and is the last
00102 // static object destroyed.
00103 static Global GlobalInstance;
00104
00105 } // end namespace gdcm
00106
00107 #endif //GDCMGLOBAL_H
```

13.103 gdcmGroupDict.h File Reference

```
#include "gdcmTypes.h"
#include <assert.h>
#include <vector>
#include <string>
#include <iostream>
#include <iomanip>
```

Include dependency graph for gdcmGroupDict.h:



Classes

- class gdcm::GroupDict

  Class to represent the mapping from group number to its abbreviation and name.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const GroupDict &_val)

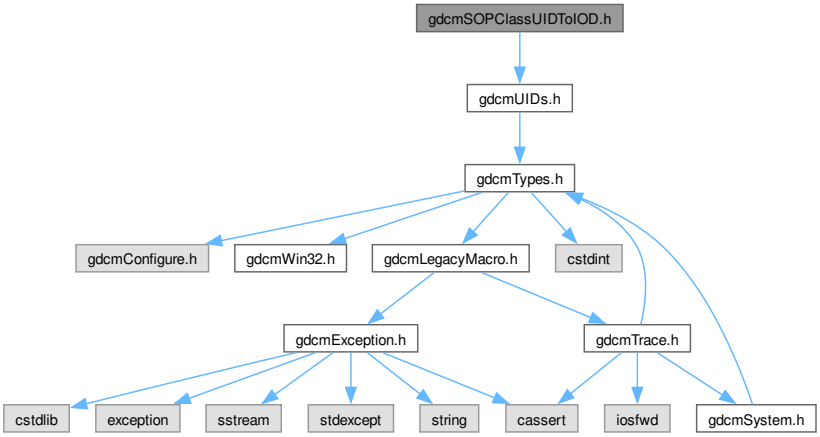
13.104 gdcmGroupDict.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMGROUPDICT_H
00016 #define GDCMGROUPDICT_H
00017
00018 #include "gdcmTypes.h"
00019
00020 #include <assert.h>
00021 #include <vector>
00022 #include <string>
00023 #include <iostream>
00024 #include <iomanip>
00025
00026 namespace gdcm
00027 {
00033 class GDCM_EXPORT GroupDict
00034 {
00035 public:
00036   typedef std::vector<std::string> GroupStringVector;
00037   GroupDict() { FillDefaultGroupName(); }
00038   ~GroupDict() = default;
00039
00040   friend std::ostream& operator<<(std::ostream& _os, const GroupDict &_val);
00041
00042   size_t Size() const
00043     {
00044     gdcm_assert( Names.size() == Abbreviations.size() );
00045     return Names.size(); }
00046
00047   std::string const &GetAbbreviation(uint16_t num) const;
00048
00049   std::string const &GetName(uint16_t num) const;
00050
00051 protected:
00052   void Add(std::string const &abbreviation, std::string const &name);
00053   void Insert(uint16_t num, std::string const &abbreviation, std::string const &name);
00054
00055 private:
00056   // Generated implementation, see gdcmDefaultGroupNames
00057   void FillDefaultGroupName();
00058
00059   GroupDict &operator=(const GroupDict &_val); // purposely not implemented
00060   GroupDict(const GroupDict &_val); // purposely not implemented
00061
00062   GroupStringVector Abbreviations;
00063   GroupStringVector Names;
00064 };
00065 //-----------------------------------------------------------------------------
00066 inline std::ostream& operator<<(std::ostream& _os, const GroupDict &_val)
00067 {
00068   size_t size = _val.Size();
00069   for(size_t i=0; i<size; ++i)
00070     {
00071     _os << std::hex << std::setw(4) << std::setfill( '0' ) << i << ","
00072       << _val.GetAbbreviation((uint16_t)i) << "," << _val.GetName((uint16_t)i) << "\n";
00073     }
00074   return _os;
00075 }
00076
00077 } // end namespace gdcm
00078
00079 #endif //GDCMGROUPDICT_H
```

13.105 gdcmSOPClassUIDToIOD.h File Reference

`#include "gdcmUIDs.h"`
Include dependency graph for gdcmSOPClassUIDToIOD.h:



Classes

- class gdcm::SOPClassUIDToIOD

  Class convert a class SOP Class UID into IOD.

Namespaces

- namespace gdcm

13.106 gdcmSOPClassUIDToIOD.h

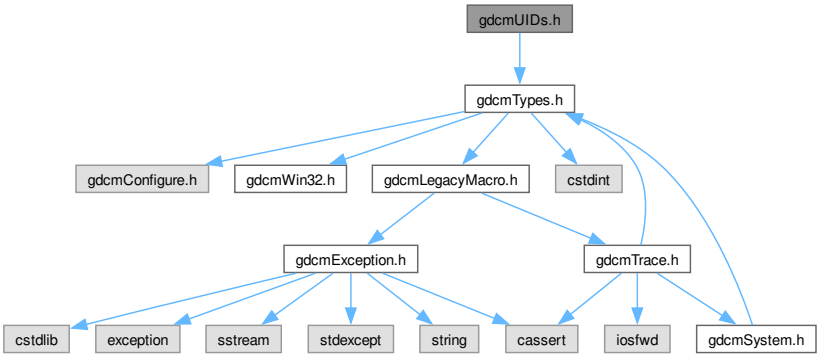
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMSOPCLASSUIDTOIOD_H
00016 #define GDCMSOPCLASSUIDTOIOD_H
00017
```

```
00018 #include "gdcmUIDs.h"
00019
00020 namespace gdcm
00021 {
00022
00028 class GDCM_EXPORT SOPClassUIDToIOD
00029 {
00030 public:
00033   static const char *GetIOD(UIDs const & uid);
00034
00036   static unsigned int GetNumberOfSOPClassToIOD();
00037
00038   typedef const char* const (SOPClassUIDToIODType)[2];
00039   static SOPClassUIDToIODType* GetSOPClassUIDToIODs();
00040
00041   static SOPClassUIDToIODType& GetSOPClassUIDToIOD(unsigned int i);
00042
00043   static const char *GetSOPClassUIDFromIOD(const char *iod);
00044   static const char *GetIODFromSOPClassUID(const char *sopclassuid);
00045 };
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMSOPCLASSUIDTOIOD_H
```

13.107 gdcmUIDs.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmUIDs.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::UIDs

  all known uids

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const UIDs &uid)

13.108 gdcmUIDs.h

Go to the documentation of this file.

```
00001
00002 // GENERATED FILE DO NOT EDIT
00003 // $ xsltproc UIDToC++.xsl Part6.xml > gdcmUIDs.h
00004
00005 /*=========================================================================
00006
00007   Program: GDCM (Grassroots DICOM). A DICOM library
00008
00009   Copyright (c) 2006-2011 Mathieu Malaterre
00010   All rights reserved.
00011   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00012
00013      This software is distributed WITHOUT ANY WARRANTY; without even
00014      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00015      PURPOSE.  See the above copyright notice for more information.
00016
00017 =========================================================================*/
00018
00019 #ifndef GDCMUIDS_H
00020 #define GDCMUIDS_H
00021
00022 #include "gdcmTypes.h"
00023
00024 namespace gdcm
00025 {
00026
00030 class GDCM_EXPORT UIDs
00031 {
00032 public:
00033   typedef enum {
00034 uid_1_2_840_10008_1_1 = 1, // Verification SOP Class
00035 uid_1_2_840_10008_1_2 = 2, // Implicit VR Little Endian: Default Transfer Syntax for DICOM
00036 uid_1_2_840_10008_1_2_1 = 3, // Explicit VR Little Endian
00037 uid_1_2_840_10008_1_2_1_99 = 4, // Deflated Explicit VR Little Endian
00038 uid_1_2_840_10008_1_2_2 = 5, // Explicit VR Big Endian
00039 uid_1_2_840_10008_1_2_4_50 = 6, // JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit
      Image Compression
00040 uid_1_2_840_10008_1_2_4_51 = 7, // JPEG Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG
      12 Bit Image Compression (Process 4 only)
00041 uid_1_2_840_10008_1_2_4_52 = 8, // JPEG Extended (Process 3 & 5)
00042 uid_1_2_840_10008_1_2_4_53 = 9, // JPEG Spectral Selection, Non-Hierarchical (Process 6 & 8)
00043 uid_1_2_840_10008_1_2_4_54 = 10, // JPEG Spectral Selection, Non-Hierarchical (Process 7 & 9)
00044 uid_1_2_840_10008_1_2_4_55 = 11, // JPEG Full Progression, Non-Hierarchical (Process 10 & 12)
00045 uid_1_2_840_10008_1_2_4_56 = 12, // JPEG Full Progression, Non-Hierarchical (Process 11 & 13)
00046 uid_1_2_840_10008_1_2_4_57 = 13, // JPEG Lossless, Non-Hierarchical (Process 14)
00047 uid_1_2_840_10008_1_2_4_58 = 14, // JPEG Lossless, Non-Hierarchical (Process 15)
00048 uid_1_2_840_10008_1_2_4_59 = 15, // JPEG Extended, Hierarchical (Process 16 & 18)
00049 uid_1_2_840_10008_1_2_4_60 = 16, // JPEG Extended, Hierarchical (Process 17 & 19)
00050 uid_1_2_840_10008_1_2_4_61 = 17, // JPEG Spectral Selection, Hierarchical (Process 20 & 22)
00051 uid_1_2_840_10008_1_2_4_62 = 18, // JPEG Spectral Selection, Hierarchical (Process 21 & 23)
00052 uid_1_2_840_10008_1_2_4_63 = 19, // JPEG Full Progression, Hierarchical (Process 24 & 26)
00053 uid_1_2_840_10008_1_2_4_64 = 20, // JPEG Full Progression, Hierarchical (Process 25 & 27)
00054 uid_1_2_840_10008_1_2_4_65 = 21, // JPEG Lossless, Hierarchical (Process 28)
00055 uid_1_2_840_10008_1_2_4_66 = 22, // JPEG Lossless, Hierarchical (Process 29)
00056 uid_1_2_840_10008_1_2_4_70 = 23, // JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14
      [Selection Value 1]): Default Transfer Syntax for Lossless JPEG Image Compression
00057 uid_1_2_840_10008_1_2_4_80 = 24, // JPEG-LS Lossless Image Compression
00058 uid_1_2_840_10008_1_2_4_81 = 25, // JPEG-LS Lossy (Near-Lossless) Image Compression
00059 uid_1_2_840_10008_1_2_4_90 = 26, // JPEG 2000 Image Compression (Lossless Only)
```

```
00060 uid_1_2_840_10008_1_2_4_91 = 27, // JPEG 2000 Image Compression
00061 uid_1_2_840_10008_1_2_4_92 = 28, // JPEG 2000 Part 2 Multi-component Image Compression (Lossless Only)
00062 uid_1_2_840_10008_1_2_4_93 = 29, // JPEG 2000 Part 2 Multi-component Image Compression
00063 uid_1_2_840_10008_1_2_4_94 = 30, // JPIP Referenced
00064 uid_1_2_840_10008_1_2_4_95 = 31, // JPIP Referenced Deflate
00065 uid_1_2_840_10008_1_2_4_100 = 32, // MPEG2 Main Profile @ Main Level
00066 uid_1_2_840_10008_1_2_5 = 33, // RLE Lossless
00067 uid_1_2_840_10008_1_2_6_1 = 34, // RFC 2557 MIME encapsulation
00068 uid_1_2_840_10008_1_2_6_2 = 35, // XML Encoding
00069 uid_1_2_840_10008_1_3_10 = 36, // Media Storage Directory Storage
00070 uid_1_2_840_10008_1_4_1_1 = 37, // Talairach Brain Atlas Frame of Reference
00071 uid_1_2_840_10008_1_4_1_2 = 38, // SPM2 T1 Frame of Reference
00072 uid_1_2_840_10008_1_4_1_3 = 39, // SPM2 T2 Frame of Reference
00073 uid_1_2_840_10008_1_4_1_4 = 40, // SPM2 PD Frame of Reference
00074 uid_1_2_840_10008_1_4_1_5 = 41, // SPM2 EPI Frame of Reference
00075 uid_1_2_840_10008_1_4_1_6 = 42, // SPM2 FIL T1 Frame of Reference
00076 uid_1_2_840_10008_1_4_1_7 = 43, // SPM2 PET Frame of Reference
00077 uid_1_2_840_10008_1_4_1_8 = 44, // SPM2 TRANSM Frame of Reference
00078 uid_1_2_840_10008_1_4_1_9 = 45, // SPM2 SPECT Frame of Reference
00079 uid_1_2_840_10008_1_4_1_10 = 46, // SPM2 GRAY Frame of Reference
00080 uid_1_2_840_10008_1_4_1_11 = 47, // SPM2 WHITE Frame of Reference
00081 uid_1_2_840_10008_1_4_1_12 = 48, // SPM2 CSF Frame of Reference
00082 uid_1_2_840_10008_1_4_1_13 = 49, // SPM2 BRAINMASK Frame of Reference
00083 uid_1_2_840_10008_1_4_1_14 = 50, // SPM2 AVG305T1 Frame of Reference
00084 uid_1_2_840_10008_1_4_1_15 = 51, // SPM2 AVG152T1 Frame of Reference
00085 uid_1_2_840_10008_1_4_1_16 = 52, // SPM2 AVG152T2 Frame of Reference
00086 uid_1_2_840_10008_1_4_1_17 = 53, // SPM2 AVG152PD Frame of Reference
00087 uid_1_2_840_10008_1_4_1_18 = 54, // SPM2 SINGLESUBJT1 Frame of Reference
00088 uid_1_2_840_10008_1_4_2_1 = 55, // ICBM 452 T1 Frame of Reference
00089 uid_1_2_840_10008_1_4_2_2 = 56, // ICBM Single Subject MRI Frame of Reference
00090 uid_1_2_840_10008_1_9 = 57, // Basic Study Content Notification SOP Class
00091 uid_1_2_840_10008_1_20_1 = 58, // Storage Commitment Push Model SOP Class
00092 uid_1_2_840_10008_1_20_1_1 = 59, // Storage Commitment Push Model SOP Instance
00093 uid_1_2_840_10008_1_20_2 = 60, // Storage Commitment Pull Model SOP Class
00094 uid_1_2_840_10008_1_20_2_1 = 61, // Storage Commitment Pull Model SOP Instance
00095 uid_1_2_840_10008_1_40 = 62, // Procedural Event Logging SOP Class
00096 uid_1_2_840_10008_1_40_1 = 63, // Procedural Event Logging SOP Instance
00097 uid_1_2_840_10008_1_42 = 64, // Substance Administration Logging SOP Class
00098 uid_1_2_840_10008_1_42_1 = 65, // Substance Administration Logging SOP Instance
00099 uid_1_2_840_10008_2_6_1 = 66, // DICOM UID Registry
00100 uid_1_2_840_10008_2_16_4 = 67, // DICOM Controlled Terminology
00101 uid_1_2_840_10008_3_1_1_1 = 68, // DICOM Application Context Name
00102 uid_1_2_840_10008_3_1_2_1_1 = 69, // Detached Patient Management SOP Class
00103 uid_1_2_840_10008_3_1_2_1_4 = 70, // Detached Patient Management Meta SOP Class
00104 uid_1_2_840_10008_3_1_2_2_1 = 71, // Detached Visit Management SOP Class
00105 uid_1_2_840_10008_3_1_2_3_1 = 72, // Detached Study Management SOP Class
00106 uid_1_2_840_10008_3_1_2_3_2 = 73, // Study Component Management SOP Class
00107 uid_1_2_840_10008_3_1_2_3_3 = 74, // Modality Performed Procedure Step SOP Class
00108 uid_1_2_840_10008_3_1_2_3_4 = 75, // Modality Performed Procedure Step Retrieve SOP Class
00109 uid_1_2_840_10008_3_1_2_3_5 = 76, // Modality Performed Procedure Step Notification SOP Class
00110 uid_1_2_840_10008_3_1_2_5_1 = 77, // Detached Results Management SOP Class
00111 uid_1_2_840_10008_3_1_2_5_4 = 78, // Detached Results Management Meta SOP Class
00112 uid_1_2_840_10008_3_1_2_5_5 = 79, // Detached Study Management Meta SOP Class
00113 uid_1_2_840_10008_3_1_2_6_1 = 80, // Detached Interpretation Management SOP Class
00114 uid_1_2_840_10008_4_2 = 81, // Storage Service Class
00115 uid_1_2_840_10008_5_1_1_1 = 82, // Basic Film Session SOP Class
00116 uid_1_2_840_10008_5_1_1_2 = 83, // Basic Film Box SOP Class
00117 uid_1_2_840_10008_5_1_1_4 = 84, // Basic Grayscale Image Box SOP Class
00118 uid_1_2_840_10008_5_1_1_4_1 = 85, // Basic Color Image Box SOP Class
00119 uid_1_2_840_10008_5_1_1_4_2 = 86, // Referenced Image Box SOP Class
00120 uid_1_2_840_10008_5_1_1_9 = 87, // Basic Grayscale Print Management Meta SOP Class
00121 uid_1_2_840_10008_5_1_1_9_1 = 88, // Referenced Grayscale Print Management Meta SOP Class
00122 uid_1_2_840_10008_5_1_1_14 = 89, // Print Job SOP Class
00123 uid_1_2_840_10008_5_1_1_15 = 90, // Basic Annotation Box SOP Class
00124 uid_1_2_840_10008_5_1_1_16 = 91, // Printer SOP Class
00125 uid_1_2_840_10008_5_1_1_16_376 = 92, // Printer Configuration Retrieval SOP Class
00126 uid_1_2_840_10008_5_1_1_17 = 93, // Printer SOP Instance
00127 uid_1_2_840_10008_5_1_1_17_376 = 94, // Printer Configuration Retrieval SOP Instance
00128 uid_1_2_840_10008_5_1_1_18 = 95, // Basic Color Print Management Meta SOP Class
00129 uid_1_2_840_10008_5_1_1_18_1 = 96, // Referenced Color Print Management Meta SOP Class
00130 uid_1_2_840_10008_5_1_1_22 = 97, // VOI LUT Box SOP Class
00131 uid_1_2_840_10008_5_1_1_23 = 98, // Presentation LUT SOP Class
00132 uid_1_2_840_10008_5_1_1_24 = 99, // Image Overlay Box SOP Class
00133 uid_1_2_840_10008_5_1_1_24_1 = 100, // Basic Print Image Overlay Box SOP Class
00134 uid_1_2_840_10008_5_1_1_25 = 101, // Print Queue SOP Instance
00135 uid_1_2_840_10008_5_1_1_26 = 102, // Print Queue Management SOP Class
00136 uid_1_2_840_10008_5_1_1_27 = 103, // Stored Print Storage SOP Class
00137 uid_1_2_840_10008_5_1_1_29 = 104, // Hardcopy Grayscale Image Storage SOP Class
00138 uid_1_2_840_10008_5_1_1_30 = 105, // Hardcopy Color Image Storage SOP Class
00139 uid_1_2_840_10008_5_1_1_31 = 106, // Pull Print Request SOP Class
00140 uid_1_2_840_10008_5_1_1_32 = 107, // Pull Stored Print Management Meta SOP Class
```

```
00141 uid_1_2_840_10008_5_1_1_33 = 108, // Media Creation Management SOP Class UID
00142 uid_1_2_840_10008_5_1_4_1_1_1 = 109, // Computed Radiography Image Storage
00143 uid_1_2_840_10008_5_1_4_1_1_1_1 = 110, // Digital X-Ray Image Storage - For Presentation
00144 uid_1_2_840_10008_5_1_4_1_1_1_1_1 = 111, // Digital X-Ray Image Storage - For Processing
00145 uid_1_2_840_10008_5_1_4_1_1_1_2 = 112, // Digital Mammography X-Ray Image Storage - For Presentation
00146 uid_1_2_840_10008_5_1_4_1_1_1_2_1 = 113, // Digital Mammography X-Ray Image Storage - For Processing
00147 uid_1_2_840_10008_5_1_4_1_1_1_3 = 114, // Digital Intra-oral X-Ray Image Storage - For Presentation
00148 uid_1_2_840_10008_5_1_4_1_1_1_3_1 = 115, // Digital Intra-oral X-Ray Image Storage - For Processing
00149 uid_1_2_840_10008_5_1_4_1_1_2 = 116, // CT Image Storage
00150 uid_1_2_840_10008_5_1_4_1_1_2_1 = 117, // Enhanced CT Image Storage
00151 uid_1_2_840_10008_5_1_4_1_1_3 = 118, // Ultrasound Multi-frame Image Storage
00152 uid_1_2_840_10008_5_1_4_1_1_3_1 = 119, // Ultrasound Multi-frame Image Storage
00153 uid_1_2_840_10008_5_1_4_1_1_4 = 120, // MR Image Storage
00154 uid_1_2_840_10008_5_1_4_1_1_4_1 = 121, // Enhanced MR Image Storage
00155 uid_1_2_840_10008_5_1_4_1_1_4_2 = 122, // MR Spectroscopy Storage
00156 uid_1_2_840_10008_5_1_4_1_1_5 = 123, // Nuclear Medicine Image Storage
00157 uid_1_2_840_10008_5_1_4_1_1_6 = 124, // Ultrasound Image Storage
00158 uid_1_2_840_10008_5_1_4_1_1_6_1 = 125, // Ultrasound Image Storage
00159 uid_1_2_840_10008_5_1_4_1_1_7 = 126, // Secondary Capture Image Storage
00160 uid_1_2_840_10008_5_1_4_1_1_7_1 = 127, // Multi-frame Single Bit Secondary Capture Image Storage
00161 uid_1_2_840_10008_5_1_4_1_1_7_2 = 128, // Multi-frame Grayscale Byte Secondary Capture Image Storage
00162 uid_1_2_840_10008_5_1_4_1_1_7_3 = 129, // Multi-frame Grayscale Word Secondary Capture Image Storage
00163 uid_1_2_840_10008_5_1_4_1_1_7_4 = 130, // Multi-frame True Color Secondary Capture Image Storage
00164 uid_1_2_840_10008_5_1_4_1_1_8 = 131, // Standalone Overlay Storage
00165 uid_1_2_840_10008_5_1_4_1_1_9 = 132, // Standalone Curve Storage
00166 uid_1_2_840_10008_5_1_4_1_1_9_1 = 133, // Waveform Storage - Trial
00167 uid_1_2_840_10008_5_1_4_1_1_9_1_1 = 134, // 12-lead ECG Waveform Storage
00168 uid_1_2_840_10008_5_1_4_1_1_9_1_2 = 135, // General ECG Waveform Storage
00169 uid_1_2_840_10008_5_1_4_1_1_9_1_3 = 136, // Ambulatory ECG Waveform Storage
00170 uid_1_2_840_10008_5_1_4_1_1_9_2_1 = 137, // Hemodynamic Waveform Storage
00171 uid_1_2_840_10008_5_1_4_1_1_9_3_1 = 138, // Cardiac Electrophysiology Waveform Storage
00172 uid_1_2_840_10008_5_1_4_1_1_9_4_1 = 139, // Basic Voice Audio Waveform Storage
00173 uid_1_2_840_10008_5_1_4_1_1_10 = 140, // Standalone Modality LUT Storage
00174 uid_1_2_840_10008_5_1_4_1_1_11 = 141, // Standalone VOI LUT Storage
00175 uid_1_2_840_10008_5_1_4_1_1_11_1 = 142, // Grayscale Softcopy Presentation State Storage SOP Class
00176 uid_1_2_840_10008_5_1_4_1_1_11_2 = 143, // Color Softcopy Presentation State Storage SOP Class
00177 uid_1_2_840_10008_5_1_4_1_1_11_3 = 144, // Pseudo-Color Softcopy Presentation State Storage SOP Class
00178 uid_1_2_840_10008_5_1_4_1_1_11_4 = 145, // Blending Softcopy Presentation State Storage SOP Class
00179 uid_1_2_840_10008_5_1_4_1_1_12_1 = 146, // X-Ray Angiographic Image Storage
00180 uid_1_2_840_10008_5_1_4_1_1_12_1_1 = 147, // Enhanced XA Image Storage
00181 uid_1_2_840_10008_5_1_4_1_1_12_2 = 148, // X-Ray Radiofluoroscopic Image Storage
00182 uid_1_2_840_10008_5_1_4_1_1_12_2_1 = 149, // Enhanced XRF Image Storage
00183 uid_1_2_840_10008_5_1_4_1_1_13_1_1 = 150, // X-Ray 3D Angiographic Image Storage
00184 uid_1_2_840_10008_5_1_4_1_1_13_1_2 = 151, // X-Ray 3D Craniofacial Image Storage
00185 uid_1_2_840_10008_5_1_4_1_1_12_3 = 152, // X-Ray Angiographic Bi-Plane Image Storage
00186 uid_1_2_840_10008_5_1_4_1_1_20 = 153, // Nuclear Medicine Image Storage
00187 uid_1_2_840_10008_5_1_4_1_1_66 = 154, // Raw Data Storage
00188 uid_1_2_840_10008_5_1_4_1_1_66_1 = 155, // Spatial Registration Storage
00189 uid_1_2_840_10008_5_1_4_1_1_66_2 = 156, // Spatial Fiducials Storage
00190 uid_1_2_840_10008_5_1_4_1_1_66_3 = 157, // Deformable Spatial Registration Storage
00191 uid_1_2_840_10008_5_1_4_1_1_66_4 = 158, // Segmentation Storage
00192 uid_1_2_840_10008_5_1_4_1_1_67 = 159, // Real World Value Mapping Storage
00193 uid_1_2_840_10008_5_1_4_1_1_77_1 = 160, // VL Image Storage - Trial
00194 uid_1_2_840_10008_5_1_4_1_1_77_2 = 161, // VL Multi-frame Image Storage - Trial
00195 uid_1_2_840_10008_5_1_4_1_1_77_1_1 = 162, // VL Endoscopic Image Storage
00196 uid_1_2_840_10008_5_1_4_1_1_77_1_1_1 = 163, // Video Endoscopic Image Storage
00197 uid_1_2_840_10008_5_1_4_1_1_77_1_2 = 164, // VL Microscopic Image Storage
00198 uid_1_2_840_10008_5_1_4_1_1_77_1_2_1 = 165, // Video Microscopic Image Storage
00199 uid_1_2_840_10008_5_1_4_1_1_77_1_3 = 166, // VL Slide-Coordinates Microscopic Image Storage
00200 uid_1_2_840_10008_5_1_4_1_1_77_1_4 = 167, // VL Photographic Image Storage
00201 uid_1_2_840_10008_5_1_4_1_1_77_1_4_1 = 168, // Video Photographic Image Storage
00202 uid_1_2_840_10008_5_1_4_1_1_77_1_5_1 = 169, // Ophthalmic Photography 8 Bit Image Storage
00203 uid_1_2_840_10008_5_1_4_1_1_77_1_5_2 = 170, // Ophthalmic Photography 16 Bit Image Storage
00204 uid_1_2_840_10008_5_1_4_1_1_77_1_5_3 = 171, // Stereometric Relationship Storage
00205 uid_1_2_840_10008_5_1_4_1_1_77_1_5_4 = 172, // Ophthalmic Tomography Image Storage
00206 uid_1_2_840_10008_5_1_4_1_1_88_1 = 173, // Text SR Storage - Trial
00207 uid_1_2_840_10008_5_1_4_1_1_88_2 = 174, // Audio SR Storage - Trial
00208 uid_1_2_840_10008_5_1_4_1_1_88_3 = 175, // Detail SR Storage - Trial
00209 uid_1_2_840_10008_5_1_4_1_1_88_4 = 176, // Comprehensive SR Storage - Trial
00210 uid_1_2_840_10008_5_1_4_1_1_88_11 = 177, // Basic Text SR Storage
00211 uid_1_2_840_10008_5_1_4_1_1_88_22 = 178, // Enhanced SR Storage
00212 uid_1_2_840_10008_5_1_4_1_1_88_33 = 179, // Comprehensive SR Storage
00213 uid_1_2_840_10008_5_1_4_1_1_88_40 = 180, // Procedure Log Storage
00214 uid_1_2_840_10008_5_1_4_1_1_88_50 = 181, // Mammography CAD SR Storage
00215 uid_1_2_840_10008_5_1_4_1_1_88_59 = 182, // Key Object Selection Document Storage
00216 uid_1_2_840_10008_5_1_4_1_1_88_65 = 183, // Chest CAD SR Storage
00217 uid_1_2_840_10008_5_1_4_1_1_88_67 = 184, // X-Ray Radiation Dose SR Storage
00218 uid_1_2_840_10008_5_1_4_1_1_104_1 = 185, // Encapsulated PDF Storage
00219 uid_1_2_840_10008_5_1_4_1_1_104_2 = 186, // Encapsulated CDA Storage
00220 uid_1_2_840_10008_5_1_4_1_1_128 = 187, // Positron Emission Tomography Image Storage
00221 uid_1_2_840_10008_5_1_4_1_1_129 = 188, // Standalone PET Curve Storage
```

```
00222 uid_1_2_840_10008_5_1_4_1_1_481_1 = 189, // RT Image Storage
00223 uid_1_2_840_10008_5_1_4_1_1_481_2 = 190, // RT Dose Storage
00224 uid_1_2_840_10008_5_1_4_1_1_481_3 = 191, // RT Structure Set Storage
00225 uid_1_2_840_10008_5_1_4_1_1_481_4 = 192, // RT Beams Treatment Record Storage
00226 uid_1_2_840_10008_5_1_4_1_1_481_5 = 193, // RT Plan Storage
00227 uid_1_2_840_10008_5_1_4_1_1_481_6 = 194, // RT Brachy Treatment Record Storage
00228 uid_1_2_840_10008_5_1_4_1_1_481_7 = 195, // RT Treatment Summary Record Storage
00229 uid_1_2_840_10008_5_1_4_1_1_481_8 = 196, // RT Ion Plan Storage
00230 uid_1_2_840_10008_5_1_4_1_1_481_9 = 197, // RT Ion Beams Treatment Record Storage
00231 uid_1_2_840_10008_5_1_4_1_2_1_1 = 198, // Patient Root Query/Retrieve Information Model - FIND
00232 uid_1_2_840_10008_5_1_4_1_2_1_2 = 199, // Patient Root Query/Retrieve Information Model - MOVE
00233 uid_1_2_840_10008_5_1_4_1_2_1_3 = 200, // Patient Root Query/Retrieve Information Model - GET
00234 uid_1_2_840_10008_5_1_4_1_2_2_1 = 201, // Study Root Query/Retrieve Information Model - FIND
00235 uid_1_2_840_10008_5_1_4_1_2_2_2 = 202, // Study Root Query/Retrieve Information Model - MOVE
00236 uid_1_2_840_10008_5_1_4_1_2_2_3 = 203, // Study Root Query/Retrieve Information Model - GET
00237 uid_1_2_840_10008_5_1_4_1_2_3_1 = 204, // Patient/Study Only Query/Retrieve Information Model - FIND
00238 uid_1_2_840_10008_5_1_4_1_2_3_2 = 205, // Patient/Study Only Query/Retrieve Information Model - MOVE
00239 uid_1_2_840_10008_5_1_4_1_2_3_3 = 206, // Patient/Study Only Query/Retrieve Information Model - GET
00240 uid_1_2_840_10008_5_1_4_31 = 207, // Modality Worklist Information Model - FIND
00241 uid_1_2_840_10008_5_1_4_32_1 = 208, // General Purpose Worklist Information Model - FIND
00242 uid_1_2_840_10008_5_1_4_32_2 = 209, // General Purpose Scheduled Procedure Step SOP Class
00243 uid_1_2_840_10008_5_1_4_32_3 = 210, // General Purpose Performed Procedure Step SOP Class
00244 uid_1_2_840_10008_5_1_4_32 = 211, // General Purpose Worklist Management Meta SOP Class
00245 uid_1_2_840_10008_5_1_4_33 = 212, // Instance Availability Notification SOP Class
00246 uid_1_2_840_10008_5_1_4_34_1 = 213, // RT Beams Delivery Instruction Storage (Supplement 74 Frozen Draft)
00247 uid_1_2_840_10008_5_1_4_34_2 = 214, // RT Conventional Machine Verification (Supplement 74 Frozen Draft)
00248 uid_1_2_840_10008_5_1_4_34_3 = 215, // RT Ion Machine Verification (Supplement 74 Frozen Draft)
00249 uid_1_2_840_10008_5_1_4_34_4 = 216, // Unified Worklist and Procedure Step Service Class
00250 uid_1_2_840_10008_5_1_4_34_4_1 = 217, // Unified Procedure Step - Push SOP Class
00251 uid_1_2_840_10008_5_1_4_34_4_2 = 218, // Unified Procedure Step - Watch SOP Class
00252 uid_1_2_840_10008_5_1_4_34_4_3 = 219, // Unified Procedure Step - Pull SOP Class
00253 uid_1_2_840_10008_5_1_4_34_4_4 = 220, // Unified Procedure Step - Event SOP Class
00254 uid_1_2_840_10008_5_1_4_34_5 = 221, // Unified Worklist and Procedure Step SOP Instance
00255 uid_1_2_840_10008_5_1_4_37_1 = 222, // General Relevant Patient Information Query
00256 uid_1_2_840_10008_5_1_4_37_2 = 223, // Breast Imaging Relevant Patient Information Query
00257 uid_1_2_840_10008_5_1_4_37_3 = 224, // Cardiac Relevant Patient Information Query
00258 uid_1_2_840_10008_5_1_4_38_1 = 225, // Hanging Protocol Storage
00259 uid_1_2_840_10008_5_1_4_38_2 = 226, // Hanging Protocol Information Model - FIND
00260 uid_1_2_840_10008_5_1_4_38_3 = 227, // Hanging Protocol Information Model - MOVE
00261 uid_1_2_840_10008_5_1_4_41 = 228, // Product Characteristics Query SOP Class
00262 uid_1_2_840_10008_5_1_4_42 = 229, // Substance Approval Query SOP Class
00263 uid_1_2_840_10008_15_0_3_1 = 230, // dicomDeviceName
00264 uid_1_2_840_10008_15_0_3_2 = 231, // dicomDescription
00265 uid_1_2_840_10008_15_0_3_3 = 232, // dicomManufacturer
00266 uid_1_2_840_10008_15_0_3_4 = 233, // dicomManufacturerModelName
00267 uid_1_2_840_10008_15_0_3_5 = 234, // dicomSoftwareVersion
00268 uid_1_2_840_10008_15_0_3_6 = 235, // dicomVendorData
00269 uid_1_2_840_10008_15_0_3_7 = 236, // dicomAETitle
00270 uid_1_2_840_10008_15_0_3_8 = 237, // dicomNetworkConnectionReference
00271 uid_1_2_840_10008_15_0_3_9 = 238, // dicomApplicationCluster
00272 uid_1_2_840_10008_15_0_3_10 = 239, // dicomAssociationInitiator
00273 uid_1_2_840_10008_15_0_3_11 = 240, // dicomAssociationAcceptor
00274 uid_1_2_840_10008_15_0_3_12 = 241, // dicomHostname
00275 uid_1_2_840_10008_15_0_3_13 = 242, // dicomPort
00276 uid_1_2_840_10008_15_0_3_14 = 243, // dicomSOPClass
00277 uid_1_2_840_10008_15_0_3_15 = 244, // dicomTransferRole
00278 uid_1_2_840_10008_15_0_3_16 = 245, // dicomTransferSyntax
00279 uid_1_2_840_10008_15_0_3_17 = 246, // dicomPrimaryDeviceType
00280 uid_1_2_840_10008_15_0_3_18 = 247, // dicomRelatedDeviceReference
00281 uid_1_2_840_10008_15_0_3_19 = 248, // dicomPreferredCalledAETitle
00282 uid_1_2_840_10008_15_0_3_20 = 249, // dicomTLSCyphersuite
00283 uid_1_2_840_10008_15_0_3_21 = 250, // dicomAuthorizedNodeCertificateReference
00284 uid_1_2_840_10008_15_0_3_22 = 251, // dicomThisNodeCertificateReference
00285 uid_1_2_840_10008_15_0_3_23 = 252, // dicomInstalled
00286 uid_1_2_840_10008_15_0_3_24 = 253, // dicomStationName
00287 uid_1_2_840_10008_15_0_3_25 = 254, // dicomDeviceSerialNumber
00288 uid_1_2_840_10008_15_0_3_26 = 255, // dicomInstitutionName
00289 uid_1_2_840_10008_15_0_3_27 = 256, // dicomInstitutionAddress
00290 uid_1_2_840_10008_15_0_3_28 = 257, // dicomInstitutionDepartmentName
00291 uid_1_2_840_10008_15_0_3_29 = 258, // dicomIssuerOfPatientID
00292 uid_1_2_840_10008_15_0_3_30 = 259, // dicomPreferredCallingAETitle
00293 uid_1_2_840_10008_15_0_3_31 = 260, // dicomSupportedCharacterSet
00294 uid_1_2_840_10008_15_0_4_1 = 261, // dicomConfigurationRoot
00295 uid_1_2_840_10008_15_0_4_2 = 262, // dicomDevicesRoot
00296 uid_1_2_840_10008_15_0_4_3 = 263, // dicomUniqueAETitlesRegistryRoot
00297 uid_1_2_840_10008_15_0_4_4 = 264, // dicomDevice
00298 uid_1_2_840_10008_15_0_4_5 = 265, // dicomNetworkAE
00299 uid_1_2_840_10008_15_0_4_6 = 266, // dicomNetworkConnection
00300 uid_1_2_840_10008_15_0_4_7 = 267, // dicomUniqueAETitle
00301 uid_1_2_840_10008_15_0_4_8 = 268, // dicomTransferCapability
00302 //
```

```
00303 uid_1_2_840_10008_5_1_4_1_1_77_1_6 = 269, // VL Whole Slide Microscopy
00304 uid_1_2_840_10008_5_1_4_1_1_6_2     = 270, // Enhanced US Volume Storage
00305 uid_1_2_840_10008_5_1_4_1_1_66_5    = 271, // Surface Segmentation Storage
00306 uid_1_2_840_10008_5_1_4_1_1_13_1_3 = 272, // Breast Tomosynthesis Image Storage
00307 uid_1_2_840_10008_5_1_4_1_1_2_2     = 273, // Legacy Converted Enhanced CT
00308 uid_1_2_840_10008_5_1_4_1_1_4_4     = 274, // Legacy Converted Enhanced MR
00309 uid_1_2_840_10008_5_1_4_1_1_128_1   = 275, // Legacy Converted Enhanced PET
00310 uid_1_2_840_10008_1_2_4_101         = 276, // MPEG2 Main Profile High Level
00311 uid_1_2_840_10008_1_2_4_102         = 277, // MPEG-4 AVC/H.264 High Profile Lev. 4.1
00312 uid_1_2_840_10008_1_2_4_103         = 278, // MPEG-4 AVC/H.264 BD-comp High Profile Lev. 4.1
00313
00315 //
00316 // 2019b
00317 //
00318 uid_1_2_840_10008_1_5_2              = 279,
00319 uid_1_2_840_10008_1_5_3              = 280,
00320 uid_1_2_840_10008_1_5_4              = 281,
00321 uid_1_2_840_10008_1_5_5              = 282,
00322 uid_1_2_840_10008_1_5_6              = 283,
00323 uid_1_2_840_10008_1_5_7              = 284,
00324 uid_1_2_840_10008_1_5_8              = 285,
00325 uid_1_2_840_10008_1_20               = 286,
00326 uid_1_2_840_10008_2_16_5             = 287,
00327 uid_1_2_840_10008_2_16_6             = 288,
00328 uid_1_2_840_10008_2_16_7             = 289,
00329 uid_1_2_840_10008_2_16_8             = 290,
00330 uid_1_2_840_10008_2_16_9             = 291,
00331 uid_1_2_840_10008_2_16_10            = 292,
00332 uid_1_2_840_10008_2_16_11            = 293,
00333 uid_1_2_840_10008_2_16_12            = 294,
00334 uid_1_2_840_10008_2_16_13            = 295,
00335 uid_1_2_840_10008_2_16_14            = 296,
00336 uid_1_2_840_10008_5_1_1_40           = 297,
00337 uid_1_2_840_10008_5_1_1_40_1         = 298,
00338 uid_1_2_840_10008_5_1_4_1_1_9_4_2    = 299,
00339 uid_1_2_840_10008_5_1_4_1_1_9_5_1    = 300,
00340 uid_1_2_840_10008_5_1_4_1_1_9_6_1    = 301,
00341 uid_1_2_840_10008_5_1_4_1_1_11_5     = 302,
00342 uid_1_2_840_10008_5_1_4_1_1_11_6     = 303,
00343 uid_1_2_840_10008_1_2_4_104          = 304,
00344 uid_1_2_840_10008_1_2_4_105          = 305,
00345 uid_1_2_840_10008_1_2_4_106          = 306,
00346 uid_1_2_840_10008_1_2_4_107          = 307,
00347 uid_1_2_840_10008_1_2_4_108          = 308,
00348 uid_1_2_840_10008_1_5_1              = 309,
00349 uid_1_2_840_10008_5_1_4_1_1_11_7     = 310,
00350 uid_1_2_840_10008_5_1_4_1_1_11_8     = 311,
00351 uid_1_2_840_10008_5_1_4_1_1_11_9     = 312,
00352 uid_1_2_840_10008_5_1_4_1_1_11_10    = 313,
00353 uid_1_2_840_10008_5_1_4_1_1_11_11    = 314,
00354 uid_1_2_840_10008_5_1_4_1_1_12_77    = 315,
00355 uid_1_2_840_10008_5_1_4_1_1_13_1_4   = 316,
00356 uid_1_2_840_10008_5_1_4_1_1_13_1_5   = 317,
00357 uid_1_2_840_10008_5_1_4_1_1_14_1     = 318,
00358 uid_1_2_840_10008_5_1_4_1_1_14_2     = 319,
00359 uid_1_2_840_10008_5_1_4_1_1_30       = 320,
00360 uid_1_2_840_10008_5_1_4_1_1_40       = 321,
00361 uid_1_2_840_10008_5_1_4_1_1_66_6     = 322,
00362 uid_1_2_840_10008_5_1_4_1_1_68_1     = 323,
00363 uid_1_2_840_10008_5_1_4_1_1_68_2     = 324,
00364 uid_1_2_840_10008_5_1_4_1_1_77_1_5_5 = 325,
00365 uid_1_2_840_10008_5_1_4_1_1_77_1_5_6 = 326,
00366 uid_1_2_840_10008_5_1_4_1_1_77_1_5_7 = 327,
00367 uid_1_2_840_10008_5_1_4_1_1_77_1_5_8 = 328,
00368 uid_1_2_840_10008_5_1_4_1_1_78_1     = 329,
00369 uid_1_2_840_10008_5_1_4_1_1_78_2     = 330,
00370 uid_1_2_840_10008_5_1_4_1_1_78_3     = 331,
00371 uid_1_2_840_10008_5_1_4_1_1_78_4     = 332,
00372 uid_1_2_840_10008_5_1_4_1_1_78_5     = 333,
00373 uid_1_2_840_10008_5_1_4_1_1_78_6     = 334,
00374 uid_1_2_840_10008_5_1_4_1_1_78_7     = 335,
00375 uid_1_2_840_10008_5_1_4_1_1_78_8     = 336,
00376 uid_1_2_840_10008_5_1_4_1_1_79_1     = 337,
00377 uid_1_2_840_10008_5_1_4_1_1_80_1     = 338,
00378 uid_1_2_840_10008_5_1_4_1_1_81_1     = 339,
00379 uid_1_2_840_10008_5_1_4_1_1_82_1     = 340,
00380 uid_1_2_840_10008_5_1_4_1_1_88_34    = 341,
00381 uid_1_2_840_10008_5_1_4_1_1_88_35    = 342,
00382 uid_1_2_840_10008_5_1_4_1_1_88_68    = 343,
00383 uid_1_2_840_10008_5_1_4_1_1_88_69    = 344,
00384 uid_1_2_840_10008_5_1_4_1_1_88_70    = 345,
```

```
00385 uid_1_2_840_10008_5_1_4_1_1_88_71    = 346,
00386 uid_1_2_840_10008_5_1_4_1_1_88_72    = 347,
00387 uid_1_2_840_10008_5_1_4_1_1_88_73    = 348,
00388 uid_1_2_840_10008_5_1_4_1_1_88_74    = 349,
00389 uid_1_2_840_10008_5_1_4_1_1_88_75    = 350,
00390 uid_1_2_840_10008_5_1_4_1_1_90_1     = 351,
00391 uid_1_2_840_10008_5_1_4_1_1_104_3    = 352,
00392 uid_1_2_840_10008_5_1_4_1_1_130      = 353,
00393 uid_1_2_840_10008_5_1_4_1_1_131      = 354,
00394 uid_1_2_840_10008_5_1_4_1_1_200_1    = 355,
00395 uid_1_2_840_10008_5_1_4_1_1_200_2    = 356,
00396 uid_1_2_840_10008_5_1_4_1_1_200_3    = 357,
00397 uid_1_2_840_10008_5_1_4_1_1_200_4    = 358,
00398 uid_1_2_840_10008_5_1_4_1_1_200_5    = 359,
00399 uid_1_2_840_10008_5_1_4_1_1_200_6    = 360,
00400 uid_1_2_840_10008_5_1_4_1_1_481_10   = 361,
00401 uid_1_2_840_10008_5_1_4_1_1_481_11   = 362,
00402 uid_1_2_840_10008_5_1_4_1_1_501_1    = 363,
00403 uid_1_2_840_10008_5_1_4_1_1_501_2_1  = 364,
00404 uid_1_2_840_10008_5_1_4_1_1_501_2_2  = 365,
00405 uid_1_2_840_10008_5_1_4_1_1_501_3    = 366,
00406 uid_1_2_840_10008_5_1_4_1_1_501_4    = 367,
00407 uid_1_2_840_10008_5_1_4_1_1_501_5    = 368,
00408 uid_1_2_840_10008_5_1_4_1_1_501_6    = 369,
00409 uid_1_2_840_10008_5_1_4_1_1_601_1    = 370,
00410 uid_1_2_840_10008_5_1_4_1_1_601_2    = 371,
00411 uid_1_2_840_10008_5_1_4_1_2_4_2      = 372,
00412 uid_1_2_840_10008_5_1_4_1_2_4_3      = 373,
00413 uid_1_2_840_10008_5_1_4_1_2_5_3      = 374,
00414 uid_1_2_840_10008_5_1_4_20_1         = 375,
00415 uid_1_2_840_10008_5_1_4_20_2         = 376,
00416 uid_1_2_840_10008_5_1_4_20_3         = 377,
00417 uid_1_2_840_10008_5_1_4_34_5_1       = 378,
00418 uid_1_2_840_10008_5_1_4_34_6         = 379,
00419 uid_1_2_840_10008_5_1_4_34_6_1       = 380,
00420 uid_1_2_840_10008_5_1_4_34_6_2       = 381,
00421 uid_1_2_840_10008_5_1_4_34_6_3       = 382,
00422 uid_1_2_840_10008_5_1_4_34_6_4       = 383,
00423 uid_1_2_840_10008_5_1_4_34_7         = 384,
00424 uid_1_2_840_10008_5_1_4_34_8         = 385,
00425 uid_1_2_840_10008_5_1_4_34_9         = 386,
00426 uid_1_2_840_10008_5_1_4_34_10        = 387,
00427 uid_1_2_840_10008_5_1_4_38_4         = 388,
00428 uid_1_2_840_10008_5_1_4_39_1         = 389,
00429 uid_1_2_840_10008_5_1_4_39_2         = 390,
00430 uid_1_2_840_10008_5_1_4_39_3         = 391,
00431 uid_1_2_840_10008_5_1_4_39_4         = 392,
00432 uid_1_2_840_10008_5_1_4_43_1         = 393,
00433 uid_1_2_840_10008_5_1_4_43_2         = 394,
00434 uid_1_2_840_10008_5_1_4_43_3         = 395,
00435 uid_1_2_840_10008_5_1_4_43_4         = 396,
00436 uid_1_2_840_10008_5_1_4_44_1         = 397,
00437 uid_1_2_840_10008_5_1_4_44_2         = 398,
00438 uid_1_2_840_10008_5_1_4_44_3         = 399,
00439 uid_1_2_840_10008_5_1_4_44_4         = 400,
00440 uid_1_2_840_10008_5_1_4_45_1         = 401,
00441 uid_1_2_840_10008_5_1_4_45_2         = 402,
00442 uid_1_2_840_10008_5_1_4_45_3         = 403,
00443 uid_1_2_840_10008_5_1_4_45_4         = 404,
00444 uid_1_2_840_10008_7_1_1              = 405,
00445 uid_1_2_840_10008_7_1_2              = 406,
00446 uid_1_2_840_10008_8_1_1              = 407,
00447 uid_1_2_840_10008_5_1_4_1_1_4_3      = 408,
00448 uid_1_2_840_10008_15_1_1             = 409
00449 //
00450 //
00452
00454 //
00455 // Optionally private UIDs
00456 //
00457 #if 0
00458 uid_1_2_840_113619_4_2,
00459 uid_1_2_840_113619_4_3,
00460 uid_1_3_12_2_1107_5_9_1,
00461 uid_1_2_840_113619_4_26,
00462 uid_1_2_840_113619_4_30,
00463 uid_2_16_840_1_113709_1_5_1,
00464 uid_2_16_840_1_113709_1_2_2,
00465 uid_1_2_840_113543_6_6_1_3_10002,
00466 uid_1_2_392_200036_9116_7_8_1_1_1,
00467 uid_1_2_392_200036_9125_1_1_2,
```

```
00468 uid_1_2_840_113619_4_27,
00469 uid_1_3_46_670589_11_0_0_12_1,
00470 uid_1_3_46_670589_11_0_0_12_2,
00471 uid_1_3_46_670589_11_0_0_12_4,
00472 uid_1_3_46_670589_2_3_1_1,
00473 uid_1_3_46_670589_2_4_1_1,
00474 uid_1_3_46_670589_2_5_1_1,
00475 uid_1_3_46_670589_5_0_1,
00476 uid_1_3_46_670589_5_0_1_1,
00477 uid_1_3_46_670589_5_0_10,
00478 uid_1_3_46_670589_5_0_11,
00479 uid_1_3_46_670589_5_0_11_1,
00480 uid_1_3_46_670589_5_0_12,
00481 uid_1_3_46_670589_5_0_13,
00482 uid_1_3_46_670589_5_0_14,
00483 uid_1_3_46_670589_5_0_2,
00484 uid_1_3_46_670589_5_0_2_1,
00485 uid_1_3_46_670589_5_0_3,
00486 uid_1_3_46_670589_5_0_3_1,
00487 uid_1_3_46_670589_5_0_4,
00488 uid_1_3_46_670589_5_0_7,
00489 uid_1_3_46_670589_5_0_8,
00490 uid_1_3_46_670589_5_0_9,
00491 uid_1_2_752_24_3_7_6,
00492 uid_1_2_752_24_3_7_7,
00493 uid_1_2_840_113619_5_2,
00494 uid_1_3_46_670589_33_1_4_1
00495 #endif
00496 //
00497 //
00499
00500 } TSType;
00501   typedef enum {
00502 VerificationSOPClass = 1, // Verification SOP Class
00503 ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM = 2, // Implicit VR Little Endian: Default Transfer
      Syntax for DICOM
00504 ExplicitVRLittleEndian = 3, // Explicit VR Little Endian
00505 DeflatedExplicitVRLittleEndian = 4, // Deflated Explicit VR Little Endian
00506 ExplicitVRBigEndian = 5, // Explicit VR Big Endian
00507 JPEGBaselineProcess1DefaultTransferSyntaxforLossyJPEG8BitImageCompression = 6, // JPEG Baseline (Process
      1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression
00508 JPEGExtendedProcess24DefaultTransferSyntaxforLossyJPEG12BitImageCompressionProcess4only = 7, // JPEG
      Extended (Process 2 & 4): Default Transfer Syntax for Lossy JPEG 12 Bit Image Compression (Process 4 only)
00509 JPEGExtendedProcess35Retired = 8, // JPEG Extended (Process 3 & 5)
00510 JPEGSpectralSelectionNonHierarchicalProcess68Retired = 9, // JPEG Spectral Selection, Non-Hierarchical
      (Process 6 & 8)
00511 JPEGSpectralSelectionNonHierarchicalProcess79Retired = 10, // JPEG Spectral Selection, Non-Hierarchical
      (Process 7 & 9)
00512 JPEGFullProgressionNonHierarchicalProcess1012Retired = 11, // JPEG Full Progression, Non-Hierarchical
      (Process 10 & 12)
00513 JPEGFullProgressionNonHierarchicalProcess1113Retired = 12, // JPEG Full Progression, Non-Hierarchical
      (Process 11 & 13)
00514 JPEGLosslessNonHierarchicalProcess14 = 13, // JPEG Lossless, Non-Hierarchical (Process 14)
00515 JPEGLosslessNonHierarchicalProcess15Retired = 14, // JPEG Lossless, Non-Hierarchical (Process 15)
00516 JPEGExtendedHierarchicalProcess1618Retired = 15, // JPEG Extended, Hierarchical (Process 16 & 18)
00517 JPEGExtendedHierarchicalProcess1719Retired = 16, // JPEG Extended, Hierarchical (Process 17 & 19)
00518 JPEGSpectralSelectionHierarchicalProcess2022Retired = 17, // JPEG Spectral Selection, Hierarchical
      (Process 20 & 22)
00519 JPEGSpectralSelectionHierarchicalProcess2123Retired = 18, // JPEG Spectral Selection, Hierarchical
      (Process 21 & 23)
00520 JPEGFullProgressionHierarchicalProcess2426Retired = 19, // JPEG Full Progression, Hierarchical (Process 24
      & 26)
00521 JPEGFullProgressionHierarchicalProcess2527Retired = 20, // JPEG Full Progression, Hierarchical (Process 25
      & 27)
00522 JPEGLosslessHierarchicalProcess28Retired = 21, // JPEG Lossless, Hierarchical (Process 28)
00523 JPEGLosslessHierarchicalProcess29Retired = 22, // JPEG Lossless, Hierarchical (Process 29)
00524
      JPEGLosslessNonHierarchicalFirstOrderPredictionProcess14SelectionValue1DefaultTransferSyntaxforLosslessJPEGImageCompression
      = 23, // JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1]): Default
      Transfer Syntax for Lossless JPEG Image Compression
00525 JPEGLSLosslessImageCompression = 24, // JPEG-LS Lossless Image Compression
00526 JPEGLSLossyNearLosslessImageCompression = 25, // JPEG-LS Lossy (Near-Lossless) Image Compression
00527 JPEG2000ImageCompressionLosslessOnly = 26, // JPEG 2000 Image Compression (Lossless Only)
00528 JPEG2000ImageCompression = 27, // JPEG 2000 Image Compression
00529 JPEG2000Part2MulticomponentImageCompressionLosslessOnly = 28, // JPEG 2000 Part 2 Multi-component Image
      Compression (Lossless Only)
00530 JPEG2000Part2MulticomponentImageCompression = 29, // JPEG 2000 Part 2 Multi-component Image Compression
00531 JPIPReferenced = 30, // JPIP Referenced
00532 JPIPReferencedDeflate = 31, // JPIP Referenced Deflate
00533 MPEG2MainProfileMainLevel = 32, // MPEG2 Main Profile @ Main Level
00534 RLELossless = 33, // RLE Lossless
```

```
00535 RFC2557MIMEencapsulation = 34, // RFC 2557 MIME encapsulation
00536 XMLEncoding = 35, // XML Encoding
00537 MediaStorageDirectoryStorage = 36, // Media Storage Directory Storage
00538 TalairachBrainAtlasFrameofReference = 37, // Talairach Brain Atlas Frame of Reference
00539 SPM2T1FrameofReference = 38, // SPM2 T1 Frame of Reference
00540 SPM2T2FrameofReference = 39, // SPM2 T2 Frame of Reference
00541 SPM2PDFrameofReference = 40, // SPM2 PD Frame of Reference
00542 SPM2EPIFrameofReference = 41, // SPM2 EPI Frame of Reference
00543 SPM2FILT1FrameofReference = 42, // SPM2 FIL T1 Frame of Reference
00544 SPM2PETFrameofReference = 43, // SPM2 PET Frame of Reference
00545 SPM2TRANSMFrameofReference = 44, // SPM2 TRANSM Frame of Reference
00546 SPM2SPECTFrameofReference = 45, // SPM2 SPECT Frame of Reference
00547 SPM2GRAYFrameofReference = 46, // SPM2 GRAY Frame of Reference
00548 SPM2WHITEFrameofReference = 47, // SPM2 WHITE Frame of Reference
00549 SPM2CSFFrameofReference = 48, // SPM2 CSF Frame of Reference
00550 SPM2BRAINMASKFrameofReference = 49, // SPM2 BRAINMASK Frame of Reference
00551 SPM2AVG305T1FrameofReference = 50, // SPM2 AVG305T1 Frame of Reference
00552 SPM2AVG152T1FrameofReference = 51, // SPM2 AVG152T1 Frame of Reference
00553 SPM2AVG152T2FrameofReference = 52, // SPM2 AVG152T2 Frame of Reference
00554 SPM2AVG152PDFrameofReference = 53, // SPM2 AVG152PD Frame of Reference
00555 SPM2SINGLESUBJT1FrameofReference = 54, // SPM2 SINGLESUBJT1 Frame of Reference
00556 ICBM452T1FrameofReference = 55, // ICBM 452 T1 Frame of Reference
00557 ICBMSingleSubjectMRIFrameofReference = 56, // ICBM Single Subject MRI Frame of Reference
00558 BasicStudyContentNotificationSOPClassRetired = 57, // Basic Study Content Notification SOP Class
00559 StorageCommitmentPushModelSOPClass = 58, // Storage Commitment Push Model SOP Class
00560 StorageCommitmentPushModelSOPInstance = 59, // Storage Commitment Push Model SOP Instance
00561 StorageCommitmentPullModelSOPClassRetired = 60, // Storage Commitment Pull Model SOP Class
00562 StorageCommitmentPullModelSOPInstanceRetired = 61, // Storage Commitment Pull Model SOP Instance
00563 ProceduralEventLoggingSOPClass = 62, // Procedural Event Logging SOP Class
00564 ProceduralEventLoggingSOPInstance = 63, // Procedural Event Logging SOP Instance
00565 SubstanceAdministrationLoggingSOPClass = 64, // Substance Administration Logging SOP Class
00566 SubstanceAdministrationLoggingSOPInstance = 65, // Substance Administration Logging SOP Instance
00567 DICOMUIDRegistry = 66, // DICOM UID Registry
00568 DICOMControlledTerminology = 67, // DICOM Controlled Terminology
00569 DICOMApplicationContextName = 68, // DICOM Application Context Name
00570 DetachedPatientManagementSOPClassRetired = 69, // Detached Patient Management SOP Class
00571 DetachedPatientManagementMetaSOPClassRetired = 70, // Detached Patient Management Meta SOP Class
00572 DetachedVisitManagementSOPClassRetired = 71, // Detached Visit Management SOP Class
00573 DetachedStudyManagementSOPClassRetired = 72, // Detached Study Management SOP Class
00574 StudyComponentManagementSOPClassRetired = 73, // Study Component Management SOP Class
00575 ModalityPerformedProcedureStepSOPClass = 74, // Modality Performed Procedure Step SOP Class
00576 ModalityPerformedProcedureStepRetrieveSOPClass = 75, // Modality Performed Procedure Step Retrieve SOP
      Class
00577 ModalityPerformedProcedureStepNotificationSOPClass = 76, // Modality Performed Procedure Step Notification
      SOP Class
00578 DetachedResultsManagementSOPClassRetired = 77, // Detached Results Management SOP Class
00579 DetachedResultsManagementMetaSOPClassRetired = 78, // Detached Results Management Meta SOP Class
00580 DetachedStudyManagementMetaSOPClassRetired = 79, // Detached Study Management Meta SOP Class
00581 DetachedInterpretationManagementSOPClassRetired = 80, // Detached Interpretation Management SOP Class
00582 StorageServiceClass = 81, // Storage Service Class
00583 BasicFilmSessionSOPClass = 82, // Basic Film Session SOP Class
00584 BasicFilmBoxSOPClass = 83, // Basic Film Box SOP Class
00585 BasicGrayscaleImageBoxSOPClass = 84, // Basic Grayscale Image Box SOP Class
00586 BasicColorImageBoxSOPClass = 85, // Basic Color Image Box SOP Class
00587 ReferencedImageBoxSOPClassRetired = 86, // Referenced Image Box SOP Class
00588 BasicGrayscalePrintManagementMetaSOPClass = 87, // Basic Grayscale Print Management Meta SOP Class
00589 ReferencedGrayscalePrintManagementMetaSOPClassRetired = 88, // Referenced Grayscale Print Management Meta
      SOP Class
00590 PrintJobSOPClass = 89, // Print Job SOP Class
00591 BasicAnnotationBoxSOPClass = 90, // Basic Annotation Box SOP Class
00592 PrinterSOPClass = 91, // Printer SOP Class
00593 PrinterConfigurationRetrievalSOPClass = 92, // Printer Configuration Retrieval SOP Class
00594 PrinterSOPInstance = 93, // Printer SOP Instance
00595 PrinterConfigurationRetrievalSOPInstance = 94, // Printer Configuration Retrieval SOP Instance
00596 BasicColorPrintManagementMetaSOPClass = 95, // Basic Color Print Management Meta SOP Class
00597 ReferencedColorPrintManagementMetaSOPClassRetired = 96, // Referenced Color Print Management Meta SOP
      Class
00598 VOILUTBoxSOPClass = 97, // VOI LUT Box SOP Class
00599 PresentationLUTSOPClass = 98, // Presentation LUT SOP Class
00600 ImageOverlayBoxSOPClassRetired = 99, // Image Overlay Box SOP Class
00601 BasicPrintImageOverlayBoxSOPClassRetired = 100, // Basic Print Image Overlay Box SOP Class
00602 PrintQueueSOPInstanceRetired = 101, // Print Queue SOP Instance
00603 PrintQueueManagementSOPClassRetired = 102, // Print Queue Management SOP Class
00604 StoredPrintStorageSOPClassRetired = 103, // Stored Print Storage SOP Class
00605 HardcopyGrayscaleImageStorageSOPClassRetired = 104, // Hardcopy Grayscale Image Storage SOP Class
00606 HardcopyColorImageStorageSOPClassRetired = 105, // Hardcopy Color Image Storage SOP Class
00607 PullPrintRequestSOPClassRetired = 106, // Pull Print Request SOP Class
00608 PullStoredPrintManagementMetaSOPClassRetired = 107, // Pull Stored Print Management Meta SOP Class
00609 MediaCreationManagementSOPClassUID = 108, // Media Creation Management SOP Class UID
00610 ComputedRadiographyImageStorage = 109, // Computed Radiography Image Storage
00611 DigitalXRayImageStorageForPresentation = 110, // Digital X-Ray Image Storage - For Presentation
```

```
00612 DigitalXRayImageStorageForProcessing = 111, // Digital X-Ray Image Storage - For Processing
00613 DigitalMammographyXRayImageStorageForPresentation = 112, // Digital Mammography X-Ray Image Storage - For
      Presentation
00614 DigitalMammographyXRayImageStorageForProcessing = 113, // Digital Mammography X-Ray Image Storage - For
      Processing
00615 DigitalIntraoralXRayImageStorageForPresentation = 114, // Digital Intra-oral X-Ray Image Storage - For
      Presentation
00616 DigitalIntraoralXRayImageStorageForProcessing = 115, // Digital Intra-oral X-Ray Image Storage - For
      Processing
00617 CTImageStorage = 116, // CT Image Storage
00618 EnhancedCTImageStorage = 117, // Enhanced CT Image Storage
00619 UltrasoundMultiframeImageStorageRetired = 118, // Ultrasound Multi-frame Image Storage
00620 UltrasoundMultiframeImageStorage = 119, // Ultrasound Multi-frame Image Storage
00621 MRImageStorage = 120, // MR Image Storage
00622 EnhancedMRImageStorage = 121, // Enhanced MR Image Storage
00623 MRSpectroscopyStorage = 122, // MR Spectroscopy Storage
00624 NuclearMedicineImageStorageRetired = 123, // Nuclear Medicine Image Storage
00625 UltrasoundImageStorageRetired = 124, // Ultrasound Image Storage
00626 UltrasoundImageStorage = 125, // Ultrasound Image Storage
00627 SecondaryCaptureImageStorage = 126, // Secondary Capture Image Storage
00628 MultiframeSingleBitSecondaryCaptureImageStorage = 127, // Multi-frame Single Bit Secondary Capture Image
      Storage
00629 MultiframeGrayscaleByteSecondaryCaptureImageStorage = 128, // Multi-frame Grayscale Byte Secondary Capture
      Image Storage
00630 MultiframeGrayscaleWordSecondaryCaptureImageStorage = 129, // Multi-frame Grayscale Word Secondary Capture
      Image Storage
00631 MultiframeTrueColorSecondaryCaptureImageStorage = 130, // Multi-frame True Color Secondary Capture Image
      Storage
00632 StandaloneOverlayStorageRetired = 131, // Standalone Overlay Storage
00633 StandaloneCurveStorageRetired = 132, // Standalone Curve Storage
00634 WaveformStorageTrialRetired = 133, // Waveform Storage - Trial
00635 ECG12leadWaveformStorage = 134, // 12-lead ECG Waveform Storage
00636 GeneralECGWaveformStorage = 135, // General ECG Waveform Storage
00637 AmbulatoryECGWaveformStorage = 136, // Ambulatory ECG Waveform Storage
00638 HemodynamicWaveformStorage = 137, // Hemodynamic Waveform Storage
00639 CardiacElectrophysiologyWaveformStorage = 138, // Cardiac Electrophysiology Waveform Storage
00640 BasicVoiceAudioWaveformStorage = 139, // Basic Voice Audio Waveform Storage
00641 StandaloneModalityLUTStorageRetired = 140, // Standalone Modality LUT Storage
00642 StandaloneVOILUTStorageRetired = 141, // Standalone VOI LUT Storage
00643 GrayscaleSoftcopyPresentationStateStorageSOPClass = 142, // Grayscale Softcopy Presentation State Storage
      SOP Class
00644 ColorSoftcopyPresentationStateStorageSOPClass = 143, // Color Softcopy Presentation State Storage SOP
      Class
00645 PseudoColorSoftcopyPresentationStateStorageSOPClass = 144, // Pseudo-Color Softcopy Presentation State
      Storage SOP Class
00646 BlendingSoftcopyPresentationStateStorageSOPClass = 145, // Blending Softcopy Presentation State Storage
      SOP Class
00647 XRayAngiographicImageStorage = 146, // X-Ray Angiographic Image Storage
00648 EnhancedXAImageStorage = 147, // Enhanced XA Image Storage
00649 XRayRadiofluoroscopicImageStorage = 148, // X-Ray Radiofluoroscopic Image Storage
00650 EnhancedXRFImageStorage = 149, // Enhanced XRF Image Storage
00651 XRay3DAngiographicImageStorage = 150, // X-Ray 3D Angiographic Image Storage
00652 XRay3DCraniofacialImageStorage = 151, // X-Ray 3D Craniofacial Image Storage
00653 XRayAngiographicBiPlaneImageStorageRetired = 152, // X-Ray Angiographic Bi-Plane Image Storage
00654 NuclearMedicineImageStorage = 153, // Nuclear Medicine Image Storage
00655 RawDataStorage = 154, // Raw Data Storage
00656 SpatialRegistrationStorage = 155, // Spatial Registration Storage
00657 SpatialFiducialsStorage = 156, // Spatial Fiducials Storage
00658 DeformableSpatialRegistrationStorage = 157, // Deformable Spatial Registration Storage
00659 SegmentationStorage = 158, // Segmentation Storage
00660 RealWorldValueMappingStorage = 159, // Real World Value Mapping Storage
00661 VLImageStorageTrialRetired = 160, // VL Image Storage - Trial
00662 VLMultiframeImageStorageTrialRetired = 161, // VL Multi-frame Image Storage - Trial
00663 VLEndoscopicImageStorage = 162, // VL Endoscopic Image Storage
00664 VideoEndoscopicImageStorage = 163, // Video Endoscopic Image Storage
00665 VLMicroscopicImageStorage = 164, // VL Microscopic Image Storage
00666 VideoMicroscopicImageStorage = 165, // Video Microscopic Image Storage
00667 VLSlideCoordinatesMicroscopicImageStorage = 166, // VL Slide-Coordinates Microscopic Image Storage
00668 VLPhotographicImageStorage = 167, // VL Photographic Image Storage
00669 VideoPhotographicImageStorage = 168, // Video Photographic Image Storage
00670 OphthalmicPhotography8BitImageStorage = 169, // Ophthalmic Photography 8 Bit Image Storage
00671 OphthalmicPhotography16BitImageStorage = 170, // Ophthalmic Photography 16 Bit Image Storage
00672 StereometricRelationshipStorage = 171, // Stereometric Relationship Storage
00673 OphthalmicTomographyImageStorage = 172, // Ophthalmic Tomography Image Storage
00674 TextSRStorageTrialRetired = 173, // Text SR Storage - Trial
00675 AudioSRStorageTrialRetired = 174, // Audio SR Storage - Trial
00676 DetailSRStorageTrialRetired = 175, // Detail SR Storage - Trial
00677 ComprehensiveSRStorageTrialRetired = 176, // Comprehensive SR Storage - Trial
00678 BasicTextSRStorage = 177, // Basic Text SR Storage
00679 EnhancedSRStorage = 178, // Enhanced SR Storage
00680 ComprehensiveSRStorage = 179, // Comprehensive SR Storage
```

```
00681 ProcedureLogStorage = 180, // Procedure Log Storage
00682 MammographyCADSRStorage = 181, // Mammography CAD SR Storage
00683 KeyObjectSelectionDocumentStorage = 182, // Key Object Selection Document Storage
00684 ChestCADSRStorage = 183, // Chest CAD SR Storage
00685 XRayRadiationDoseSRStorage = 184, // X-Ray Radiation Dose SR Storage
00686 EncapsulatedPDFStorage = 185, // Encapsulated PDF Storage
00687 EncapsulatedCDAStorage = 186, // Encapsulated CDA Storage
00688 PositronEmissionTomographyImageStorage = 187, // Positron Emission Tomography Image Storage
00689 StandalonePETCurveStorageRetired = 188, // Standalone PET Curve Storage
00690 RTImageStorage = 189, // RT Image Storage
00691 RTDoseStorage = 190, // RT Dose Storage
00692 RTStructureSetStorage = 191, // RT Structure Set Storage
00693 RTBeamsTreatmentRecordStorage = 192, // RT Beams Treatment Record Storage
00694 RTPlanStorage = 193, // RT Plan Storage
00695 RTBrachyTreatmentRecordStorage = 194, // RT Brachy Treatment Record Storage
00696 RTTreatmentSummaryRecordStorage = 195, // RT Treatment Summary Record Storage
00697 RTIonPlanStorage = 196, // RT Ion Plan Storage
00698 RTIonBeamsTreatmentRecordStorage = 197, // RT Ion Beams Treatment Record Storage
00699 PatientRootQueryRetrieveInformationModelFIND = 198, // Patient Root Query/Retrieve Information Model -
      FIND
00700 PatientRootQueryRetrieveInformationModelMOVE = 199, // Patient Root Query/Retrieve Information Model -
      MOVE
00701 PatientRootQueryRetrieveInformationModelGET = 200, // Patient Root Query/Retrieve Information Model - GET
00702 StudyRootQueryRetrieveInformationModelFIND = 201, // Study Root Query/Retrieve Information Model - FIND
00703 StudyRootQueryRetrieveInformationModelMOVE = 202, // Study Root Query/Retrieve Information Model - MOVE
00704 StudyRootQueryRetrieveInformationModelGET = 203, // Study Root Query/Retrieve Information Model - GET
00705 PatientStudyOnlyQueryRetrieveInformationModelFINDRetired = 204, // Patient/Study Only Query/Retrieve
      Information Model - FIND
00706 PatientStudyOnlyQueryRetrieveInformationModelMOVERetired = 205, // Patient/Study Only Query/Retrieve
      Information Model - MOVE
00707 PatientStudyOnlyQueryRetrieveInformationModelGETRetired = 206, // Patient/Study Only Query/Retrieve
      Information Model - GET
00708 ModalityWorklistInformationModelFIND = 207, // Modality Worklist Information Model - FIND
00709 GeneralPurposeWorklistInformationModelFIND = 208, // General Purpose Worklist Information Model - FIND
00710 GeneralPurposeScheduledProcedureStepSOPClass = 209, // General Purpose Scheduled Procedure Step SOP Class
00711 GeneralPurposePerformedProcedureStepSOPClass = 210, // General Purpose Performed Procedure Step SOP Class
00712 GeneralPurposeWorklistManagementMetaSOPClass = 211, // General Purpose Worklist Management Meta SOP Class
00713 InstanceAvailabilityNotificationSOPClass = 212, // Instance Availability Notification SOP Class
00714 RTBeamsDeliveryInstructionStorageSupplement74FrozenDraft = 213, // RT Beams Delivery Instruction Storage
      (Supplement 74 Frozen Draft)
00715 RTConventionalMachineVerificationSupplement74FrozenDraft = 214, // RT Conventional Machine Verification
      (Supplement 74 Frozen Draft)
00716 RTIonMachineVerificationSupplement74FrozenDraft = 215, // RT Ion Machine Verification (Supplement 74
      Frozen Draft)
00717 UnifiedWorklistandProcedureStepServiceClass = 216, // Unified Worklist and Procedure Step Service Class
00718 UnifiedProcedureStepPushSOPClass = 217, // Unified Procedure Step - Push SOP Class
00719 UnifiedProcedureStepWatchSOPClass = 218, // Unified Procedure Step - Watch SOP Class
00720 UnifiedProcedureStepPullSOPClass = 219, // Unified Procedure Step - Pull SOP Class
00721 UnifiedProcedureStepEventSOPClass = 220, // Unified Procedure Step - Event SOP Class
00722 UnifiedWorklistandProcedureStepSOPInstance = 221, // Unified Worklist and Procedure Step SOP Instance
00723 GeneralRelevantPatientInformationQuery = 222, // General Relevant Patient Information Query
00724 BreastImagingRelevantPatientInformationQuery = 223, // Breast Imaging Relevant Patient Information Query
00725 CardiacRelevantPatientInformationQuery = 224, // Cardiac Relevant Patient Information Query
00726 HangingProtocolStorage = 225, // Hanging Protocol Storage
00727 HangingProtocolInformationModelFIND = 226, // Hanging Protocol Information Model - FIND
00728 HangingProtocolInformationModelMOVE = 227, // Hanging Protocol Information Model - MOVE
00729 ProductCharacteristicsQuerySOPClass = 228, // Product Characteristics Query SOP Class
00730 SubstanceApprovalQuerySOPClass = 229, // Substance Approval Query SOP Class
00731 dicomDeviceName = 230, // dicomDeviceName
00732 dicomDescription = 231, // dicomDescription
00733 dicomManufacturer = 232, // dicomManufacturer
00734 dicomManufacturerModelName = 233, // dicomManufacturerModelName
00735 dicomSoftwareVersion = 234, // dicomSoftwareVersion
00736 dicomVendorData = 235, // dicomVendorData
00737 dicomAETitle = 236, // dicomAETitle
00738 dicomNetworkConnectionReference = 237, // dicomNetworkConnectionReference
00739 dicomApplicationCluster = 238, // dicomApplicationCluster
00740 dicomAssociationInitiator = 239, // dicomAssociationInitiator
00741 dicomAssociationAcceptor = 240, // dicomAssociationAcceptor
00742 dicomHostname = 241, // dicomHostname
00743 dicomPort = 242, // dicomPort
00744 dicomSOPClass = 243, // dicomSOPClass
00745 dicomTransferRole = 244, // dicomTransferRole
00746 dicomTransferSyntax = 245, // dicomTransferSyntax
00747 dicomPrimaryDeviceType = 246, // dicomPrimaryDeviceType
00748 dicomRelatedDeviceReference = 247, // dicomRelatedDeviceReference
00749 dicomPreferredCalledAETitle = 248, // dicomPreferredCalledAETitle
00750 dicomTLSCyphersuite = 249, // dicomTLSCyphersuite
00751 dicomAuthorizedNodeCertificateReference = 250, // dicomAuthorizedNodeCertificateReference
00752 dicomThisNodeCertificateReference = 251, // dicomThisNodeCertificateReference
00753 dicomInstalled = 252, // dicomInstalled
```

```
00754 dicomStationName = 253, // dicomStationName
00755 dicomDeviceSerialNumber = 254, // dicomDeviceSerialNumber
00756 dicomInstitutionName = 255, // dicomInstitutionName
00757 dicomInstitutionAddress = 256, // dicomInstitutionAddress
00758 dicomInstitutionDepartmentName = 257, // dicomInstitutionDepartmentName
00759 dicomIssuerOfPatientID = 258, // dicomIssuerOfPatientID
00760 dicomPreferredCallingAETitle = 259, // dicomPreferredCallingAETitle
00761 dicomSupportedCharacterSet = 260, // dicomSupportedCharacterSet
00762 dicomConfigurationRoot = 261, // dicomConfigurationRoot
00763 dicomDevicesRoot = 262, // dicomDevicesRoot
00764 dicomUniqueAETitlesRegistryRoot = 263, // dicomUniqueAETitlesRegistryRoot
00765 dicomDevice = 264, // dicomDevice
00766 dicomNetworkAE = 265, // dicomNetworkAE
00767 dicomNetworkConnection = 266, // dicomNetworkConnection
00768 dicomUniqueAETitle = 267, // dicomUniqueAETitle
00769 dicomTransferCapability = 268, // dicomTransferCapability
00770 //
00771 VLWholeSlideMicroscopyImageStorage           = 269,
00772 EnhancedUSVolumeStorage                      = 270,
00773 SurfaceSegmentationStorage                   = 271,
00774 BreastTomosynthesisImageStorage              = 272,
00775 LegacyConvertedEnhancedCTImageStorage        = 273,
00776 LegacyConvertedEnhancedMRImageStorage        = 274,
00777 LegacyConvertedEnhancedPETImageStorage       = 275,
00778 MPEG2MainProfileHighLevel                    = 276,
00779 MPEG4AVCH_264HighProfileLevel4_1             = 277,
00780 MPEG4AVCH_264BDcompatibleHighProfileLevel4_1 = 278,
00781
00783 //
00784 // 2019b
00785 //
00786 PETColorPaletteSOPInstance                                      = 279,
00787 HotMetalBlueColorPaletteSOPInstance                             = 280,
00788 PET20StepColorPaletteSOPInstance                                = 281,
00789 SpringColorPaletteSOPInstance                                   = 282,
00790 SummerColorPaletteSOPInstance                                   = 283,
00791 FallColorPaletteSOPInstance                                     = 284,
00792 WinterColorPaletteSOPInstance                                   = 285,
00793 Papyrus3ImplicitVRLittleEndian                                  = 286,
00794 AdultMouseAnatomyOntology                                       = 287,
00795 UberonOntology                                                  = 288,
00796 IntegratedTaxonomicInformationSystemITISTaxonomicSerialNumberTSN   = 289,
00797 MouseGenomeInitiativeMGI                                        = 290,
00798 PubChemCompoundCID                                             = 291,
00799 ICD11                                                          = 292,
00800 NewYorkUniversityMelanomaClinicalCooperativeGroup               = 293,
00801 MayoClinicNonradiologicalImagesSBSAnatomicalSurfaceRegionGuide  = 294,
00802 ImageBiomarkerStandardisationInitiative                        = 295,
00803 RadiomicsOntology                                              = 296,
00804 DisplaySystemSOPClass                                         = 297,
00805 DisplaySystemSOPInstance                                      = 298,
00806 GeneralAudioWaveformStorage                                   = 299,
00807 ArterialPulseWaveformStorage                                  = 300,
00808 RespiratoryWaveformStorage                                    = 301,
00809 XAXRFGrayscaleSoftcopyPresentationStateStorage                = 302,
00810 GrayscalePlanarMPRVolumetricPresentationStateStorage          = 303,
00811 MPEG4AVCH_264HighProfileLevel4_2For2DVideo                    = 304,
00812 MPEG4AVCH_264HighProfileLevel4_2For3DVideo                    = 305,
00813 MPEG4AVCH_264StereoHighProfileLevel4_2                        = 306,
00814 HEVCH_265MainProfileLevel5_1                                  = 307,
00815 HEVCH_265Main10ProfileLevel5_1                                = 308,
00816 HotIronColorPaletteSOPInstance                                 = 309,
00817 CompositingPlanarMPRVolumetricPresentationStateStorage         = 310,
00818 AdvancedBlendingPresentationStateStorage                       = 311,
00819 VolumeRenderingVolumetricPresentationStateStorage              = 312,
00820 SegmentedVolumeRenderingVolumetricPresentationStateStorage     = 313,
00821 MultipleVolumeRenderingVolumetricPresentationStateStorage      = 314,
00822 Null0                                                          = 315,
00823 BreastProjectionXRayImageStorageForPresentation               = 316,
00824 BreastProjectionXRayImageStorageForProcessing                 = 317,
00825 IntravascularOpticalCoherenceTomographyImageStorageForPresentation = 318,
00826 IntravascularOpticalCoherenceTomographyImageStorageForProcessing   = 319,
00827 ParametricMapStorage                                          = 320,
00828 Null1                                                          = 321,
00829 TractographyResultsStorage                                    = 322,
00830 SurfaceScanMeshStorage                                        = 323,
00831 SurfaceScanPointCloudStorage                                  = 324,
00832 WideFieldOphthalmicPhotographyStereographicProjectionImageStorage  = 325,
00833 WideFieldOphthalmicPhotography3DCoordinatesImageStorage       = 326,
00834 OphthalmicOpticalCoherenceTomographyEnFaceImageStorage        = 327,
00835 OphthalmicOpticalCoherenceTomographyBscanVolumeAnalysisStorage     = 328,
```

```
00836 LensometryMeasurementsStorage                                = 329,
00837 AutorefractionMeasurementsStorage                            = 330,
00838 KeratometryMeasurementsStorage                               = 331,
00839 SubjectiveRefractionMeasurementsStorage                       = 332,
00840 VisualAcuityMeasurementsStorage                              = 333,
00841 SpectaclePrescriptionReportStorage                           = 334,
00842 OphthalmicAxialMeasurementsStorage                          = 335,
00843 IntraocularLensCalculationsStorage                          = 336,
00844 MacularGridThicknessandVolumeReportStorage                  = 337,
00845 OphthalmicVisualFieldStaticPerimetryMeasurementsStorage     = 338,
00846 OphthalmicThicknessMapStorage                               = 339,
00847 CornealTopographyMapStorage                                 = 340,
00848 Comprehensive3DSRStorage                                    = 341,
00849 ExtensibleSRStorage                                         = 342,
00850 RadiopharmaceuticalRadiationDoseSRStorage                   = 343,
00851 ColonCADSRStorage                                           = 344,
00852 ImplantationPlanSRStorage                                   = 345,
00853 AcquisitionContextSRStorage                                 = 346,
00854 SimplifiedAdultEchoSRStorage                               = 347,
00855 PatientRadiationDoseSRStorage                              = 348,
00856 PlannedImagingAgentAdministrationSRStorage                  = 349,
00857 PerformedImagingAgentAdministrationSRStorage               = 350,
00858 ContentAssessmentResultsStorage                            = 351,
00859 EncapsulatedSTLStorage                                      = 352,
00860 EnhancedPETImageStorage                                    = 353,
00861 BasicStructuredDisplayStorage                              = 354,
00862 CTDefinedProcedureProtocolStorage                          = 355,
00863 CTPerformedProcedureProtocolStorage                        = 356,
00864 ProtocolApprovalStorage                                    = 357,
00865 ProtocolApprovalInformationModelFIND                       = 358,
00866 ProtocolApprovalInformationModelMOVE                       = 359,
00867 ProtocolApprovalInformationModelGET                        = 360,
00868 RTPhysicianIntentStorage                                   = 361,
00869 RTSegmentAnnotationStorage                                 = 362,
00870 DICOSCTImageStorage                                        = 363,
00871 DICOSDigitalXRayImageStorageForPresentation               = 364,
00872 DICOSDigitalXRayImageStorageForProcessing                 = 365,
00873 DICOSThreatDetectionReportStorage                         = 366,
00874 DICOS2DAITStorage                                         = 367,
00875 DICOS3DAITStorage                                         = 368,
00876 DICOSQuadrupoleResonanceQRStorage                        = 369,
00877 EddyCurrentImageStorage                                   = 370,
00878 EddyCurrentMultiframeImageStorage                         = 371,
00879 CompositeInstanceRootRetrieveMOVE                         = 372,
00880 CompositeInstanceRootRetrieveGET                          = 373,
00881 CompositeInstanceRetrieveWithoutBulkDataGET               = 374,
00882 DefinedProcedureProtocolInformationModelFIND              = 375,
00883 DefinedProcedureProtocolInformationModelMOVE              = 376,
00884 DefinedProcedureProtocolInformationModelGET               = 377,
00885 UPSFilteredGlobalSubscriptionSOPInstance                  = 378,
00886 UnifiedWorklistandProcedureStepServiceClass1              = 379,
00887 UnifiedProcedureStepPushSOPClass1                         = 380,
00888 UnifiedProcedureStepWatchSOPClass1                        = 381,
00889 UnifiedProcedureStepPullSOPClass1                         = 382,
00890 UnifiedProcedureStepEventSOPClass1                        = 383,
00891 RTBeamsDeliveryInstructionStorage                         = 384,
00892 RTConventionalMachineVerification                         = 385,
00893 RTIonMachineVerification                                  = 386,
00894 RTBrachyApplicationSetupDeliveryInstructionStorage        = 387,
00895 HangingProtocolInformationModelGET                       = 388,
00896 ColorPaletteStorage                                       = 389,
00897 ColorPaletteQueryRetrieveInformationModelFIND             = 390,
00898 ColorPaletteQueryRetrieveInformationModelMOVE             = 391,
00899 ColorPaletteQueryRetrieveInformationModelGET              = 392,
00900 GenericImplantTemplateStorage                             = 393,
00901 GenericImplantTemplateInformationModelFIND                = 394,
00902 GenericImplantTemplateInformationModelMOVE                = 395,
00903 GenericImplantTemplateInformationModelGET                 = 396,
00904 ImplantAssemblyTemplateStorage                            = 397,
00905 ImplantAssemblyTemplateInformationModelFIND               = 398,
00906 ImplantAssemblyTemplateInformationModelMOVE               = 399,
00907 ImplantAssemblyTemplateInformationModelGET                = 400,
00908 ImplantTemplateGroupStorage                               = 401,
00909 ImplantTemplateGroupInformationModelFIND                  = 402,
00910 ImplantTemplateGroupInformationModelMOVE                  = 403,
00911 ImplantTemplateGroupInformationModelGET                   = 404,
00912 NativeDICOMModel                                          = 405,
00913 AbstractMultiDimensionalImageModel                        = 406,
00914 DICOMContentMappingResource                               = 407,
00915 EnhancedMRColorImageStorage                               = 408,
00916 UniversalCoordinatedTime                                  = 409
```

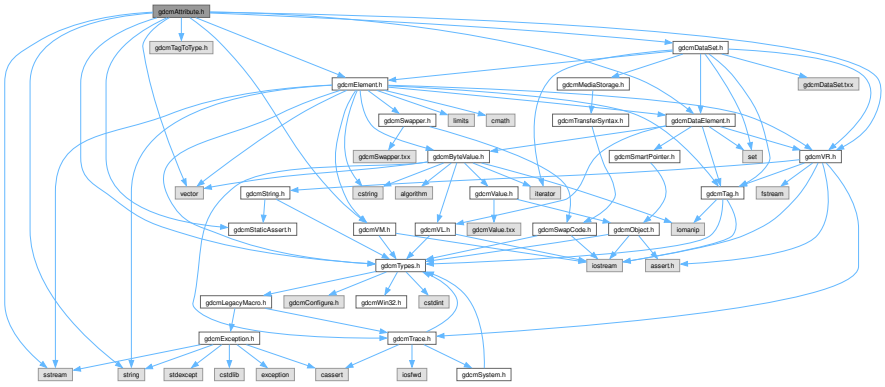
```
00917 //
00918 //
00920
00922 //
00923 // Optionally private UIDs
00924 //
00925 #if 0
00926 Private_1_2_840_113619_4_2,
00927 Private_1_2_840_113619_4_3,
00928 Private_1_3_12_2_1107_5_9_1,
00929 Private_1_2_840_113619_4_26,
00930 Private_1_2_840_113619_4_30,
00931 Private_2_16_840_1_113709_1_5_1,
00932 Private_2_16_840_1_113709_1_2_2,
00933 Private_1_2_840_113543_6_6_1_3_10002,
00934 Private_1_2_392_200036_9116_7_8_1_1_1,
00935 Private_1_2_392_200036_9125_1_1_2,
00936 Private_1_2_840_113619_4_27,
00937 Private_1_3_46_670589_11_0_0_12_1,
00938 Private_1_3_46_670589_11_0_0_12_2,
00939 Private_1_3_46_670589_11_0_0_12_4,
00940 Private_1_3_46_670589_2_3_1_1,
00941 Private_1_3_46_670589_2_4_1_1,
00942 Private_1_3_46_670589_2_5_1_1,
00943 Private_1_3_46_670589_5_0_1,
00944 Private_1_3_46_670589_5_0_1_1,
00945 Private_1_3_46_670589_5_0_10,
00946 Private_1_3_46_670589_5_0_11,
00947 Private_1_3_46_670589_5_0_11_1,
00948 Private_1_3_46_670589_5_0_12,
00949 Private_1_3_46_670589_5_0_13,
00950 Private_1_3_46_670589_5_0_14,
00951 Private_1_3_46_670589_5_0_2,
00952 Private_1_3_46_670589_5_0_2_1,
00953 Private_1_3_46_670589_5_0_3,
00954 Private_1_3_46_670589_5_0_3_1,
00955 Private_1_3_46_670589_5_0_4,
00956 Private_1_3_46_670589_5_0_7,
00957 Private_1_3_46_670589_5_0_8,
00958 Private_1_3_46_670589_5_0_9,
00959 Private_1_2_752_24_3_7_6,
00960 Private_1_2_752_24_3_7_7,
00961 Private_1_2_840_113619_5_2,
00962 Private_1_3_46_670589_33_1_4_1
00963 #endif
00964 //
00965 //
00967
00968 } TSName;
00969
00970
00971   typedef const char* const (*TransferSyntaxStringsType)[2];
00972   static TransferSyntaxStringsType GetTransferSyntaxStrings();
00973   static const char * const *GetTransferSyntaxString(unsigned int ts);
00974   static unsigned int GetNumberOfTransferSyntaxStrings();
00975
00976
00977   // TODO: Because I would like a dual signature for TSType and TSName, C++ won't let me do it...
00978   static const char* GetUIDString(/*TSType*/ unsigned int ts);
00979   static const char* GetUIDName(/*TSType*/ unsigned int ts);
00980
00983   bool SetFromUID(const char *str);
00984
00987   const char *GetName() const;
00988
00991   const char *GetString() const;
00992
00993   operator TSType () const { return TSField; }
00994   UIDs() = default;
00995
00996 private:
00997   TSType TSField;
00998 };
00999 //----------------------------------------------------------------------------
01000 inline std::ostream &operator«(std::ostream &_os, const UIDs &uid)
01001 {
01002   _os « uid.GetString() « " -> " « uid.GetName();
01003   return _os;
01004
01005 }
01006
```

```
01007 } // end namespace gdcm
01008
01009 #endif //GDCMUIDS_H
```

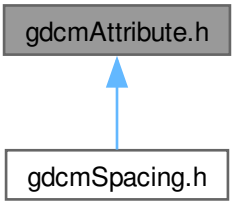
13.109 gdcmAttribute.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmTagToType.h"
#include "gdcmVM.h"
#include "gdcmElement.h"
#include "gdcmDataElement.h"
#include "gdcmDataSet.h"
#include "gdcmStaticAssert.h"
#include <string>
#include <vector>
#include <sstream>
```

Include dependency graph for gdcmAttribute.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Attribute< Group, Element, TVR, TVM >

  Attribute class This class use template metaprograming tricks to let the user know when the template instantiation does not match the public dictionary.
- class gdcm::Attribute< Group, Element, TVR, VM::VM1 >
- class gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >
- class gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >
- class gdcm::Attribute< Group, Element, TVR, VM::VM1_n >
- class gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >
- class gdcm::Attribute< Group, Element, TVR, VM::VM2_n >
- class gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >
- class gdcm::Attribute< Group, Element, TVR, VM::VM3_n >
- class gdcm::VRVLSize< 0 >
- class gdcm::VRVLSize< 1 >

Namespaces

- namespace gdcm

13.110 gdcmAttribute.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMATTRIBUTE_H
00015 #define GDCMATTRIBUTE_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmVR.h"
00019 #include "gdcmTagToType.h"
00020 #include "gdcmVM.h"
00021 #include "gdcmElement.h"
00022 #include "gdcmDataElement.h"
00023 #include "gdcmDataSet.h"
00024 #include "gdcmStaticAssert.h"
00025
00026 #include <string>
00027 #include <vector>
00028 #include <sstream>
00029
00030 namespace gdcm_ns
00031 {
00032
00033 struct void_;
00034
00035 // Declaration, also serve as forward declaration
00036 template<int T> class VRVLSize;
00037
00038 // Implementation when VL is coded on 16 bits:
00039 template<> class VRVLSize<0> {
```

```
00040 public:
00041   static inline uint16_t Read(std::istream &_is) {
00042     uint16_t l;
00043     _is.read((char*)&l, 2);
00044     return l;
00045     }
00046
00047   static inline void Write(std::ostream &os)  { (void)os;
00048     }
00049 };
00050 // Implementation when VL is coded on 32 bits:
00051 template<> class VRVLSize<1> {
00052 public:
00053   static inline uint32_t Read(std::istream &_is) {
00054     char dummy[2];
00055     _is.read(dummy, 2);
00056
00057     uint32_t l;
00058     _is.read((char*)&l, 4);
00059     return l;
00060     }
00061
00062   static inline void Write(std::ostream &os)  { (void)os;
00063     }
00064 };
00065
00081 template<uint16_t Group, uint16_t Element,
00082    long long TVR = TagToType<Group, Element>::VRType, // can the user override this value ?
00083    int TVM = TagToType<Group, Element>::VMType // can the user override this value ?
00084    /*typename SQAttribute = void_*/ > // if only I had variadic template...
00085 class Attribute
00086 {
00087 public:
00088   typedef typename VRToType<TVR>::Type ArrayType;
00089   enum { VMType = VMToLength<TVM>::Length };
00090   ArrayType Internal[VMToLength<TVM>::Length];
00091
00092   // Make sure that user specified VR/VM are compatible with the public dictionary:
00093   GDCM_STATIC_ASSERT( ((VR::VRType)TVR & (VR::VRType)(TagToType<Group, Element>::VRType)) );
00094   GDCM_STATIC_ASSERT( ((VM::VMType)TVM & (VM::VMType)(TagToType<Group, Element>::VMType)) );
00095   GDCM_STATIC_ASSERT( ((((VR::VRType)TVR & VR::VR_VM1) && ((VM::VMType)TVM == VM::VM1) )
00096                     || !((VR::VRType)TVR & VR::VR_VM1) ) );
00097
00098   static Tag GetTag() { return Tag(Group,Element); }
00099   static VR  GetVR()  { return (VR::VRType)TVR; }
00100   static VM  GetVM()  { return (VM::VMType)TVM; }
00101
00102   // The following two methods do make sense only in case of public element,
00103   // when the template is intanciated with private element the VR/VM are simply
00104   // defaulted to allow everything (see gdcmTagToType.h default template for TagToType)
00105   static VR  GetDictVR() { return (VR::VRType)(TagToType<Group, Element>::VRType); }
00106   static VM  GetDictVM() { return (VM::VMType)(TagToType<Group, Element>::VMType); }
00107
00108   // Some extra dummy checks:
00109   // Data Elements with a VR of SQ, OF, OW, OB or UN shall always have a Value Multiplicity of one.
00110
00111   unsigned int GetNumberOfValues() const {
00112     return VMToLength<TVM>::Length;
00113   }
00114   // Implementation of Print is common to all Mode (ASCII/Binary)
00115   // TODO: Can we print a \ when in ASCII...well I don't think so
00116   // it would mean we used a bad VM then, right ?
00117   void Print(std::ostream &os) const {
00118     os « GetTag() « " ";
00119     os « TagToType<Group,Element>::GetVRString()  « " ";
00120     os « TagToType<Group,Element>::GetVMString()  « " ";
00121     os « Internal[0]; // VM is at least guarantee to be one
00122     for(unsigned int i=1; i<GetNumberOfValues(); ++i)
00123       os « "," « Internal[i];
00124     }
00125
00126   // copy:
00127   //ArrayType GetValue(unsigned int idx = 0) {
00128   //  gdcm_assert( idx < GetNumberOfValues() );
00129   //  return Internal[idx];
00130   //}
00131   //ArrayType operator[] (unsigned int idx) {
00132   //  return GetValue(idx);
00133   //}
00134   // FIXME: is this always a good idea ?
00135   // I do not think so, I prefer operator
```

```
00136   //operator ArrayType () const { return Internal[0]; }
00137
00138   bool operator==(const Attribute &att) const
00139     {
00140     return std::equal(Internal, Internal+GetNumberOfValues(),
00141       att.GetValues());
00142     }
00143   bool operator!=(const Attribute &att) const
00144     {
00145     return !std::equal(Internal, Internal+GetNumberOfValues(),
00146       att.GetValues());
00147     }
00148   bool operator<(const Attribute &att) const
00149     {
00150     return std::lexicographical_compare(Internal, Internal+GetNumberOfValues(),
00151       att.GetValues(), att.GetValues() + att.GetNumberOfValues() );
00152     }
00153
00154   ArrayType &GetValue(unsigned int idx = 0) {
00155     gdcm_assert( idx < GetNumberOfValues() );
00156     return Internal[idx];
00157   }
00158   ArrayType & operator[] (unsigned int idx) {
00159     return GetValue(idx);
00160   }
00161   // const reference
00162   ArrayType const &GetValue(unsigned int idx = 0) const {
00163     gdcm_assert( idx < GetNumberOfValues() );
00164     return Internal[idx];
00165   }
00166   ArrayType const & operator[] (unsigned int idx) const {
00167     return GetValue(idx);
00168   }
00169   void SetValue(ArrayType v, unsigned int idx = 0) {
00170     gdcm_assert( idx < GetNumberOfValues() );
00171     Internal[idx] = v;
00172   }
00173   void SetValues(const ArrayType* array, unsigned int numel = VMType ) {
00174     gdcm_assert( array && numel && numel == GetNumberOfValues() );
00175     // std::copy is smarted than a memcpy, and will call memcpy when POD type
00176     std::copy(array, array+numel, Internal);
00177   }
00178   const ArrayType* GetValues() const {
00179     return Internal;
00180   }
00181
00182   // API to talk to the run-time layer: gdcm::DataElement
00183   DataElement GetAsDataElement() const {
00184     DataElement ret( GetTag() );
00185     std::ostringstream os;
00186     // os.imbue(std::locale::classic()); // This is not required AFAIK
00187     EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00188       GetNumberOfValues(),os);
00189     ret.SetVR( GetVR() );
00190     gdcm_assert( ret.GetVR() != VR::SQ );
00191     if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
00192       {
00193       if( GetVR() != VR::UI )
00194         {
00195         if( os.str().size() % 2 )
00196           {
00197           os << " ";
00198           }
00199         }
00200       }
00201     VL::Type osStrSize = (VL::Type)os.str().size();
00202     ret.SetByteValue( os.str().c_str(), osStrSize );
00203     return ret;
00204   }
00205
00206   void SetFromDataElement(DataElement const &de) {
00207     // This is kind of hackish but since I do not generate other element than the first one: 0x6000 I
      should be ok:
00208     gdcm_assert( Tag(Group,Element) == de.GetTag() || Group == 0x6000 || Group == 0x5000 );
00209     gdcm_assert( GetVR() != VR::INVALID );
00210     gdcm_assert( GetVR().Compatible( de.GetVR() ) || de.GetVR() == VR::INVALID ); // In case of
      VR::INVALID cannot use the & operator
00211     if( de.IsEmpty() ) return;
00212     const ByteValue *bv = de.GetByteValue();
00213 #ifdef GDCM_WORDS_BIGENDIAN
00214     if( de.GetVR() == VR::UN /*|| de.GetVR() == VR::INVALID*/ )
```

```
00215 #else
00216     if( de.GetVR() == VR::UN || de.GetVR() == VR::INVALID )
00217 #endif
00218       {
00219       SetByteValue(bv);
00220       }
00221     else
00222       {
00223       SetByteValueNoSwap(bv);
00224       }
00225   }
00226   void Set(DataSet const &ds) {
00227     SetFromDataElement( ds.GetDataElement( Tag(Group,Element) ) );
00228   }
00229   void SetFromDataSet(DataSet const &ds) {
00230     if( ds.FindDataElement( Tag(Group,Element) ) &&
00231       !ds.GetDataElement( Tag(Group,Element) ).IsEmpty() )
00232       {
00233       SetFromDataElement( ds.GetDataElement( Tag(Group,Element) ) );
00234       }
00235   }
00236 protected:
00237   void SetByteValueNoSwap(const ByteValue *bv) {
00238     if( !bv ) return; // That would be bad...
00239     gdcm_assert( bv->GetPointer() && bv->GetLength() ); // [123]C element can be empty
00240     //if( VRToEncoding<TVR>::Mode == VR::VRBINARY )
00241     //  {
00242     //  // always do a copy !
00243     //  SetValues(bv->GetPointer(), bv->GetLength());
00244     //  }
00245     //else
00246       {
00247       std::stringstream ss;
00248       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00249       ss.str( s );
00250       EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadNoSwap(Internal,
00251         GetNumberOfValues(),ss);
00252       }
00253   }
00254   void SetByteValue(const ByteValue *bv) {
00255     if( !bv ) return; // That would be bad...
00256     gdcm_assert( bv->GetPointer() && bv->GetLength() ); // [123]C element can be empty
00257     //if( VRToEncoding<TVR>::Mode == VR::VRBINARY )
00258     //  {
00259     //  // always do a copy !
00260     //  SetValues(bv->GetPointer(), bv->GetLength());
00261     //  }
00262     //else
00263       {
00264       std::stringstream ss;
00265       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00266       ss.str( s );
00267       EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00268         GetNumberOfValues(),ss);
00269       }
00270   }
00271 #if 0 // TODO  FIXME the implicit way:
00272   // explicit:
00273   void Read(std::istream &_is) {
00274     const uint16_t cref[] = { Group, Element };
00275     uint16_t c[2];
00276     _is.read((char*)&c, sizeof(c));
00277     gdcm_assert( c[0] == cref[0] && c[1] == cref[1] );
00278     char vr[2];
00279     _is.read(vr, 2); // Check consistency ?
00280     const uint32_t lref = GetLength() * sizeof( typename VRToType<TVR>::Type );
00281     uint32_t l = VRVLSize< (TVR & VR::VL32) >::Read(_is);
00282     l /= sizeof( typename VRToType<TVR>::Type );
00283     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00284       l,_is);
00285   }
00286   void Write(std::ostream &_os) const {
00287     uint16_t c[] = { Group, Element };
00288     _os.write((char*)&c, 4);
00289     uint32_t l = GetLength() * sizeof( typename VRToType<TVR>::Type );
00290     _os.write((char*)&l, 4);
00291     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00292       GetLength(),_os);
00293     }
00294   void Read(std::istream &_is) {
00295     uint16_t cref[] = { Group, Element };
```

```
00296     uint16_t c[2];
00297     _is.read((char*)&c, 4);
00298     const uint32_t lref = GetLength() * sizeof( typename VRToType<TVR>::Type );
00299     uint32_t l;
00300     _is.read((char*)&l, 4);
00301     l /= sizeof( typename VRToType<TVR>::Type );
00302      return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00303       l,_is);
00304     }
00305   void Write(std::ostream &_os) const {
00306     uint16_t c[] = { Group, Element };
00307     _os.write((char*)&c, 4);
00308     uint32_t l = GetLength() * sizeof( typename VRToType<TVR>::Type );
00309     _os.write((char*)&l, 4);
00310     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00311       GetLength(),_os);
00312     }
00313 #endif
00314
00315 };
00316
00317 template<uint16_t Group, uint16_t Element, long long TVR >
00318 class Attribute<Group,Element,TVR,VM::VM1>
00319 {
00320 public:
00321   typedef typename VRToType<TVR>::Type ArrayType;
00322   enum { VMType = VMToLength<VM::VM1>::Length };
00323   //ArrayType Internal[VMToLength<TVM>::Length];
00324   ArrayType Internal;
00325   GDCM_STATIC_ASSERT( VMToLength<VM::VM1>::Length == 1 );
00326
00327   // Make sure that user specified VR/VM are compatible with the public dictionary:
00328   GDCM_STATIC_ASSERT( ((VR::VRType)TVR & (VR::VRType)(TagToType<Group, Element>::VRType)) );
00329   GDCM_STATIC_ASSERT( ((VM::VMType)VM::VM1 & (VM::VMType)(TagToType<Group, Element>::VMType)) );
00330   GDCM_STATIC_ASSERT( ((((VR::VRType)TVR & VR::VR_VM1) && ((VM::VMType)VM::VM1 == VM::VM1) )
00331                       || !((VR::VRType)TVR & VR::VR_VM1) ) );
00332
00333   static Tag GetTag() { return Tag(Group,Element); }
00334   static VR  GetVR()  { return (VR::VRType)TVR; }
00335   static VM  GetVM()  { return (VM::VMType)VM::VM1; }
00336
00337   // The following two methods do make sense only in case of public element,
00338   // when the template is intanciated with private element the VR/VM are simply
00339   // defaulted to allow everything (see gdcmTagToType.h default template for TagToType)
00340   static VR  GetDictVR() { return (VR::VRType)(TagToType<Group, Element>::VRType); }
00341   static VM  GetDictVM() { return (VM::VMType)(TagToType<Group, Element>::VMType); }
00342
00343   // Some extra dummy checks:
00344   // Data Elements with a VR of SQ, OF, OW, OB or UN shall always have a Value Multiplicity of one.
00345
00346   unsigned int GetNumberOfValues() const {
00347     return VMToLength<VM::VM1>::Length;
00348   }
00349   // Implementation of Print is common to all Mode (ASCII/Binary)
00350   // TODO: Can we print a \ when in ASCII...well I don't think so
00351   // it would mean we used a bad VM then, right ?
00352   void Print(std::ostream &os) const {
00353     os « GetTag() « " ";
00354     os « TagToType<Group,Element>::GetVRString()  « " ";
00355     os « TagToType<Group,Element>::GetVMString()  « " ";
00356     os « Internal; // VM is at least guarantee to be one
00357   }
00358   // copy:
00359   //ArrayType GetValue(unsigned int idx = 0) {
00360   //  gdcm_assert( idx < GetNumberOfValues() );
00361   //  return Internal[idx];
00362   //}
00363   //ArrayType operator[] (unsigned int idx) {
00364   //  return GetValue(idx);
00365   //}
00366   // FIXME: is this always a good idea ?
00367   // I do not think so, I prefer operator
00368   //operator ArrayType () const { return Internal[0]; }
00369
00370   bool operator==(const Attribute &att) const
00371     {
00372     return std::equal(&Internal, &Internal+GetNumberOfValues(),
00373       att.GetValues());
00374     }
00375   bool operator!=(const Attribute &att) const
00376     {
```

```
00377     return !std::equal(&Internal, &Internal+GetNumberOfValues(),
00378       att.GetValues());
00379     }
00380   bool operator<(const Attribute &att) const
00381     {
00382     return std::lexicographical_compare(&Internal, &Internal+GetNumberOfValues(),
00383       att.GetValues(), att.GetValues() + att.GetNumberOfValues() );
00384     }
00385
00386   ArrayType &GetValue() {
00387 //    gdcm_assert( idx < GetNumberOfValues() );
00388     return Internal;
00389   }
00390 //  ArrayType & operator[] (unsigned int idx) {
00391 //    return GetValue(idx);
00392 //  }
00393   // const reference
00394   ArrayType const &GetValue() const {
00395     //gdcm_assert( idx < GetNumberOfValues() );
00396     return Internal;
00397   }
00398   //ArrayType const & operator[] () const {
00399   //  return GetValue();
00400   //}
00401   void SetValue(ArrayType v) {
00402 //    gdcm_assert( idx < GetNumberOfValues() );
00403     Internal = v;
00404   }
00405 /*  void SetValues(const ArrayType* array, unsigned int numel = VMType ) {
00406     gdcm_assert( array && numel && numel == GetNumberOfValues() );
00407     // std::copy is smarted than a memcpy, and will call memcpy when POD type
00408     std::copy(array, array+numel, Internal);
00409   }
00410 */
00411
00412   // FIXME Should we remove this function ?
00413   const ArrayType* GetValues() const {
00414     return &Internal;
00415   }
00416
00417   // API to talk to the run-time layer: gdcm::DataElement
00418   DataElement GetAsDataElement() const {
00419     DataElement ret( Tag(Group,Element) );
00420     std::ostringstream os;
00421     // os.imbue(std::locale::classic()); // This is not required AFAIK
00422     EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(&Internal,
00423       GetNumberOfValues(),os);
00424     ret.SetVR( GetVR() );
00425     gdcm_assert( ret.GetVR() != VR::SQ );
00426     if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
00427       {
00428       if( GetVR() != VR::UI )
00429         {
00430         if( os.str().size() % 2 )
00431           {
00432           os « " ";
00433           }
00434         }
00435       }
00436     VL::Type osStrSize = (VL::Type)os.str().size();
00437     ret.SetByteValue( os.str().c_str(), osStrSize );
00438     return ret;
00439   }
00440
00441   void SetFromDataElement(DataElement const &de) {
00442     // This is kind of hackish but since I do not generate other element than the first one: 0x6000 I
      should be ok:
00443     gdcm_assert( Tag(Group,Element) == de.GetTag() || Group == 0x6000 || Group == 0x5000 );
00444     gdcm_assert( GetVR() != VR::INVALID );
00445     gdcm_assert( GetVR().Compatible( de.GetVR() ) || de.GetVR() == VR::INVALID ); // In case of
      VR::INVALID cannot use the & operator
00446     if( de.IsEmpty() ) return;
00447     const ByteValue *bv = de.GetByteValue();
00448 #ifdef GDCM_WORDS_BIGENDIAN
00449     if( de.GetVR() == VR::UN /*|| de.GetVR() == VR::INVALID*/ )
00450 #else
00451     if( de.GetVR() == VR::UN || de.GetVR() == VR::INVALID )
00452 #endif
00453       {
00454       SetByteValue(bv);
00455       }
```

```
00456     else
00457       {
00458       SetByteValueNoSwap(bv);
00459       }
00460   }
00461   void Set(DataSet const &ds) {
00462     SetFromDataElement( ds.GetDataElement( Tag(Group,Element) ) );
00463   }
00464   void SetFromDataSet(DataSet const &ds) {
00465     if( ds.FindDataElement( Tag(Group,Element) ) &&
00466       !ds.GetDataElement( Tag(Group,Element) ).IsEmpty() )
00467       {
00468       SetFromDataElement( ds.GetDataElement( Tag(Group,Element) ) );
00469       }
00470   }
00471 protected:
00472   void SetByteValueNoSwap(const ByteValue *bv) {
00473     if( !bv ) return; // That would be bad...
00474     gdcm_assert( bv->GetPointer() && bv->GetLength() ); // [123]C element can be empty
00475     //if( VRToEncoding<TVR>::Mode == VR::VRBINARY )
00476     //  {
00477     //  // always do a copy !
00478     //  SetValues(bv->GetPointer(), bv->GetLength());
00479     //  }
00480     //else
00481       {
00482       std::stringstream ss;
00483       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00484       ss.str( s );
00485       EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadNoSwap(&Internal,
00486         GetNumberOfValues(),ss);
00487       }
00488   }
00489   void SetByteValue(const ByteValue *bv) {
00490     if( !bv ) return; // That would be bad...
00491     gdcm_assert( bv->GetPointer() && bv->GetLength() ); // [123]C element can be empty
00492     //if( VRToEncoding<TVR>::Mode == VR::VRBINARY )
00493     //  {
00494     //  // always do a copy !
00495     //  SetValues(bv->GetPointer(), bv->GetLength());
00496     //  }
00497     //else
00498       {
00499       std::stringstream ss;
00500       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00501       ss.str( s );
00502       EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(&Internal,
00503         GetNumberOfValues(),ss);
00504       }
00505   }
00506 #if 0 // TODO  FIXME the implicit way:
00507   // explicit:
00508   void Read(std::istream &_is) {
00509     const uint16_t cref[] = { Group, Element };
00510     uint16_t c[2];
00511     _is.read((char*)&c, sizeof(c));
00512     gdcm_assert( c[0] == cref[0] && c[1] == cref[1] );
00513     char vr[2];
00514     _is.read(vr, 2); // Check consistency ?
00515     const uint32_t lref = GetLength() * sizeof( typename VRToType<TVR>::Type );
00516     uint32_t l = VRVLSize< (TVR & VR::VL32) >::Read(_is);
00517     l /= sizeof( typename VRToType<TVR>::Type );
00518     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00519       l,_is);
00520   }
00521   void Write(std::ostream &_os) const {
00522     uint16_t c[] = { Group, Element };
00523     _os.write((char*)&c, 4);
00524     uint32_t l = GetLength() * sizeof( typename VRToType<TVR>::Type );
00525     _os.write((char*)&l, 4);
00526     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00527       GetLength(),_os);
00528     }
00529   void Read(std::istream &_is) {
00530     uint16_t cref[] = { Group, Element };
00531     uint16_t c[2];
00532     _is.read((char*)&c, 4);
00533     const uint32_t lref = GetLength() * sizeof( typename VRToType<TVR>::Type );
00534     uint32_t l;
00535     _is.read((char*)&l, 4);
00536     l /= sizeof( typename VRToType<TVR>::Type );
```

```
00537       return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00538         l,_is);
00539       }
00540     void Write(std::ostream &_os) const {
00541       uint16_t c[] = { Group, Element };
00542       _os.write((char*)&c, 4);
00543       uint32_t l = GetLength() * sizeof( typename VRToType<TVR>::Type );
00544       _os.write((char*)&l, 4);
00545       return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00546         GetLength(),_os);
00547       }
00548 #endif
00549
00550 };
00551
00552 // No need to repeat default template arg, since primary template
00553 // will be used to generate the default arguments
00554 template<uint16_t Group, uint16_t Element, long long TVR >
00555 class Attribute<Group,Element,TVR,VM::VM1_n>
00556 {
00557 public:
00558   typedef typename VRToType<TVR>::Type ArrayType;
00559
00560   // Make sure that user specified VR/VM are compatible with the public dictionary:
00561   GDCM_STATIC_ASSERT( ((VR::VRType)TVR & (VR::VRType)(TagToType<Group, Element>::VRType)) );
00562   GDCM_STATIC_ASSERT( (VM::VM1_n & (VM::VMType)(TagToType<Group, Element>::VMType)) );
00563   GDCM_STATIC_ASSERT( ((((VR::VRType)TVR & VR::VR_VM1) && ((VM::VMType)TagToType<Group,Element>::VMType ==
    VM::VM1) )
00564                       || !((VR::VRType)TVR & VR::VR_VM1) ) );
00565
00566   static Tag GetTag() { return Tag(Group,Element); }
00567   static VR  GetVR()  { return (VR::VRType)TVR; }
00568   static VM  GetVM()  { return VM::VM1_n; }
00569
00570   static VR  GetDictVR() { return (VR::VRType)(TagToType<Group, Element>::VRType); }
00571   static VM  GetDictVM() { return GetVM(); }
00572
00573   // This the way to prevent default initialization
00574   explicit Attribute() { Internal=nullptr; Length=0; Own = true; }
00575   ~Attribute() {
00576     if( Own ) {
00577       delete[] Internal;
00578     }
00579     Internal = nullptr; // paranoid
00580   }
00581
00582   unsigned int GetNumberOfValues() const { return Length; }
00583
00584   void SetNumberOfValues(unsigned int numel)
00585     {
00586     SetValues(nullptr, numel, true);
00587     }
00588
00589   const ArrayType* GetValues() const {
00590     return Internal;
00591   }
00592   void Print(std::ostream &os) const {
00593     os « GetTag() « " ";
00594     os « GetVR()  « " ";
00595     os « GetVM()  « " ";
00596     os « Internal[0]; // VM is at least guarantee to be one
00597     for(unsigned int i=1; i<GetNumberOfValues(); ++i)
00598       os « "," « Internal[i];
00599     }
00600   ArrayType &GetValue(unsigned int idx = 0) {
00601     gdcm_assert( idx < GetNumberOfValues() );
00602     return Internal[idx];
00603   }
00604   ArrayType &operator[] (unsigned int idx) {
00605     return GetValue(idx);
00606   }
00607   // const reference
00608   ArrayType const &GetValue(unsigned int idx = 0) const {
00609     gdcm_assert( idx < GetNumberOfValues() );
00610     return Internal[idx];
00611   }
00612   ArrayType const & operator[] (unsigned int idx) const {
00613     return GetValue(idx);
00614   }
00615   void SetValue(unsigned int idx, ArrayType v) {
00616     gdcm_assert( idx < GetNumberOfValues() );
```

```
00617     Internal[idx] = v;
00618   }
00619   void SetValue(ArrayType v) { SetValue(0, v); }
00620
00621   void SetValues(const ArrayType *array, unsigned int numel, bool own = false)
00622     {
00623     if( Internal ) // were we used before ?
00624       {
00625       // yes !
00626       if( Own ) delete[] Internal;
00627       Internal = nullptr;
00628       }
00629     Own = own;
00630     Length = numel;
00631     gdcm_assert( Internal == nullptr );
00632     if( own ) // make a copy:
00633       {
00634       Internal = new ArrayType[numel];
00635       if( array && numel )
00636         std::copy(array, array+numel, Internal);
00637       }
00638     else // pass pointer
00639       {
00640       Internal = const_cast<ArrayType*>(array);
00641       }
00642     // postcondition
00643     gdcm_assert( numel == GetNumberOfValues() );
00644     }
00645
00646   DataElement GetAsDataElement() const {
00647     DataElement ret( GetTag() );
00648     std::ostringstream os;
00649     if( Internal )
00650       {
00651       EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00652         GetNumberOfValues(),os);
00653       if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
00654         {
00655         if( GetVR() != VR::UI )
00656           {
00657           if( os.str().size() % 2 )
00658             {
00659             os « " ";
00660             }
00661           }
00662         }
00663       }
00664     ret.SetVR( GetVR() );
00665     gdcm_assert( ret.GetVR() != VR::SQ );
00666     VL::Type osStrSize = (VL::Type) os.str().size();
00667     ret.SetByteValue( os.str().c_str(), osStrSize);
00668     return ret;
00669   }
00670   void SetFromDataElement(DataElement const &de) {
00671     // This is kind of hackish but since I do not generate other element than the first one: 0x6000 I
      should be ok:
00672     gdcm_assert( GetTag() == de.GetTag() || GetTag().GetGroup() == 0x6000
00673       || GetTag().GetGroup() == 0x5000 );
00674     gdcm_assert( GetVR().Compatible( de.GetVR() ) ); // In case of VR::INVALID cannot use the & operator
00675     gdcm_assert( !de.IsEmpty() );
00676     const ByteValue *bv = de.GetByteValue();
00677     SetByteValue(bv);
00678   }
00679   void Set(DataSet const &ds) {
00680     SetFromDataElement( ds.GetDataElement( GetTag() ) );
00681   }
00682   void SetFromDataSet(DataSet const &ds) {
00683     if( ds.FindDataElement( GetTag() ) &&
00684       !ds.GetDataElement( GetTag() ).IsEmpty() )
00685       {
00686       SetFromDataElement( ds.GetDataElement( GetTag() ) );
00687       }
00688   }
00689 protected:
00690   void SetByteValue(const ByteValue *bv) {
00691     gdcm_assert( bv ); // FIXME
00692     std::stringstream ss;
00693     std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00694     Length = bv->GetLength(); // HACK FIXME
00695     ss.str( s );
00696     ArrayType *internal;
```

```
00697     ArrayType buffer[256];
00698     if( bv->GetLength() < 256 )
00699       {
00700       internal = buffer;
00701       }
00702     else
00703       {
00704       internal = new ArrayType[(VL::Type)bv->GetLength()]; // over allocation
00705       }
00706     EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadComputeLength(internal, Length, ss);
00707     SetValues( internal, Length, true );
00708     if( !(bv->GetLength() < 256) )
00709       {
00710       delete[] internal;
00711       }
00712     //EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00713     //  GetNumberOfValues(),ss);
00714   }
00715
00716 private:
00717   ArrayType *Internal;
00718   unsigned int Length;
00719   bool Own : 1;
00720 };
00721
00722 template<uint16_t Group, uint16_t Element, long long TVR>
00723 class Attribute<Group,Element,TVR,VM::VM1_3> : public Attribute<Group,Element,TVR,VM::VM1_n>
00724 {
00725 public:
00726   VM  GetVM() const { return VM::VM1_3; }
00727 };
00728
00729 template<uint16_t Group, uint16_t Element, long long TVR>
00730 class Attribute<Group,Element,TVR,VM::VM1_8> : public Attribute<Group,Element,TVR,VM::VM1_n>
00731 {
00732 public:
00733   VM  GetVM() const { return VM::VM1_8; }
00734 };
00735
00736 template<uint16_t Group, uint16_t Element, long long TVR>
00737 class Attribute<Group,Element,TVR,VM::VM2_n> : public Attribute<Group,Element,TVR,VM::VM1_n>
00738 {
00739 public:
00740   VM  GetVM() const { return VM::VM2_n; }
00741 };
00742
00743 template<uint16_t Group, uint16_t Element, long long TVR>
00744 class Attribute<Group,Element,TVR,VM::VM2_2n> : public Attribute<Group,Element,TVR,VM::VM2_n>
00745 {
00746 public:
00747   static VM  GetVM() { return VM::VM2_2n; }
00748 };
00749
00750 template<uint16_t Group, uint16_t Element, long long TVR>
00751 class Attribute<Group,Element,TVR,VM::VM3_n> : public Attribute<Group,Element,TVR,VM::VM1_n>
00752 {
00753 public:
00754   static VM  GetVM() { return VM::VM3_n; }
00755 };
00756
00757 template<uint16_t Group, uint16_t Element, long long TVR>
00758 class Attribute<Group,Element,TVR,VM::VM3_3n> : public Attribute<Group,Element,TVR,VM::VM3_n>
00759 {
00760 public:
00761   static VM  GetVM() { return VM::VM3_3n; }
00762 };
00763
00764
00765 // For particular case for ASCII string
00766 // WARNING: This template explicitly instantiates a particular
00767 // EncodingImplementation THEREFORE it is required to be declared after the
00768 // EncodingImplementation is needs (doh!)
00769 #if 0
00770 template<int TVM>
00771 class Attribute<TVM>
00772 {
00773 public:
00774   Attribute(const char array[])
00775     {
00776     unsigned int i = 0;
00777     const char sep = '\\';
```

```
00778     std::string sarray = array;
00779     std::string::size_type pos1 = 0;
00780     std::string::size_type pos2 = sarray.find(sep, pos1+1);
00781     while(pos2 != std::string::npos)
00782       {
00783       Internal[i++] = sarray.substr(pos1, pos2-pos1);
00784       pos1 = pos2+1;
00785       pos2 = sarray.find(sep, pos1+1);
00786       }
00787     Internal[i] = sarray.substr(pos1, pos2-pos1);
00788     // Shouldn't we do the contrary, since we know how many separators
00789     // (and default behavior is to discard anything after the VM declared
00790     gdcm_assert( GetLength()-1 == i );
00791     }
00792
00793   unsigned long GetLength() const {
00794     return VMToLength<TVM>::Length;
00795   }
00796   // Implementation of Print is common to all Mode (ASCII/Binary)
00797   void Print(std::ostream &_os) const {
00798     _os « Internal[0]; // VM is at least guarantee to be one
00799     for(int i=1; i<VMToLength<TVM>::Length; ++i)
00800       _os « "," « Internal[i];
00801     }
00802
00803   void Read(std::istream &_is) {
00804     EncodingImplementation<VR::VRASCII>::Read(Internal, GetLength(),_is);
00805     }
00806   void Write(std::ostream &_os) const {
00807     EncodingImplementation<VR::VRASCII>::Write(Internal, GetLength(),_os);
00808     }
00809 private:
00810   typename String Internal[VMToLength<TVM>::Length];
00811 };
00812
00813 template< int TVM>
00814 class Attribute<VR::PN, TVM> : public StringAttribute<TVM>
00815 {
00816 };
00817 #endif
00818
00819 #if 0
00820
00821 // Implementation for the undefined length (dynamically allocated array)
00822 template<int TVR>
00823 class Attribute<TVR, VM::VM1_n>
00824 {
00825 public:
00826   // This the way to prevent default initialization
00827   explicit Attribute() { Internal=0; Length=0; }
00828   ~Attribute() {
00829     delete[] Internal;
00830     Internal = 0;
00831   }
00832
00833   // Length manipulation
00834   // SetLength should really be protected anyway...all operation
00835   // should go through SetArray
00836   unsigned long GetLength() const { return Length; }
00837   typedef typename VRToType<TVR>::Type ArrayType;
00838   void SetLength(unsigned long len) {
00839     const unsigned int size = sizeof(ArrayType);
00840     if( len ) {
00841       if( len > Length ) {
00842         // perform realloc
00843         gdcm_assert( (len / size) * size == len );
00844         ArrayType *internal = new ArrayType[len / size];
00845         memcpy(internal, Internal, Length * size);
00846         delete[] Internal;
00847         Internal = internal;
00848         }
00849       }
00850     Length = len / size;
00851   }
00852
00853   // If save is set to zero user should not delete the pointer
00854   //void SetArray(const typename VRToType<TVR>::Type *array, int len, bool save = false)
00855   void SetArray(const ArrayType *array, unsigned long len,
00856     bool save = false) {
00857     if( save ) {
00858       SetLength(len); // realloc
```

```
00859       memcpy(Internal, array, len/*/sizeof(ArrayType)*/);
00860       }
00861     else {
00862       // TODO rewrite this stupid code:
00863       Length = len;
00864       //Internal = array;
00865       gdcm_assert(0);
00866       }
00867   }
00868   // Implementation of Print is common to all Mode (ASCII/Binary)
00869   void Print(std::ostream &_os) const {
00870     gdcm_assert( Length );
00871     gdcm_assert( Internal );
00872     _os « Internal[0]; // VM is at least guarantee to be one
00873     const unsigned long length = GetLength() < 25 ? GetLength() : 25;
00874     for(unsigned long i=1; i<length; ++i)
00875       _os « "," « Internal[i];
00876     }
00877   void Read(std::istream &_is) {
00878     EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00879       GetLength(),_is);
00880     }
00881   void Write(std::ostream &_os) const {
00882     EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00883       GetLength(),_os);
00884     }
00885
00886   Attribute(const Attribute&_val) {
00887     if( this != &_val) {
00888       *this = _val;
00889       }
00890     }
00891
00892   Attribute &operator=(const Attribute &_val) {
00893     Length = 0; // SYITF
00894     Internal = 0;
00895     SetArray(_val.Internal, _val.Length, true);
00896     return *this;
00897     }
00898
00899 private:
00900   typename VRToType<TVR>::Type *Internal;
00901   unsigned long Length; // unsigned int ??
00902 };
00903
00904 //template <int TVM = VM::VM1_n>
00905 //class Attribute<VR::OB, TVM > : public Attribute<VR::OB, VM::VM1_n> {};
00906
00907 // Partial specialization for derivatives of 1-n : 2-n, 3-n ...
00908 template<int TVR>
00909 class Attribute<TVR, VM::VM2_n> : public Attribute<TVR, VM::VM1_n>
00910 {
00911 public:
00912   typedef Attribute<TVR, VM::VM1_n> Parent;
00913   void SetLength(int len) {
00914     if( len <= 1 ) return;
00915     Parent::SetLength(len);
00916   }
00917 };
00918 template<int TVR>
00919 class Attribute<TVR, VM::VM2_2n> : public Attribute<TVR, VM::VM2_n>
00920 {
00921 public:
00922   typedef Attribute<TVR, VM::VM2_n> Parent;
00923   void SetLength(int len) {
00924     if( len % 2 ) return;
00925     Parent::SetLength(len);
00926   }
00927 };
00928 template<int TVR>
00929 class Attribute<TVR, VM::VM3_n> : public Attribute<TVR, VM::VM1_n>
00930 {
00931 public:
00932   typedef Attribute<TVR, VM::VM1_n> Parent;
00933   void SetLength(int len) {
00934     if( len <= 2 ) return;
00935     Parent::SetLength(len);
00936   }
00937 };
00938 template<int TVR>
00939 class Attribute<TVR, VM::VM3_3n> : public Attribute<TVR, VM::VM3_n>
```

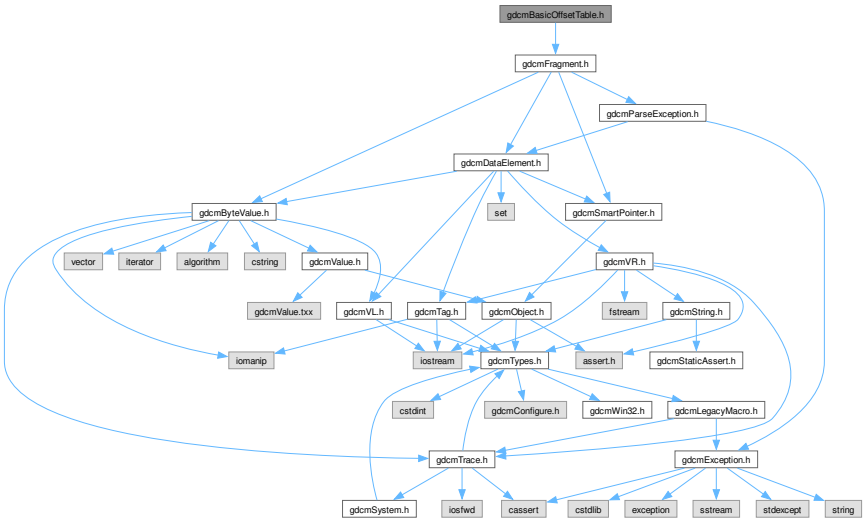
```
00940 {
00941 public:
00942   typedef Attribute<TVR, VM::VM3_n> Parent;
00943   void SetLength(int len) {
00944     if( len % 3 ) return;
00945     Parent::SetLength(len);
00946   }
00947 };
00948
00949
00950 //template<int T> struct VRToLength;
00951 //template <> struct VRToLength<VR::AS>
00952 //{ enum { Length  = VM::VM1 }; }
00953 //template<>
00954 //class Attribute<VR::AS> : public Attribute<VR::AS, VRToLength<VR::AS>::Length >
00955
00956 // only 0010 1010 AS 1 Patient's Age
00957 template<>
00958 class Attribute<VR::AS, VM::VM5>
00959 {
00960 public:
00961   char Internal[VMToLength<VM::VM5>::Length];
00962   void Print(std::ostream &_os) const {
00963     _os « Internal;
00964     }
00965 };
00966
00967 template <>
00968 class Attribute<VR::OB, VM::VM1> : public Attribute<VR::OB, VM::VM1_n> {};
00969 // Make it impossible to compile any other cases:
00970 template <int TVM> class Attribute<VR::OB, TVM>;
00971
00972 // Same for OW:
00973 template <>
00974 class Attribute<VR::OW, VM::VM1> : public Attribute<VR::OW, VM::VM1_n> {};
00975 // Make it impossible to compile any other cases:
00976 template <int TVM> class Attribute<VR::OW, TVM>;
00977 #endif
00978
00979 #if 0
00980 template<>
00981 class Attribute<0x7fe0,0x0010, VR::OW, VM::VM1>
00982 {
00983 public:
00984   char *Internal;
00985   unsigned long Length; // unsigned int ??
00986
00987   void Print(std::ostream &_os) const {
00988     _os « Internal[0];
00989     }
00990   void SetBytes(char *bytes, unsigned long length) {
00991     Internal = bytes;
00992     Length = length;
00993   }
00994   void Read(std::istream &_is) {
00995      uint16_t c[2];
00996     _is.read((char*)&c, 4);
00997     uint32_t l;
00998     _is.read((char*)&l, 4);
00999     Length = l;
01000     _is.read( Internal, Length );
01001     }
01002   void Write(std::ostream &_os) const {
01003      uint16_t c[] = {0x7fe0, 0x0010};
01004     _os.write((char*)&c, 4);
01005     _os.write((char*)&Length, 4);
01006     _os.write( Internal, Length );
01007     }
01008 };
01009 #endif
01010
01011 /*
01012 // Removing Attribute for SQ for now...
01013 template<uint16_t Group, uint16_t Element, typename SQA>
01014 class Attribute<Group,Element, VR::SQ, VM::VM1, SQA>
01015 {
01016 public:
01017   SQA sqa;
01018   void Print(std::ostream &_os) const {
01019     _os « Tag(Group,Element);
01020     sqa.Print(_os « std::endl « '\t');
```

```
01021     }
01022  void Write(std::ostream &_os) const {
01023     uint16_t c[] = {Group, Element};
01024     _os.write((char*)&c, 4);
01025     uint32_t undef = 0xffffffff;
01026     _os.write((char*)&undef, 4);
01027     uint16_t item_beg[] = {0xfffe,0xe000};
01028     _os.write((char*)&item_beg, 4);
01029     _os.write((char*)&undef, 4);
01030     sqa.Write(_os);
01031     uint16_t item_end[] = {0xfffe,0xe00d};
01032     _os.write((char*)&item_end, 4);
01033     uint32_t zero = 0x0;
01034     _os.write((char*)&zero, 4);
01035     uint16_t seq_end[] = {0xfffe, 0xe0dd};
01036     _os.write((char*)&seq_end, 4);
01037     _os.write((char*)&zero, 4);
01038     }
01039 };
01040 */
01041
01046
01047 } // namespace gdcm_ns
01048
01049 #endif //GDCMATTRIBUTE_H
```

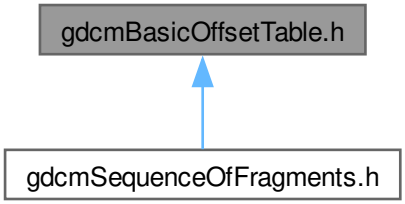
13.111 gdcmBasicOffsetTable.h File Reference

`#include "gdcmFragment.h"`

Include dependency graph for gdcmBasicOffsetTable.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::BasicOffsetTable

  Class to represent a BasicOffsetTable.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const BasicOffsetTable &val)

13.112 gdcmBasicOffsetTable.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMBASICOFFSETTABLE_H
00016 #define GDCMBASICOFFSETTABLE_H
00017
00018 #include "gdcmFragment.h"
00019
00020 namespace gdcm_ns
00021 {
00025
```

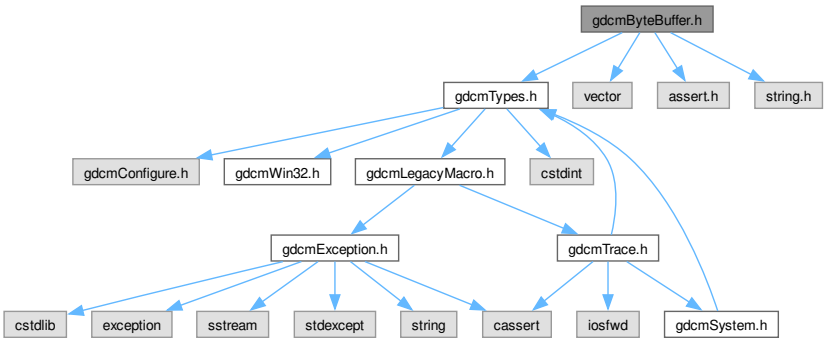
```
00026 class GDCM_EXPORT BasicOffsetTable : public Fragment
00027 {
00028 //protected:
00029 //  void SetTag(const Tag &t);
00030 public:
00031   BasicOffsetTable() : Fragment() {}
00032   friend std::ostream &operator«(std::ostream &os, const BasicOffsetTable &val);
00033
00034 /*
00035   VL GetLength() const {
00036     gdcm_assert( !ValueLengthField.IsUndefined() );
00037     gdcm_assert( !ValueField || ValueField->GetLength() == ValueLengthField );
00038     return TagField.GetLength() + ValueLengthField.GetLength()
00039       + ValueLengthField;
00040   }
00041 */
00042
00043   template <typename TSwap>
00044   std::istream &Read(std::istream &is) {
00045     // Superclass
00046     const Tag itemStart(0xfffe, 0xe000);
00047     if( !TagField.Read<TSwap>(is) )
00048       {
00049       gdcm_assert(0 && "Should not happen");
00050       return is;
00051       }
00052     //gdcm_assert( TagField == itemStart );
00053     if( TagField != itemStart )
00054       {
00055       // Bug_Siemens_PrivateIconNoItem.dcm
00056       //gdcmDebugMacro( "Could be Bug_Siemens_PrivateIconNoItem.dcm" );
00057       ParseException pe;
00058       pe.SetLastElement(*this);
00059       //throw "SIEMENS Icon thingy";
00060       throw pe;
00061       }
00062     if( !ValueLengthField.Read<TSwap>(is) )
00063       {
00064       gdcm_assert(0 && "Should not happen");
00065       return is;
00066       }
00067     // Self
00068     SmartPointer<ByteValue> bv = new ByteValue;
00069     bv->SetLength(ValueLengthField);
00070     if( !bv->Read<TSwap>(is) )
00071       {
00072       gdcmAssertAlwaysMacro(0 && "Should not happen");
00073       return is;
00074       }
00075     ValueField = bv;
00076     return is;
00077     }
00078
00079 /*
00080   template <typename TSwap>
00081   std::ostream &Write(std::ostream &os) const {
00082     const Tag itemStart(0xfffe, 0xe000);
00083     const Tag seqDelItem(0xfffe,0xe0dd);
00084     if( !TagField.Write<TSwap>(os) )
00085       {
00086       gdcm_assert(0 && "Should not happen");
00087       return os;
00088       }
00089     gdcm_assert( TagField == itemStart );
00090     if( !ValueLengthField.Write<TSwap>(os) )
00091       {
00092       gdcm_assert(0 && "Should not happen");
00093       return os;
00094       }
00095     if( ValueLengthField )
00096       {
00097       // Self
00098       const ByteValue *bv = GetByteValue();
00099       gdcm_assert( bv );
00100      gdcm_assert( bv->GetLength() == ValueLengthField );
00101      if( !bv->Write<TSwap>(os) )
00102        {
00103        gdcm_assert(0 && "Should not happen");
00104        return os;
00105        }
00106      }
```

```
00107     return os;
00108     }
00109 */
00110 };
00111 //-----------------------------------------------------------------------------
00112 inline std::ostream &operator«(std::ostream &os, const BasicOffsetTable &val)
00113 {
00114   os « " BasicOffsetTable Length=" « val.ValueLengthField « std::endl;
00115   if( val.ValueField )
00116     {
00117     const ByteValue *bv = val.GetByteValue();
00118     gdcm_assert( bv );
00119     os « *bv;
00120     }
00121
00122   return os;
00123 }
00124
00125
00126 } // end namespace gdcm_ns
00127
00128 #endif //GDCMBASICOFFSETTABLE_H
```

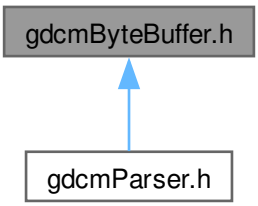
13.113 gdcmByteBuffer.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
#include <assert.h>
#include <string.h>
```

Include dependency graph for gdcmByteBuffer.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ByteBuffer

  ByteBuffer.

Namespaces

- namespace gdcm

13.114 gdcmByteBuffer.h

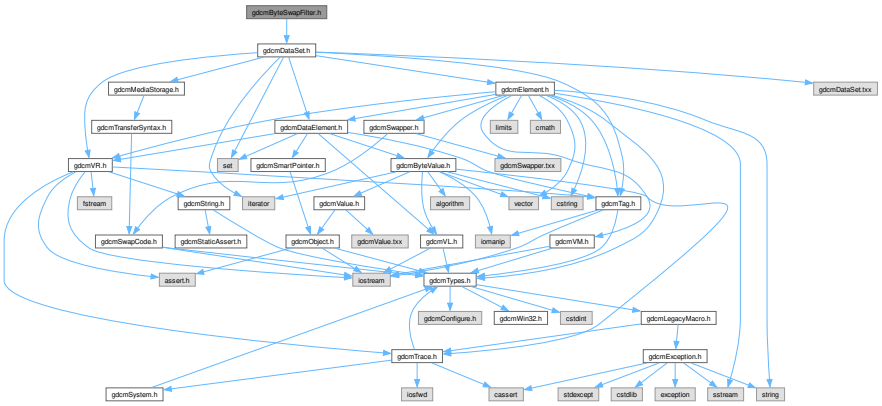
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBYTEBUFFER_H
00015 #define GDCMBYTEBUFFER_H
00016
00017 #include "gdcmTypes.h"
00018 #include <vector>
00019 #include <assert.h>
00020 #include <string.h> // memmove
00021
00022 #error should not be used
00023
00024 namespace gdcm
00025 {
00034 class ByteBuffer
00035 {
00036   static const int InitBufferSize = 1024;
00037 public:
00038   ByteBuffer() : Start(0), End(0),Limit(0) {}
```

```
00039   char *Get(int len)
00040     {
00041     char *buffer = &Internal[0];
00042     if (len > Limit - End)
00043       {
00044       // FIXME avoid integer overflow
00045       int neededSize = len + (End - Start);
00046       if (neededSize  <= Limit - buffer)
00047         {
00048         memmove(buffer, Start, End - Start);
00049         End = buffer + (End - Start);
00050         Start = buffer;
00051         }
00052       else
00053         {
00054         char *newBuf;
00055         int bufferSize = Limit - Start;
00056         if ( bufferSize == 0 )
00057           {
00058           bufferSize = InitBufferSize;
00059           }
00060         do
00061           {
00062           bufferSize *= 2;
00063           } while (bufferSize < neededSize);
00064         //newBuf = malloc(bufferSize);
00065         try
00066           {
00067           Internal.reserve(bufferSize);
00068           newBuf = &Internal[0];
00069           }
00070         catch(...)
00071           {
00072           //errorCode = NoMemoryError;
00073           return 0;
00074           }
00075         Limit = newBuf + bufferSize;
00076
00077         if (Start)
00078           {
00079           memcpy(newBuf, Start, End - Start);
00080           }
00081         End = newBuf + (End - Start);
00082         Start = /*buffer =*/ newBuf;
00083         }
00084       }
00085     gdcm_assert( (int)Internal.capacity() >= len );
00086     return End;
00087     }
00088
00089   void UpdatePosition() {}
00090   void ShiftEnd(int len) {
00091     End += len;
00092   }
00093   const char *GetStart() const {
00094     return Start;
00095   }
00096
00097 private:
00098   typedef std::vector<char> CharVector;
00099   const char *Start;
00100         char *End;
00101   const char *Limit;
00102   CharVector Internal;
00103 };
00104
00105 } // end namespace gdcm
00106
00107 #endif //GDCMBYTEBUFFER_H
```

13.115 gdcmByteSwapFilter.h File Reference

`#include "gdcmDataSet.h"`
Include dependency graph for gdcmByteSwapFilter.h:



Classes

- class gdcm::ByteSwapFilter
  ByteSwapFilter.

Namespaces

- namespace gdcm

13.116 gdcmByteSwapFilter.h

Go to the documentation of this file.

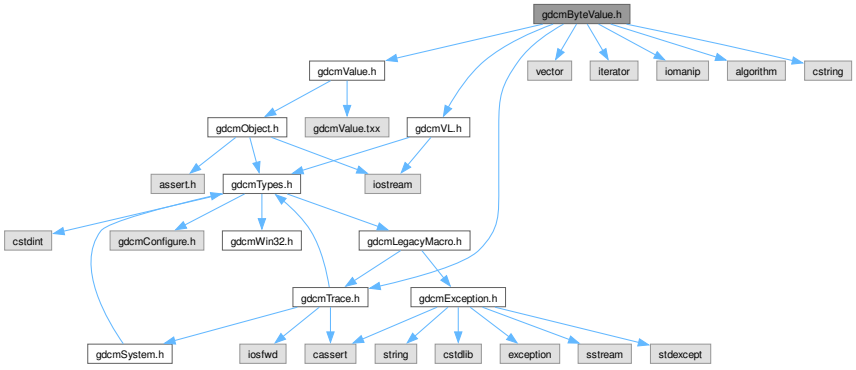
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBYTESWAPFILTER_H
00015 #define GDCMBYTESWAPFILTER_H
00016
00017 #include "gdcmDataSet.h"
00018
00019 namespace gdcm
00020 {
00021
00027 class GDCM_EXPORT ByteSwapFilter
```

```
00028 {
00029 public:
00030   ByteSwapFilter(DataSet& ds):DS(ds),ByteSwapTag(false) {}
00031   ~ByteSwapFilter() = default;
00032   ByteSwapFilter(const ByteSwapFilter &) = delete;
00033   ByteSwapFilter& operator=(const ByteSwapFilter &) = delete;
00034
00035   bool ByteSwap();
00036   void SetByteSwapTag(bool b) { ByteSwapTag = b; }
00037
00038 private:
00039   DataSet &DS;
00040   bool ByteSwapTag;
00041
00042 };
00043
00044 } // end namespace gdcm
00045
00046 #endif //GDCMBYTESWAPFILTER_H
```

13.117 gdcmByteValue.h File Reference

```
#include "gdcmValue.h"
#include "gdcmTrace.h"
#include "gdcmVL.h"
#include <vector>
#include <iterator>
#include <iomanip>
#include <algorithm>
#include <cstring>
```

Include dependency graph for gdcmByteValue.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::ByteValue

  Class to represent binary value (array of bytes).

Namespaces

- namespace gdcm

13.118 gdcmByteValue.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBYTEVALUE_H
00015 #define GDCMBYTEVALUE_H
00016
00017 #include "gdcmValue.h"
00018 #include "gdcmTrace.h"
00019 #include "gdcmVL.h"
00020
00021 #include <vector>
00022 #include <iterator>
00023 #include <iomanip>
00024 #include <algorithm>
00025 #include <cstring>
00026
00027 namespace gdcm_ns
00028 {
00029 #if !defined(SWIGPYTHON) && !defined(SWIGCSHARP) && !defined(SWIGJAVA) && !defined(SWIGPHP)
00030 using namespace gdcm;
00031 #endif
00035 class GDCM_EXPORT ByteValue : public Value
00036 {
00037 public:
00038   ByteValue(const char* array = nullptr, VL const &vl = 0): Length(vl) {
00039       VL bytes_count_to_copy = Length;
00040       if( vl.IsOdd() )
00041         {
00042         gdcmDebugMacro( "Odd length" );
00043         Internal.resize(vl+1);
00044         ++Length;
00045         }
00046       Internal.resize(Length);
00047       if( array )
00048         std::memcpy(Internal.data(), array, bytes_count_to_copy);
00049   }
00050
00052   ByteValue(std::vector<char> &v):Internal(v),Length((uint32_t)v.size()) {}
00053   //ByteValue(std::ostringstream const &os) {
00054   //  (void)os;
00055   //   gdcm_assert(0); // TODO
00056   //}
00057   ~ByteValue() override {
00058     Internal.clear();
00059   }
00060
00061   // When 'dumping' dicom file we still have some information from
```

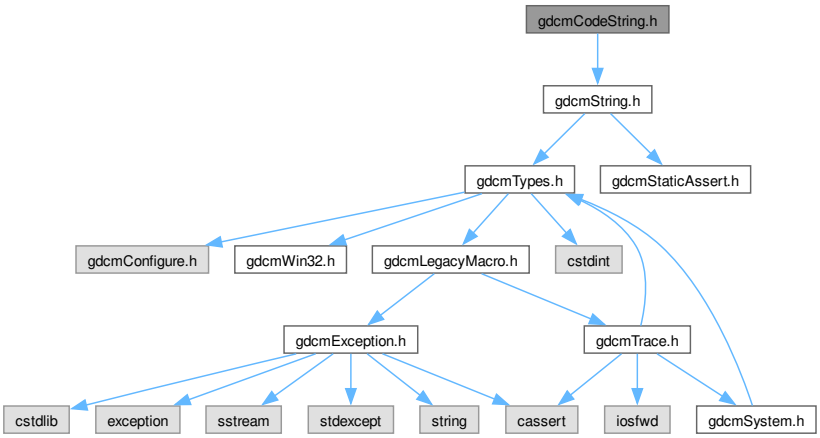
```
00062   // Either the VR: eg LO (private tag)
00063   void PrintASCII(std::ostream &os, VL maxlength ) const;
00064
00065   void PrintHex(std::ostream &os, VL maxlength) const;
00066
00067   // Either from Element Number (== 0x0000)
00068   void PrintGroupLength(std::ostream &os) {
00069     gdcm_assert( Length == 2 );
00070     (void)os;
00071   }
00072
00073   bool IsEmpty() const {
00074 #if 0
00075     if( Internal.empty() ) gdcm_assert( Length == 0 );
00076     return Internal.empty();
00077 #else
00078   return Length == 0;
00079 #endif
00080   }
00081   VL GetLength() const override { return Length; }
00082
00083   VL ComputeLength() const { return Length + Length % 2; }
00084   // Does a reallocation
00085   void SetLength(VL vl) override;
00086
00087   operator const std::vector<char>& () const { return Internal; }
00088
00089   ByteValue &operator=(const ByteValue &val) {
00090     Internal = val.Internal;
00091     Length = val.Length;
00092     return *this;
00093     }
00094
00095   bool operator==(const ByteValue &val) const {
00096     if( Length != val.Length )
00097       return false;
00098     if( Internal == val.Internal )
00099       return true;
00100     return false;
00101     }
00102   bool operator==(const Value &val) const override
00103     {
00104     const ByteValue &bv = dynamic_cast<const ByteValue&>(val);
00105     return Length == bv.Length && Internal == bv.Internal;
00106     }
00107
00108   void Append(ByteValue const & bv);
00109
00110   void Clear() override {
00111     Internal.clear();
00112   }
00113   // Use that only if you understand what you are doing
00114   const char *GetPointer() const {
00115     if(!Internal.empty()) return &Internal[0];
00116     return nullptr;
00117   }
00118   // Use that only if you really understand what you are doing
00119   const void *GetVoidPointer() const {
00120     if(!Internal.empty()) return &Internal[0];
00121     return nullptr;
00122   }
00123   void *GetVoidPointer() {
00124     if(!Internal.empty()) return &Internal[0];
00125     return nullptr;
00126   }
00127   void Fill(char c) {
00128     //if( Internal.empty() ) return;
00129     std::vector<char>::iterator it = Internal.begin();
00130     for(; it != Internal.end(); ++it) *it = c;
00131   }
00132   bool GetBuffer(char *buffer, unsigned long length) const;
00133   bool WriteBuffer(std::ostream &os) const {
00134     if( Length ) {
00135       //gdcm_assert( Internal.size() <= Length );
00136       gdcm_assert( !(Internal.size() % 2) );
00137       os.write(&Internal[0], Internal.size() );
00138       }
00139     return true;
00140   }
00141
00142   template <typename TSwap, typename TType>
```

```
00143   std::istream &Read(std::istream &is, bool readvalues = true) {
00144     // If Length is odd we have detected that in SetLength
00145     // and calling std::vector::resize make sure to allocate *AND*
00146     // initialize values to 0 so we are sure to have a \0 at the end
00147     // even in this case
00148     if(Length)
00149       {
00150       if( readvalues )
00151         {
00152         is.read(&Internal[0], Length);
00153         gdcm_assert( Internal.size() == Length || Internal.size() == Length + 1 );
00154         TSwap::SwapArray((TType*)GetVoidPointer(), Internal.size() / sizeof(TType) );
00155         }
00156       else
00157         {
00158         is.seekg(Length, std::ios::cur);
00159         }
00160       }
00161     return is;
00162   }
00163
00164   template <typename TSwap>
00165   std::istream &Read(std::istream &is) {
00166     return Read<TSwap,uint8_t>(is);
00167   }
00168
00169
00170   template <typename TSwap, typename TType>
00171   std::ostream const &Write(std::ostream &os) const {
00172     gdcm_assert( !(Internal.size() % 2) );
00173     if( !Internal.empty() ) {
00174       //os.write(&Internal[0], Internal.size());
00175       std::vector<char> copy = Internal;
00176       TSwap::SwapArray((TType*)(void*)&copy[0], Internal.size() / sizeof(TType) );
00177       os.write(&copy[0], copy.size());
00178       }
00179     return os;
00180   }
00181
00182   template <typename TSwap>
00183   std::ostream const &Write(std::ostream &os) const {
00184     return Write<TSwap,uint8_t>(os);
00185   }
00186
00193   bool IsPrintable(VL length) const {
00194     gdcm_assert( length <= Length );
00195     for(unsigned int i=0; i<length; i++)
00196       {
00197       if ( i == (length-1) && Internal[i] == '\0') continue;
00198       if ( !( isprint((unsigned char)Internal[i]) || isspace((unsigned char)Internal[i]) ) )
00199         {
00200         //gdcmWarningMacro( "Cannot print :" << i );
00201         return false;
00202         }
00203       }
00204     return true;
00205     }
00206
00208   void PrintPNXML(std::ostream &os) const;
00209   void PrintASCIIXML(std::ostream &os) const;
00210   void PrintHexXML(std::ostream &os) const;
00211 protected:
00212   void Print(std::ostream &os) const override {
00213   // This is perfectly valid to have a Length = 0 , so we cannot check
00214   // the length for printing
00215   if( !Internal.empty() )
00216     {
00217     if( IsPrintable(Length) )
00218       {
00219       // WARNING: Internal.end() != Internal.begin()+Length
00220       std::vector<char>::size_type length = Length;
00221       if( Internal.back() == 0 ) --length;
00222       std::copy(Internal.begin(), Internal.begin()+length,
00223         std::ostream_iterator<char>(os));
00224       }
00225     else
00226       os << "Loaded:" << Internal.size();
00227     }
00228   else
00229     {
00230     //os << "Not Loaded";
```

```
00231     os « "(no value available)";
00232     }
00233   }
00234 /*
00235 //Introduce check for invalid XML characters
00236 friend std::ostream& operator«(std::ostream &os,const char c);
00237 */
00238
00239   void SetLengthOnly(VL vl) override {
00240     Length = vl;
00241   }
00242
00243 private:
00244   std::vector<char> Internal;
00245
00246   // WARNING Length IS NOT Internal.size() some *featured* DICOM
00247   // implementation define odd length, we always load them as even number
00248   // of byte, so we need to keep the right Length
00249   VL Length;
00250 };
00251
00252 } // end namespace gdcm_ns
00253
00254 #endif //GDCMBYTEVALUE_H
```

13.119 gdcmCodeString.h File Reference

`#include "gdcmString.h"`
Include dependency graph for gdcmCodeString.h:



Classes

- class gdcm::CodeString
  CodeString.

Namespaces

- namespace gdcm

Functions

- bool gdcm::operator!= (const CodeString &ref, const CodeString &cs)
- std::ostream & gdcm::operator<< (std::ostream &os, const CodeString &str)
- bool gdcm::operator== (const CodeString &ref, const CodeString &cs)

13.120 gdcmCodeString.h

Go to the documentation of this file.

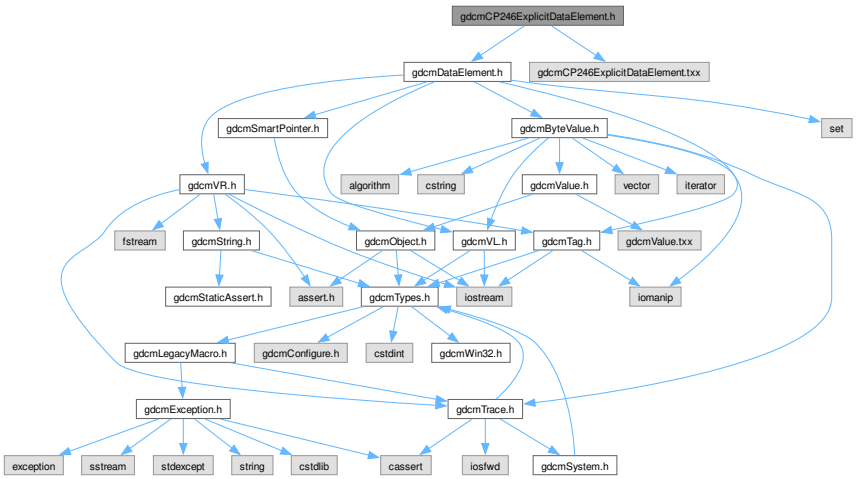
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCODESTRING_H
00015 #define GDCMCODESTRING_H
00016
00017 #include "gdcmString.h"
00018
00019 namespace gdcm
00020 {
00021
00039 // Note to myself: because note all wrapped language support exception
00040 // we could not support throwing an exception during object construction.
00041 class GDCM_EXPORT CodeString
00042 {
00043   friend std::ostream& operator« (std::ostream& os, const CodeString& str);
00044   friend bool operator==(const CodeString &ref, const CodeString& cs);
00045   friend bool operator!=(const CodeString &ref, const CodeString& cs);
00046   typedef String<'\\',16> InternalClass;
00047 public:
00048   typedef InternalClass::value_type             value_type;
00049   typedef InternalClass::pointer                pointer;
00050   typedef InternalClass::reference              reference;
00051   typedef InternalClass::const_reference        const_reference;
00052   typedef InternalClass::size_type              size_type;
00053   typedef InternalClass::difference_type        difference_type;
00054   typedef InternalClass::iterator               iterator;
00055   typedef InternalClass::const_iterator         const_iterator;
00056   typedef InternalClass::reverse_iterator       reverse_iterator;
00057   typedef InternalClass::const_reverse_iterator const_reverse_iterator;
00058
00060   CodeString(): Internal() {}
00061   CodeString(const value_type* s): Internal(s) { Internal = Internal.Trim(); }
00062   CodeString(const value_type* s, size_type n): Internal(s, n) {
00063     Internal = Internal.Trim(); }
00064   CodeString(const InternalClass& s, size_type pos=0, size_type n=InternalClass::npos):
00065     Internal(s, pos, n) { Internal = Internal.Trim(); }
00066
00068   bool IsValid() const;
00069
00071   std::string GetAsString() const {
00072     return Internal;
00073   }
00074
00076   size_type Size() const { return Internal.size(); }
00077
00078 protected:
00079   std::string TrimInternal() const {
00080     return Internal.Trim();
00081   }
00082
00083 private:
00084   String<'\\',16> Internal;
```

```
00085 };
00086
00087 inline std::ostream& operator« (std::ostream& os, const CodeString& str)
00088 {
00089   os « str.Internal;
00090   return os;
00091 }
00092
00093 inline bool operator==(const CodeString &ref, const CodeString& cs)
00094 {
00095   return ref.Internal == cs.Internal;
00096 }
00097 inline bool operator!=(const CodeString &ref, const CodeString& cs)
00098 {
00099   return ref.Internal != cs.Internal;
00100 }
00101
00102
00103 } // end namespace gdcm
00104
00105 #endif //GDCMCODESTRING_H
```

13.121 gdcmCP246ExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmCP246ExplicitDataElement.txx"
```

Include dependency graph for gdcmCP246ExplicitDataElement.h:



Classes

- class gdcm::CP246ExplicitDataElement

  Class to read/write a DataElement as CP246Explicit Data Element.

Namespaces

- namespace gdcm

13.122 gdcmCP246ExplicitDataElement.h

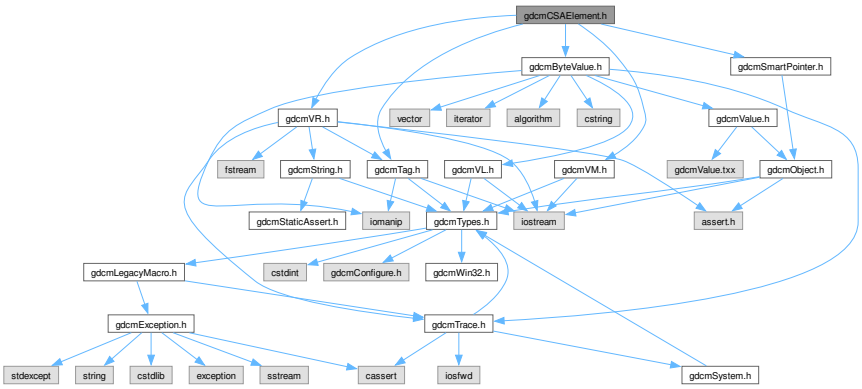
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCP246EXPLICITDATAELEMENT_H
00015 #define GDCMCP246EXPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm
00020 {
00021 // Data Element (CP246Explicit)
00027 class GDCM_EXPORT CP246ExplicitDataElement : public DataElement
00028 {
00029 public:
00030   VL GetLength() const;
00031
00032   template <typename TSwap>
00033   std::istream &Read(std::istream &is);
00034
00035   template <typename TSwap>
00036   std::istream &ReadPreValue(std::istream &is);
00037
00038   template <typename TSwap>
00039   std::istream &ReadValue(std::istream &is, bool readvalues = true);
00040
00041   template <typename TSwap>
00042   std::istream &ReadWithLength(std::istream &is, VL & length);
00043
00044   // PURPOSELY do not provide an implementation for writing !
00045   //template <typename TSwap>
00046   //const std::ostream &Write(std::ostream &os) const;
00047 };
00048
00049 } // end namespace gdcm
00050
00051 #include "gdcmCP246ExplicitDataElement.txx"
00052
00053 #endif //GDCMCP246EXPLICITDATAELEMENT_H
```

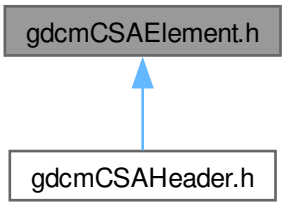
13.123 gdcmCSAElement.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVM.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
```

Include dependency graph for gdcmCSAElement.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::CSAElement

  Class to represent a CSA Element.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CSAElement &val)

13.124 gdcmCSAElement.h

Go to the documentation of this file.

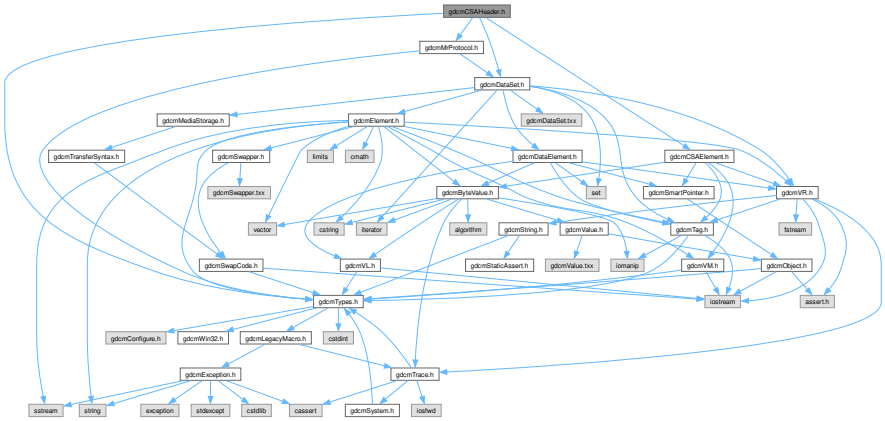
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCSAELEMENT_H
00015 #define GDCMCSAELEMENT_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmVM.h"
00019 #include "gdcmVR.h"
00020 #include "gdcmByteValue.h"
00021 #include "gdcmSmartPointer.h"
00022
00023 namespace gdcm
00024 {
00029 class GDCM_EXPORT CSAElement
00030 {
00031 public:
00032   CSAElement(unsigned int kf = 0):KeyField(kf),SyngoDTField(0),NoOfItemsField(0) {}
00033
00034   friend std::ostream& operator<<(std::ostream &os, const CSAElement &val);
00035
00037   unsigned int GetKey() const { return KeyField; }
00038   void SetKey(unsigned int key) { KeyField = key; }
00039
00041   const char *GetName() const { return NameField.c_str(); }
00042   void SetName(const char *name) { NameField = name; }
00043
00045   const VM& GetVM() const { return ValueMultiplicityField; }
00046   void SetVM(const VM &vm) { ValueMultiplicityField = vm; }
00047
00049   VR const &GetVR() const { return VRField; }
00050   void SetVR(VR const &vr) { VRField = vr; }
00051
00053   unsigned int GetSyngoDT() const { return SyngoDTField; }
00054   void SetSyngoDT(unsigned int syngodt) { SyngoDTField = syngodt; }
00055
00057   unsigned int GetNoOfItems() const { return NoOfItemsField; }
00058   void SetNoOfItems(unsigned int items) { NoOfItemsField = items; }
00059
00061   Value const &GetValue() const { return *DataField; }
00062   Value &GetValue() { return *DataField; }
00063   void SetValue(Value const & vl) {
00064     //gdcm_assert( DataField == 0 );
00065     DataField = vl;
00066   }
00068   bool IsEmpty() const { return DataField == nullptr; }
00069
00071   void SetByteValue(const char *array, VL length)
00072     {
00073     ByteValue *bv = new ByteValue(array,length);
00074     SetValue( *bv );
00075     }
00078   const ByteValue* GetByteValue() const {
00079     // Get the raw pointer from the gdcm::SmartPointer
00080     const ByteValue *bv = dynamic_cast<const ByteValue*>(DataField.GetPointer());
00081     return bv; // Will return NULL if not ByteValue
00082   }
00083
00084   CSAElement(const CSAElement &_val)
00085     {
00086     if( this != &_val)
00087       {
00088       *this = _val;
00089       }
00090     }
```

```
00091
00092   bool operator<(const CSAElement &de) const
00093     {
00094     return GetKey() < de.GetKey();
00095     }
00096   CSAElement &operator=(const CSAElement &de)
00097     = default;
00098
00099   bool operator==(const CSAElement &de) const
00100     {
00101     return KeyField == de.KeyField
00102       && NameField == de.NameField
00103       && ValueMultiplicityField == de.ValueMultiplicityField
00104       && VRField == de.VRField
00105       && SyngoDTField == de.SyngoDTField
00106       //&& ValueField == de.ValueField;
00107       ;
00108     }
00109
00110 protected:
00111   unsigned int KeyField;
00112   std::string NameField;
00113   VM ValueMultiplicityField;
00114   VR VRField;
00115   unsigned int SyngoDTField;
00116   unsigned int NoOfItemsField;
00117   typedef SmartPointer<Value> DataPtr;
00118   DataPtr DataField;
00119 };
00120 //-----------------------------------------------------------------------------
00121 inline std::ostream& operator«(std::ostream &os, const CSAElement &val)
00122 {
00123   os « val.KeyField;
00124   os « " - '" « val.NameField;
00125   os « "' VM " « val.ValueMultiplicityField;
00126   os « ", VR " « val.VRField;
00127   os « ", SyngoDT " « val.SyngoDTField;
00128   os « ", NoOfItems " « val.NoOfItemsField;
00129   os « ", Data ";
00130   if( val.DataField )
00131     {
00132     //val.DataField->Print( os « "'" );
00133     const ByteValue * bv = dynamic_cast<ByteValue*>(&*val.DataField);
00134     gdcm_assert( bv );
00135     const char * p = bv->GetPointer();
00136     std::string str(p, p + bv->GetLength() );
00137     if( val.ValueMultiplicityField == VM::VM1 )
00138       {
00139       os « "'" « str.c_str() « "'";
00140       }
00141     else
00142       {
00143       std::istringstream is( str );
00144       std::string s;
00145       bool sep = false;
00146       while( std::getline(is, s, '\\' ) )
00147         {
00148         if( sep )
00149           {
00150           os « '\\';
00151           }
00152         sep = true;
00153         os « "'" « s.c_str() « "'";
00154         }
00155       //bv->Print( os « "'" );
00156       //os « "'";
00157       }
00158     }
00159   return os;
00160 }
00161
00162 } // end namespace gdcm
00163
00164 #endif //GDCMCSAELEMENT_H
```

13.125 gdcmCSAHeader.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataSet.h"
#include "gdcmCSAElement.h"
#include "gdcmMrProtocol.h"
```

Include dependency graph for gdcmCSAHeader.h:



Classes

- class gdcm::CSAHeader

  Class for CSAHeader.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CSAHeader &d)

13.126 gdcmCSAHeader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
```

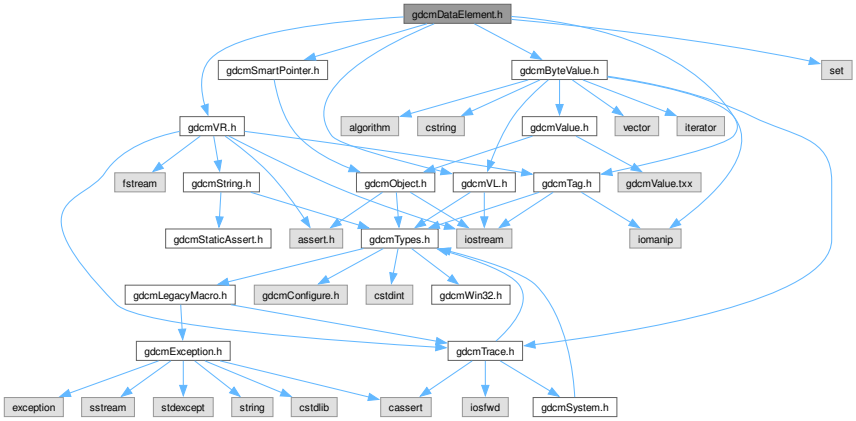
```
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCSAHEADER_H
00015 #define GDCMCSAHEADER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmDataSet.h"
00019 #include "gdcmCSAElement.h"
00020 #include "gdcmMrProtocol.h"
00021
00022 namespace gdcm
00023 {
00024 /*
00025  * Everything done in this code is for the sole purpose of writing interoperable
00026  * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
00027  * If you believe anything in this code violates any law or any of your rights,
00028  * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
00029  * find a solution.
00030  */
00031 //-----------------------------------------------------------------------------
00032
00033 class DataElement;
00034 class PrivateTag;
00063 class GDCM_EXPORT CSAHeader
00064 {
00065   friend std::ostream& operator<<(std::ostream &_os, const CSAHeader &d);
00066 public :
00067   CSAHeader():InternalDataSet(),InternalType(UNKNOWN),InterfileData(nullptr) {}
00068   ~CSAHeader() = default;
00069
00071   typedef enum {
00072     UNKNOWN = 0,
00073     SV10,
00074     NOMAGIC,
00075     DATASET_FORMAT,
00076     INTERFILE,
00077     ZEROED_OUT
00078   } CSAHeaderType;
00079
00081   bool LoadFromDataElement(DataElement const &de);
00082
00084   void Print(std::ostream &os) const;
00085
00087   const DataSet& GetDataSet() const { return InternalDataSet; }
00088
00090   const char * GetInterfile() const { return InterfileData; }
00091
00094   CSAHeaderType GetFormat() const;
00095
00098   static const PrivateTag & GetCSAImageHeaderInfoTag();
00099
00102   static const PrivateTag & GetCSASeriesHeaderInfoTag();
00103
00106   static const PrivateTag & GetCSADataInfo();
00107
00110   const CSAElement &GetCSAElementByName(const char *name);
00111
00114   bool FindCSAElementByName(const char *name);
00115
00117   bool GetMrProtocol( const DataSet & ds, MrProtocol & mrProtocol );
00118
00119 protected:
00120   const CSAElement& GetCSAEEnd() const;
00121
00122 private:
00123   std::set<CSAElement> InternalCSADataSet;
00124   DataSet InternalDataSet;
00125   CSAHeaderType InternalType;
00126   Tag DataElementTag;
00127   static CSAElement CSAEEnd;
00128   const char *InterfileData;
00129 };
00130 //-----------------------------------------------------------------------------
00131 inline std::ostream& operator<<(std::ostream &os, const CSAHeader &d)
00132 {
00133   d.Print( os );
00134   return os;
00135 }
00136
```

```
00137 } // end namespace gdcm
00138 //-----------------------------------------------------------------------------
00139 #endif //GDCMCSAHEADER_H
```

13.127 gdcmDataElement.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVL.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
#include <set>
```

Include dependency graph for gdcmDataElement.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::DataElement

  Class to represent a Data Element either Implicit or Explicit.

Namespaces

- namespace gdcm

Functions

- bool gdcm::operator!= (const DataElement &lhs, const DataElement &rhs)
- std::ostream & gdcm::operator<< (std::ostream &os, const DataElement &val)

13.128 gdcmDataElement.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDATAELEMENT_H
00015 #define GDCMDATAELEMENT_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmVL.h"
00019 #include "gdcmVR.h"
00020 #include "gdcmByteValue.h"
00021 #include "gdcmSmartPointer.h"
00022
00023 #include <set>
00024
00025 namespace gdcm_ns
00026 {
00027 // Data Element
00028 // Contains multiple fields:
00029 // -> Tag
00030 // -> Optional VR (Explicit Transfer Syntax)
00031 // -> ValueLength
00032 // -> Value
00033 // TODO: This class SHOULD be pure virtual. I don't want a user
00034 // to shoot himself in the foot.
00035
00036 class SequenceOfItems;
00037 class SequenceOfFragments;
00058 class GDCM_EXPORT DataElement
00059 {
00060 public:
00061   DataElement(const Tag& t = Tag(0), const VL& vl = 0, const VR &vr =
      VR::INVALID):TagField(t),ValueLengthField(vl),VRField(vr),ValueField(nullptr) {}
00062   //DataElement( Attribute const &att );
00063
00064   friend std::ostream& operator«(std::ostream &_os, const DataElement &_val);
00065
00067   const Tag& GetTag() const { return TagField; }
00068   Tag& GetTag() { return TagField; }
00071   void SetTag(const Tag &t) { TagField = t; }
00072
00074   const VL& GetVL() const { return ValueLengthField; }
00075   VL& GetVL() { return ValueLengthField; }
00079   void SetVL(const VL &vl) { ValueLengthField = vl; }
00080   void SetVLToUndefined();
00081
00084   VR const &GetVR() const { return VRField; }
00088   void SetVR(VR const &vr) {
00089     if( vr.IsVRFile() )
00090       VRField = vr;
00091   }
00092
00094   Value const &GetValue() const { gdcmAssertAlwaysMacro(ValueField); return *ValueField; }
00095   Value &GetValue() {
00096     gdcmAssertAlwaysMacro(ValueField);
00097     return *ValueField;
```

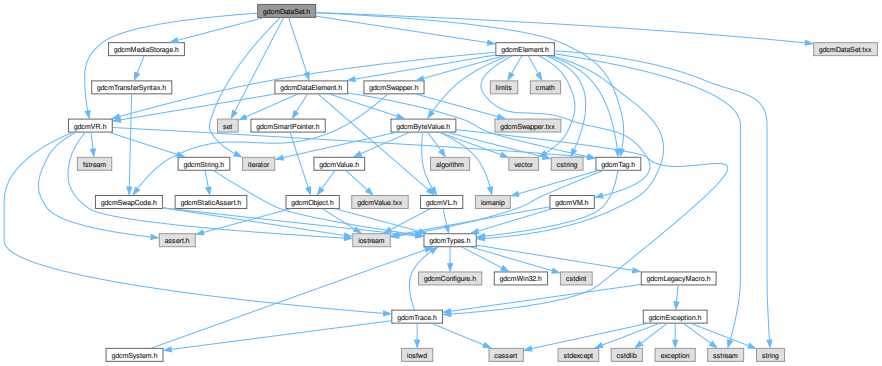
```
00098   }
00100   void SetValue(Value const & vl) {
00101     //gdcm_assert( ValueField == 0 );
00102     ValueField = vl;
00103     ValueLengthField = vl.GetLength();
00104   }
00106   bool IsEmpty() const { return ValueField == nullptr || (GetByteValue() && GetByteValue()->IsEmpty()); }
00107
00109   void Empty() { ValueField = nullptr; ValueLengthField = 0; }
00110
00112   void Clear()
00113     {
00114     TagField = 0;
00115     VRField = VR::INVALID;
00116     ValueField = nullptr;
00117     ValueLengthField = 0;
00118     }
00119
00120   // Helper:
00126   void SetByteValue(const char *array, VL length)
00127     {
00128     ByteValue *bv = new ByteValue(array,length);
00129     SetValue( *bv );
00130     }
00133   const ByteValue* GetByteValue() const {
00134     // Get the raw pointer from the gdcm::SmartPointer
00135     const ByteValue *bv = dynamic_cast<const ByteValue*>(ValueField.GetPointer());
00136     return bv; // Will return NULL if not ByteValue
00137   }
00138
00145   SmartPointer<SequenceOfItems> GetValueAsSQ() const;
00146
00149   const SequenceOfFragments* GetSequenceOfFragments() const;
00150   SequenceOfFragments* GetSequenceOfFragments();
00151
00153   bool IsUndefinedLength() const {
00154     return ValueLengthField.IsUndefined();
00155   }
00156
00157   DataElement(const DataElement &_val)
00158     {
00159     if( this != &_val)
00160       {
00161       *this = _val;
00162       }
00163     }
00164
00165   bool operator<(const DataElement &de) const
00166     {
00167     return GetTag() < de.GetTag();
00168     }
00169   DataElement &operator=(const DataElement &)
00170     = default;
00171
00172   bool operator==(const DataElement &de) const
00173     {
00174     bool b = TagField == de.TagField
00175       && ValueLengthField == de.ValueLengthField
00176       && VRField == de.VRField;
00177     if( !ValueField && !de.ValueField )
00178       {
00179       return b;
00180       }
00181     if( ValueField && de.ValueField )
00182       {
00183       return b && (*ValueField == *de.ValueField);
00184       }
00185     // ValueField != de.ValueField
00186     return false;
00187     }
00188
00189   // The following functionalities are dependent on:
00190   // # The Transfer Syntax: Explicit or Implicit
00191   // # The Byte encoding: Little Endian / Big Endian
00192
00193   /*
00194    * The following was inspired by a C++ idiom: Curiously Recurring Template Pattern
00195    * Ref: http://en.wikipedia.org/wiki/Curiously_Recurring_Template_Pattern
00196    * The typename TDE is typically a derived class *without* any data
00197    * while TSwap is a simple template parameter to achieve byteswapping (and allow factorization of
00198    * highly identical code)
```

```
00199    */
00200   template <typename TDE>
00201   VL GetLength() const {
00202     return static_cast<const TDE*>(this)->GetLength();
00203   }
00204
00205   template <typename TDE, typename TSwap>
00206   std::istream &Read(std::istream &is) {
00207     return static_cast<TDE*>(this)->template Read<TSwap>(is);
00208   }
00209
00210   template <typename TDE, typename TSwap>
00211   std::istream &ReadOrSkip(std::istream &is, std::set<Tag> const &skiptags) {
00212     (void)skiptags;
00213     return static_cast<TDE*>(this)->template Read<TSwap>(is);
00214   }
00215
00216   template <typename TDE, typename TSwap>
00217   std::istream &ReadPreValue(std::istream &is, std::set<Tag> const &skiptags) {
00218     (void)skiptags;
00219     return static_cast<TDE*>(this)->template ReadPreValue<TSwap>(is);
00220   }
00221   template <typename TDE, typename TSwap>
00222   std::istream &ReadValue(std::istream &is, std::set<Tag> const &skiptags) {
00223     (void)skiptags;
00224     return static_cast<TDE*>(this)->template ReadValue<TSwap>(is);
00225   }
00226   template <typename TDE, typename TSwap>
00227   std::istream &ReadValueWithLength(std::istream &is, VL & length, std::set<Tag> const &skiptags) {
00228     (void)skiptags;
00229     return static_cast<TDE*>(this)->template ReadValueWithLength<TSwap>(is, length);
00230   }
00231
00232   template <typename TDE, typename TSwap>
00233   std::istream &ReadWithLength(std::istream &is, VL &length) {
00234     return static_cast<TDE*>(this)->template ReadWithLength<TSwap>(is,length);
00235   }
00236
00237   template <typename TDE, typename TSwap>
00238   const std::ostream &Write(std::ostream &os) const {
00239     return static_cast<const TDE*>(this)->template Write<TSwap>(os);
00240   }
00241
00242 protected:
00243   Tag TagField;
00244   // This is the value read from the file, might be different from the length of Value Field
00245   VL ValueLengthField; // Can be 0xFFFFFFFF
00246
00247   // Value Representation
00248   VR VRField;
00249   typedef SmartPointer<Value> ValuePtr;
00250   ValuePtr ValueField;
00251
00252   void SetValueFieldLength( VL vl, bool readvalues );
00253 };
00254 //-----------------------------------------------------------------------------
00255 inline std::ostream& operator«(std::ostream &os, const DataElement &val)
00256 {
00257   os « val.TagField;
00258   os « "\t" « val.VRField;
00259   os « "\t" « val.ValueLengthField;
00260   if( val.ValueField )
00261     {
00262     val.ValueField->Print( os « "\t" );
00263     }
00264   return os;
00265 }
00266
00267 inline bool operator!=(const DataElement& lhs, const DataElement& rhs)
00268 {
00269   return ! ( lhs == rhs );
00270 }
00271
00272 } // end namespace gdcm_ns
00273
00274 #endif //GDCMDATAELEMENT_H
```

13.129 gdcmDataSet.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmTag.h"
#include "gdcmVR.h"
#include "gdcmElement.h"
#include "gdcmMediaStorage.h"
#include <set>
#include <iterator>
#include "gdcmDataSet.txx"
```

Include dependency graph for gdcmDataSet.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::DataElementException
- class gdcm::DataSet

  Class to represent a Data Set (which contains Data Elements).

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const DataSet &val)

13.130 gdcmDataSet.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDATASET_H
00015 #define GDCMDATASET_H
00016
00017 #include "gdcmDataElement.h"
00018 #include "gdcmTag.h"
00019 #include "gdcmVR.h"
00020 #include "gdcmElement.h"
00021 #include "gdcmMediaStorage.h"
00022
00023 #include <set>
00024 #include <iterator>
00025
00026 namespace gdcm_ns
00027 {
00028 class GDCM_EXPORT DataElementException : public std::exception {};
00029
00030 class PrivateTag;
00055 class GDCM_EXPORT DataSet
00056 {
00057   friend class CSAHeader;
00058 public:
00059   typedef std::set<DataElement> DataElementSet;
00060   typedef DataElementSet::const_iterator ConstIterator;
00061   typedef DataElementSet::iterator Iterator;
00062   typedef DataElementSet::size_type SizeType;
00063   //typedef typename DataElementSet::iterator iterator;
00064   ConstIterator Begin() const { return DES.begin(); }
00065   Iterator Begin() { return DES.begin(); }
00066   ConstIterator End() const { return DES.end(); }
00067   Iterator End() { return DES.end(); }
00068   const DataElementSet &GetDES() const { return DES; }
00069   DataElementSet &GetDES() { return DES; }
00070   void Clear() {
00071     DES.clear();
00072     gdcm_assert( DES.empty() );
00073   }
00074
00075   SizeType Size() const {
00076     return DES.size();
00077   }
00078
00079   void Print(std::ostream &os, std::string const &indent = "") const {
00080     // CT_Phillips_JPEG2K_Decompr_Problem.dcm has a SQ of length == 0
00081     //int s = DES.size();
00082     //gdcm_assert( s );
00083     //std::copy(DES.begin(), DES.end(),
00084     //  std::ostream_iterator<DataElement>(os, "\n"));
00085     ConstIterator it = DES.begin();
00086     for( ; it != DES.end(); ++it)
00087       {
00088       os « indent « *it « "\n";
00089       }
00090   }
00091
00092   template <typename TDE>
00093   unsigned int ComputeGroupLength(Tag const &tag) const
00094     {
00095     gdcm_assert( tag.GetElement() == 0x0 );
00096     const DataElement r(tag);
00097     ConstIterator it = DES.find(r);
00098     unsigned int res = 0;
00099     for( ++it; it != DES.end()
```

```
00100       && it->GetTag().GetGroup() == tag.GetGroup(); ++it)
00101       {
00102       gdcm_assert( it->GetTag().GetElement() != 0x0 );
00103       gdcm_assert( it->GetTag().GetGroup() == tag.GetGroup() );
00104       res += it->GetLength<TDE>();
00105       }
00106     return res;
00107     }
00108
00109   template <typename TDE>
00110   VL GetLength() const {
00111     if( DES.empty() ) return 0;
00112     gdcm_assert( !DES.empty() );
00113     VL ll = 0;
00114     gdcm_assert( ll == 0 );
00115     ConstIterator it = DES.begin();
00116     for( ; it != DES.end(); ++it)
00117       {
00118       gdcm_assert( !(it->GetLength<TDE>().IsUndefined()) );
00119       if ( it->GetTag() != Tag(0xfffe,0xe00d) )
00120         {
00121         ll += it->GetLength<TDE>();
00122         }
00123       }
00124     return ll;
00125   }
00128   void Insert(const DataElement& de) {
00129     // FIXME: there is a special case where a dataset can have value < 0x8, see:
00130     // $ gdcmdump --csa gdcmData/SIEMENS-JPEG-CorruptFrag.dcm
00131     if( de.GetTag().GetGroup() >= 0x0008 || de.GetTag().GetGroup() == 0x4 )
00132       {
00133       // prevent user error:
00134       if( de.GetTag() == Tag(0xfffe,0xe00d)
00135       || de.GetTag() == Tag(0xfffe,0xe0dd)
00136       || de.GetTag() == Tag(0xfffe,0xe000) )
00137         {
00138         }
00139       else
00140         {
00141         InsertDataElement( de );
00142         }
00143       }
00144     else
00145       {
00146       gdcmErrorMacro( "Cannot add element with group < 0x0008 and != 0x4 in the dataset: " « de.GetTag()
      );
00147       }
00148   }
00150   void Replace(const DataElement& de) {
00151     ConstIterator it = DES.find(de);
00152   if( it != DES.end() )
00153   {
00154     // detect loop:
00155     gdcmAssertAlwaysMacro( &*it != &de );
00156     DES.erase(it);
00157   }
00158     DES.insert(de);
00159   }
00161   void ReplaceEmpty(const DataElement& de) {
00162     ConstIterator it = DES.find(de);
00163     if( it != DES.end() && it->IsEmpty() )
00164     {
00165       // detect loop:
00166     gdcmAssertAlwaysMacro( &*it != &de );
00167     DES.erase(it);
00168     }
00169   DES.insert(de);
00170   }
00172   SizeType Remove(const Tag& tag) {
00173     DataElementSet::size_type count = DES.erase(tag);
00174     gdcm_assert( count == 0 || count == 1 );
00175     return count;
00176   }
00177
00181   //DataElement& GetDataElement(const Tag &t) {
00182   //  DataElement r(t);
00183   //  Iterator it = DES.find(r);
00184   //  if( it != DES.end() )
00185   //    return *it;
00186   //  return GetDEEnd();
00187   //  }
```

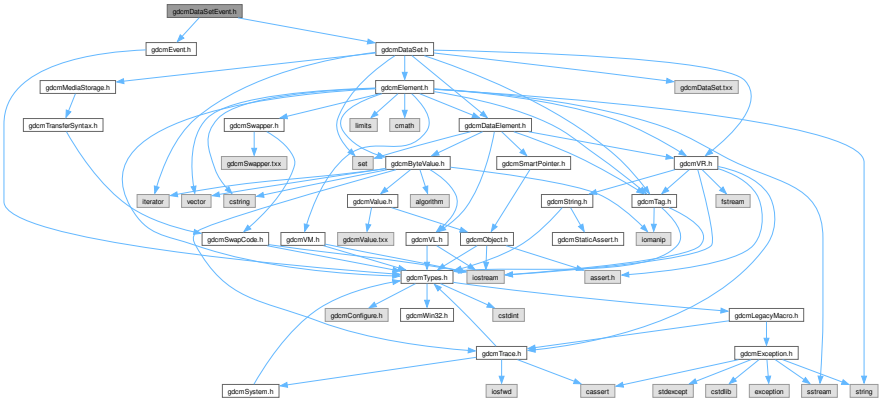
```
00188   const DataElement& GetDataElement(const Tag &t) const {
00189     const DataElement r(t);
00190     ConstIterator it = DES.find(r);
00191     if( it != DES.end() )
00192       return *it;
00193     return GetDEEnd();
00194     }
00195   const DataElement& operator[] (const Tag &t) const { return GetDataElement(t); }
00196   const DataElement& operator() (uint16_t group, uint16_t element) const { return GetDataElement(
      Tag(group,element) ); }
00197
00200   std::string GetPrivateCreator(const Tag &t) const;
00201
00203   PrivateTag GetPrivateTag(const Tag &t) const;
00204
00206   bool FindDataElement(const PrivateTag &t) const;
00208   const DataElement& GetDataElement(const PrivateTag &t) const;
00209
00210   // DUMB: this only search within the level of the current DataSet
00211   bool FindDataElement(const Tag &t) const {
00212     const auto it = GetDataElement(t);
00213     // Return if tag is found
00214     return it != GetDEEnd();
00215     }
00216
00217   // WARNING:
00218   // This only search at the same level as the DataSet is !
00219   const DataElement& FindNextDataElement(const Tag &t) const {
00220     const DataElement r(t);
00221     ConstIterator it = DES.lower_bound(r);
00222     if( it != DES.end() )
00223       return *it;
00224     return GetDEEnd();
00225     }
00226
00228   bool IsEmpty() const { return DES.empty(); }
00229
00230   DataSet& operator=(DataSet const &)
00231   = default;
00232
00233   template <typename TDE, typename TSwap>
00234   std::istream &ReadNested(std::istream &is);
00235
00236   template <typename TDE, typename TSwap>
00237   std::istream &Read(std::istream &is);
00238
00239   template <typename TDE, typename TSwap>
00240   std::istream &ReadUpToTag(std::istream &is, const Tag &t, std::set<Tag> const & skiptags);
00241
00242   template <typename TDE, typename TSwap>
00243   std::istream &ReadUpToTagWithLength(std::istream &is, const Tag &t, std::set<Tag> const & skiptags, VL &
      length);
00244
00245   template <typename TDE, typename TSwap>
00246   std::istream &ReadSelectedTags(std::istream &is, const std::set<Tag> & tags, bool readvalues = true);
00247   template <typename TDE, typename TSwap>
00248   std::istream &ReadSelectedTagsWithLength(std::istream &is, const std::set<Tag> & tags, VL & length, bool
      readvalues = true);
00249
00250   template <typename TDE, typename TSwap>
00251   std::istream &ReadSelectedPrivateTags(std::istream &is, const std::set<PrivateTag> & tags, bool
      readvalues = true);
00252   template <typename TDE, typename TSwap>
00253   std::istream &ReadSelectedPrivateTagsWithLength(std::istream &is, const std::set<PrivateTag> & tags, VL
      & length, bool readvalues = true);
00254
00255   template <typename TDE, typename TSwap>
00256   std::ostream const &Write(std::ostream &os) const;
00257
00258   template <typename TDE, typename TSwap>
00259   std::istream &ReadWithLength(std::istream &is, VL &length);
00260
00261   MediaStorage GetMediaStorage() const;
00262
00263 protected:
00264   /* GetDEEnd is a Win32 only issue, one cannot use a dllexported
00265    * static member data in an inline function, otherwise symbol
00266    * will get reported as missing in any dll using the inlined function
00267    */
00268   const DataElement& GetDEEnd() const;
00269
```

```
00270   // This function is not safe, it does not check for the value of the tag
00271   // so depending whether we are getting called from a dataset or file meta header
00272   // the condition is different
00273   void InsertDataElement(const DataElement& de) {
00274     //if( de.GetTag() == Tag(0xfffe,0xe00d) ) return;
00275     //if( de.GetTag() == Tag(0xfffe,0xe0dd) ) return;
00276 #ifndef NDEBUG
00277     std::pair<Iterator,bool> pr = DES.insert(de);
00278     if( pr.second == false )
00279       {
00280       gdcmWarningMacro( "DataElement: " « de « " was already found, skipping duplicate entry.\n"
00281         "Original entry kept is: " « *pr.first );
00282       }
00283 #else
00284     DES.insert(de);
00285 #endif
00286     gdcm_assert( de.IsEmpty() || de.GetVL() == de.GetValue().GetLength() );
00287     }
00288
00289 protected:
00290   // Internal function, that will compute the actual Tag (if found) of
00291   // a requested Private Tag (XXXX,YY,"PRIVATE")
00292   Tag ComputeDataElement(const PrivateTag & t) const;
00293
00294 private:
00295   DataElementSet DES;
00296   static DataElement DEEnd;
00297   friend std::ostream& operator«(std::ostream &_os, const DataSet &);
00298 };
00299 //-----------------------------------------------------------------------------
00300 inline std::ostream& operator«(std::ostream &os, const DataSet &val)
00301 {
00302   val.Print(os);
00303   return os;
00304 }
00305
00306 #if defined(SWIGPYTHON) || defined(SWIGCSHARP) || defined(SWIGJAVA) || defined(SWIGPHP)
00307 /*
00308  * HACK: I need this temp class to be able to manipulate a std::set from python,
00309  * swig does not support wrapping of simple class like std::set...
00310  */
00311 class SWIGDataSet
00312 {
00313 public:
00314   SWIGDataSet(DataSet &des):Internal(des),it(des.Begin()) {}
00315   const DataElement& GetCurrent() const { return *it; }
00316   void Start() { it = Internal.Begin(); }
00317   bool IsAtEnd() const { return it == Internal.End(); }
00318   void Next() { ++it; }
00319 private:
00320   DataSet & Internal;
00321   DataSet::ConstIterator it;
00322 };
00323 #endif /* SWIG */
00324
00329
00330 } // end namespace gdcm_ns
00331
00332 #include "gdcmDataSet.txx"
00333
00334 #endif //GDCMDATASET_H
```

13.131 gdcmDataSetEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmDataSetEvent.h:



Classes

- class gdcm::DataSetEvent

  DataSetEvent.

Namespaces

- namespace gdcm

13.132 gdcmDataSetEvent.h

Go to the documentation of this file.

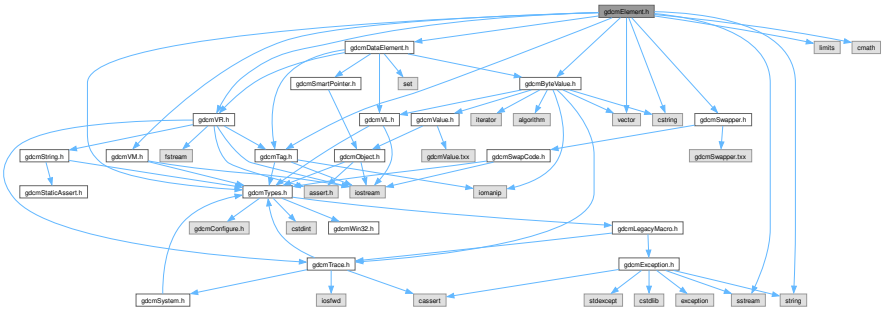
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDATASETEVENT_H
00015 #define GDCMDATASETEVENT_H
00016
00017 #include "gdcmEvent.h"
00018 #include "gdcmDataSet.h"
00019
00020 namespace gdcm
00021 {
00022
00027 class DataSetEvent : public AnyEvent
00028 {
00029 public:
00030   typedef DataSetEvent Self;
00031   typedef AnyEvent Superclass;
00032   DataSetEvent(DataSet const *ds = nullptr):m_DataSet(ds) {}
```

```
00033   ~DataSetEvent() override = default;
00034   void operator=(const Self&) = delete;
00035   const DataSet *m_DataSet;
00036   const char * GetEventName() const override { return "DataSetEvent"; }
00037   bool CheckEvent(const ::gdcm::Event* e) const override
00038   { return (dynamic_cast<const Self*>(e) == nullptr ? false : true) ; }
00039   ::gdcm::Event* MakeObject() const override
00040     { return new Self; }
00041   DataSetEvent(const Self&s) : AnyEvent(s){}
00042
00043   DataSet const & GetDataSet() const { return *m_DataSet; }
00044 };
00045
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMANONYMIZEEVENT_H
```

13.133 gdcmElement.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmTag.h"
#include "gdcmVM.h"
#include "gdcmByteValue.h"
#include "gdcmDataElement.h"
#include "gdcmSwapper.h"
#include <string>
#include <vector>
#include <sstream>
#include <limits>
#include <cmath>
#include <cstring>
```

Include dependency graph for gdcmElement.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Element< TVR, TVM >

  Element class.
- class gdcm::Element< TVR, VM::VM1_2 >
- class gdcm::Element< TVR, VM::VM1_n >
- class gdcm::Element< TVR, VM::VM2_2n >
- class gdcm::Element< TVR, VM::VM2_n >
- class gdcm::Element< TVR, VM::VM3_3n >
- class gdcm::Element< TVR, VM::VM3_4 >
- class gdcm::Element< TVR, VM::VM3_n >
- class gdcm::Element< VR::AS, VM::VM5 >
- class gdcm::Element< VR::OB, VM::VM1 >
- class gdcm::Element< VR::OW, VM::VM1 >
- class gdcm::ElementDisableCombinations< TVR, TVM >

  A class which is used to produce compile errors for an invalid combination of template parameters.
- class gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n >
- class gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n >
- class gdcm::EncodingImplementation< VR::VRASCII >
- class gdcm::EncodingImplementation< VR::VRBINARY >
- struct gdcm::ignore_char

Namespaces

- namespace gdcm

Functions

- static int gdcm::add1 (char *buf, int n)
- ignore_char const gdcm::backslash ('\\')
- static void gdcm::clean (char *mant)
- static int gdcm::doround (char *buf, unsigned int n)
- std::istream & gdcm::operator>> (std::istream &in, ignore_char const &ic)
- static int gdcm::roundat (char *buf, size_t bufLen, unsigned int i, int iexp)
- template<typename Float>
  static void gdcm::x16printf (char *buf, int size, Float f)

13.134 gdcmElement.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

```
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMELEMENT_H
00015 #define GDCMELEMENT_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmVR.h"
00019 #include "gdcmTag.h"
00020 #include "gdcmVM.h"
00021 #include "gdcmByteValue.h"
00022 #include "gdcmDataElement.h"
00023 #include "gdcmSwapper.h"
00024
00025 #include <string>
00026 #include <vector>
00027 #include <sstream>
00028 #include <limits>
00029 #include <cmath>
00030 #include <cstring>
00031
00032 namespace gdcm_ns
00033 {
00034
00035 // Forward declaration
00041 template<long long T> class EncodingImplementation;
00042
00043
00051 template <long long TVR, int TVM>
00052 class ElementDisableCombinations {};
00053 template <>
00054 class  ElementDisableCombinations<VR::OB, VM::VM1_n> {};
00055 template <>
00056 class  ElementDisableCombinations<VR::OW, VM::VM1_n> {};
00057 // Make it impossible to compile these other cases
00058 template <int TVM>
00059 class  ElementDisableCombinations<VR::OB, TVM>;
00060 template <int TVM>
00061 class ElementDisableCombinations<VR::OW, TVM>;
00062
00068 template<long long TVR, int TVM>
00069 class Element
00070 {
00071   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, TVM> ) };
00072 public:
00073   typename VRToType<TVR>::Type Internal[VMToLength<TVM>::Length];
00074   typedef typename VRToType<TVR>::Type Type;
00075
00076   static VR  GetVR()  { return (VR::VRType)TVR; }
00077   static VM  GetVM()  { return (VM::VMType)TVM; }
00078
00079   unsigned long GetLength() const {
00080     return VMToLength<TVM>::Length;
00081   }
00082   // Implementation of Print is common to all Mode (ASCII/Binary)
00083   // TODO: Can we print a \ when in ASCII...well I don't think so
00084   // it would mean we used a bad VM then, right?
00085   void Print(std::ostream &_os) const {
00086     _os « Internal[0]; // VM is at least guarantee to be one
00087     for(int i=1; i<VMToLength<TVM>::Length; ++i)
00088       _os « "," « Internal[i];
00089     }
00090
00091   const typename VRToType<TVR>::Type *GetValues() const {
00092     return Internal;
00093   }
00094   const typename VRToType<TVR>::Type &GetValue(unsigned int idx = 0) const {
00095     gdcm_assert( idx < VMToLength<TVM>::Length );
00096     return Internal[idx];
00097   }
00098   typename VRToType<TVR>::Type &GetValue(unsigned int idx = 0) {
00099     gdcm_assert( idx < VMToLength<TVM>::Length );
00100     return Internal[idx];
00101   }
00102   typename VRToType<TVR>::Type operator[] (unsigned int idx) const {
00103     return GetValue(idx);
00104   }
00105   void SetValue(typename VRToType<TVR>::Type v, unsigned int idx = 0) {
00106     gdcm_assert( idx < VMToLength<TVM>::Length );
00107     Internal[idx] = v;
00108   }
```

```
00109
00110   void SetFromDataElement(DataElement const &de) {
00111     const ByteValue *bv = de.GetByteValue();
00112     if( !bv ) return;
00113 #ifdef GDCM_WORDS_BIGENDIAN
00114     if( de.GetVR() == VR::UN /*|| de.GetVR() == VR::INVALID*/ )
00115 #else
00116     if( de.GetVR() == VR::UN || de.GetVR() == VR::INVALID )
00117 #endif
00118       {
00119       Set(de.GetValue());
00120       }
00121     else
00122       {
00123       SetNoSwap(de.GetValue());
00124       }
00125   }
00126
00127   DataElement GetAsDataElement() const {
00128     DataElement ret;
00129     std::ostringstream os;
00130     EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00131       GetLength(),os);
00132     ret.SetVR( (VR::VRType)TVR );
00133     gdcm_assert( ret.GetVR() != VR::SQ );
00134     if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
00135       {
00136       if( GetVR() != VR::UI )
00137         {
00138         if( os.str().size() % 2 )
00139           {
00140           os << " ";
00141           }
00142         }
00143       }
00144     VL::Type osStrSize = (VL::Type)os.str().size();
00145     ret.SetByteValue( os.str().c_str(), osStrSize );
00146
00147     return ret;
00148   }
00149
00150   void Read(std::istream &_is) {
00151     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00152       GetLength(),_is);
00153     }
00154   void Write(std::ostream &_os) const {
00155     return EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00156       GetLength(),_os);
00157     }
00158
00159   // FIXME: remove this function
00160   // this is only used in gdcm::SplitMosaicFilter / to pass value of a CSAElement
00161   void Set(Value const &v) {
00162     const ByteValue *bv = dynamic_cast<const ByteValue*>(&v);
00163     if( bv ) {
00164       //memcpy(Internal, bv->GetPointer(), bv->GetLength());
00165       std::stringstream ss;
00166       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00167       ss.str( s );
00168       EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00169         GetLength(),ss);
00170     }
00171   }
00172 protected:
00173   void SetNoSwap(Value const &v) {
00174     const ByteValue *bv = dynamic_cast<const ByteValue*>(&v);
00175     gdcm_assert( bv ); // That would be bad...
00176     //memcpy(Internal, bv->GetPointer(), bv->GetLength());
00177     std::stringstream ss;
00178     std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00179     ss.str( s );
00180     EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadNoSwap(Internal,
00181       GetLength(),ss);
00182   }
00183 };
00184
00185 struct ignore_char {
00186   ignore_char(char c): m_char(c) {}
00187   char m_char;
00188 };
00189 ignore_char const backslash('\\');
```

```
00190
00191   inline std::istream& operator» (std::istream& in, ignore_char const& ic) {
00192     if (!in.eof())
00193       in.clear(in.rdstate() & ~std::ios_base::failbit);
00194     if (in.get() != ic.m_char)
00195       in.setstate(std::ios_base::failbit);
00196     return in;
00197   }
00198
00199
00200 // Implementation to perform formatted read and write
00201 template<> class EncodingImplementation<VR::VRASCII> {
00202 public:
00203   template<typename T> // FIXME this should be VRToType<TVR>::Type
00204   static inline void ReadComputeLength(T* data, unsigned int &length,
00205                           std::istream &_is) {
00206     gdcm_assert( data );
00207     //gdcm_assert( length ); // != 0
00208     length = 0;
00209     gdcm_assert( _is );
00210 #if 0
00211     char sep;
00212     while( _is » data[length++] )
00213       {
00214       // Get the separator in between the values
00215       gdcm_assert( _is );
00216       _is.get(sep);
00217       gdcm_assert( sep == '\\' || sep == ' ' ); // FIXME: Bad use of assert
00218       if( sep == ' ' ) length--; // FIXME
00219       }
00220 #else
00221   while( _is » std::ws » data[length++] » std::ws » backslash )
00222     {
00223     }
00224 #endif
00225     }
00226
00227   template<typename T> // FIXME this should be VRToType<TVR>::Type
00228   static inline void Read(T* data, unsigned long length,
00229                           std::istream &_is) {
00230     gdcm_assert( data );
00231     gdcm_assert( length ); // != 0
00232     gdcm_assert( _is );
00233     // FIXME BUG: what if » operation fails ?
00234     // gdcmData/MR00010001.dcm / SpacingBetweenSlices
00235     _is » std::ws » data[0];
00236     char sep;
00237     //std::cout « "GetLength: " « af->GetLength() « std::endl;
00238     for(unsigned long i=1; i<length;++i) {
00239       //gdcm_assert( _is );
00240       // Get the separator in between the values
00241       _is » std::ws » sep; //_is.get(sep);
00242       //gdcm_assert( sep == '\\' ); // FIXME: Bad use of assert
00243       _is » std::ws » data[i];
00244       }
00245     }
00246
00247   template<typename T>
00248   static inline void ReadNoSwap(T* data, unsigned long length,
00249                           std::istream &_is) {
00250     Read(data,length,_is);
00251 }
00252   template<typename T>
00253   static inline void Write(const T* data, unsigned long length,
00254                            std::ostream &_os)  {
00255     gdcm_assert( data );
00256     gdcm_assert( length );
00257     gdcm_assert( _os );
00258     _os « data[0];
00259     for(unsigned long i=1; i<length; ++i) {
00260       gdcm_assert( _os );
00261       _os « "\\" « data[i];
00262       }
00263     }
00264 };
00265
00266 //#define VRDS16ILLEGAL
00267
00268 #ifdef VRDS16ILLEGAL
00269 template < typename Float >
00270 std::string to_string ( Float data ) {
```

```
00271   std::stringstream in;
00272   // in.imbue(std::locale::classic()); // This is not required AFAIK
00273   int const digits =
00274     static_cast< int >(
00275     - std::log( std::numeric_limits<Float>::epsilon() )
00276     / static_cast< Float >( std::log( 10.0 ) ) );
00277   if ( in « std::dec « std::setprecision(/*2+*/digits) « data ) {
00278     return ( in.str() );
00279   } else {
00280     throw "Impossible Conversion"; // should not happen ...
00281   }
00282 }
00283 #else
00284 //
      http://stackoverflow.com/questions/32631178/writing-ieee-754-1985-double-as-ascii-on-a-limited-16-bytes-string
00285
00286 static inline void clean(char *mant) {
00287   char *ix = mant + strlen(mant) - 1;
00288   while(('0' == *ix) && (ix > mant)) {
00289     *ix-- = '\0';
00290   }
00291   if ('.' == *ix) {
00292     *ix = '\0';
00293   }
00294 }
00295
00296 static int add1(char *buf, int n) {
00297   if (n < 0) return 1;
00298   if (buf[n] == '9') {
00299     buf[n] = '0';
00300     return add1(buf, n-1);
00301   }
00302   else {
00303     buf[n] = (char)(buf[n] + 1);
00304   }
00305   return 0;
00306 }
00307
00308 static int doround(char *buf, unsigned int n) {
00309   char c;
00310   if (n >= strlen(buf)) return 0;
00311   c = buf[n];
00312   buf[n] = 0;
00313   if ((c >= '5') && (c <= '9')) return add1(buf, n-1);
00314   return 0;
00315 }
00316
00317 #if defined(_MSC_VER) && (_MSC_VER < 1900)
00318 #define snprintf _snprintf
00319 #endif
00320
00321 static int roundat(char *buf, size_t bufLen, unsigned int i, int iexp) {
00322   if (doround(buf, i) != 0) {
00323     iexp += 1;
00324     switch(iexp) {
00325     case -2:
00326       strcpy(buf, ".01");
00327       break;
00328     case -1:
00329       strcpy(buf, ".1");
00330       break;
00331     case 0:
00332       strcpy(buf, "1.");
00333       break;
00334     case 1:
00335       strcpy(buf, "10");
00336       break;
00337     case 2:
00338       strcpy(buf, "100");
00339       break;
00340     default:
00341       snprintf(buf, bufLen, "1e%d", iexp);
00342     }
00343     return 1;
00344   }
00345   return 0;
00346 }
00347
00348 template < typename Float >
00349 static void x16printf(char *buf, int size, Float f) {
00350   char line[40];
```

```
00351   char *mant = line + 1;
00352   int iexp, lexp, i;
00353   char exp[6];
00354
00355   if (f < 0) {
00356     f = -f;
00357     size -= 1;
00358     *buf++ = '-';
00359   }
00360   snprintf(line, sizeof(line), "%1.16e", f);
00361   if (line[0] == '-') {
00362     f = -f;
00363     size -= 1;
00364     *buf++ = '-';
00365     snprintf(line, sizeof(line), "%1.16e", f);
00366   }
00367   *mant = line[0];
00368   i = (int)strcspn(mant, "eE");
00369   mant[i] = '\0';
00370   iexp = (int)strtol(mant + i + 1, nullptr, 10);
00371   lexp = snprintf(exp, sizeof(exp), "e%d", iexp);
00372   if ((iexp >= size) || (iexp < -3)) {
00373     i = roundat(mant, sizeof(line) - 1, size - 1 -lexp, iexp);
00374     if(i == 1) {
00375       strcpy(buf, mant);
00376       return;
00377     }
00378     buf[0] = mant[0];
00379     buf[1] = '.';
00380     strncpy(buf + i + 2, mant + 1, size - 2 - lexp);
00381     buf[size-lexp] = 0;
00382     clean(buf);
00383     strcat(buf, exp);
00384   }
00385   else if (iexp >= size - 2) {
00386     roundat(mant, sizeof(line) - 1, iexp + 1, iexp);
00387     strcpy(buf, mant);
00388   }
00389   else if (iexp >= 0) {
00390     i = roundat(mant, sizeof(line) - 1, size - 1, iexp);
00391     if (i == 1) {
00392       strcpy(buf, mant);
00393       return;
00394     }
00395     memcpy(buf, mant, iexp + 1);
00396     buf[iexp + 1] = '.';
00397     strncpy(buf + iexp + 2, mant + iexp + 1, size - iexp - 1);
00398     buf[size] = 0;
00399     clean(buf);
00400   }
00401   else {
00402     int j;
00403     i = roundat(mant, sizeof(line) - 1, size + 1 + iexp, iexp);
00404     if (i == 1) {
00405       strcpy(buf, mant);
00406       return;
00407     }
00408     buf[0] = '.';
00409     for(j=0; j< -1 - iexp; j++) {
00410       buf[j+1] = '0';
00411     }
00412     memcpy(buf - iexp, mant, size + 1 + iexp);
00413     buf[size] = 0;
00414     clean(buf);
00415   }
00416 }
00417 #if defined(_MSC_VER) && (_MSC_VER < 1900)
00418 #undef snprintf
00419 #endif
00420
00421 #endif
00422
00423 template<> inline void EncodingImplementation<VR::VRASCII>::Write(const double* data, unsigned long
      length, std::ostream &_os)  {
00424     gdcm_assert( data );
00425     gdcm_assert( length );
00426     gdcm_assert( _os );
00427 #ifdef VRDS16ILLEGAL
00428     _os << to_string(data[0]);
00429 #else
00430     char buf[16+1];
```

```
00431     x16printf(buf, 16, data[0]);
00432     _os « buf;
00433 #endif
00434     for(unsigned long i=1; i<length; ++i) {
00435       gdcm_assert( _os );
00436 #ifdef VRDS16ILLEGAL
00437       _os « "\\" « to_string(data[i]);
00438 #else
00439       x16printf(buf, 16, data[i]);
00440       _os « "\\" « buf;
00441 #endif
00442       }
00443     }
00444
00445
00446 // Implementation to perform binary read and write
00447 // TODO rewrite operation so that either:
00448 // #1. dummy implementation use a pointer to Internal and do ++p (faster)
00449 // #2. Actually do some meta programming to unroll the loop
00450 // (no notion of order in VM ...)
00451 template<> class EncodingImplementation<VR::VRBINARY> {
00452 public:
00453   template<typename T> // FIXME this should be VRToType<TVR>::Type
00454     static inline void ReadComputeLength(T* data, unsigned int &length,
00455       std::istream &_is) {
00456     const unsigned int type_size = sizeof(T);
00457     gdcm_assert( data ); // Can we read from pointer ?
00458     //gdcm_assert( length );
00459     length /= type_size;
00460     gdcm_assert( _is ); // Is stream valid ?
00461     _is.read( reinterpret_cast<char*>(data+0), type_size);
00462     for(unsigned long i=1; i<length; ++i) {
00463       gdcm_assert( _is );
00464       _is.read( reinterpret_cast<char*>(data+i), type_size );
00465     }
00466     }
00467   template<typename T>
00468   static inline void ReadNoSwap(T* data, unsigned long length,
00469     std::istream &_is) {
00470     const unsigned int type_size = sizeof(T);
00471     gdcm_assert( data ); // Can we read from pointer ?
00472     gdcm_assert( length );
00473     gdcm_assert( _is ); // Is stream valid ?
00474     _is.read( reinterpret_cast<char*>(data+0), type_size);
00475     for(unsigned long i=1; i<length; ++i) {
00476       if( _is )
00477       _is.read( reinterpret_cast<char*>(data+i), type_size );
00478     }
00479     //ByteSwap<T>::SwapRangeFromSwapCodeIntoSystem(data,
00480     //  _is.GetSwapCode(), length);
00481     //SwapperNoOp::SwapArray(data,length);
00482   }
00483   template<typename T>
00484   static inline void Read(T* data, unsigned long length,
00485     std::istream &_is) {
00486     const unsigned int type_size = sizeof(T);
00487     gdcm_assert( data ); // Can we read from pointer ?
00488     gdcm_assert( length );
00489     gdcm_assert( _is ); // Is stream valid ?
00490     _is.read( reinterpret_cast<char*>(data+0), type_size);
00491     for(unsigned long i=1; i<length; ++i) {
00492       if( _is )
00493       _is.read( reinterpret_cast<char*>(data+i), type_size );
00494     }
00495     //ByteSwap<T>::SwapRangeFromSwapCodeIntoSystem(data,
00496     //  _is.GetSwapCode(), length);
00497     SwapperNoOp::SwapArray(data,length);
00498   }
00499   template<typename T>
00500   static inline void Write(const T* data, unsigned long length,
00501     std::ostream &_os) {
00502     const unsigned int type_size = sizeof(T);
00503     gdcm_assert( data ); // Can we write into pointer ?
00504     gdcm_assert( length );
00505     gdcm_assert( _os ); // Is stream valid ?
00506     //ByteSwap<T>::SwapRangeFromSwapCodeIntoSystem((T*)data,
00507     //  _os.GetSwapCode(), length);
00508     T swappedData = SwapperNoOp::Swap(data[0]);
00509     _os.write( reinterpret_cast<const char*>(&swappedData), type_size);
00510     for(unsigned long i=1; i<length;++i) {
00511       gdcm_assert( _os );
```

```
00512       swappedData = SwapperNoOp::Swap(data[i]);
00513       _os.write( reinterpret_cast<const char*>(&swappedData), type_size );
00514     }
00515     //ByteSwap<T>::SwapRangeFromSwapCodeIntoSystem((T*)data,
00516     //  _os.GetSwapCode(), length);
00517   }
00518 };
00519
00520 // For particular case for ASCII string
00521 // WARNING: This template explicitly instantiates a particular
00522 // EncodingImplementation THEREFORE it is required to be declared after the
00523 // EncodingImplementation is needs (doh!)
00524 #if 0
00525 template<int TVM>
00526 class Element<TVM>
00527 {
00528 public:
00529   Element(const char array[])
00530     {
00531     unsigned int i = 0;
00532     const char sep = '\\';
00533     std::string sarray = array;
00534     std::string::size_type pos1 = 0;
00535     std::string::size_type pos2 = sarray.find(sep, pos1+1);
00536     while(pos2 != std::string::npos)
00537       {
00538       Internal[i++] = sarray.substr(pos1, pos2-pos1);
00539       pos1 = pos2+1;
00540       pos2 = sarray.find(sep, pos1+1);
00541       }
00542     Internal[i] = sarray.substr(pos1, pos2-pos1);
00543     // Shouldn't we do the contrary, since we know how many separators
00544     // (and default behavior is to discard anything after the VM declared
00545     gdcm_assert( GetLength()-1 == i );
00546     }
00547
00548   unsigned long GetLength() const {
00549     return VMToLength<TVM>::Length;
00550   }
00551   // Implementation of Print is common to all Mode (ASCII/Binary)
00552   void Print(std::ostream &_os) const {
00553     _os « Internal[0]; // VM is at least guarantee to be one
00554     for(int i=1; i<VMToLength<TVM>::Length; ++i)
00555       _os « "," « Internal[i];
00556     }
00557
00558   void Read(std::istream &_is) {
00559     EncodingImplementation<VR::VRASCII>::Read(Internal, GetLength(),_is);
00560     }
00561   void Write(std::ostream &_os) const {
00562     EncodingImplementation<VR::VRASCII>::Write(Internal, GetLength(),_os);
00563     }
00564 private:
00565   typename String Internal[VMToLength<TVM>::Length];
00566 };
00567
00568 template< int TVM>
00569 class Element<VR::PN, TVM> : public StringElement<TVM>
00570 {
00571   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<VR::PN, TVM> ) };
00572 };
00573 #endif
00574
00575 // Implementation for the undefined length (dynamically allocated array)
00576 template<long long TVR>
00577 class Element<TVR, VM::VM1_n>
00578 {
00579   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM1_n> ) };
00580 public:
00581   // This the way to prevent default initialization
00582   explicit Element() { Internal=nullptr; Length=0; Save = false; }
00583   ~Element() {
00584     if( Save ) {
00585       delete[] Internal;
00586     }
00587     Internal = nullptr;
00588   }
00589
00590   static VR  GetVR()  { return (VR::VRType)TVR; }
00591   static VM  GetVM()  { return VM::VM1_n; }
00592
```

```
00593   // Length manipulation
00594   // SetLength should really be protected anyway...all operation
00595   // should go through SetArray
00596   unsigned long GetLength() const { return Length; }
00597   typedef typename VRToType<TVR>::Type Type;
00598
00599   void SetLength(unsigned long len) {
00600     const unsigned int size = sizeof(Type);
00601     if( len ) {
00602       if( len > Length ) {
00603         // perform realloc
00604         gdcm_assert( (len / size) * size == len );
00605         Type *internal = new Type[len / size];
00606         gdcm_assert( Save == false );
00607         Save = true; // ????
00608         if( Internal )
00609           {
00610           memcpy(internal, Internal, len);
00611           delete[] Internal;
00612           }
00613         Internal = internal;
00614         }
00615       }
00616     Length = len / size;
00617   }
00618
00619   // If save is set to zero user should not delete the pointer
00620   //void SetArray(const typename VRToType<TVR>::Type *array, int len, bool save = false)
00621   void SetArray(const Type *array, unsigned long len,
00622     bool save = false) {
00623     if( save ) {
00624       SetLength(len); // realloc
00625       memcpy(Internal, array, len/*/sizeof(Type)*/);
00626       gdcm_assert( Save == false );
00627       }
00628     else {
00629       // TODO rewrite this stupid code:
00630       gdcm_assert( Length == 0 );
00631       gdcm_assert( Internal == nullptr );
00632       gdcm_assert( Save == false );
00633       Length = len / sizeof(Type);
00634       //gdcm_assert( (len / sizeof(Type)) * sizeof(Type) == len );
00635       // MR00010001.dcm is a tough kid: 0019,105a is supposed to be VR::FL, VM::VM3 but
00636       // length is 14 bytes instead of 12 bytes. Simply consider value is total garbage.
00637       if( (len / sizeof(Type)) * sizeof(Type) != len ) { Internal = nullptr; Length = 0; }
00638       else Internal = const_cast<Type*>(array);
00639       }
00640       Save = save;
00641   }
00642   void SetValue(typename VRToType<TVR>::Type v, unsigned int idx = 0) {
00643     gdcm_assert( idx < Length );
00644     Internal[idx] = v;
00645   }
00646   const typename VRToType<TVR>::Type &GetValue(unsigned int idx = 0) const {
00647     gdcm_assert( idx < Length );
00648     return Internal[idx];
00649   }
00650   typename VRToType<TVR>::Type &GetValue(unsigned int idx = 0) {
00651     //gdcm_assert( idx < Length );
00652     return Internal[idx];
00653   }
00654   typename VRToType<TVR>::Type operator[] (unsigned int idx) const {
00655     return GetValue(idx);
00656   }
00657   void Set(Value const &v) {
00658     const ByteValue *bv = dynamic_cast<const ByteValue*>(&v);
00659     gdcm_assert( bv ); // That would be bad...
00660     if( (VR::VRType)(VRToEncoding<TVR>::Mode) == VR::VRBINARY )
00661       {
00662       const Type* array = (const Type*)bv->GetVoidPointer();
00663       if( array ) {
00664         gdcm_assert( array ); // That would be bad...
00665         gdcm_assert( Internal == nullptr );
00666         SetArray(array, bv->GetLength() ); }
00667       }
00668     else
00669       {
00670       std::stringstream ss;
00671       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00672       ss.str( s );
00673       EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
```

```
00674         GetLength(),ss);
00675       }
00676   }
00677   void SetFromDataElement(DataElement const &de) {
00678     const ByteValue *bv = de.GetByteValue();
00679     if( !bv ) return;
00680 #ifdef GDCM_WORDS_BIGENDIAN
00681     if( de.GetVR() == VR::UN /*|| de.GetVR() == VR::INVALID*/ )
00682 #else
00683     if( de.GetVR() == VR::UN || de.GetVR() == VR::INVALID )
00684 #endif
00685       {
00686       Set(de.GetValue());
00687       }
00688     else
00689       {
00690       SetNoSwap(de.GetValue());
00691       }
00692   }
00693
00694
00695   // Need to be placed after definition of EncodingImplementation<VR::VRASCII>
00696   void WriteASCII(std::ostream &os) const {
00697     return EncodingImplementation<VR::VRASCII>::Write(Internal, GetLength(), os);
00698     }
00699
00700   // Implementation of Print is common to all Mode (ASCII/Binary)
00701   void Print(std::ostream &_os) const {
00702     gdcm_assert( Length );
00703     gdcm_assert( Internal );
00704     _os « Internal[0]; // VM is at least guarantee to be one
00705     const unsigned long length = GetLength() < 25 ? GetLength() : 25;
00706     for(unsigned long i=1; i<length; ++i)
00707       _os « "," « Internal[i];
00708     }
00709   void Read(std::istream &_is) {
00710     if( !Internal ) return;
00711     EncodingImplementation<VRToEncoding<TVR>::Mode>::Read(Internal,
00712       GetLength(),_is);
00713     }
00714   //void ReadComputeLength(std::istream &_is) {
00715   //  if( !Internal ) return;
00716   //  EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadComputeLength(Internal,
00717   //    Length,_is);
00718   //  }
00719   void Write(std::ostream &_os) const {
00720     EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00721       GetLength(),_os);
00722     }
00723
00724   DataElement GetAsDataElement() const {
00725     DataElement ret;
00726     ret.SetVR( (VR::VRType)TVR );
00727     gdcm_assert( ret.GetVR() != VR::SQ );
00728     if( Internal )
00729       {
00730       std::ostringstream os;
00731       EncodingImplementation<VRToEncoding<TVR>::Mode>::Write(Internal,
00732         GetLength(),os);
00733       if( (VR::VRType)VRToEncoding<TVR>::Mode == VR::VRASCII )
00734         {
00735         if( GetVR() != VR::UI )
00736           {
00737           if( os.str().size() % 2 )
00738             {
00739             os « " ";
00740             }
00741           }
00742         }
00743       VL::Type osStrSize = (VL::Type)os.str().size();
00744       ret.SetByteValue( os.str().c_str(), osStrSize );
00745       }
00746     return ret;
00747   }
00748
00749   Element(const Element&_val) {
00750     if( this != &_val) {
00751       *this = _val;
00752       }
00753     }
00754
```

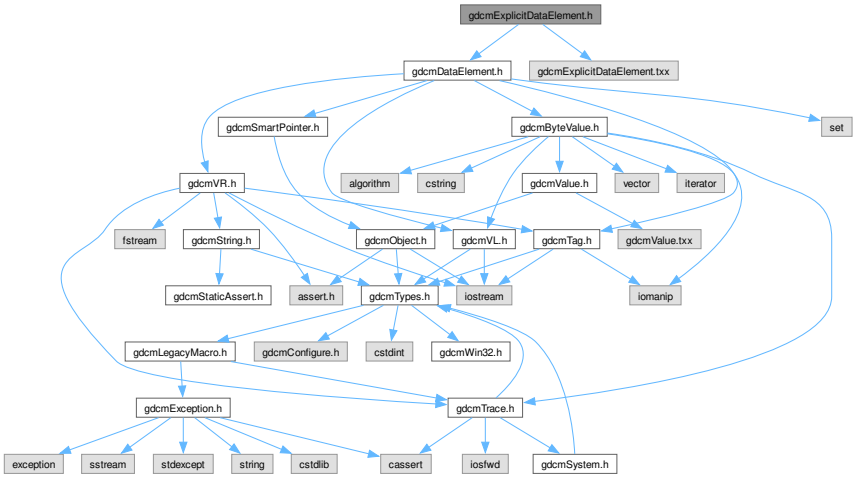
```
00755   Element &operator=(const Element &_val) {
00756     Length = 0; // SYITF
00757     Internal = 0;
00758     SetArray(_val.Internal, _val.Length, true);
00759     return *this;
00760     }
00761 protected:
00762   void SetNoSwap(Value const &v) {
00763     const ByteValue *bv = dynamic_cast<const ByteValue*>(&v);
00764     gdcm_assert( bv ); // That would be bad...
00765     if( (VR::VRType)(VRToEncoding<TVR>::Mode) == VR::VRBINARY )
00766       {
00767       const Type* array = (const Type*)bv->GetPointer();
00768       if( array ) {
00769         gdcm_assert( array ); // That would be bad...
00770         gdcm_assert( Internal == nullptr );
00771         SetArray(array, bv->GetLength() ); }
00772       }
00773     else
00774       {
00775       std::stringstream ss;
00776       std::string s = std::string( bv->GetPointer(), bv->GetLength() );
00777       ss.str( s );
00778       EncodingImplementation<VRToEncoding<TVR>::Mode>::ReadNoSwap(Internal,
00779         GetLength(),ss);
00780       }
00781   }
00782
00783 private:
00784   typename VRToType<TVR>::Type *Internal;
00785   unsigned long Length; // unsigned int ??
00786   bool Save;
00787 };
00788
00789 //template <int TVM = VM::VM1_n>
00790 //class Element<VR::OB, TVM > : public Element<VR::OB, VM::VM1_n> {};
00791
00792 // Partial specialization for derivatives of 1-n : 2-n, 3-n ...
00793 template<long long TVR>
00794 class Element<TVR, VM::VM1_2> : public Element<TVR, VM::VM1_n>
00795 {
00796 public:
00797   typedef Element<TVR, VM::VM1_n> Parent;
00798   void SetLength(int len) {
00799     if( len != 1 && len != 2 ) return;
00800     Parent::SetLength(len);
00801   }
00802 };
00803 template<long long TVR>
00804 class Element<TVR, VM::VM2_n> : public Element<TVR, VM::VM1_n>
00805 {
00806   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM2_n> ) };
00807 public:
00808   typedef Element<TVR, VM::VM1_n> Parent;
00809   void SetLength(int len) {
00810     if( len <= 1 ) return;
00811     Parent::SetLength(len);
00812   }
00813 };
00814 template<long long TVR>
00815 class Element<TVR, VM::VM2_2n> : public Element<TVR, VM::VM2_n>
00816 {
00817   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM2_2n> ) };
00818 public:
00819   typedef Element<TVR, VM::VM2_n> Parent;
00820   void SetLength(int len) {
00821     if( len % 2 ) return;
00822     Parent::SetLength(len);
00823   }
00824 };
00825 template<long long TVR>
00826 class Element<TVR, VM::VM3_n> : public Element<TVR, VM::VM1_n>
00827 {
00828   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM3_n> ) };
00829 public:
00830   typedef Element<TVR, VM::VM1_n> Parent;
00831   void SetLength(int len) {
00832     if( len <= 2 ) return;
00833     Parent::SetLength(len);
00834   }
00835 };
```

```
00836 template<long long TVR>
00837 class Element<TVR, VM::VM3_3n> : public Element<TVR, VM::VM3_n>
00838 {
00839   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<TVR, VM::VM3_3n> ) };
00840 public:
00841   typedef Element<TVR, VM::VM3_n> Parent;
00842   void SetLength(int len) {
00843     if( len % 3 ) return;
00844     Parent::SetLength(len);
00845   }
00846 };
00847 template<long long TVR>
00848 class Element<TVR, VM::VM3_4> : public Element<TVR, VM::VM1_n>
00849 {
00850 public:
00851   typedef Element<TVR, VM::VM1_n> Parent;
00852   void SetLength(int len) {
00853     if( len != 3 && len != 4 ) return;
00854     Parent::SetLength(len);
00855   }
00856 };
00857
00858
00859 //template<int T> struct VRToLength;
00860 //template <> struct VRToLength<VR::AS>
00861 //{ enum { Length  = VM::VM1 }; }
00862 //template<>
00863 //class Element<VR::AS> : public Element<VR::AS, VRToLength<VR::AS>::Length >
00864
00865 // only 0010 1010 AS 1 Patient's Age
00866 template<>
00867 class Element<VR::AS, VM::VM5>
00868 {
00869   enum { ElementDisableCombinationsCheck = sizeof ( ElementDisableCombinations<VR::AS, VM::VM5> ) };
00870 public:
00871   char Internal[VMToLength<VM::VM5>::Length * sizeof( VRToType<VR::AS>::Type )];
00872   void Print(std::ostream &_os) const {
00873     _os << Internal;
00874     }
00875   unsigned long GetLength() const {
00876     return VMToLength<VM::VM5>::Length;
00877   }
00878 };
00879
00880
00881 template <>
00882 class Element<VR::OB, VM::VM1> : public Element<VR::OB, VM::VM1_n> {};
00883
00884 // Same for OW:
00885 template <>
00886 class Element<VR::OW, VM::VM1> : public Element<VR::OW, VM::VM1_n> {};
00887
00888
00889 } // namespace gdcm_ns
00890
00891 #endif //GDCMELEMENT_H
```

13.135 gdcmExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmExplicitDataElement.txx"
```

Include dependency graph for gdcmExplicitDataElement.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::ExplicitDataElement

  Class to read/write a DataElement as Explicit Data Element.

Namespaces

- namespace gdcm

13.136 gdcmExplicitDataElement.h

Go to the documentation of this file.

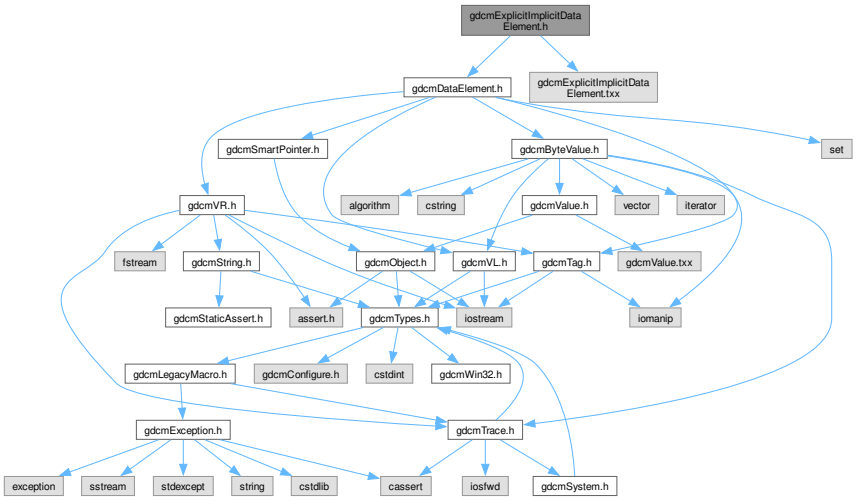
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
```

```
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMEXPLICITDATAELEMENT_H
00015 #define GDCMEXPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm_ns
00020 {
00025 class GDCM_EXPORT ExplicitDataElement : public DataElement
00026 {
00027 public:
00028   VL GetLength() const;
00029
00030   template <typename TSwap>
00031   std::istream &Read(std::istream &is);
00032
00033   template <typename TSwap>
00034   std::istream &ReadPreValue(std::istream &is);
00035
00036   template <typename TSwap>
00037   std::istream &ReadValue(std::istream &is, bool readvalues = true);
00038
00039   template <typename TSwap>
00040   std::istream &ReadWithLength(std::istream &is, VL & length);
00041
00042   template <typename TSwap>
00043   const std::ostream &Write(std::ostream &os) const;
00044 };
00045
00046 } // end namespace gdcm_ns
00047
00048 #include "gdcmExplicitDataElement.txx"
00049
00050 #endif //GDCMEXPLICITDATAELEMENT_H
```

13.137 gdcmExplicitImplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmExplicitImplicitDataElement.txx"
```

Include dependency graph for gdcmExplicitImplicitDataElement.h:



Classes

- class gdcm::ExplicitImplicitDataElement

  Class to read/write a DataElement as ExplicitImplicit Data Element.

Namespaces

- namespace gdcm

13.138 gdcmExplicitImplicitDataElement.h

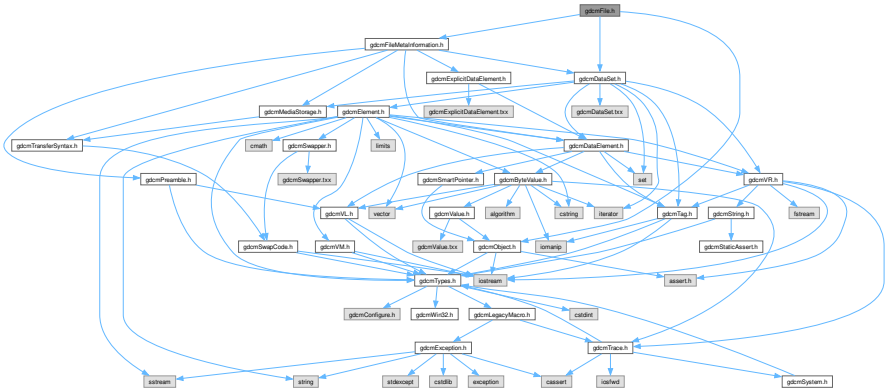
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMEXPLICITIMPLICITDATAELEMENT_H
00015 #define GDCMEXPLICITIMPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm
00020 {
00021 // Data Element (ExplicitImplicit)
00029 class GDCM_EXPORT ExplicitImplicitDataElement : public DataElement
00030 {
00031 public:
00032   VL GetLength() const;
00033
00034   template <typename TSwap>
00035   std::istream &Read(std::istream &is);
00036
00037   template <typename TSwap>
00038   std::istream &ReadPreValue(std::istream &is);
00039
00040   template <typename TSwap>
00041   std::istream &ReadValue(std::istream &is, bool readvalues = true);
00042
00043   template <typename TSwap>
00044   std::istream &ReadWithLength(std::istream &is, VL & length)
00045     {
00046     (void)length;
00047     return Read<TSwap>(is);
00048     }
00049
00050   // PURPOSELY do not provide an implementation for writing !
00051   //template <typename TSwap>
00052   //const std::ostream &Write(std::ostream &os) const;
00053 };
00054
00055 } // end namespace gdcm
00056
00057 #include "gdcmExplicitImplicitDataElement.txx"
00058
00059 #endif //GDCMEXPLICITIMPLICITDATAELEMENT_H
```

13.139 gdcmFile.h File Reference

```
#include "gdcmObject.h"
#include "gdcmDataSet.h"
#include "gdcmFileMetaInformation.h"
```

Include dependency graph for gdcmFile.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::File
  a DICOM File

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const File &val)

13.140 gdcmFile.h

Go to the documentation of this file.

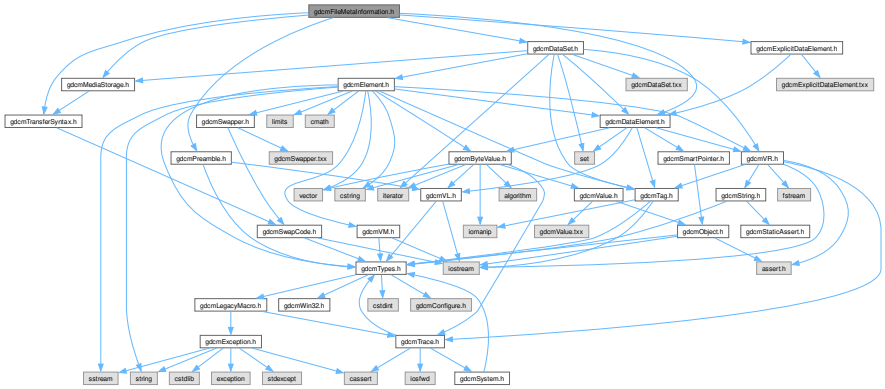
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILE_H
00015 #define GDCMFILE_H
00016
00017 #include "gdcmObject.h"
00018 #include "gdcmDataSet.h"
00019 #include "gdcmFileMetaInformation.h"
00020
00021 namespace gdcm_ns
00022 {
00023
00033 class GDCM_EXPORT File : public Object
00034 {
00035 public:
00036   File();
00037   ~File() override;
00038
00039   friend std::ostream &operator<<(std::ostream &os, const File &val);
00040
00042   std::istream &Read(std::istream &is);
00043
00045   std::ostream const &Write(std::ostream &os) const;
00046
00048   const FileMetaInformation &GetHeader() const { return Header; }
00049
00051   FileMetaInformation &GetHeader() { return Header; }
00052
00054   void SetHeader( const FileMetaInformation &fmi ) { Header = fmi; }
00055
00057   const DataSet &GetDataSet() const { return DS; }
00058
00060   DataSet &GetDataSet() { return DS; }
00061
00063   void SetDataSet( const DataSet &ds) { DS = ds; }
00064
00065 private:
00066   FileMetaInformation Header;
00067   DataSet DS;
00068 };
00069 //-----------------------------------------------------------------------------
00070 inline std::ostream& operator<<(std::ostream &os, const File &val)
00071 {
00072   os << val.GetHeader() << std::endl;
00073   //os << val.GetDataSet() << std::endl; // FIXME
00074   gdcm_assert(0);
00075   return os;
00076 }
00077
00078 } // end namespace gdcm_ns
00079
00080 #endif //GDCMFILE_H
```

13.141 gdcmFileMetaInformation.h File Reference

```
#include "gdcmPreamble.h"
#include "gdcmDataSet.h"
```

```
#include "gdcmDataElement.h"
#include "gdcmMediaStorage.h"
#include "gdcmTransferSyntax.h"
#include "gdcmExplicitDataElement.h"
```

Include dependency graph for gdcmFileMetaInformation.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::FileMetaInformation

  Class to represent a File Meta Information.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const FileMetaInformation &val)

13.142 gdcmFileMetaInformation.h

Go to the documentation of this file.

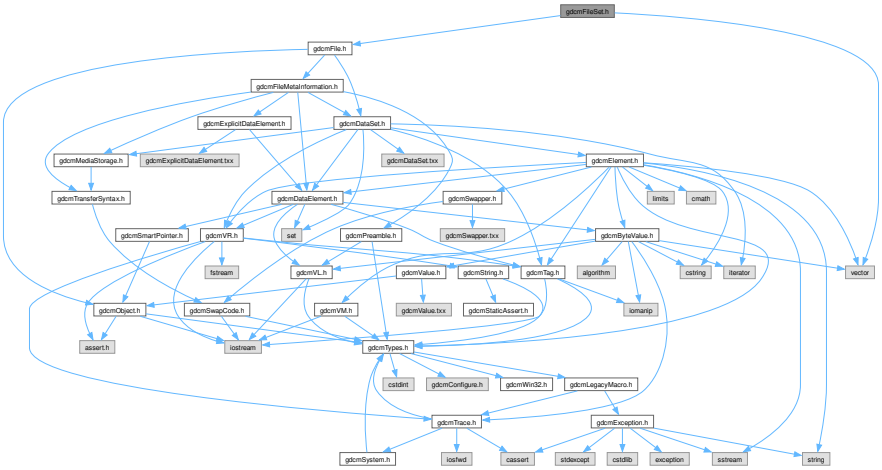
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILEMETAINFORMATION_H
00015 #define GDCMFILEMETAINFORMATION_H
00016
00017 #include "gdcmPreamble.h"
00018 #include "gdcmDataSet.h"
00019 #include "gdcmDataElement.h"
00020 #include "gdcmMediaStorage.h"
00021 #include "gdcmTransferSyntax.h"
00022 #include "gdcmExplicitDataElement.h"
00023
00024 namespace gdcm_ns
00025 {
00040 class GDCM_EXPORT FileMetaInformation : public DataSet
00041 {
00042 public:
00043   // FIXME: TransferSyntax::TS_END -> TransferSyntax::ImplicitDataElement
00044   FileMetaInformation();
00045   ~FileMetaInformation();
00046
00047   friend std::ostream &operator<<(std::ostream &_os, const FileMetaInformation &_val);
00048
00049   bool IsValid() const { return true; }
00050
00051   TransferSyntax::NegociatedType GetMetaInformationTS() const { return MetaInformationTS; }
00052   void SetDataSetTransferSyntax(const TransferSyntax &ts);
00053   const TransferSyntax &GetDataSetTransferSyntax() const { return DataSetTS; }
00054   MediaStorage GetMediaStorage() const;
00055   std::string GetMediaStorageAsString() const;
00056
00057   // FIXME: no virtual function means: duplicate code...
00058   void Insert(const DataElement& de) {
00059     if( de.GetTag().GetGroup() == 0x0002 )
00060       {
00061       InsertDataElement( de );
00062       }
00063     else
00064       {
00065       gdcmErrorMacro( "Cannot add element with group != 0x0002 in the file meta header: " << de );
00066       }
00067   }
00068   void Replace(const DataElement& de) {
00069     Remove(de.GetTag());
00070     Insert(de);
00071   }
00072
00074   std::istream &Read(std::istream &is);
00075   std::istream &ReadCompat(std::istream &is);
00076
00078   std::ostream &Write(std::ostream &os) const;
00079
00081   void FillFromDataSet(DataSet const &ds);
00082
00084   const Preamble &GetPreamble() const { return P; }
00085   Preamble &GetPreamble() { return P; }
00086   void SetPreamble(const Preamble &p) { P = p; }
00087
00089   static void SetImplementationClassUID(const char * imp);
00090   static void AppendImplementationClassUID(const char * imp);
00091   static const char *GetImplementationClassUID();
00092   static void SetImplementationVersionName(const char * version);
00093   static const char *GetImplementationVersionName();
00094   static void SetSourceApplicationEntityTitle(const char * title);
```

```
00095   static const char *GetSourceApplicationEntityTitle();
00096
00097   FileMetaInformation(FileMetaInformation const& fmi) = default;
00098   FileMetaInformation& operator=(const FileMetaInformation& fmi) = default;
00099
00100     VL GetFullLength() const {
00101       return P.GetLength() + DataSet::GetLength<ExplicitDataElement>();
00102     }
00103
00104 protected:
00105   void ComputeDataSetTransferSyntax(); // FIXME
00106
00107   template <typename TSwap>
00108   std::istream &ReadCompatInternal(std::istream &is);
00109
00110   void Default();
00111   void ComputeDataSetMediaStorageSOPClass();
00112
00113   TransferSyntax DataSetTS;
00114   TransferSyntax::NegociatedType MetaInformationTS;
00115   MediaStorage::MSType DataSetMS;
00116
00117 protected:
00118   static const char * GetFileMetaInformationVersion();
00119   static const char * GetGDCMImplementationClassUID();
00120   static const char * GetGDCMImplementationVersionName();
00121   static const char * GetGDCMSourceApplicationEntityTitle();
00122
00123 private:
00124   Preamble P;
00125
00126 //static stuff:
00127   static const char GDCM_FILE_META_INFORMATION_VERSION[];
00128   static const char GDCM_IMPLEMENTATION_CLASS_UID[];
00129   static const char GDCM_IMPLEMENTATION_VERSION_NAME[];
00130   static const char GDCM_SOURCE_APPLICATION_ENTITY_TITLE[];
00131   static std::string ImplementationClassUID;
00132   static std::string ImplementationVersionName;
00133   static std::string SourceApplicationEntityTitle;
00134 };
00135 //-----------------------------------------------------------------------------
00136 inline std::ostream& operator<<(std::ostream &os, const FileMetaInformation &val)
00137 {
00138   os << val.GetPreamble() << std::endl;
00139   val.Print( os );
00140   return os;
00141 }
00142
00143 } // end namespace gdcm_ns
00144
00145 #endif //GDCMFILEMETAINFORMATION_H
```

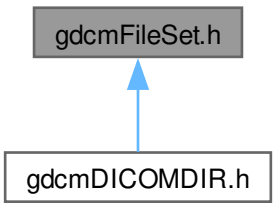
13.143 gdcmFileSet.h File Reference

```
#include "gdcmFile.h"
#include <vector>
```

Include dependency graph for gdcmFileSet.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::FileSet

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const FileSet &f)

13.144 gdcmFileSet.h

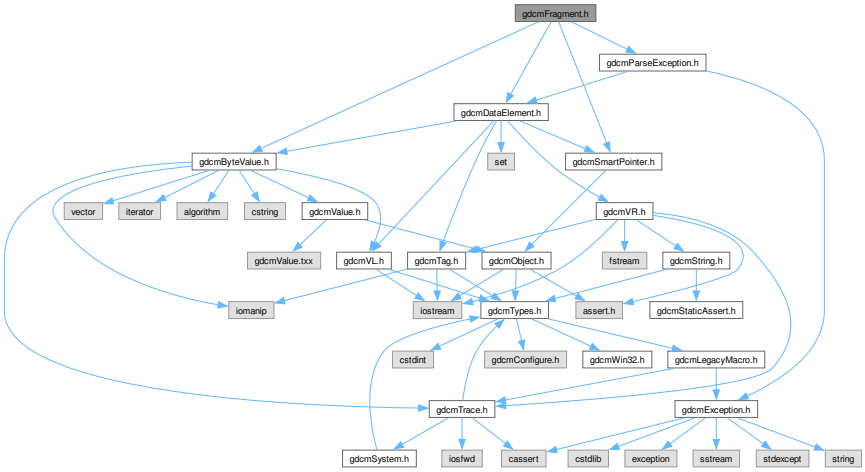
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILESET_H
00015 #define GDCMFILESET_H
00016
00017 #include "gdcmFile.h"
00018 #include <vector>
00019
00020 namespace gdcm
00021 {
00026 class GDCM_EXPORT FileSet
00027 {
00028   friend std::ostream& operator<<(std::ostream &_os, const FileSet &d);
00029 public:
00030   FileSet():Files() {}
00031   typedef std::string FileType;
00032   typedef std::vector<FileType> FilesType;
00033
00035   void AddFile(File const & ) {}
00036
00039   bool AddFile(const char *filename);
00040
00041   void SetFiles(FilesType const &files);
00042   FilesType const &GetFiles() const {
00043     return Files;
00044   }
00045
00046 private:
00047   FilesType Files;
00048 };
00049 //-----------------------------------------------------------------------------
00050 inline std::ostream& operator<<(std::ostream &os, const FileSet &f)
00051 {
00052   (void)f; // FIXME
00053   return os;
00054 }
00055
00056 } // end namespace gdcm
00057
00058 #endif //GDCMFILESET_H
```

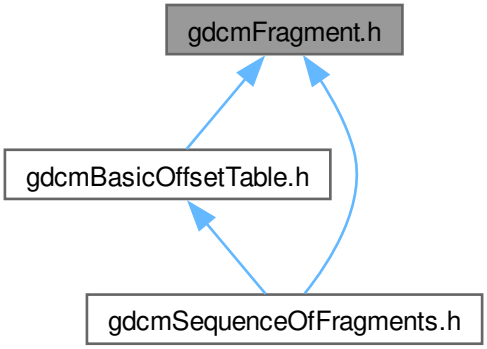
13.145 gdcmFragment.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
#include "gdcmParseException.h"
```

Include dependency graph for gdcmFragment.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Fragment

  Class to represent a Fragment.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Fragment &val)

13.146 gdcmFragment.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFRAGMENT_H
00015 #define GDCMFRAGMENT_H
00016
00017 #include "gdcmDataElement.h"
00018 #include "gdcmByteValue.h"
00019 #include "gdcmSmartPointer.h"
00020 #include "gdcmParseException.h"
00021
00022 namespace gdcm_ns
00023 {
00024
00025 // Implementation detail:
00026 // I think Fragment should be a protected subclass of DataElement:
00027 // looking somewhat like this:
00028 /*
00029 class GDCM_EXPORT Fragment : protected DataElement
00030 {
00031 public:
00032   using DataElement::GetTag;
00033   using DataElement::GetVL;
00034   using DataElement::SetByteValue;
00035   using DataElement::GetByteValue;
00036   using DataElement::GetValue;
00037 */
00038 // Instead I am only hiding the SetTag member...
00039
00043 class GDCM_EXPORT Fragment : public DataElement
00044 {
00045 //protected:
00046 //  void SetTag(const Tag &t);
00047 public:
00048   Fragment() : DataElement(Tag(0xfffe, 0xe000), 0) {}
00049   friend std::ostream &operator«(std::ostream &os, const Fragment &val);
00050
00051   VL GetLength() const;
00052
00053   VL ComputeLength() const;
00054
00055   template <typename TSwap>
00056   std::istream &Read(std::istream &is)
00057     {
00058     ReadPreValue<TSwap>(is);
00059     return ReadValue<TSwap>(is);
00060     }
00061
00062   template <typename TSwap>
00063   std::istream &ReadPreValue(std::istream &is)
00064     {
00065     TagField.Read<TSwap>(is);
00066     if( !is )
00067       {
00068       //  BogusItemStartItemEnd.dcm
00069       throw Exception( "Problem #1" );
```

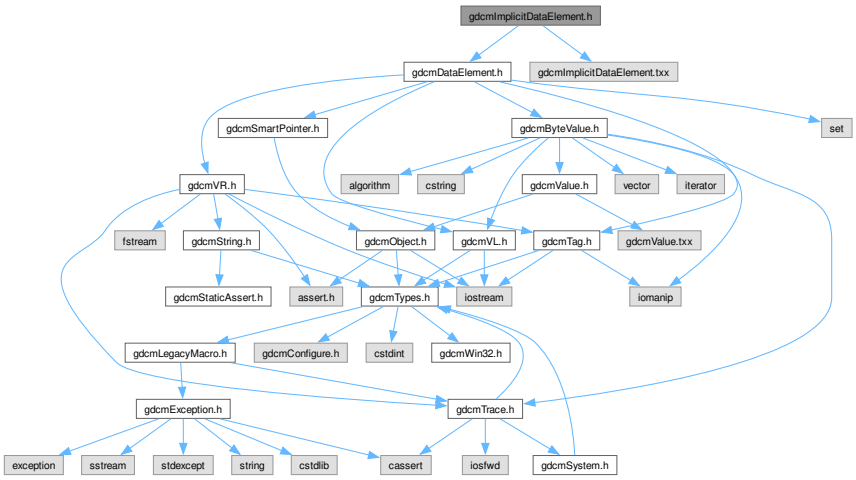
```
00070       }
00071     if( !ValueLengthField.Read<TSwap>(is) )
00072       {
00073       // GENESIS_SIGNA-JPEG-CorruptFrag.dcm
00074       // JPEG fragment is declared to have 61902, but in fact really is only 61901
00075       // so we end up reading 0xddff,0x00e0, and VL = 0x0 (1 byte)
00076       throw Exception( "Problem #2" );
00077       }
00078 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00079     const Tag itemStart(0xfffe, 0xe000);
00080     const Tag seqDelItem(0xfffe,0xe0dd);
00081     if( TagField != itemStart && TagField != seqDelItem )
00082       {
00083       throw Exception( "Problem #3" );
00084       }
00085 #endif
00086     return is;
00087     }
00088
00089   template <typename TSwap>
00090   std::istream &ReadValue(std::istream &is)
00091     {
00092     // Self
00093     SmartPointer<ByteValue> bv = new ByteValue;
00094     bv->SetLength(ValueLengthField);
00095     if( !bv->Read<TSwap>(is) )
00096       {
00097       // Fragment is incomplete, but is a itemStart, let's try to push it anyway...
00098       gdcmWarningMacro( "Fragment could not be read" );
00099       //bv->SetLength(is.gcount());
00100       ValueField = bv;
00101       ParseException pe;
00102       pe.SetLastElement( *this );
00103       throw pe;
00104       }
00105     ValueField = bv;
00106     return is;
00107     }
00108
00109   template <typename TSwap>
00110   std::istream &ReadBacktrack(std::istream &is)
00111     {
00112     const Tag itemStart(0xfffe, 0xe000);
00113     const Tag seqDelItem(0xfffe,0xe0dd);
00114
00115     bool cont = true;
00116     const std::streampos start = is.tellg();
00117     const int max = 10;
00118     int offset = 0;
00119     while( cont )
00120       {
00121       TagField.Read<TSwap>(is);
00122       gdcm_assert( is );
00123       if( TagField != itemStart && TagField != seqDelItem )
00124         {
00125         ++offset;
00126         is.seekg( (std::streampos)((size_t)start - offset) );
00127         gdcmWarningMacro( "Fuzzy Search, backtrack: " << (start - is.tellg()) << " Offset: " << is.tellg() );
00128         if( offset > max )
00129           {
00130           gdcmErrorMacro( "Giving up" );
00131           throw "Impossible to backtrack";
00132           }
00133         }
00134       else
00135         {
00136         cont = false;
00137         }
00138       }
00139     gdcm_assert( TagField == itemStart || TagField == seqDelItem );
00140     if( !ValueLengthField.Read<TSwap>(is) )
00141       {
00142       return is;
00143       }
00144
00145     // Self
00146     SmartPointer<ByteValue> bv = new ByteValue;
00147     bv->SetLength(ValueLengthField);
00148     if( !bv->Read<TSwap>(is) )
00149       {
00150       // Fragment is incomplete, but is a itemStart, let's try to push it anyway...
```

```
00151       gdcmWarningMacro( "Fragment could not be read" );
00152       //bv->SetLength(is.gcount());
00153       ValueField = bv;
00154       ParseException pe;
00155       pe.SetLastElement( *this );
00156       throw pe;
00157       }
00158     ValueField = bv;
00159     return is;
00160     }
00161
00162
00163   template <typename TSwap>
00164   std::ostream &Write(std::ostream &os) const {
00165     const Tag itemStart(0xfffe, 0xe000);
00166     const Tag seqDelItem(0xfffe,0xe0dd);
00167     if( !TagField.Write<TSwap>(os) )
00168       {
00169       gdcm_assert(0 && "Should not happen");
00170       return os;
00171       }
00172     gdcm_assert( TagField == itemStart
00173          || TagField == seqDelItem );
00174     const ByteValue *bv = GetByteValue();
00175     // VL
00176     // The following piece of code is hard to read in order to support such broken file as:
00177     // CompressedLossy.dcm
00178     if( IsEmpty() )
00179       {
00180       //gdcm_assert( bv );
00181       VL zero = 0;
00182       if( !zero.Write<TSwap>(os) )
00183         {
00184         gdcm_assert(0 && "Should not happen");
00185         return os;
00186         }
00187       }
00188     else
00189       {
00190       gdcm_assert( ValueLengthField );
00191       gdcm_assert( !ValueLengthField.IsUndefined() );
00192       const VL actuallen = bv->ComputeLength();
00193       gdcm_assert( actuallen == ValueLengthField || actuallen == ValueLengthField + 1 );
00194       if( !actuallen.Write<TSwap>(os) )
00195         {
00196         gdcm_assert(0 && "Should not happen");
00197         return os;
00198         }
00199       }
00200     // Value
00201     if( ValueLengthField && bv )
00202       {
00203       // Self
00204       gdcm_assert( bv );
00205       gdcm_assert( bv->GetLength() == ValueLengthField );
00206       if( !bv->Write<TSwap>(os) )
00207         {
00208         gdcm_assert(0 && "Should not happen");
00209         return os;
00210         }
00211       }
00212     return os;
00213     }
00214 };
00215 //-----------------------------------------------------------------------------
00216 inline std::ostream &operator«(std::ostream &os, const Fragment &val)
00217 {
00218   os « "Tag: " « val.TagField;
00219   os « "\tVL: " « val.ValueLengthField;
00220   if( val.ValueField )
00221     {
00222     os « "\t" « *(val.ValueField);
00223     }
00224
00225   return os;
00226 }
00227
00228 } // end namespace gdcm_ns
00229
00230 #endif //GDCMFRAGMENT_H
```

13.147 gdcmImplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmImplicitDataElement.txx"
```

Include dependency graph for gdcmImplicitDataElement.h:



Classes

- class gdcm::ImplicitDataElement

  Class to represent an Implicit VR Data Element.

Namespaces

- namespace gdcm

13.148 gdcmImplicitDataElement.h

Go to the documentation of this file.

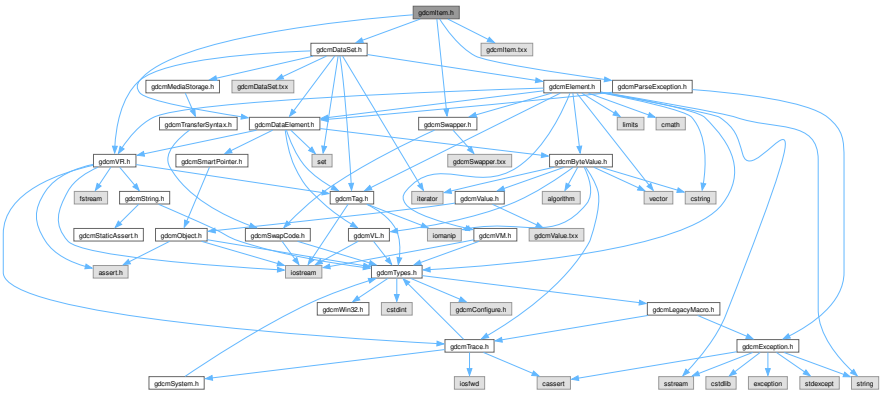
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMPLICITDATAELEMENT_H
00015 #define GDCMIMPLICITDATAELEMENT_H
00016
```

```
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm_ns
00020 {
00021
00026 class GDCM_EXPORT ImplicitDataElement : public DataElement
00027 {
00028 public:
00029   VL GetLength() const;
00030
00031   template <typename TSwap>
00032   std::istream &Read(std::istream& is);
00033
00034   template <typename TSwap>
00035   std::istream &ReadPreValue(std::istream& is);
00036
00037   template <typename TSwap>
00038   std::istream &ReadValue(std::istream& is, bool readvalues = true);
00039
00040   template <typename TSwap>
00041   std::istream &ReadWithLength(std::istream& is, VL & length, bool readvalues = true);
00042
00043   template <typename TSwap>
00044   std::istream &ReadValueWithLength(std::istream& is, VL & length, bool readvalues = true);
00045
00046   template <typename TSwap>
00047   const std::ostream &Write(std::ostream& os) const;
00048 };
00049
00050 } // end namespace gdcm_ns
00051
00052 #include "gdcmImplicitDataElement.txx"
00053
00054 #endif //GDCMIMPLICITDATAELEMENT_H
```

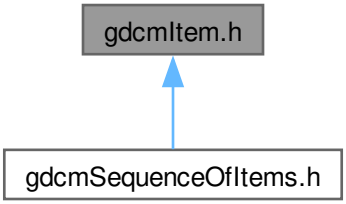
13.149 gdcmItem.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmDataSet.h"
#include "gdcmParseException.h"
#include "gdcmSwapper.h"
#include "gdcmItem.txx"
```

Include dependency graph for gdcmItem.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Item

  Class to represent an Item.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Item &val)

13.150 gdcmItem.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMITEM_H
00016 #define GDCMITEM_H
00017
00018 #include "gdcmDataElement.h"
00019 #include "gdcmDataSet.h"
00020 #include "gdcmParseException.h"
00021 #include "gdcmSwapper.h"
00022
```

```
00023 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00024 #include "gdcmByteSwapFilter.h"
00025 #endif
00026
00027 namespace gdcm_ns
00028 {
00029
00030 class DataSet;
00045 class GDCM_EXPORT Item : public DataElement
00046 {
00047 public:
00048   Item() : DataElement(Tag(0xfffe, 0xe000), 0xFFFFFFFF), NestedDataSet() {}
00049   friend std::ostream& operator« (std::ostream &os, const Item &val);
00050
00051   void Clear() {
00052     this->DataElement::Clear();
00053     NestedDataSet.Clear();
00054     }
00055
00056   template <typename TDE>
00057   VL GetLength() const;
00058
00059   void InsertDataElement(const DataElement & de) {
00060     NestedDataSet.Insert(de);
00061     // Update the length
00062     if( !IsUndefinedLength() )
00063       {
00064       gdcm_assert( 0 && "InsertDataElement" );
00065       //ValueLengthField += de.GetLength();
00066       }
00067     }
00068   const DataElement& GetDataElement(const Tag& t) const
00069     {
00070     return NestedDataSet.GetDataElement(t);
00071     }
00072
00073   // Completely defines it with the nested dataset
00074   // destroy anything present
00075   void SetNestedDataSet(const DataSet& nested)
00076     {
00077     NestedDataSet = nested;
00078     }
00079   // Return a const ref to the Nested Data Set
00080   const DataSet &GetNestedDataSet() const
00081     {
00082     return NestedDataSet;
00083     }
00084   DataSet &GetNestedDataSet()
00085     {
00086     return NestedDataSet;
00087     }
00088
00089   //Value const & GetValue() const { return *NestedDataSet; }
00090
00091   Item(Item const &val):DataElement(val)
00092     {
00093     NestedDataSet = val.NestedDataSet;
00094     }
00095
00096   template <typename TDE, typename TSwap>
00097   std::istream &Read(std::istream &is) {
00098     // Superclass
00099     {
00100         DataSet &nested = NestedDataSet;
00101         nested.Clear();
00102         gdcm_assert( nested.IsEmpty() );
00103     }
00104     if( !TagField.Read<TSwap>(is) )
00105       {
00106       throw Exception("Should not happen (item)");
00107       return is;
00108       }
00109 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00110     // MR_Philips_Intera_SwitchIndianess_noLgtSQItem_in_trueLgtSeq.dcm
00111     if( TagField == Tag(0xfeff, 0x00e0)
00112       || TagField == Tag(0xfeff, 0xdde0) )
00113       {
00114       gdcmWarningMacro( "ByteSwaping Private SQ: " « TagField );
00115       // Invert previously read TagField since wrong endianness:
00116       TagField = Tag( SwapperDoOp::Swap( TagField.GetGroup() ), SwapperDoOp::Swap( TagField.GetElement() )
      );
```

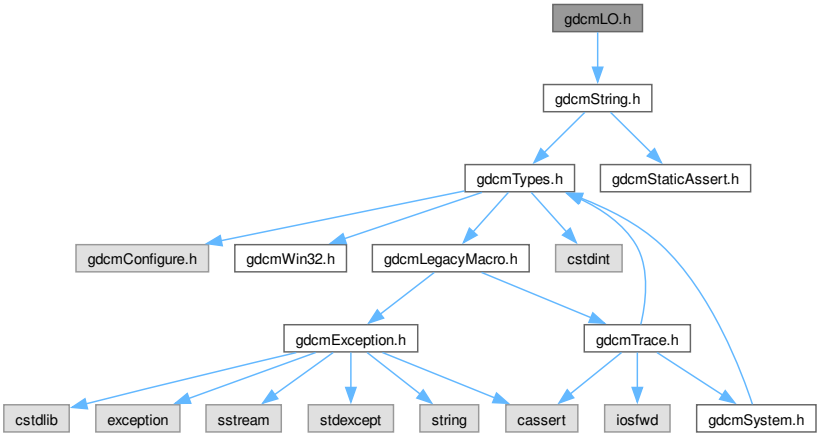
```
00117       assert ( TagField == Tag(0xfffe, 0xe000)
00118         || TagField == Tag(0xfffe, 0xe0dd) );
00119
00120       if( !ValueLengthField.Read<SwapperDoOp>(is) )
00121         {
00122         gdcm_assert(0 && "Should not happen");
00123         return is;
00124         }
00125       // Self
00126       // Some file written by GDCM 1.0 we write 0xFFFFFFFF instead of 0x0
00127       if( TagField == Tag(0xfffe,0xe0dd) )
00128         {
00129         if( ValueLengthField )
00130           {
00131           gdcmErrorMacro( "ValueLengthField is not 0" );
00132           }
00133         }
00134       //else if( ValueLengthField == 0 )
00135       //  {
00136       //  //gdcm_assert( TagField == Tag( 0xfffe, 0xe0dd) );
00137       //  if( TagField != Tag( 0xfffe, 0xe0dd) )
00138       //    {
00139       //    gdcmErrorMacro( "SQ: " << TagField << " has a length of 0" );
00140       //    }
00141       //  }
00142       else if( ValueLengthField.IsUndefined() )
00143         {
00144         DataSet &nested = NestedDataSet;
00145         nested.Clear();
00146         gdcm_assert( nested.IsEmpty() );
00147         std::streampos start = is.tellg();
00148         try
00149           {
00150           nested.template ReadNested<TDE,SwapperDoOp>(is);
00151           ByteSwapFilter bsf(nested);
00152           bsf.ByteSwap();
00153           }
00154         catch(ParseException &pe)
00155           {
00156           (void)pe;
00157           //
      MR_Philips_Intera_PrivateSequenceExplicitVR_in_SQ_2001_e05f_item_wrong_lgt_use_NOSHADOWSEQ.dcm
00158           // You have to byteswap the length but not the tag...sigh
00159           gdcmWarningMacro( "Attempt to read nested Item without byteswapping the Value Length." );
00160           start -= is.tellg();
00161           gdcm_assert( start < 0 );
00162           is.seekg( start, std::ios::cur );
00163           nested.Clear();
00164           nested.template ReadNested<TDE,SwapperNoOp>(is);
00165           ByteSwapFilter bsf(nested);
00166           // Tag are read in big endian, need to byteswap them back...
00167           bsf.SetByteSwapTag(true);
00168           bsf.ByteSwap();
00169           }
00170         catch(Exception &e)
00171           {
00172           // MR_Philips_Intera_No_PrivateSequenceImplicitVR.dcm
00173           throw e;
00174           }
00175         catch(...)
00176           {
00177           gdcm_assert(0);
00178           }
00179         }
00180       else /* if( ValueLengthField.IsUndefined() ) */
00181         {
00182         DataSet &nested = NestedDataSet;
00183         nested.Clear();
00184         gdcm_assert( nested.IsEmpty() );
00185         nested.template ReadWithLength<TDE,SwapperDoOp>(is, ValueLengthField);
00186         ByteSwapFilter bsf(nested);
00187         bsf.ByteSwap();
00188         }
00189       return is;
00190       }
00191     // http://groups.google.com/group/comp.protocols.dicom/msg/c07efcf5e759fc83
00192     // Bug_Philips_ItemTag_3F3F.dcm
00193     if( TagField == Tag(0x3f3f, 0x3f00) )
00194       {
00195       //TagField = Tag(0xfffe, 0xe000);
00196       }
```

```
00197 #endif
00198     if( TagField != Tag(0xfffe, 0xe000) && TagField != Tag(0xfffe, 0xe0dd) )
00199       {
00200       gdcmDebugMacro( "Invalid Item, found tag: " « TagField);
00201       throw Exception( "Not a valid Item" );
00202       }
00203     gdcm_assert( TagField == Tag(0xfffe, 0xe000) || TagField == Tag(0xfffe, 0xe0dd) );
00204
00205     if( !ValueLengthField.Read<TSwap>(is) )
00206       {
00207       gdcm_assert(0 && "Should not happen");
00208       return is;
00209       }
00210     // Self
00211     if( TagField == Tag(0xfffe,0xe0dd) )
00212       {
00213       // Some file written by GDCM 1.0 were written with 0xFFFFFFFF instead of 0x0
00214       if( ValueLengthField )
00215         {
00216         gdcmDebugMacro( "ValueLengthField is not 0 but " « ValueLengthField );
00217         }
00218       }
00219     else if( ValueLengthField.IsUndefined() )
00220       {
00221       DataSet &nested = NestedDataSet;
00222       nested.Clear();
00223       gdcm_assert( nested.IsEmpty() );
00224       nested.template ReadNested<TDE,TSwap>(is);
00225       }
00226     else /* if( ValueLengthField.IsUndefined() ) */
00227       {
00228       gdcm_assert( !ValueLengthField.IsUndefined() );
00229       DataSet &nested = NestedDataSet;
00230       nested.Clear();
00231       gdcm_assert( nested.IsEmpty() );
00232       nested.template ReadWithLength<TDE,TSwap>(is, ValueLengthField);
00233       }
00234
00235     return is;
00236   }
00237
00238   template <typename TDE, typename TSwap>
00239   const std::ostream &Write(std::ostream &os) const {
00240 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00241     if( TagField == Tag(0x3f3f,0x3f00) && false )
00242       {
00243       Tag t(0xfffe, 0xe000);
00244       t.Write<TSwap>(os);
00245       }
00246     else
00247 #endif
00248       {
00249       assert ( TagField == Tag(0xfffe, 0xe000)
00250         || TagField == Tag(0xfffe, 0xe0dd) );
00251       // Not sure how this happen
00252       if( TagField == Tag(0xfffe, 0xe0dd) )
00253         {
00254         gdcmWarningMacro( "SeqDelItem found in defined length Sequence" );
00255         gdcm_assert( ValueLengthField == 0 );
00256         gdcm_assert( NestedDataSet.Size() == 0 );
00257         }
00258       if( !TagField.Write<TSwap>(os) )
00259         {
00260         gdcm_assert(0 && "Should not happen");
00261         return os;
00262         }
00263       }
00264     if( ValueLengthField.IsUndefined() )
00265       {
00266       if( !ValueLengthField.Write<TSwap>(os) )
00267         {
00268         gdcm_assert(0 && "Should not happen");
00269         return os;
00270         }
00271       }
00272     else
00273       {
00274       const VL dummy = NestedDataSet.GetLength<TDE>();
00275       gdcm_assert( dummy % 2 == 0 );
00276       //gdcm_assert( ValueLengthField == dummy );
00277       if( !dummy.Write<TSwap>(os) )
```

```
00278         {
00279         gdcm_assert(0 && "Should not happen");
00280         return os;
00281         }
00282       }
00283     // Self
00284     NestedDataSet.Write<TDE,TSwap>(os);
00285     if( ValueLengthField.IsUndefined() )
00286       {
00287       const Tag itemDelItem(0xfffe,0xe00d);
00288       itemDelItem.Write<TSwap>(os);
00289       VL zero = 0;
00290       zero.Write<TSwap>(os);
00291       }
00292
00293     return os;
00294   }
00295
00296 /*
00297 There are three special SQ related Data Elements that are not ruled by the VR encoding rules conveyed
00298 by the Transfer Syntax. They shall be encoded as Implicit VR. These special Data Elements are Item
00299 (FFFE,E000), Item Delimitation Item (FFFE,E00D), and Sequence Delimitation Item (FFFE,E0DD).
00300 However, the Data Set within the Value Field of the Data Element Item (FFFE,E000) shall be encoded
00301 according to the rules conveyed by the Transfer Syntax.
00302 */
00303   bool FindDataElement(const Tag &t) const {
00304     return NestedDataSet.FindDataElement( t );
00305   }
00306
00307 private:
00308   /* NESTED DATA SET  a Data Set contained within a Data Element of an other Data Set.
00309    * May be nested recursively.
00310    * Only Data Elements with VR = SQ  may, themselves, contain Data Sets
00311    */
00312   DataSet NestedDataSet;
00313 };
00314 //-----------------------------------------------------------------------------
00315 inline std::ostream& operator«(std::ostream& os, const Item &val)
00316 {
00317   os « val.TagField;
00318   os « "\t" « val.ValueLengthField « "\n";
00319   val.NestedDataSet.Print( os, "\t" );
00320
00321   return os;
00322 }
00323
00324
00325 } // end namespace gdcm_ns
00326
00327 #include "gdcmItem.txx"
00328
00329 #endif //GDCMITEM_H
```

13.151 gdcmLO.h File Reference

`#include "gdcmString.h"`
Include dependency graph for gdcmLO.h:



Classes

- class gdcm::LO
  LO.

Namespaces

- namespace gdcm

13.152 gdcmLO.h

Go to the documentation of this file.

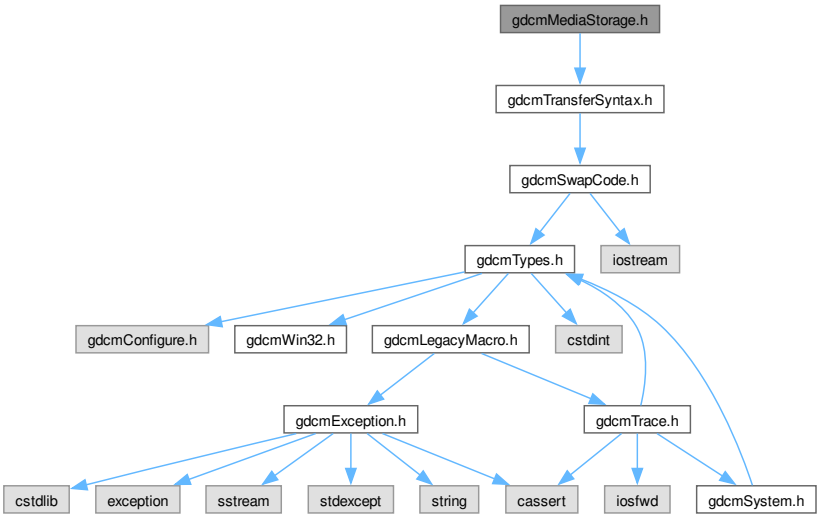
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMLO_H
00015 #define GDCMLO_H
00016
00017 #include "gdcmString.h"
```

```
00018
00019 namespace gdcm
00020 {
00021
00027 class /*GDCM_EXPORT*/ LO : public String<'\\',64> /* PLEASE do not export me */
00028 {
00029 public:
00030   // typedef are not inherited:
00031   typedef String<'\\',64> Superclass;
00032   typedef Superclass::value_type             value_type;
00033   typedef Superclass::pointer                pointer;
00034   typedef Superclass::reference              reference;
00035   typedef Superclass::const_reference        const_reference;
00036   typedef Superclass::size_type              size_type;
00037   typedef Superclass::difference_type        difference_type;
00038   typedef Superclass::iterator               iterator;
00039   typedef Superclass::const_iterator         const_iterator;
00040   typedef Superclass::reverse_iterator       reverse_iterator;
00041   typedef Superclass::const_reverse_iterator const_reverse_iterator;
00042
00043   // LO constructors.
00044   LO(): Superclass() {}
00045   LO(const value_type* s): Superclass(s) {}
00046   LO(const value_type* s, size_type n): Superclass(s, n) {}
00047   LO(const Superclass& s, size_type pos=0, size_type n=npos):
00048     Superclass(s, pos, n) {}
00049
00050   bool IsValid() const {
00051     if( !Superclass::IsValid() ) return false;
00052     // Implementation specific:
00053     return true;
00054   }
00055 };
00056
00057 } // end namespace gdcm
00058
00059 #endif //GDCMLO_H
```

13.153 gdcmMediaStorage.h File Reference

`#include "gdcmTransferSyntax.h"`

Include dependency graph for gdcmMediaStorage.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::MediaStorage

  MediaStorage.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const MediaStorage &ms)

13.154 gdcmMediaStorage.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMEDIASTORAGE_H
00015 #define GDCMMEDIASTORAGE_H
00016
00017 #include "gdcmTransferSyntax.h"
00018
00019 namespace gdcm { class Tag; }
00020 namespace gdcm_ns
00021 {
00022 #if !defined(SWIGPYTHON) && !defined(SWIGCSHARP) && !defined(SWIGJAVA) && !defined(SWIGPHP)
00023 using namespace gdcm;
00024 #endif
00025 class DataSet;
00026 class FileMetaInformation;
00027 class File;
00028
00029 // WARNING: This class will be deprecated in the future. There is no reason to extend this class.
00030 // Please check the gdcm::UIDs class if adding new well known UID.
00031
00043 class GDCM_EXPORT MediaStorage
00044 {
00045 public:
00046   typedef enum {
00047     MediaStorageDirectoryStorage = 0,
00048     ComputedRadiographyImageStorage,
```

```
00049     DigitalXRayImageStorageForPresentation,
00050     DigitalXRayImageStorageForProcessing,
00051     DigitalMammographyImageStorageForPresentation,
00052     DigitalMammographyImageStorageForProcessing,
00053     DigitalIntraoralXrayImageStorageForPresentation,
00054     DigitalIntraoralXRayImageStorageForProcessing,
00055     CTImageStorage,
00056     EnhancedCTImageStorage,
00057     UltrasoundImageStorageRetired,
00058     UltrasoundImageStorage,
00059     UltrasoundMultiFrameImageStorageRetired,
00060     UltrasoundMultiFrameImageStorage,
00061     MRImageStorage,
00062     EnhancedMRImageStorage,
00063     MRSpectroscopyStorage,
00064     NuclearMedicineImageStorageRetired,
00065     SecondaryCaptureImageStorage,
00066     MultiframeSingleBitSecondaryCaptureImageStorage,
00067     MultiframeGrayscaleByteSecondaryCaptureImageStorage,
00068     MultiframeGrayscaleWordSecondaryCaptureImageStorage,
00069     MultiframeTrueColorSecondaryCaptureImageStorage,
00070     StandaloneOverlayStorage,
00071     StandaloneCurveStorage,
00072     LeadECGWaveformStorage, // 12-
00073     GeneralECGWaveformStorage,
00074     AmbulatoryECGWaveformStorage,
00075     HemodynamicWaveformStorage,
00076     CardiacElectrophysiologyWaveformStorage,
00077     BasicVoiceAudioWaveformStorage,
00078     StandaloneModalityLUTStorage,
00079     StandaloneVOILUTStorage,
00080     GrayscaleSoftcopyPresentationStateStorageSOPClass,
00081     XRayAngiographicImageStorage,
00082     XRayRadiofluoroscopingImageStorage,
00083     XRayAngiographicBiPlaneImageStorageRetired,
00084     NuclearMedicineImageStorage,
00085     RawDataStorage,
00086     SpacialRegistrationStorage, // Spatial
00087     SpacialFiducialsStorage, // Spatial..
00088     PETImageStorage,
00089     RTImageStorage,
00090     RTDoseStorage,
00091     RTStructureSetStorage,
00092     RTPlanStorage,
00093     CSANonImageStorage,
00094     Philips3D,
00095     EnhancedSR,
00096     BasicTextSR,
00097     HardcopyGrayscaleImageStorage,
00098     ComprehensiveSR,
00099     DetachedStudyManagementSOPClass,
00100     EncapsulatedPDFStorage,
00101     EncapsulatedCDAStorage,
00102     StudyComponentManagementSOPClass,
00103     DetachedVisitManagementSOPClass,
00104     DetachedPatientManagementSOPClass,
00105     VideoEndoscopicImageStorage,
00106     GeneralElectricMagneticResonanceImageStorage,
00107     GEPrivate3DModelStorage,
00108     ToshibaPrivateDataStorage,
00109     MammographyCADSR,
00110     KeyObjectSelectionDocument,
00111     HangingProtocolStorage,
00112     ModalityPerformedProcedureStepSOPClass,
00113     PhilipsPrivateMRSyntheticImageStorage,
00114     VLPhotographicImageStorage,
00115     SegmentationStorage, // "1.2.840.10008.5.1.4.1.1.66.4"
00116     RTIonPlanStorage, // 1.2.840.10008.5.1.4.1.1.481.8
00117     XRay3DAngiographicImageStorage, // 1.2.840.10008.5.1.4.1.1.13.1.1
00118     EnhancedXAImageStorage,
00119     RTIonBeamsTreatmentRecordStorage, // 1.2.840.10008.5.1.4.1.1.481.9
00120     SurfaceSegmentationStorage, // "1.2.840.10008.5.1.4.1.1.66.5"
00121     VLWholeSlideMicroscopyImageStorage, // 1.2.840.10008.5.1.4.1.1.77.1.6
00122     RTTreatmentSummaryRecordStorage, // 1.2.840.10008.5.1.4.1.1.481.7
00123     EnhancedUSVolumeStorage, // 1.2.840.10008.5.1.4.1.1.6.2
00124     XRayRadiationDoseSR, // 1.2.840.10008.5.1.4.1.1.88.67
00125     VLEndoscopicImageStorage, // 1.2.840.10008.5.1.4.1.1.77.1.1
00126     BreastTomosynthesisImageStorage, // 1.2.840.10008.5.1.4.1.1.13.1.3
00127     FujiPrivateCRImageStorage, // 1.2.392.200036.9125.1.1.2
00128     OphthalmicPhotography8BitImageStorage, // 1.2.840.10008.5.1.4.1.1.77.1.5.1
00129     OphthalmicTomographyImageStorage, // 1.2.840.10008.5.1.4.1.1.77.1.5.4
```

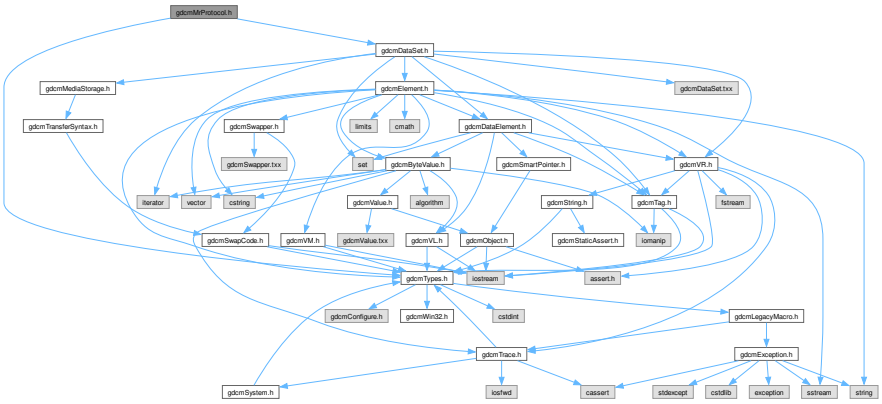
```
00130     VLMicroscopicImageStorage,
00131     EnhancedPETImageStorage,
00132     VideoPhotographicImageStorage,
00133     XRay3DCraniofacialImageStorage,
00134     IVOCTForPresentation,
00135     IVOCTForProcessing,
00136     LegacyConvertedEnhancedCTImageStorage,
00137     LegacyConvertedEnhancedMRImageStorage,
00138     LegacyConvertedEnhancedPETImageStorage,
00139     BreastProjectionXRayImageStorageForPresentation,
00140     BreastProjectionXRayImageStorageForProcessing,
00141     HardcopyColorImageStorage,
00142     EnhancedMRColorImageStorage,
00143     FujiPrivateMammoCRImageStorage,
00144     OphthalmicPhotography16BitImageStorage,
00145     VideoMicroscopicImageStorage,
00146     MS_END
00147   } MSType; // Media Storage Type
00148
00149 typedef enum {
00150     NoObject = 0, // DICOMDIR
00151     Video, // Most common, include image, video and volume
00152     Waveform, // Isn't it simply a 1D video ?
00153     Audio, // ???
00154     PDF,
00155     URI, // URL...
00156     Segmentation, // TODO
00157     ObjectEnd
00158   } ObjectType;
00159
00161   static const char* GetMSString(MSType ts);
00162
00164   const char* GetString() const;
00165   static MSType GetMSType(const char *str);
00166
00167   MediaStorage(MSType type = MS_END):MSField(type) {}
00168
00171   static bool IsImage(MSType ts);
00172
00173   operator MSType () const { return MSField; }
00174
00175   const char *GetModality() const;
00176   unsigned int GetModalityDimension() const;
00177
00178   static unsigned int GetNumberOfMSType();
00179   static unsigned int GetNumberOfMSString();
00180   static unsigned int GetNumberOfModality();
00181
00182
00187   bool SetFromFile(File const &file);
00188
00191   bool SetFromDataSet(DataSet const &ds); // Will get the SOP Class UID
00192   bool SetFromHeader(FileMetaInformation const &fmi); // Will get the Media Storage SOP Class UID
00193   bool SetFromModality(DataSet const &ds);
00194   void GuessFromModality(const char *modality, unsigned int dimension = 2);
00195
00196   friend std::ostream &operator<<(std::ostream &os, const MediaStorage &ms);
00197
00198   bool IsUndefined() const { return MSField == MS_END; }
00199
00200 protected:
00201   void SetFromSourceImageSequence(DataSet const &ds);
00202
00203 private:
00204   bool SetFromDataSetOrHeader(DataSet const &ds, const Tag & tag);
00205
00206   std::string GetFromDataSetOrHeader(DataSet const &ds, const Tag & tag);
00207   std::string GetFromHeader(FileMetaInformation const &fmi);
00208   std::string GetFromDataSet(DataSet const &ds);
00209
00210 private:
00211   MSType MSField;
00212 };
00213 //-----------------------------------------------------------------------------
00214 inline std::ostream &operator<<(std::ostream &_os, const MediaStorage &ms)
00215 {
00216   const char *msstring = MediaStorage::GetMSString(ms);
00217   _os << (msstring ? msstring : "INVALID MEDIA STORAGE");
00218   return _os;
00219
00220 }
```

```
00221
00222 } // end namespace gdcm_ns
00223
00224 #endif // GDCMMEDIASTORAGE_H
```

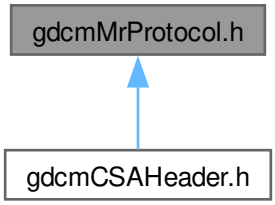
13.155 gdcmMrProtocol.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmMrProtocol.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::MrProtocol

  Class for MrProtocol.
- struct gdcm::MrProtocol::Slice
- struct gdcm::MrProtocol::SliceArray
- struct gdcm::MrProtocol::Vector3

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const MrProtocol &d)

13.156 gdcmMrProtocol.h

Go to the documentation of this file.

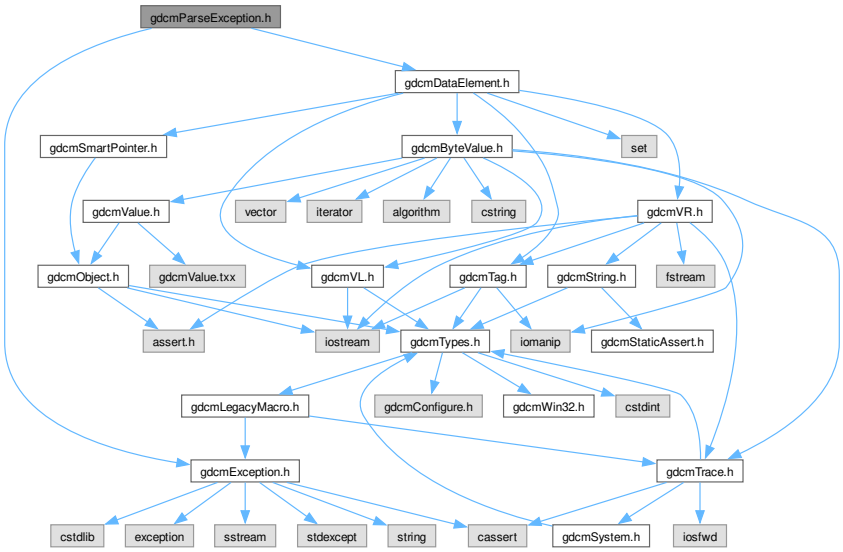
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMRPROTOCOL_H
00015 #define GDCMMRPROTOCOL_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmDataSet.h"
00019
00020 namespace gdcm
00021 {
00022 class ByteValue;
00023 /*
00024  * Everything done in this code is for the sole purpose of writing interoperable
00025  * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
00026  * If you believe anything in this code violates any law or any of your rights,
00027  * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
00028  * find a solution.
00029  */
00030 //-----------------------------------------------------------------------------
00031
00032 class DataElement;
00036 class GDCM_EXPORT MrProtocol
00037 {
00038   friend std::ostream& operator<<(std::ostream &_os, const MrProtocol &d);
00039 public :
00040   MrProtocol();
00041   ~MrProtocol();
00042
00043   bool Load( const ByteValue * bv, const char * str, int version );
00044   void Print(std::ostream &os) const;
00045
00046   int GetVersion() const;
00047
00048   const char * GetMrProtocolByName(const char *name) const;
00049
00050   bool FindMrProtocolByName(const char *name) const;
00051
00052   struct Vector3
00053   {
00054     double dSag;
00055     double dCor;
00056     double dTra;
00057   };
00058   struct Slice
00059   {
00060     Vector3 Normal;
00061     Vector3 Position;
00062   };
```

```
00063   struct SliceArray
00064   {
00065     std::vector< Slice > Slices;
00066   };
00067   bool GetSliceArray( MrProtocol::SliceArray & sa ) const;
00068
00069 private:
00070   struct Element;
00071   struct Internals;
00072   Internals *Pimpl;
00073 };
00074 //---------------------------------------------------------------------------
00075 inline std::ostream& operator«(std::ostream &os, const MrProtocol &d)
00076 {
00077   d.Print( os );
00078   return os;
00079 }
00080
00081 } // end namespace gdcm
00082 //---------------------------------------------------------------------------
00083 #endif //GDCMMRPROTOCOL_H
```

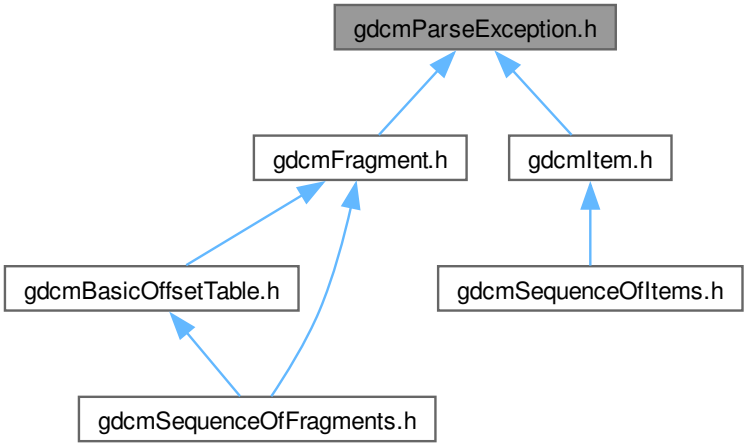
13.157 gdcmParseException.h File Reference

```
#include "gdcmException.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmParseException.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ParseException

  ParseException Standard exception handling object.

Namespaces

- namespace gdcm

13.158 gdcmParseException.h

Go to the documentation of this file.

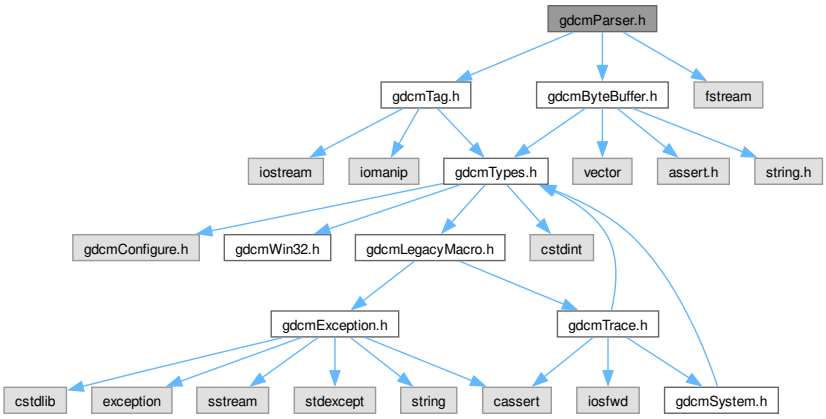
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPARSEEXCEPTION_H
00015 #define GDCMPARSEEXCEPTION_H
00016
00017 #include "gdcmException.h"
00018 #include "gdcmDataElement.h"
00019
```

```
00020 // Disable clang warning "dynamic exception specifications are deprecated".
00021 // We need to be C++03 and C++11 compatible, and if we remove the 'throw()'
00022 // specifier we'll get an error in C++03 by not matching the superclass.
00023 #if defined(__clang__) && defined(__has_warning)
00024 # if __has_warning("-Wdeprecated")
00025 #  pragma clang diagnostic push
00026 #  pragma clang diagnostic ignored "-Wdeprecated"
00027 # endif
00028 #endif
00029
00030 namespace gdcm_ns
00031 {
00036 class ParseException : public Exception
00037 {
00038 public:
00039   ParseException() = default;
00040   ~ParseException() throw() override {}
00041
00043   ParseException &operator= ( const ParseException &orig )
00044     {
00045     LastElement = orig.LastElement;
00046     return *this;
00047     }
00048   ParseException(const ParseException& orig):Exception(orig)
00049     {
00050     LastElement = orig.LastElement;
00051     }
00052
00054 /*  virtual bool operator==( const ParseException &orig )
00055   {
00056     return true;
00057   }*/
00058
00059 /*
00060   // Multiple calls to what ??
00061   const char* what() const throw()
00062     {
00063     static std::string strwhat;
00064     std::ostringstream oswhat;
00065     oswhat « File « ":" « Line « ":\n";
00066     oswhat « Description;
00067     strwhat = oswhat.str();
00068     return strwhat.c_str();
00069     }
00070 */
00071   void SetLastElement(const DataElement& de)
00072     {
00073     LastElement = de;
00074     }
00075   const DataElement& GetLastElement() const { return LastElement; }
00076
00077 private:
00078   // Store last parsed element before error:
00079   DataElement LastElement;
00080 };
00081
00082 } // end namespace gdcm_ns
00083
00084 // Undo warning suppression.
00085 #if defined(__clang__) && defined(__has_warning)
00086 # if __has_warning("-Wdeprecated")
00087 #  pragma clang diagnostic pop
00088 # endif
00089 #endif
00090
00091 #endif
```

13.159 gdcmParser.h File Reference

```
#include "gdcmTag.h"
#include "gdcmByteBuffer.h"
```

`#include <fstream>`
Include dependency graph for gdcmParser.h:



Classes

- class gdcm::Parser

  Parser ala XML_Parser from expat (SAX).

Namespaces

- namespace gdcm

13.160 gdcmParser.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMPARSER_H
00016 #define GDCMPARSER_H
00017
00018 #include "gdcmTag.h"
00019 #error do not use
00020 #include "gdcmByteBuffer.h"
00021
00022 #include <fstream> // std::ifstream
00023
```

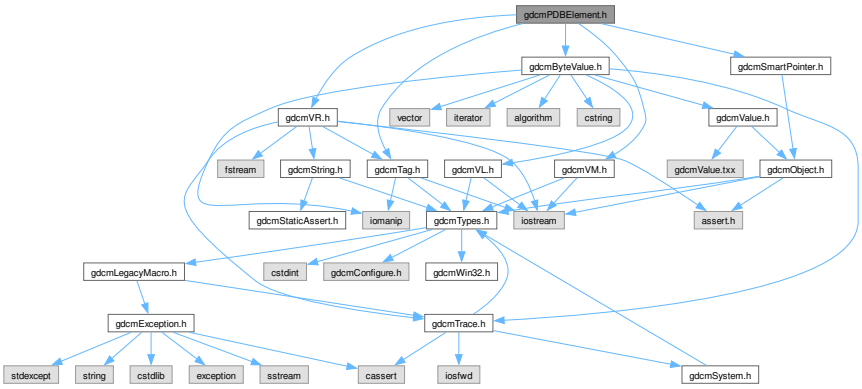
```
00024 namespace gdcm
00025 {
00032 class GDCM_EXPORT Parser /*: private IStream*/
00033 {
00034 public:
00035   typedef enum {
00036     NoError,
00037     NoMemoryError,
00038     SyntaxError,
00039     NoElementsError,
00040     TagMismatchError,
00041     DuplicateAttributeError,
00042     JunkAfterDocElementError,
00043     UndefinedEntityError,
00044     UnexpectedStateError
00045   } ErrorType;
00046
00047   Parser() : UserData(0),Buffer(),ErrorCode(NoError) {}
00048   ~Parser() {}
00049
00050   // Parse some more of the document. The string s is a buffer containing
00051   // part (or perhaps all) of the document. The number of bytes of s that
00052   // are part of the document is indicated by len. This means that s
00053   // doesn't have to be null terminated. It also means that if len is
00054   // larger than the number of bytes in the block of memory that s points
00055   // at, then a memory fault is likely. The isFinal parameter informs the
00056   // parser that this is the last piece of the document. Frequently, the
00057   // last piece is empty (i.e. len is zero.) If a parse error occurred,
00058   // it returns 0. Otherwise it returns a non-zero value.
00059   bool Parse(const char* s, int len, bool isFinal);
00060
00061   // Set handlers for start and end tags. Attributes are passed to the
00062   // start handler as a pointer to a vector of char pointers. Each
00063   // attribute seen in a start (or empty) tag occupies 2 consecutive places
00064   // in this vector: the attribute name followed by the attribute value.
00065   // These pairs are terminated by a null pointer.
00066   typedef void (*StartElementHandler) (void *userData,
00067                                        const Tag &tag,
00068                                        const char *atts[]);
00069   typedef void (*EndElementHandler) (void *userData, const Tag &name);
00070   void SetElementHandler(StartElementHandler start, EndElementHandler end);
00071
00072   // Return what type of error has occurred.
00073   ErrorType GetErrorCode() const;
00074
00075   // Return a string describing the error corresponding to code.
00076   // The code should be one of the enums that can be returned from
00077   // GetErrorCode.
00078   static const char *GetErrorString(ErrorType const &err);
00079
00080   // Return the byte offset of the position.
00081   unsigned long GetCurrentByteIndex() const;
00082
00083   // Miscellaneous functions
00084
00085   // The functions in this section either obtain state information from
00086   // the parser or can be used to dynamically set parser options.
00087
00088   // This sets the user data pointer that gets passed to handlers.
00089   void SetUserData(void *userData);
00090
00091   // This returns the user data pointer that gets passed to handlers.
00092   void * GetUserData() const;
00093
00094 protected:
00095
00096   // This is just like Parse, except in this case expat provides the buffer.
00097   // By obtaining the buffer from expat with the GetBuffer function,
00098   // the application can avoid double copying of the input.
00099   bool ParseBuffer(int len, bool isFinal);
00100
00101   // Obtain a buffer of size len to read a piece of the document into.
00102   // A NULL value is returned if expat can't allocate enough memory for
00103   // this buffer. This has to be called prior to every call to ParseBuffer.
00104   char *GetBuffer(int len);
00105
00106   ErrorType Process();
00107
00108 private:
00109   std::ifstream Stream;
00110   void* UserData;
```

```
00111   ByteBuffer Buffer;
00112   ErrorType ErrorCode;
00113
00114   StartElementHandler StartElement;
00115   EndElementHandler EndElement;
00116 };
00117
00118 } // end namespace gdcm
00119
00120 #endif //GDCMPARSER_H
```

13.161 gdcmPDBElement.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVM.h"
#include "gdcmVR.h"
#include "gdcmByteValue.h"
#include "gdcmSmartPointer.h"
```

Include dependency graph for gdcmPDBElement.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::PDBElement

  Class to represent a PDB Element.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PDBElement &val)

13.162 gdcmPDBElement.h

Go to the documentation of this file.

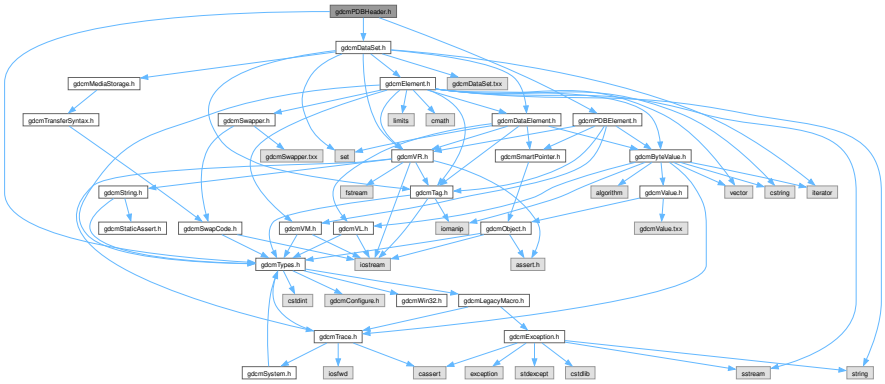
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPDBELEMENT_H
00015 #define GDCMPDBELEMENT_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmVM.h"
00019 #include "gdcmVR.h"
00020 #include "gdcmByteValue.h"
00021 #include "gdcmSmartPointer.h"
00022
00023 namespace gdcm
00024 {
00029 class GDCM_EXPORT PDBElement
00030 {
00031 public:
00032   PDBElement() = default;
00033
00034   friend std::ostream& operator<<(std::ostream &os, const PDBElement &val);
00035
00037   const char *GetName() const { return NameField.c_str(); }
00038   void SetName(const char *name) { NameField = name; }
00039
00041   const char *GetValue() const { return ValueField.c_str(); }
00042   void SetValue(const char *value) { ValueField = value; }
00043
00044   bool operator==(const PDBElement &de) const
00045     {
00046     return ValueField == de.ValueField
00047       && NameField == de.NameField;
00048     }
00049
00050 protected:
00051   std::string NameField;
00052   std::string ValueField;
00053 };
00054 //-----------------------------------------------------------------------------
00055 inline std::ostream& operator<<(std::ostream &os, const PDBElement &val)
```

```
00056 {
00057   os « val.NameField;
00058   os « " \"";
00059   os « val.ValueField;
00060   os « "\"";
00061
00062   return os;
00063 }
00064
00065 } // end namespace gdcm
00066
00067 #endif //GDCMPDBELEMENT_H
```

13.163 gdcmPDBHeader.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataSet.h"
#include "gdcmPDBElement.h"
```

Include dependency graph for gdcmPDBHeader.h:



Classes

- class gdcm::PDBHeader

  Class for PDBHeader.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PDBHeader &d)

13.164 gdcmPDBHeader.h

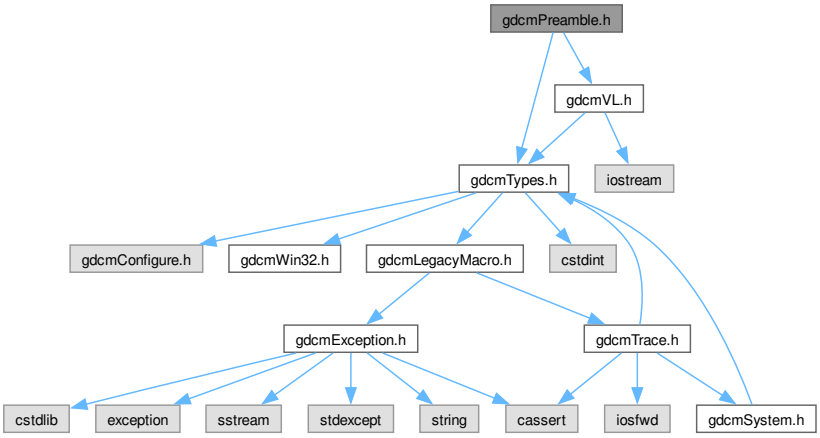
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPDBHEADER_H
00015 #define GDCMPDBHEADER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmDataSet.h"
00019 #include "gdcmPDBElement.h"
00020
00021 namespace gdcm
00022 {
00023
00024 /*
00025  * Everything done in this code is for the sole purpose of writing interoperable
00026  * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
00027  * If you believe anything in this code violates any law or any of your rights,
00028  * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
00029  * find a solution.
00030  */
00031 //-----------------------------------------------------------------------------
00032
00033 class DataElement;
00034 class PrivateTag;
00053 class GDCM_EXPORT PDBHeader
00054 {
00055   friend std::ostream& operator<<(std::ostream &_os, const PDBHeader &d);
00056 public :
00057   PDBHeader() = default;
00058   ~PDBHeader() = default;
00059
00061   bool LoadFromDataElement(DataElement const &de);
00062
00064   void Print(std::ostream &os) const;
00065
00067   static const PrivateTag & GetPDBInfoTag();
00068
00071   const PDBElement &GetPDBElementByName(const char *name);
00072
00074   bool FindPDBElementByName(const char *name);
00075
00076 protected:
00077   const PDBElement& GetPDBEEnd() const;
00078
00079 private:
00080   int readprotocoldatablock(const char *input, size_t inputlen, bool verbose);
00081   std::vector<PDBElement> InternalPDBDataSet;
00082   static PDBElement PDBEEnd;
00083   bool IsXML;
00084   std::string xmltxt;
00085 };
00086 //-----------------------------------------------------------------------------
00087 inline std::ostream& operator<<(std::ostream &os, const PDBHeader &d)
00088 {
00089   d.Print( os );
00090   return os;
00091 }
00092
00093 } // end namespace gdcm
00094 //-----------------------------------------------------------------------------
00095 #endif //GDCMPDBHEADER_H
```

13.165 gdcmPreamble.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVL.h"
```

Include dependency graph for gdcmPreamble.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Preamble

  DICOM Preamble (Part 10).

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Preamble &val)

13.166 gdcmPreamble.h

Go to the documentation of this file.

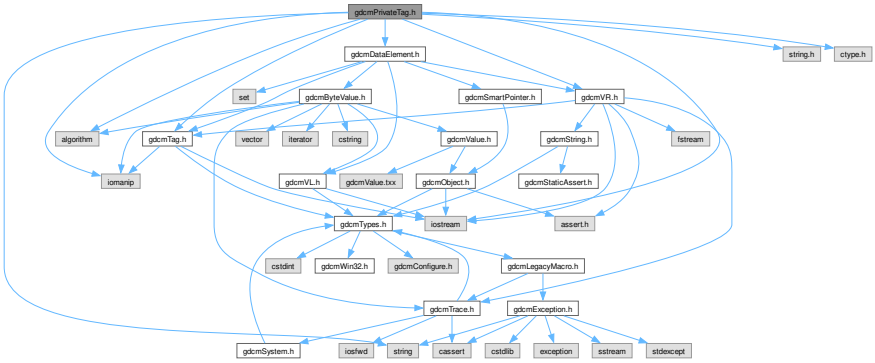
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPREAMBLE_H
00015 #define GDCMPREAMBLE_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmVL.h"
00019
00020 namespace gdcm
00021 {
00022
00026 class GDCM_EXPORT Preamble
00027 {
00028 public:
00029   Preamble();
00030   ~Preamble();
00031
00032   friend std::ostream &operator<<(std::ostream &_os, const Preamble &_val);
00033
00035   void Clear();
00036
00038   void Valid();
00039   void Create();
00040   void Remove();
00041
00043   std::istream &Read(std::istream &is);
00044
00046   std::ostream const &Write(std::ostream &os) const;
00047
00049   void Print(std::ostream &os) const;
00050
00052   const char *GetInternal() const { return Internal; }
00053
00055   bool IsEmpty() const { return !Internal; }
00056
00058   VL GetLength() const { return 128 + 4; }
00059
00060   Preamble(Preamble const &):Internal(nullptr)
00061     {
00062     Create();
00063     }
00064   Preamble& operator=(Preamble const &)
00065     {
00066     Create();
00067     return *this;
00068     }
00069 protected:
00070   //
00071   bool IsValid() const {
00072     // is (IsValid == true) => Internal was read
00073     return true;
00074   }
00075
00076 private:
00077   char *Internal;
00078 };
00079 //-----------------------------------------------------------------------------
00080 inline std::ostream& operator<<(std::ostream &os, const Preamble &val)
00081 {
00082   os << val.Internal;
00083   return os;
00084 }
00085
00086 } // end namespace gdcm
```

```
00087
00088 #endif //GDCMPREAMBLE_H
```

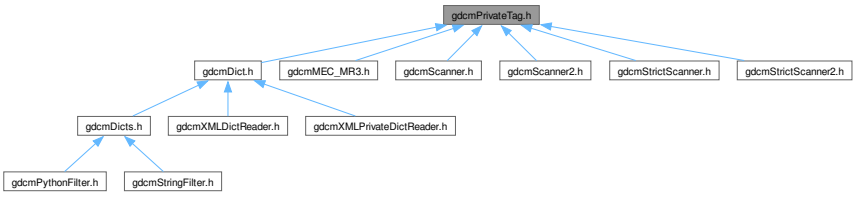
13.167 gdcmPrivateTag.h File Reference

```
#include "gdcmTag.h"
#include "gdcmVR.h"
#include "gdcmDataElement.h"
#include <iostream>
#include <iomanip>
#include <string>
#include <algorithm>
#include <string.h>
#include <ctype.h>
```

Include dependency graph for gdcmPrivateTag.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PrivateTag

  Class to represent a Private DICOM Data Element (Attribute) Tag (Group, Element, Owner).

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PrivateTag &val)

13.168 gdcmPrivateTag.h

Go to the documentation of this file.

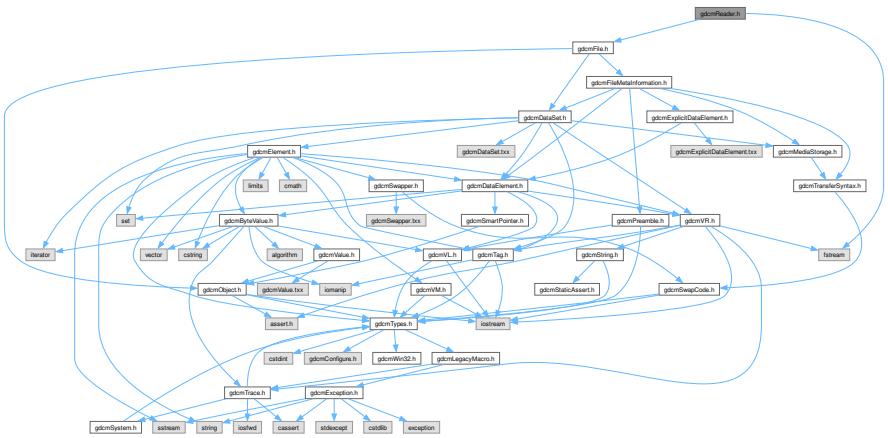
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRIVATETAG_H
00015 #define GDCMPRIVATETAG_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmVR.h"
00019 #include "gdcmDataElement.h"
00020
00021 #include <iostream>
00022 #include <iomanip>
00023 #include <string>
00024 #include <algorithm>
00025
00026 #include <string.h> // strlen
00027 #include <ctype.h> // tolower
00028
00029 namespace gdcm_ns
00030 {
00031
00036
00037 // TODO: We could save some space since we only store 8bits for element
00038 class GDCM_EXPORT PrivateTag : public Tag
00039 {
00040   friend std::ostream& operator«(std::ostream &_os, const PrivateTag &_val);
00041 public:
00042   PrivateTag(uint16_t group = 0, uint16_t element = 0, const char *owner =
      "");:Tag(group,element),Owner(owner ? LOComp::Trim(owner) : "") {
00043     // truncate the high bits
00044     SetElement( (uint8_t)element );
00045   }
00046   PrivateTag( Tag const & t, const char *owner = "");:Tag(t),Owner(owner ? LOComp::Trim(owner) : "") {
00047     // truncate the high bits
00048     SetElement( (uint8_t)t.GetElement());
00049   }
00050
00051   const char *GetOwner() const { return Owner.c_str(); }
00052   void SetOwner(const char *owner) { if(owner) Owner = LOComp::Trim(owner); }
00053
00054   PrivateTag &operator=(const PrivateTag &_val)
00055     {
00056     SetElementTag( _val.GetElementTag() );
00057     Owner = _val.Owner;
00058     return *this;
00059     }
00060
00061   bool operator==(const Tag &_val) const
00062     {
```

```
00063     return GetElementTag() == _val.GetElementTag();
00064     }
00065   bool operator==(const PrivateTag &_val) const
00066     {
00067     return GetElementTag() == _val.GetElementTag() && Owner == _val.Owner;
00068     }
00069   bool operator!=(const Tag &_val) const
00070     {
00071     return GetElementTag() != _val.GetElementTag();
00072     }
00073   bool operator!=(const PrivateTag &_val) const
00074     {
00075     return GetElementTag() != _val.GetElementTag() || Owner != _val.Owner;
00076     }
00077
00078   bool operator<(const PrivateTag &_val) const;
00079
00082   bool ReadFromCommaSeparatedString(const char *str);
00083
00084   DataElement GetAsDataElement() const;
00085
00086 private:
00087   // SIEMENS MED, GEMS_PETD_01 ...
00088   std::string Owner;
00089 };
00090
00091 inline std::ostream& operator«(std::ostream &os, const PrivateTag &val)
00092 {
00093   //gdcm_assert( !val.Owner.empty() );
00094   os.setf( std::ios::right );
00095   os « std::hex « '(' « std::setw( 4 ) « std::setfill( '0' )
00096     « val[0] « ',' « std::setw( 2 ) « std::setfill( '0' )
00097     « val[1] « ',';
00098   os « val.Owner;
00099   os « ')' « std::setfill( ' ' ) « std::dec;
00100   return os;
00101 }
00102
00103 } // end namespace gdcm_ns
00104
00105 #endif //GDCMPRIVATETAG_H
```

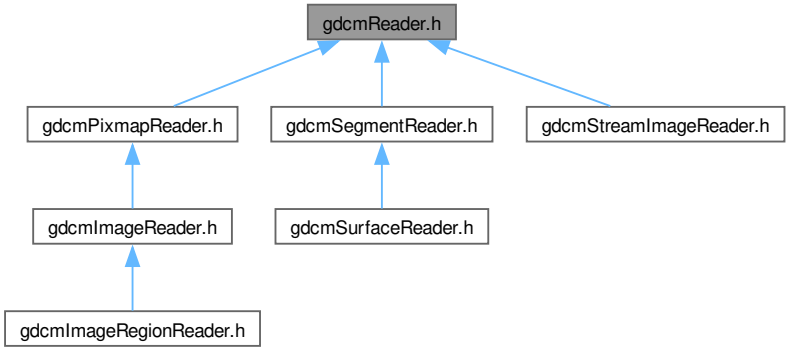
13.169 gdcmReader.h File Reference

```
#include "gdcmFile.h"
#include <fstream>
```

Include dependency graph for gdcmReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Reader

  Reader ala DOM (Document Object Model).

Namespaces

- namespace gdcm

13.170 gdcmReader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMREADER_H
00015 #define GDCMREADER_H
00016
00017 #include "gdcmFile.h"
00018
00019 #include <fstream>
00020
00021 namespace gdcm_ns
00022 {
00023   class StreamImageReader;
00053 class GDCM_EXPORT Reader
00054 {
00055 public:
```

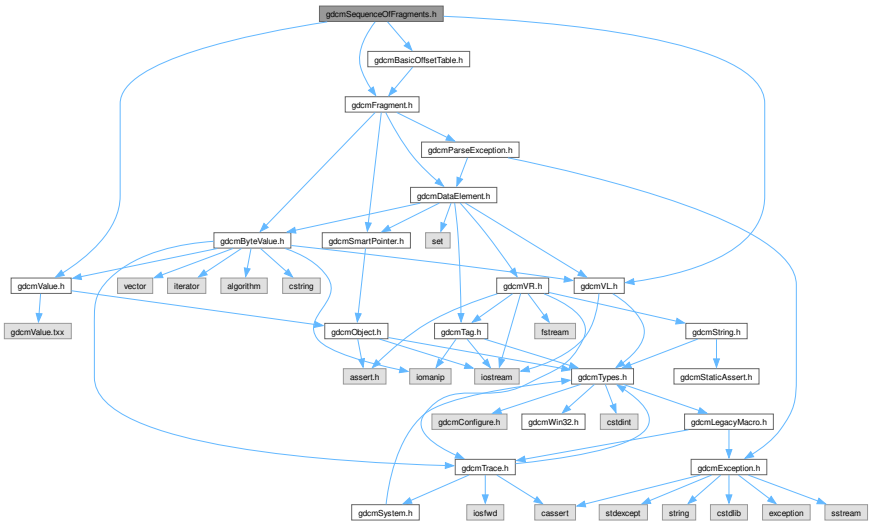
```
00056   Reader();
00057   virtual ~Reader();
00058
00060   virtual bool Read(); // Execute()
00061
00064   void SetFileName(const char *filename_native);
00065
00067   void SetStream(std::istream &input_stream) {
00068     Stream = &input_stream;
00069   }
00070
00072   const File &GetFile() const { return *F; }
00073
00075   File &GetFile() { return *F; }
00076
00078   void SetFile(File& file) { F = &file; }
00079
00082   bool ReadUpToTag(const Tag & tag, std::set<Tag> const & skiptags = std::set<Tag>() );
00083
00085   bool ReadSelectedTags(std::set<Tag> const & tags, bool readvalues = true);
00086
00088   bool ReadSelectedPrivateTags(std::set<PrivateTag> const & ptags, bool readvalues = true);
00089
00092   bool CanRead() const;
00093
00096   size_t GetStreamCurrentPosition() const;
00097
00098 protected:
00099   bool ReadPreamble();
00100   bool ReadMetaInformation();
00101   bool ReadDataSet();
00102
00103   SmartPointer<File> F;
00104
00105   friend class StreamImageReader; //need to be friended to be able to grab the GetStreamPtr
00106
00107   //this function is added for the StreamImageReader, which needs to read
00108   //up to the pixel data and then stops right before reading the pixel data.
00109   //it's used to get that position, so that reading can continue
00110   //apace once the read function is called.
00111   //so, this function gets the stream directly, and then allows for position information
00112   //from the tellg function, and allows for stream/pointer manip in order
00113   //to read the pixel data.  Note, of course, that reading pixel elements
00114   //will still have to be subject to endianness swaps, if necessary.
00115   std::istream* GetStreamPtr() const { return Stream; }
00116
00117 private:
00118   template <typename T_Caller>
00119   bool InternalReadCommon(const T_Caller &caller);
00120   TransferSyntax GuessTransferSyntax();
00121   std::istream *Stream;
00122   std::ifstream *Ifstream;
00123
00124   // prevent copy/move to avoid 2 ifstream leak
00125   Reader(const Reader &) = delete;
00126   Reader &operator=(const Reader &) = delete;
00127   Reader(const Reader &&) = delete;
00128   Reader &operator=(const Reader &&) = delete;
00129 };
00130
00136
00137 } // end namespace gdcm_ns
00138
00139
00140 #endif //GDCMREADER_H
```

13.171 gdcmSequenceOfFragments.h File Reference

```
#include "gdcmValue.h"
#include "gdcmVL.h"
#include "gdcmFragment.h"
```

```
#include "gdcmBasicOffsetTable.h"
```

Include dependency graph for gdcmSequenceOfFragments.h:



Classes

- class gdcm::SequenceOfFragments

  Class to represent a Sequence Of Fragments.

Namespaces

- namespace gdcm

13.172 gdcmSequenceOfFragments.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSEQUENCEOFFRAGMENTS_H
00015 #define GDCMSEQUENCEOFFRAGMENTS_H
00016
00017 #include "gdcmValue.h"
00018 #include "gdcmVL.h"
00019 #include "gdcmFragment.h"
00020 #include "gdcmBasicOffsetTable.h"
```

```
00021
00022 namespace gdcm_ns
00023 {
00024
00025   // FIXME gdcmSequenceOfItems and gdcmSequenceOfFragments
00026   // should be rethink (duplicate code)
00031 class GDCM_EXPORT SequenceOfFragments : public Value
00032 {
00033 public:
00034   // Typdefs:
00035   typedef std::vector<Fragment> FragmentVector;
00036   typedef FragmentVector::size_type SizeType;
00037   typedef FragmentVector::iterator Iterator;
00038   typedef FragmentVector::const_iterator ConstIterator;
00039   Iterator Begin() { return Fragments.begin(); }
00040   Iterator End() { return Fragments.end(); }
00041   ConstIterator Begin() const { return Fragments.begin(); }
00042   ConstIterator End() const { return Fragments.end(); }
00043
00045   SequenceOfFragments():Table(),SequenceLengthField(0xFFFFFFFF) { }
00046
00048   VL GetLength() const override {
00049     return SequenceLengthField;
00050   }
00051
00053   void SetLength(VL length) override {
00054     SequenceLengthField = length;
00055   }
00056
00058   void Clear() override;
00059
00061   void AddFragment(Fragment const &item);
00062
00063   // Compute the length of all fragments (and fragments only!).
00064   // Basically the size of the PixelData as stored (in bytes).
00065   unsigned long ComputeByteLength() const;
00066
00067   // Compute the length of fragments (in bytes)+ length of tag...
00068   // to be used for computation of Group Length
00069   VL ComputeLength() const;
00070
00071   // Get the buffer
00072   bool GetBuffer(char *buffer, unsigned long length) const;
00073   bool GetFragBuffer(unsigned int fragNb, char *buffer, unsigned long &length) const;
00074
00075   SizeType GetNumberOfFragments() const;
00076   const Fragment& GetFragment(SizeType num) const;
00077
00078   // Write the buffer of each fragment (call WriteBuffer on all Fragments, which are
00079   // ByteValue). No Table information is written.
00080   bool WriteBuffer(std::ostream &os) const;
00081
00082   const BasicOffsetTable &GetTable() const { return Table; }
00083   BasicOffsetTable &GetTable() { return Table; }
00084
00085 template <typename TSwap>
00086 std::istream& Read(std::istream &is, bool readvalues = true)
00087 {
00088   gdcm_assert( SequenceLengthField.IsUndefined() );
00089   ReadPreValue<TSwap>(is);
00090   return ReadValue<TSwap>(is, readvalues);
00091 }
00092
00093 template <typename TSwap>
00094 std::istream& ReadPreValue(std::istream &is)
00095 {
00096   // First item is the basic offset table:
00097 #if 0
00098   try
00099     {
00100     Table.Read<TSwap>(is);
00101     gdcmDebugMacro( "Table: " « Table );
00102     }
00103   catch(...)
00104     {
00105     // throw "SIEMENS Icon thingy";
00106     // Bug_Siemens_PrivateIconNoItem.dcm
00107     // First thing first let's rewind
00108     is.seekg(-4, std::ios::cur);
00109     // FF D8 <=> Start of Image (SOI) marker
00110     // FF E0 <=> APP0 Reserved for Application Use
```

```
00111     if ( Table.GetTag() == Tag(0xd8ff,0xe0ff) )
00112       {
00113       Table = BasicOffsetTable(); // clear up stuff
00114       //Table.SetByteValue( "", 0 );
00115       Fragment frag;
00116       if( FillFragmentWithJPEG( frag, is ) )
00117         {
00118         Fragments.push_back( frag );
00119         }
00120       return is;
00121       }
00122     else
00123       {
00124       throw "Catch me if you can";
00125       //gdcm_assert(0);
00126       }
00127     }
00128 #else
00129   Table.Read<TSwap>(is);
00130   gdcmDebugMacro( "Table: " << Table );
00131 #endif
00132   return is;
00133 }
00134
00135 template <typename TSwap>
00136 std::istream& ReadValue(std::istream &is, bool /*readvalues*/)
00137 {
00138   const Tag seqDelItem(0xfffe,0xe0dd);
00139   // not used for now...
00140   Fragment frag;
00141   try
00142     {
00143     while( frag.Read<TSwap>(is) && frag.GetTag() != seqDelItem )
00144       {
00145       //gdcmDebugMacro( "Frag: " << frag );
00146       Fragments.push_back( frag );
00147       }
00148     gdcm_assert( frag.GetTag() == seqDelItem && frag.GetVL() == 0 );
00149     }
00150   catch(Exception &ex)
00151     {
00152     (void)ex;
00153 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00154     // that's ok ! In all cases the whole file was read, because
00155     // Fragment::Read only fail on eof() reached 1.
00156     // SIEMENS-JPEG-CorruptFrag.dcm is more difficult to deal with, we have a
00157     // partial fragment, read we decide to add it anyway to the stack of
00158     // fragments (eof was reached so we need to clear error bit)
00159     if( frag.GetTag() == Tag(0xfffe,0xe000)  )
00160       {
00161       gdcmWarningMacro( "Pixel Data Fragment could be corrupted. Use file at own risk" );
00162       Fragments.push_back( frag );
00163       is.clear(); // clear the error bit
00164       }
00165     // 2. GENESIS_SIGNA-JPEG-CorruptFrag.dcm
00166     else if ( frag.GetTag() == Tag(0xddff,0x00e0) )
00167       {
00168       gdcm_assert( Fragments.size() == 1 );
00169       const ByteValue *bv = Fragments[0].GetByteValue();
00170       gdcm_assert( (unsigned char)bv->GetPointer()[ bv->GetLength() - 1 ] == 0xfe );
00171       // Yes this is an extra copy, this is a bug anyway, go fix YOUR code
00172       Fragments[0].SetByteValue( bv->GetPointer(), bv->GetLength() - 1 );
00173       gdcmWarningMacro( "JPEG Fragment length was declared with an extra byte"
00174         " at the end: stripped !" );
00175       is.clear(); // clear the error bit
00176       }
00177     // 3. LEICA/WSI
00178     else if ( (frag.GetTag().GetGroup() == 0x00ff)
00179       && ((frag.GetTag().GetElement() & 0x00ff) == 0xe0) )
00180       {
00181       // Looks like there is a mess with offset and odd byte array
00182       // We are going first to backtrack one byte back, and then use a
00183       // ReadBacktrack function which in turn may backtrack up to 10 bytes
00184       // backward. This appears to be working on a set of DICOM/WSI files from
00185       // LEICA
00186       gdcmWarningMacro( "Trying to fix the even-but-odd value length bug #1" );
00187       gdcm_assert( Fragments.size() );
00188       const size_t lastf = Fragments.size() - 1;
00189       const ByteValue *bv = Fragments[ lastf ].GetByteValue();
00190       const char *a = bv->GetPointer();
00191       gdcmAssertAlwaysMacro( (unsigned char)a[ bv->GetLength() - 1 ] == 0xfe );
```

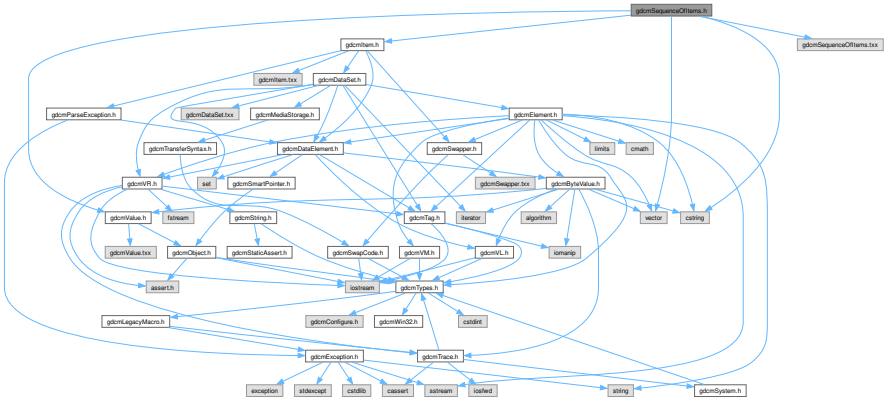
```
00192       Fragments[ lastf ].SetByteValue( bv->GetPointer(), bv->GetLength() - 1 );
00193       is.seekg( -9, std::ios::cur );
00194       gdcm_assert( is.good() );
00195       while( frag.ReadBacktrack<TSwap>(is) && frag.GetTag() != seqDelItem )
00196         {
00197         gdcmDebugMacro( "Frag: " << frag );
00198         Fragments.push_back( frag );
00199         }
00200       gdcm_assert( frag.GetTag() == seqDelItem && frag.GetVL() == 0 );
00201       }
00202     // 4. LEICA/WSI (bis)
00203     else if ( frag.GetTag().GetGroup() == 0xe000 )
00204       {
00205       // Looks like there is a mess with offset and odd byte array
00206       // We are going first to backtrack one byte back, and then use a
00207       // ReadBacktrack function which in turn may backtrack up to 10 bytes
00208       // backward. This appears to be working on a set of DICOM/WSI files from
00209       // LEICA
00210       gdcmWarningMacro( "Trying to fix the even-but-odd value length bug #2" );
00211       gdcm_assert( Fragments.size() );
00212       const size_t lastf = Fragments.size() - 1;
00213       const ByteValue *bv = Fragments[ lastf ].GetByteValue();
00214       const char *a = bv->GetPointer();
00215       gdcmAssertAlwaysMacro( (unsigned char)a[ bv->GetLength() - 2 ] == 0xfe );
00216       Fragments[ lastf ].SetByteValue( bv->GetPointer(), bv->GetLength() - 2 );
00217       is.seekg( -10, std::ios::cur );
00218       gdcm_assert( is.good() );
00219       while( frag.ReadBacktrack<TSwap>(is) && frag.GetTag() != seqDelItem )
00220         {
00221         gdcmDebugMacro( "Frag: " << frag );
00222         Fragments.push_back( frag );
00223         }
00224       gdcm_assert( frag.GetTag() == seqDelItem && frag.GetVL() == 0 );
00225       }
00226     // 5. LEICA/WSI (ter)
00227     else if ( (frag.GetTag().GetGroup() & 0x00ff) == 0x00e0
00228     && (frag.GetTag().GetElement() & 0xff00) == 0x0000 )
00229       {
00230       // Looks like there is a mess with offset and odd byte array
00231       // We are going first to backtrack one byte back, and then use a
00232       // ReadBacktrack function which in turn may backtrack up to 10 bytes
00233       // backward. This appears to be working on a set of DICOM/WSI files from
00234       // LEICA
00235       gdcmWarningMacro( "Trying to fix the even-but-odd value length bug #3" );
00236       gdcm_assert( Fragments.size() );
00237       const size_t lastf = Fragments.size() - 1;
00238       const ByteValue *bv = Fragments[ lastf ].GetByteValue();
00239       const char *a = bv->GetPointer();
00240       gdcmAssertAlwaysMacro( bv->GetLength() >= 3 && (unsigned char)a[ bv->GetLength() - 3 ] == 0xfe );
00241       Fragments[ lastf ].SetByteValue( bv->GetPointer(), bv->GetLength() - 3 );
00242       is.seekg( -11, std::ios::cur );
00243       gdcm_assert( is.good() );
00244       while( frag.ReadBacktrack<TSwap>(is) && frag.GetTag() != seqDelItem )
00245         {
00246         gdcmDebugMacro( "Frag: " << frag );
00247         Fragments.push_back( frag );
00248         }
00249       gdcm_assert( frag.GetTag() == seqDelItem && frag.GetVL() == 0 );
00250       }
00251     else
00252       {
00253       // 3. gdcm-JPEG-LossLess3a.dcm: easy case, an extra tag was found
00254       // instead of terminator (eof is the next char)
00255       gdcmWarningMacro( "Reading failed at Tag:" << frag.GetTag() << " Index #"
00256         << Fragments.size() << " Offset " << is.tellg() << ". Use file at own risk."
00257         << ex.what() );
00258       }
00259 #endif /* GDCM_SUPPORT_BROKEN_IMPLEMENTATION */
00260     }
00261
00262   return is;
00263 }
00264
00265 template <typename TSwap>
00266 std::ostream const &Write(std::ostream &os) const
00267 {
00268   if( !Table.Write<TSwap>(os) )
00269     {
00270     gdcm_assert(0 && "Should not happen");
00271     return os;
00272     }
```

```
00273   for(ConstIterator it = Begin();it != End(); ++it)
00274     {
00275     it->Write<TSwap>(os);
00276     }
00277   // seq del item is not stored, write it !
00278   const Tag seqDelItem(0xfffe,0xe0dd);
00279   seqDelItem.Write<TSwap>(os);
00280   VL zero = 0;
00281   zero.Write<TSwap>(os);
00282
00283   return os;
00284 }
00285
00286 //#if defined(SWIGPYTHON) || defined(SWIGCSHARP) || defined(SWIGJAVA)
00287   // For now leave it there, this does not make sense in the C++ layer
00288   // Create a new object
00289   static SmartPointer<SequenceOfFragments> New()
00290   {
00291      return new SequenceOfFragments();
00292   }
00293 //#endif
00294
00295 protected:
00296 public:
00297   void Print(std::ostream &os) const override {
00298     os « "SQ L= " « SequenceLengthField « "\n";
00299     os « "Table:" « Table « "\n";
00300     for(ConstIterator it = Begin();it != End(); ++it)
00301       {
00302       os « "  " « *it « "\n";
00303       }
00304     gdcm_assert( SequenceLengthField.IsUndefined() );
00305       {
00306       const Tag seqDelItem(0xfffe,0xe0dd);
00307       VL zero = 0;
00308       os « seqDelItem;
00309       os « "\t" « zero;
00310       }
00311   }
00312   bool operator==(const Value &val) const override
00313     {
00314     const SequenceOfFragments &sqf = dynamic_cast<const SequenceOfFragments&>(val);
00315     return Table == sqf.Table &&
00316       SequenceLengthField == sqf.SequenceLengthField &&
00317       Fragments == sqf.Fragments;
00318     }
00319
00320 private:
00321   BasicOffsetTable Table;
00322   VL SequenceLengthField;
00324   FragmentVector Fragments;
00325
00326 private:
00327   bool FillFragmentWithJPEG( Fragment & frag, std::istream & is );
00328 };
00329
00334
00335 } // end namespace gdcm_ns
00336
00337 #endif //GDCMSEQUENCEOFFRAGMENTS_H
```

13.173 gdcmSequenceOfItems.h File Reference

```
#include "gdcmValue.h"
#include "gdcmItem.h"
#include <vector>
#include <cstring>
#include "gdcmSequenceOfItems.txx"
```

Include dependency graph for gdcmSequenceOfItems.h:



Classes

- class gdcm::SequenceOfItems

  Class to represent a Sequence Of Items.

Namespaces

- namespace gdcm

13.174 gdcmSequenceOfItems.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMSEQUENCEOFITEMS_H
00016 #define GDCMSEQUENCEOFITEMS_H
00017
00018 #include "gdcmValue.h"
00019 #include "gdcmItem.h"
00020
00021 #include <vector>
00022 #include <cstring> // strcmp
00023
00024 namespace gdcm_ns
00025 {
00026
00039 class GDCM_EXPORT SequenceOfItems : public Value
00040 {
```

```
00041 public:
00042   // Typdefs:
00043   typedef std::vector< Item > ItemVector;
00044   typedef ItemVector::size_type SizeType;
00045   typedef ItemVector::iterator Iterator;
00046   typedef ItemVector::const_iterator ConstIterator;
00047   Iterator Begin() { return Items.begin(); }
00048   Iterator End() { return Items.end(); }
00049   ConstIterator Begin() const { return Items.begin(); }
00050   ConstIterator End() const { return Items.end(); }
00051
00053   SequenceOfItems():SequenceLengthField(0xFFFFFFFF) { }
00054   //SequenceOfItems(VL const &vl = 0xFFFFFFFF):SequenceLengthField(vl),NType(type) { }
00055
00057   VL GetLength() const override { return SequenceLengthField; }
00059   void SetLength(VL length) override {
00060     SequenceLengthField = length;
00061   }
00063   void SetLengthToUndefined();
00065   bool IsUndefinedLength() const {
00066     return SequenceLengthField.IsUndefined();
00067   }
00068
00069   template <typename TDE>
00070   VL ComputeLength() const;
00071
00073   void Clear() override;
00074
00076   void AddItem(Item const &item);
00077
00079   Item & AddNewUndefinedLengthItem();
00080
00083   bool RemoveItemByIndex( const SizeType index );
00084
00085   bool IsEmpty() const { return Items.empty(); }
00086   SizeType GetNumberOfItems() const {  return Items.size(); }
00087   void SetNumberOfItems(SizeType n) {  Items.resize(n); }
00088
00089   /* WARNING: first item is #1 (see DICOM standard)
00090    *  Each Item shall be implicitly assigned an ordinal position starting with the value 1 for the
00091    * first Item in the Sequence, and incremented by 1 with each subsequent Item. The last Item in the
00092    * Sequence shall have an ordinal position equal to the number of Items in the Sequence.
00093    */
00094   const Item &GetItem(SizeType position) const;
00095   Item &GetItem(SizeType position);
00096
00097   SequenceOfItems &operator=(const SequenceOfItems &val) {
00098     SequenceLengthField = val.SequenceLengthField;
00099     Items = val.Items;
00100     return *this;
00101     }
00102
00103   template <typename TDE, typename TSwap>
00104   std::istream &Read(std::istream &is, bool readvalues = true)
00105     {
00106     (void)readvalues;
00107     const Tag seqDelItem(0xfffe,0xe0dd);
00108     if( SequenceLengthField.IsUndefined() )
00109       {
00110       Item item;
00111       while( item.Read<TDE,TSwap>(is) && item.GetTag() != seqDelItem )
00112         {
00113         //gdcmDebugMacro( "Item: " << item );
00114         gdcm_assert( item.GetTag() != seqDelItem );
00115         Items.push_back( item );
00116         item.Clear();
00117         }
00118       //gdcm_assert( item.GetTag() == seqDelItem && item.GetVL() == 0 );
00119       }
00120     else
00121       {
00122       Item item;
00123       VL l = 0;
00124       //is.seekg( SequenceLengthField, std::ios::cur ); return is;
00125       while( l != SequenceLengthField )
00126         {
00127         try
00128           {
00129           item.Read<TDE,TSwap>(is);
00130           }
00131         catch( Exception &ex )
```

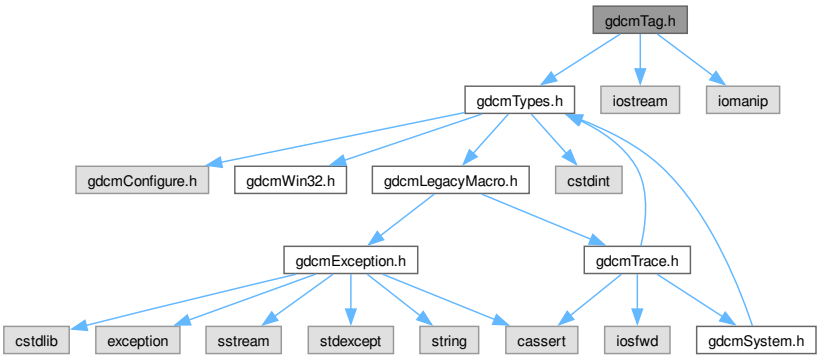
```
00132           {
00133           if( strcmp( ex.GetDescription(), "Changed Length" ) == 0 )
00134             {
00135             VL newlength = l + item.template GetLength<TDE>();
00136             if( newlength > SequenceLengthField )
00137               {
00138               // BogugsItemAndSequenceLength.dcm
00139               gdcmWarningMacro( "SQ length is wrong" );
00140               SequenceLengthField = newlength;
00141               }
00142             }
00143           else
00144             {
00145             throw ex;
00146             }
00147           }
00148 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00149         if( item.GetTag() == seqDelItem )
00150           {
00151           gdcmWarningMacro( "SeqDelItem found in defined length Sequence. Skipping" );
00152           gdcm_assert( item.GetVL() == 0 );
00153           gdcm_assert( item.GetNestedDataSet().Size() == 0 );
00154           // we need to pay attention that the length of the Sequence of Items will be wrong
00155           // this way. Indeed by not adding this item we are changing the size of this sqi
00156           }
00157         else // Not a seq del item marker
00158 #endif
00159           {
00160           // By design we never load them. If we were to load those attribute
00161           // as normal item it would become very complex to convert a sequence
00162           // from defined length to undefined length with the risk to write two
00163           // seq del marker
00164           Items.push_back( item );
00165           }
00166         l += item.template GetLength<TDE>();
00167         if( l > SequenceLengthField )
00168           {
00169           gdcmDebugMacro( "Found: Length of Item larger than expected" );
00170           throw "Length of Item larger than expected";
00171           }
00172         gdcm_assert( l <= SequenceLengthField );
00173         //std::cerr « "sqi debug len: " « is.tellg() « " " «  l « " " «  SequenceLengthField « std::endl;
00174 #ifdef GDCM_SUPPORT_BROKEN_IMPLEMENTATION
00175         // MR_Philips_Intera_No_PrivateSequenceImplicitVR.dcm
00176         // (0x2005, 0x1080): for some reason computation of length fails...
00177         if( SequenceLengthField == 778 && l == 774 )
00178           {
00179           gdcmWarningMacro( "PMS: Super bad hack" );
00180           SequenceLengthField = l;
00181           throw Exception( "Wrong Length" );
00182           //l = SequenceLengthField;
00183           }
00184         // Bug_Philips_ItemTag_3F3F
00185         // (0x2005, 0x1080): Because we do not handle fully the bug at the item
00186         // level we need to check here too
00187         else if ( SequenceLengthField == 444 && l == 3*71 )
00188           {
00189           // This one is a double bug. Item length is wrong and impact SQ length
00190           gdcmWarningMacro( "PMS: Super bad hack" );
00191           l = SequenceLengthField;
00192           }
00193 #endif
00194         }
00195       gdcm_assert( l == SequenceLengthField );
00196       }
00197     return is;
00198     }
00199
00200   template <typename TDE,typename TSwap>
00201   std::ostream const &Write(std::ostream &os) const
00202     {
00203     typename ItemVector::const_iterator it = Items.begin();
00204     for(;it != Items.end(); ++it)
00205       {
00206       it->Write<TDE,TSwap>(os);
00207       }
00208     if( SequenceLengthField.IsUndefined() )
00209       {
00210       // seq del item is not stored, write it !
00211       const Tag seqDelItem(0xfffe,0xe0dd);
00212       seqDelItem.Write<TSwap>(os);
```

```
00213       VL zero = 0;
00214       zero.Write<TSwap>(os);
00215       }
00216
00217     return os;
00218     }
00219
00220 //protected:
00221   void Print(std::ostream &os) const override {
00222     os « "\t(" « SequenceLengthField « ")\n";
00223     ItemVector::const_iterator it =
00224       Items.begin();
00225     for(;it != Items.end(); ++it)
00226       {
00227       os « "  " « *it;
00228       }
00229     if( SequenceLengthField.IsUndefined() )
00230       {
00231       const Tag seqDelItem(0xfffe,0xe0dd);
00232       VL zero = 0;
00233       os « seqDelItem;
00234       os « "\t" « zero;
00235       }
00236   }
00237
00238   static SmartPointer<SequenceOfItems> New()
00239   {
00240      return new SequenceOfItems;
00241   }
00242   bool FindDataElement(const Tag &t) const;
00243
00244   bool operator==(const Value &val) const override
00245     {
00246     const SequenceOfItems &sqi = dynamic_cast<const SequenceOfItems&>(val);
00247     return SequenceLengthField == sqi.SequenceLengthField &&
00248       Items == sqi.Items;
00249     }
00250
00251 private:
00252 public:
00254   VL SequenceLengthField;
00256   ItemVector Items;
00257 };
00258
00259 } // end namespace gdcm_ns
00260
00261 #include "gdcmSequenceOfItems.txx"
00262
00263 #endif //GDCMSEQUENCEOFITEMS_H
```

13.175 gdcmTag.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
#include <iomanip>
```

Include dependency graph for gdcmTag.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Tag

  Class to represent a DICOM Data Element (Attribute) Tag (Group, Element).

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Tag &_val)
- std::istream & gdcm::operator>> (std::istream &_is, Tag &_val)

13.176 gdcmTag.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTAG_H
00015 #define GDCMTAG_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <iostream>
00020 #include <iomanip>
00021
00022 namespace gdcm
00023 {
00024
00038 class GDCM_EXPORT Tag
00039 {
00040 public:
00042   Tag(uint16_t group, uint16_t element) {
00043     ElementTag.tags[0] = group; ElementTag.tags[1] = element;
00044   }
00047   Tag(uint32_t tag = 0) {
00048     SetElementTag(tag);
00049   }
00050
00051   friend std::ostream& operator<<(std::ostream &_os, const Tag &_val);
00052   friend std::istream& operator>>(std::istream &_is, Tag &_val);
00053
00055   uint16_t GetGroup() const { return ElementTag.tags[0]; }
00057   uint16_t GetElement() const { return ElementTag.tags[1]; }
00059   void SetGroup(uint16_t group) { ElementTag.tags[0] = group; }
00061   void SetElement(uint16_t element) { ElementTag.tags[1] = element; }
00063   void SetElementTag(uint16_t group, uint16_t element) {
00064     ElementTag.tags[0] = group; ElementTag.tags[1] = element;
00065   }
00066
00068   uint32_t GetElementTag() const {
00069 #ifndef GDCM_WORDS_BIGENDIAN
00070     return (ElementTag.tag<<16) | (ElementTag.tag>>16);
00071 #else
00072     return ElementTag.tag;
00073 #endif
00074   }
00075
00077   void SetElementTag(uint32_t tag) {
00078 #ifndef GDCM_WORDS_BIGENDIAN
00079     tag = ( (tag<<16) | (tag>>16) );
00080 #endif
00081     ElementTag.tag = tag;
00082   }
00083
00085   const uint16_t &operator[](const unsigned int &_id) const
00086     {
00087     gdcm_assert(_id<2);
00088     return ElementTag.tags[_id];
00089     }
00091   uint16_t &operator[](const unsigned int &_id)
00092     {
00093     gdcm_assert(_id<2);
00094     return ElementTag.tags[_id];
00095     }
00096
00097   Tag &operator=(const Tag &_val)
00098     {
00099     ElementTag.tag = _val.ElementTag.tag;
00100     return *this;
```

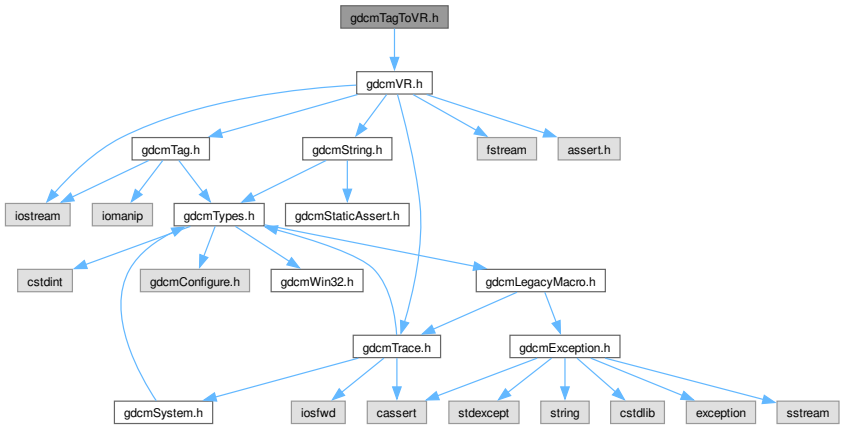
```
00101     }
00102
00103   bool operator==(const Tag &_val) const
00104     {
00105     return ElementTag.tag == _val.ElementTag.tag;
00106     }
00107   bool operator!=(const Tag &_val) const
00108     {
00109     return ElementTag.tag != _val.ElementTag.tag;
00110     }
00111
00114   // FIXME FIXME FIXME TODO
00115   // the following is pretty dumb. Since we have control over who is group
00116   // and who is element, we should reverse them in little endian and big endian case
00117   // since what we really want is fast comparison and not guarantee that group is in #0
00118   // ...
00119   bool operator<(const Tag &_val) const
00120     {
00121 #ifndef GDCM_WORDS_BIGENDIAN
00122     if( ElementTag.tags[0] < _val.ElementTag.tags[0] )
00123       return true;
00124     if( ElementTag.tags[0] == _val.ElementTag.tags[0]
00125       && ElementTag.tags[1] <  _val.ElementTag.tags[1] )
00126       return true;
00127     return false;
00128 #else
00129     // Plain comparison is enough!
00130     return ( ElementTag.tag < _val.ElementTag.tag );
00131 #endif
00132     }
00133   bool operator<=(const Tag &t2) const
00134     {
00135     const Tag &t1 = *this;
00136     return t1 == t2 || t1 < t2;
00137     }
00138
00139   Tag(const Tag &_val)
00140     {
00141     ElementTag.tag = _val.ElementTag.tag;
00142     }
00144   uint32_t GetLength() const { return 4; }
00145
00150   bool IsPublic() const { return !(ElementTag.tags[0] % 2); }
00151
00155   bool IsPrivate() const { return !IsPublic(); }
00156
00157   //-----------------------------------------------------------------------------
00159   template <typename TSwap>
00160   std::istream &Read(std::istream &is)
00161     {
00162     if( is.read(ElementTag.bytes, 4) )
00163       TSwap::SwapArray(ElementTag.tags, 2);
00164     return is;
00165     }
00166
00168   template <typename TSwap>
00169   const std::ostream &Write(std::ostream &os) const
00170     {
00171     uint16_t copy[2];
00172     copy[0]= ElementTag.tags[0];
00173     copy[1]= ElementTag.tags[1];
00174     TSwap::SwapArray(copy, 2);
00175     return os.write((char*)(&copy), 4);
00176     }
00177
00179   Tag GetPrivateCreator() const
00180     {
00181     // See PS 3.5 - 7.8.1 PRIVATE DATA ELEMENT TAGS
00182     // eg: 0x0123,0x1425 -> 0x0123,0x0014
00183     if( IsPrivate() && !IsPrivateCreator() )
00184       {
00185       Tag r = *this;
00186       r.SetElement( (uint16_t)(GetElement() » 8) );
00187       return r;
00188       }
00189     if( IsPrivateCreator() ) return *this;
00190     return Tag(0x0,0x0);
00191     }
00193   void SetPrivateCreator(Tag const &t)
00194     {
00195     // See PS 3.5 - 7.8.1 PRIVATE DATA ELEMENT TAGS
```

```
00196     // eg: 0x0123,0x0045 -> 0x0123,0x4567
00197     gdcm_assert( t.IsPrivate() /*&& t.IsPrivateCreator()*/ );
00198     const uint16_t element = (uint16_t)(t.GetElement() << 8);
00199     const uint16_t base = (uint16_t)(GetElement() << 8);
00200     SetElement( (uint16_t)((base >> 8) + element) );
00201     SetGroup( t.GetGroup() );
00202     }
00203
00206   bool IsPrivateCreator() const
00207     {
00208     return IsPrivate() && (GetElement() <= 0xFF && GetElement() >= 0x10);
00209     }
00210
00212   bool IsIllegal() const
00213     {
00214     // DICOM reserved those groups:
00215     return GetGroup() == 0x0001 || GetGroup() == 0x0003 || GetGroup() == 0x0005 || GetGroup() == 0x0007
00216     // This is a very special case, in private group, one cannot use element [0x01,0x09] ...
00217 //      || (IsPrivate() && !IsPrivateCreator() && !IsGroupLength());
00218       || (IsPrivate() && GetElement() > 0x0 && GetElement() < 0x10 );
00219     }
00220
00222   bool IsGroupLength() const
00223     {
00224     return GetElement() == 0x0;
00225     }
00226
00228   bool IsGroupXX(const Tag &t) const
00229     {
00230     if( t.GetElement() == GetElement() )
00231       {
00232       if( t.IsPrivate() ) return false;
00233       uint16_t group = (uint16_t)((GetGroup() >> 8 ) << 8);
00234       return group == t.GetGroup();
00235       }
00236     return false;
00237     }
00238
00244   bool ReadFromCommaSeparatedString(const char *str);
00245
00248   bool ReadFromContinuousString(const char *str);
00249
00252   std::string PrintAsContinuousString() const;
00253
00255   std::string PrintAsContinuousUpperCaseString() const;
00256
00259   bool ReadFromPipeSeparatedString(const char *str);
00260
00263   std::string PrintAsPipeSeparatedString() const;
00264
00265 private:
00266   union { uint32_t tag; uint16_t tags[2]; char bytes[4]; } ElementTag;
00267 };
00268 //-----------------------------------------------------------------------------
00269 inline std::istream& operator>>(std::istream &_is, Tag &_val)
00270 {
00271   char c;
00272   _is >> c;
00273   uint16_t a, b;
00274   _is >> std::hex >> a;
00275   //_is >> std::hex >> _val[0];
00276   //_is >> std::hex >> _val.ElementTag.tags[0];
00277   _is >> c;
00278   //_is >> _val[1];
00279   //_is >> std::hex >> _val.ElementTag.tags[1];
00280   _is >> std::hex >> b;
00281   _is >> c;
00282   _val.SetGroup( a );
00283   _val.SetElement( b );
00284   return _is;
00285 }
00286
00287 inline std::ostream& operator<<(std::ostream &_os, const Tag &_val)
00288 {
00289   _os.setf( std::ios::right);
00290   _os << std::hex << '(' << std::setw( 4 ) << std::setfill( '0' )
00291     << _val[0] << ',' << std::setw( 4 ) << std::setfill( '0' )
00292     << _val[1] << ')' << std::setfill( ' ' ) << std::dec;
00293   return _os;
00294 }
00295
```

```
00296 } // end namespace gdcm
00297
00298 #endif //GDCMTAG_H
```

13.177 gdcmTagToVR.h File Reference

`#include "gdcmVR.h"`
Include dependency graph for gdcmTagToVR.h:



Namespaces

- namespace gdcm

Functions

- VR::VRType gdcm::GetVRFromTag (Tag const &tag)

13.178 gdcmTagToVR.h

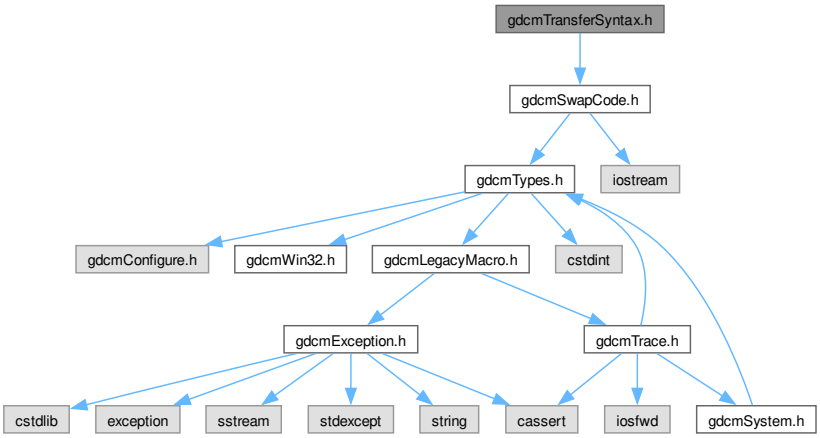
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
```

```
00014 #ifndef GDCMTAGTOVR_H
00015 #define GDCMTAGTOVR_H
00016
00017 #include "gdcmVR.h"
00018
00019 namespace gdcm
00020 {
00021   class Tag;
00022   VR::VRType GetVRFromTag( Tag const & tag );
00023 }
00024
00025 #endif // GDCMTAGTOVR_H
```

13.179 gdcmTransferSyntax.h File Reference

`#include "gdcmSwapCode.h"`
Include dependency graph for gdcmTransferSyntax.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::TransferSyntax

  Class to manipulate Transfer Syntax.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const TransferSyntax &ts)

13.180 gdcmTransferSyntax.h

Go to the documentation of this file.

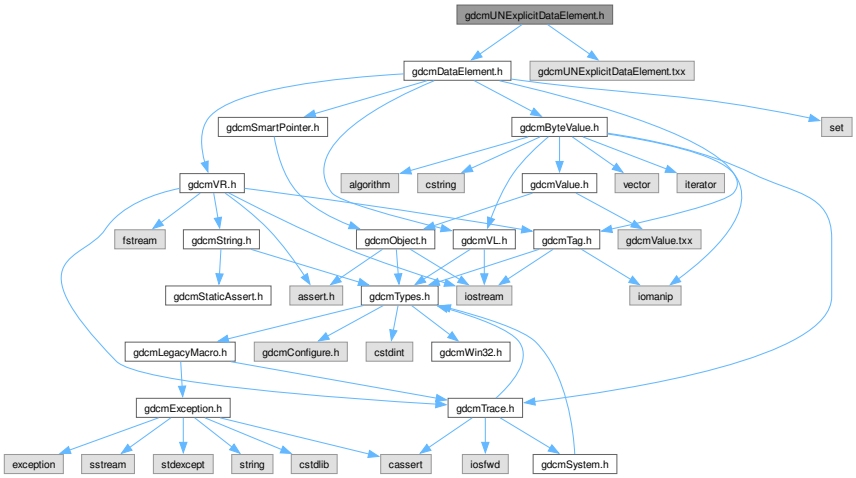
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTRANSFERSYNTAX_H
00015 #define GDCMTRANSFERSYNTAX_H
00016
00017 #include "gdcmSwapCode.h"
00018
00019 namespace gdcm
00020 {
00021
00039 class GDCM_EXPORT TransferSyntax
00040 {
00041 public:
00042   typedef enum {
00043     Unknown = 0,
00044     Explicit,
00045     Implicit
00046   } NegociatedType;
00047
00048 #if 0
00049   //NOT FLEXIBLE, since forces user to update lib every time new module
00050   //comes out...
00051   // TODO
00052   typedef enum {
00053     NoSpacing = 0,
00054     PixelSpacing,
00055     ImagerPixelSpacing,
00056     PixelAspectRatio
00057   } ImageSpacingType;
00058   ImageSpacingType GetImageSpacing();
00059 #endif
00060
00061   typedef enum {
00062     ImplicitVRLittleEndian = 0,
00063     ImplicitVRBigEndianPrivateGE,
00064     ExplicitVRLittleEndian,
00065     DeflatedExplicitVRLittleEndian,
00066     ExplicitVRBigEndian,
00067     JPEGBaselineProcess1,
00068     JPEGExtendedProcess2_4,
00069     JPEGExtendedProcess3_5,
00070     JPEGSpectralSelectionProcess6_8,
00071     JPEGFullProgressionProcess10_12,
00072     JPEGLosslessProcess14,
00073     JPEGLosslessProcess14_1,
00074     JPEGLSLossless,
00075     JPEGLSNearLossless,
00076     JPEG2000Lossless,
00077     JPEG2000,
00078     JPEG2000Part2Lossless,
00079     JPEG2000Part2,
00080     RLELossless,
00081     MPEG2MainProfile,
00082     ImplicitVRBigEndianACRNEMA,
00083     WeirdPapryus,
```

```
00084     CT_private_ELE,
00085     JPIPReferenced,
00086     MPEG2MainProfileHighLevel,
00087     MPEG4AVCH264HighProfileLevel4_1,
00088     MPEG4AVCH264BDcompatibleHighProfileLevel4_1,
00089     HTJ2KLossless,
00090     HTJ2KRPCLLossless,
00091     HTJ2K,
00092     DeflatedImageFrameCompression,
00093     TS_END
00094   } TSType;
00095
00096   // Return the string as written in the official DICOM dict from
00097   // a custom enum type
00098   static const char* GetTSString(TSType ts);
00099   static TSType GetTSType(const char *str);
00100
00101   NegociatedType GetNegociatedType() const;
00102
00106   SwapCode GetSwapCode() const;
00107
00108   bool IsValid() const { return TSField != TS_END; }
00109
00110   operator TSType () const { return TSField; }
00111
00112   // FIXME: ImplicitVRLittleEndian used to be the default, but nowadays
00113   // this is rather the ExplicitVRLittleEndian instead...should be change the default ?
00114   TransferSyntax(TSType type = ImplicitVRLittleEndian):TSField(type) {}
00115
00116   // return if dataset is encoded or not (Deflate Explicit VR)
00117   bool IsEncoded() const;
00118
00119   bool IsImplicit() const;
00120   bool IsExplicit() const;
00121
00122   bool IsEncapsulated() const;
00123
00125   bool IsLossy() const;
00127   bool IsLossless() const;
00129   bool CanStoreLossy() const;
00130
00131   const char *GetString() const { return TransferSyntax::GetTSString(TSField); }
00132
00133   friend std::ostream &operator<<(std::ostream &os, const TransferSyntax &ts);
00134 private:
00135   // DO NOT EXPOSE the following. Internal details of TransferSyntax
00136 bool IsImplicit(TSType ts) const;
00137 bool IsExplicit(TSType ts) const;
00138 bool IsLittleEndian(TSType ts) const;
00139 bool IsBigEndian(TSType ts) const;
00140
00141   TSType TSField;
00142 };
00143 //-----------------------------------------------------------------------------
00144 inline std::ostream &operator<<(std::ostream &_os, const TransferSyntax &ts)
00145 {
00146   _os << TransferSyntax::GetTSString(ts);
00147   return _os;
00148
00149 }
00150
00151 } // end namespace gdcm
00152
00153 #endif //GDCMTRANSFERSYNTAX_H
```

13.181 gdcmUNExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmUNExplicitDataElement.txx"
```

Include dependency graph for gdcmUNExplicitDataElement.h:



Classes

- class gdcm::UNExplicitDataElement

  Class to read/write a DataElement as UNExplicit Data Element.

Namespaces

- namespace gdcm

13.182 gdcmUNExplicitDataElement.h

Go to the documentation of this file.

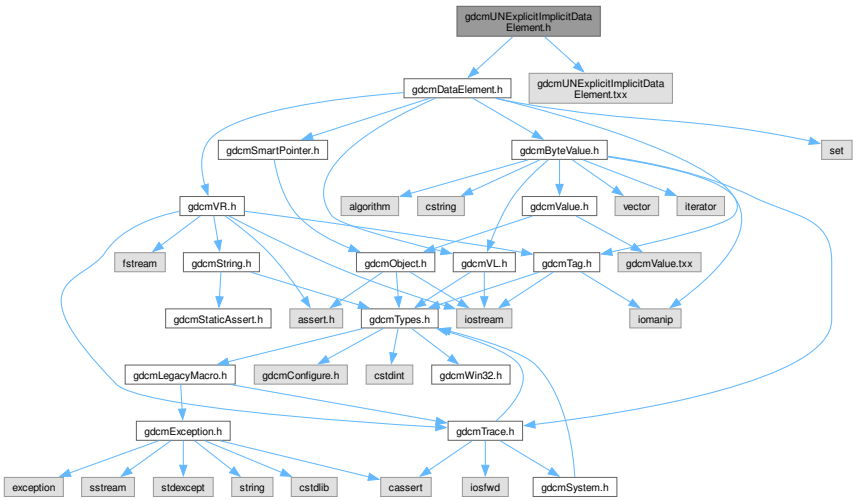
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUNEXPLICITDATAELEMENT_H
00015 #define GDCMUNEXPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm
00020 {
00021 // Data Element (UNExplicit)
00026 class GDCM_EXPORT UNExplicitDataElement : public DataElement
00027 {
```

```
00028 public:
00029   VL GetLength() const;
00030
00031   template <typename TSwap>
00032   std::istream &Read(std::istream &is);
00033
00034   template <typename TSwap>
00035   std::istream &ReadPreValue(std::istream &is);
00036
00037   template <typename TSwap>
00038   std::istream &ReadValue(std::istream &is, bool readvalues = true);
00039
00040   template <typename TSwap>
00041   std::istream &ReadWithLength(std::istream &is, VL & length);
00042
00043   // PURPOSELY do not provide an implementation for writing !
00044   //template <typename TSwap>
00045   //const std::ostream &Write(std::ostream &os) const;
00046 };
00047
00048 } // end namespace gdcm
00049
00050 #include "gdcmUNExplicitDataElement.txx"
00051
00052 #endif //GDCMUNEXPLICITDATAELEMENT_H
```

13.183 gdcmUNExplicitImplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmUNExplicitImplicitDataElement.txx"
```

Include dependency graph for gdcmUNExplicitImplicitDataElement.h:



Classes

- class gdcm::UNExplicitImplicitDataElement

  Class to read/write a DataElement as ExplicitImplicit Data Element.

Namespaces

- namespace gdcm

13.184 gdcmUNExplicitImplicitDataElement.h

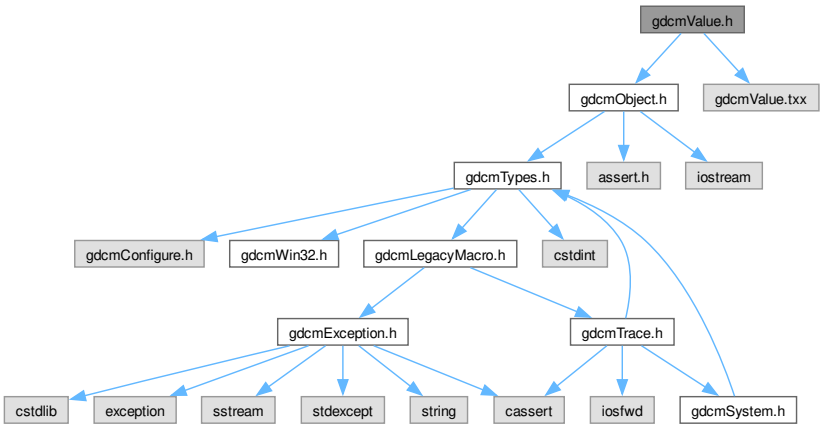
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUNEXPLICITIMPLICITDATAELEMENT_H
00015 #define GDCMUNEXPLICITIMPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm
00020 {
00021 // Data Element (ExplicitImplicit)
00032 class GDCM_EXPORT UNExplicitImplicitDataElement : public DataElement
00033 {
00034 public:
00035   VL GetLength() const;
00036
00037   template <typename TSwap>
00038   std::istream &Read(std::istream &is);
00039
00040   template <typename TSwap>
00041   std::istream &ReadPreValue(std::istream &is);
00042
00043   template <typename TSwap>
00044   std::istream &ReadValue(std::istream &is);
00045
00046   // PURPOSELY do not provide an implementation for writing !
00047   //template <typename TSwap>
00048   //const std::ostream &Write(std::ostream &os) const;
00049 };
00050
00051 } // end namespace gdcm
00052
00053 #include "gdcmUNExplicitImplicitDataElement.txx"
00054
00055 #endif //GDCMUNEXPLICITIMPLICITDATAELEMENT_H
```

13.185 gdcmValue.h File Reference

```
#include "gdcmObject.h"
#include "gdcmValue.txx"
```

Include dependency graph for gdcmValue.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::Value

  Class to represent the value of a Data Element.

Namespaces

- namespace gdcm

13.186 gdcmValue.h

Go to the documentation of this file.

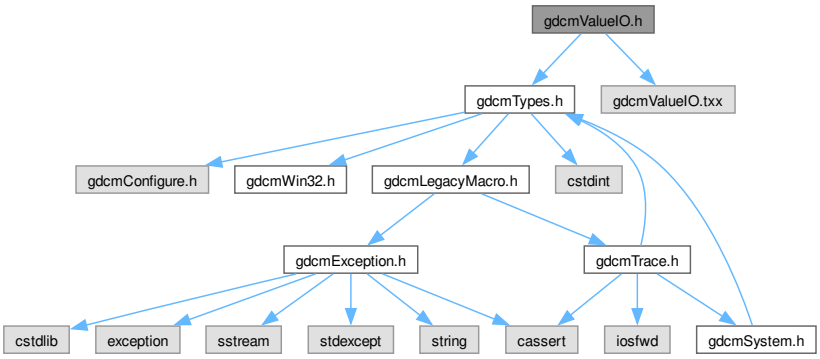
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
```

```
00012
00013 =========================================================================*/
00014 #ifndef GDCMVALUE_H
00015 #define GDCMVALUE_H
00016
00017 #include "gdcmObject.h"
00018
00019 namespace gdcm { class VL; }
00020 namespace gdcm_ns
00021 {
00022 #if !defined(SWIGPYTHON) && !defined(SWIGCSHARP) && !defined(SWIGJAVA) && !defined(SWIGPHP)
00023 using namespace gdcm;
00024 #endif
00031 class GDCM_EXPORT Value : public Object
00032 {
00033 public:
00034   Value() = default;
00035   ~Value() override = default;
00036
00037   virtual VL GetLength() const = 0;
00038   virtual void SetLength(VL l) = 0;
00039
00040   virtual void Clear() = 0;
00041
00042   virtual bool operator==(const Value &val) const = 0;
00043
00044 protected:
00045   friend class DataElement;
00046   virtual void SetLengthOnly(VL l);
00047 };
00048
00049 } // end namespace gdcm_ns
00050
00051 #include "gdcmValue.txx"
00052
00053 #endif //GDCMVALUE_H
```

13.187 gdcmValueIO.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmValueIO.txx"
```

Include dependency graph for gdcmValueIO.h:



Classes

- class gdcm::ValueIO< TDE, TSwap, TType >

  Class to dispatch template calls.

Namespaces

- namespace gdcm

13.188 gdcmValueIO.h

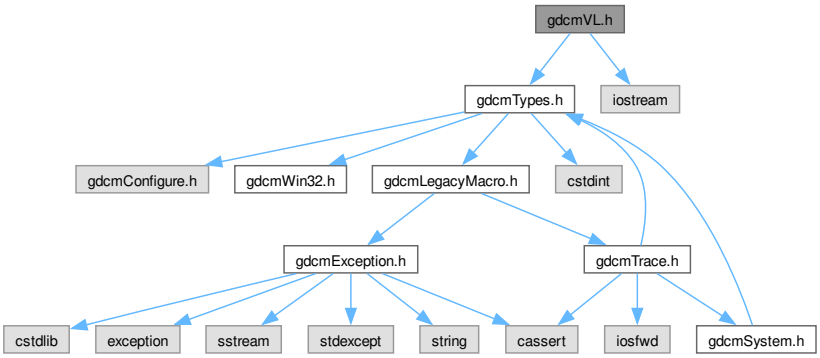
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVALUEIO_H
00015 #define GDCMVALUEIO_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm_ns
00020 {
00024 template <typename TDE, typename TSwap, typename TType=uint8_t>
00025 class /*GDCM_EXPORT*/ ValueIO
00026 {
00027 public:
00028   static std::istream &Read(std::istream &is, Value& v, bool readvalues);
00029
00030   static const std::ostream &Write(std::ostream &os, const Value& v);
00031 };
00032
00033 } // end namespace gdcm_ns
00034
00035 #include "gdcmValueIO.txx"
00036
00037 #endif //GDCMVALUEIO_H
```

13.189 gdcmVL.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmVL.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::VL
  Value *Length.*

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const VL &val)

13.190 gdcmVL.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
```

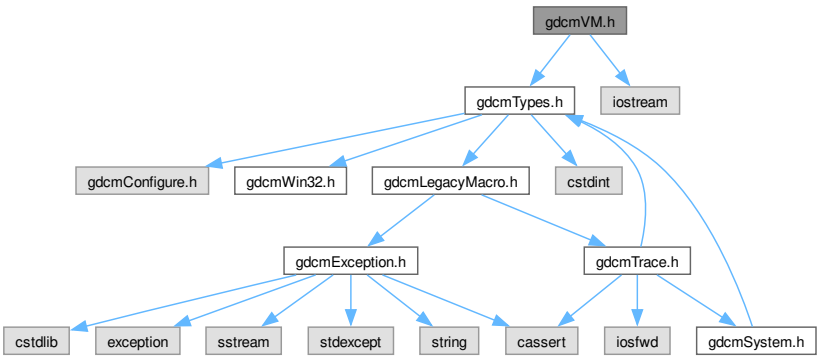
```
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVL_H
00015 #define GDCMVL_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <iostream>
00020
00021 namespace gdcm
00022 {
00023
00029 class GDCM_EXPORT VL
00030 {
00031 public:
00032   typedef uint32_t Type;
00033   VL(uint32_t vl = 0) : ValueLength(vl) { }
00034
00035   // FIXME: ugly
00036   static uint32_t GetVL32Max() { return 0xFFFFFFFF; }
00037   static uint16_t GetVL16Max() { return 0xFFFF; }
00038
00039   bool IsUndefined() const {
00040     return ValueLength == 0xFFFFFFFF;
00041   }
00042   void SetToUndefined() {
00043     ValueLength = 0xFFFFFFFF;
00044   }
00045
00047   bool IsOdd() const {
00048     return !IsUndefined() && ValueLength % 2;
00049   }
00050
00052   VL& operator+=(VL const &vl) {
00053     ValueLength += vl.ValueLength;
00054     return *this;
00055   }
00056   VL& operator++() {
00057     ++ValueLength;
00058     return *this;
00059   }
00060   VL operator++(int) {
00061     uint32_t tmp(ValueLength);
00062     ++ValueLength;
00063     return tmp;
00064   }
00065
00066   operator uint32_t () const { return ValueLength; }
00067
00068   VL GetLength() const {
00069     // VL cannot know it's length...well in implicit yes...
00070     // TODO: need to check we cannot call this function from an Explicit element
00071     return 4;
00072   }
00073
00074   friend std::ostream& operator<<(std::ostream& os, const VL& vl);
00075
00076   // PURPOSELY not implemented (could not differentiate 16bits vs 32bits VL)
00077   //friend std::istream& operator>>(std::istream& is, VL& n);
00078
00079   template <typename TSwap>
00080   std::istream &Read(std::istream &is)
00081     {
00082     is.read((char*)(&ValueLength), sizeof(uint32_t));
00083     TSwap::SwapArray(&ValueLength,1);
00084     return is;
00085     }
00086
00087   template <typename TSwap>
00088   std::istream &Read16(std::istream &is)
00089     {
00090     uint16_t copy;
00091     is.read((char*)(&copy), sizeof(uint16_t));
00092     TSwap::SwapArray(&copy,1);
00093     ValueLength = copy;
00094     gdcm_assert( ValueLength <=  65535 /*UINT16_MAX*/ ); // ?? doh !
```

```
00095     return is;
00096     }
00097
00098   template <typename TSwap>
00099   const std::ostream &Write(std::ostream &os) const
00100     {
00101     uint32_t copy = ValueLength;
00102     if( IsOdd() )
00103       {
00104       ++copy;
00105       }
00106     TSwap::SwapArray(&copy,1);
00107     return os.write((char*)(&copy), sizeof(uint32_t));
00108     }
00109
00110   template <typename TSwap>
00111   const std::ostream &Write16(std::ostream &os) const
00112     {
00113     gdcm_assert( ValueLength <=   65535 /*UINT16_MAX*/ );
00114     uint16_t copy = (uint16_t)ValueLength;
00115     if( IsOdd() )
00116       {
00117       ++copy;
00118       }
00119     TSwap::SwapArray(&copy,1);
00120     return os.write((char*)(&copy), sizeof(uint16_t));
00121     }
00122
00123 private:
00124   uint32_t ValueLength;
00125 };
00126 //-----------------------------------------------------------------------------
00127 inline std::ostream& operator«(std::ostream& os, const VL& val)
00128 {
00129   os « /*std::hex «*/ val.ValueLength;
00130   return os;
00131 }
00132
00133 } // end namespace gdcm
00134
00135 #endif //GDCMVL_H
```

13.191 gdcmVM.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmVM.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::VM

  Value *Multiplicity Looking at the DICOMV3 dict only there is very few cases: 1 2 3 4 5 6 8 16 24 1-2 1-3 1-8 1-32 1-99 1-n 2-2n 2-n 3-3n 3-n.*

Namespaces

- namespace gdcm

Macros

- #define TYPETOLENGTH(type, length)

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const VM &_val)

13.191.1 Macro Definition Documentation

13.191.1.1 TYPETOLENGTH

```
#define TYPETOLENGTH(
              type,
              length)
```

Value:

```
template<> struct VMToLength<VM::type> \
{ enum { Length = length }; };
```

13.192 gdcmVM.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVM_H
00015 #define GDCMVM_H
00016
00017 #include "gdcmTypes.h"
00018 #include <iostream>
00019
00020 namespace gdcm
00021 {
00022
00067 class GDCM_EXPORT VM
00068 {
00069 public:
00070   typedef enum {
00071     VM0 = 0, // aka the invalid VM
00072     VM1 = 1,
00073     VM2 = 2,
00074     VM3 = 4,
00075     VM4 = 8,
00076     VM5 = 16,
00077     VM6 = 32,
00078     VM8 = 64,
00079     VM9 = 128,
00080     VM10 = 256,
00081     VM12 = 512, //1024,
00082     VM16 = 1024, //2048,
00083     VM18 = 2048, //4096,
00084     VM24 = 4096, //8192,
00085     VM28 = 8192, //16384,
00086     VM32 = 16384, //32768,
00087     VM35 = 32768, //65536,
00088     VM99 = 65536, //131072,
00089     VM256 = 131072, //262144,
00090     VM1_2  = VM1 | VM2,
00091     VM1_3  = VM1 | VM2 | VM3,
00092     VM1_4  = VM1 | VM2 | VM3 | VM4,
00093     VM1_5  = VM1 | VM2 | VM3 | VM4 | VM5,
00094     VM1_8  = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8,
00095 // The following need some work:
00096     VM1_32 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32,
00097     VM1_99 = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99,
00098     VM1_n  = VM1 | VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256,
00099     VM2_2n =       VM2       | VM4       | VM6 | VM8       | VM16 | VM24 | VM32       | VM256,
00100     VM2_n  =       VM2 | VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256,
00101     VM3_4  =             VM3 | VM4,
00102     VM3_3n =             VM3 |             VM6       | VM9       | VM24       | VM99 | VM256,
00103     VM3_n  =             VM3 | VM4 | VM5 | VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256,
00104     VM4_4n =                   VM4                         | VM16 | VM24 | VM32       | VM256,
00105     VM6_6n =                               VM6             | VM12 | VM18 | VM24             ,
00106     VM6_n  =                               VM6 | VM8 | VM9 | VM16 | VM24 | VM32 | VM99 | VM256,
00107     VM7_7n,
00108     VM30_30n,
00109     VM47_47n,
00110     VM_END = VM1_n + 1  // Custom tag to count number of entry
00111   } VMType;
00112
00115   static const char* GetVMString(VMType vm);
00116   static VMType GetVMType(const char *vm);
00117
00120   static bool IsValid(int vm1, VMType vm2);
00121   //bool IsValid() { return VMField != VM0 && VMField < VM_END; }
00122
00126   bool Compatible(VM const &vm) const;
```

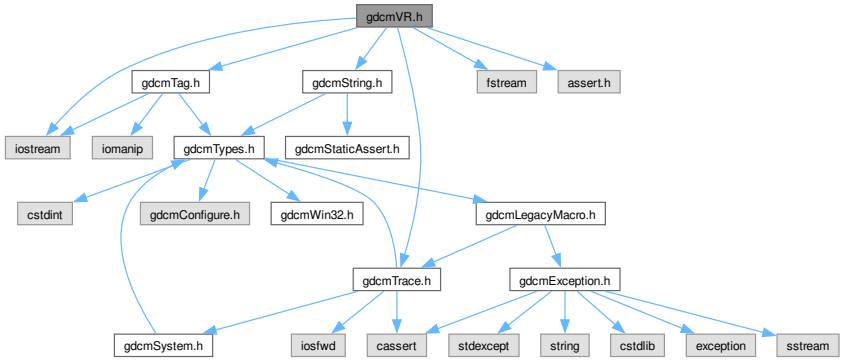
```
00127
00129   static VMType GetVMTypeFromLength(size_t length, unsigned int size);
00130   static size_t GetNumberOfElementsFromArray(const char *array, size_t length);
00131
00132   VM(VMType type = VM0):VMField(type) {}
00133   operator VMType () const { return VMField; }
00134   unsigned int GetLength() const;
00135
00136   friend std::ostream &operator«(std::ostream &os, const VM &vm);
00137 protected:
00138   static unsigned int GetIndex(VMType vm);
00139
00140 private:
00141   VMType VMField;
00142 };
00143 //-----------------------------------------------------------------------------
00144 inline std::ostream& operator«(std::ostream& _os, const VM &_val)
00145 {
00146   gdcm_assert( VM::GetVMString(_val) );
00147   _os « VM::GetVMString(_val);
00148   return _os;
00149 }
00150
00151 //template <int TVM> struct LengthToVM;
00152 //template <> struct LengthToVM<1>
00153 //{ enum { TVM = VM::VM1 }; };
00154
00155 template<int T> struct VMToLength;
00156 #define TYPETOLENGTH(type,length) \
00157   template<> struct VMToLength<VM::type> \
00158   { enum { Length = length }; };
00159 // TODO: Could be generated from XML file
00160 //TYPETOLENGTH(VM0,1)
00161 TYPETOLENGTH(VM1,1)
00162 TYPETOLENGTH(VM2,2)
00163 TYPETOLENGTH(VM3,3)
00164 TYPETOLENGTH(VM4,4)
00165 TYPETOLENGTH(VM5,5)
00166 TYPETOLENGTH(VM6,6)
00167 TYPETOLENGTH(VM8,8)
00168 TYPETOLENGTH(VM9,9)
00169 TYPETOLENGTH(VM10,10)
00170 TYPETOLENGTH(VM12,12)
00171 TYPETOLENGTH(VM16,16)
00172 TYPETOLENGTH(VM18,18)
00173 TYPETOLENGTH(VM24,24)
00174 TYPETOLENGTH(VM28,28)
00175 TYPETOLENGTH(VM32,32)
00176 TYPETOLENGTH(VM35,35)
00177 TYPETOLENGTH(VM99,99)
00178 TYPETOLENGTH(VM256,256)
00179 //TYPETOLENGTH(VM1_2,2)
00180 //TYPETOLENGTH(VM1_3,3)
00181 //TYPETOLENGTH(VM1_8,8)
00182 //TYPETOLENGTH(VM1_32,32)
00183 //TYPETOLENGTH(VM1_99,99)
00184 //TYPETOLENGTH(VM1_n,
00185 //TYPETOLENGTH(VM2_2n,
00186 //TYPETOLENGTH(VM2_n,
00187 //TYPETOLENGTH(VM3_3n,
00188 //TYPETOLENGTH(VM3_n,
00189
00190 } // end namespace gdcm
00191
00192 #endif //GDCMVM_H
```

13.193 gdcmVR.h File Reference

```
#include "gdcmTag.h"
#include "gdcmTrace.h"
#include "gdcmString.h"
#include <iostream>
#include <fstream>
```

```
#include <assert.h>
```

Include dependency graph for gdcmVR.h:



This graph shows which files directly or indirectly include this file:

Classes

- struct gdcm::UI
- class gdcm::VR

  VR class.

Namespaces

- namespace gdcm

Macros

- #define TYPETOENCODING(type, rep, rtype)
- #define VRTypeTemplateCase(type)

Typedefs

- typedef String<'\\', 16 > gdcm::AEComp
- typedef String<'\\', 64 > gdcm::ASComp
- typedef String<'\\', 16 > gdcm::CSComp
- typedef String<'\\', 64 > gdcm::DAComp
- typedef String<'\\', 64 > gdcm::DTComp
- typedef String<'\\', 64 > gdcm::LOComp
- typedef String<'\\', 64 > gdcm::LTComp
- typedef String<'\\', 64 > gdcm::PNComp
- typedef String<'\\', 64 > gdcm::SHComp
- typedef String<'\\', 64 > gdcm::STComp
- typedef String<'\\', 16 > gdcm::TMComp
- typedef String<'\\', 4294967294 > gdcm::UCComp
- typedef String<'\\', 64, 0 > gdcm::UIComp
- typedef String<'\\', 4294967294 > gdcm::URComp
- typedef String<'\\', 64 > gdcm::UTComp

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const UI &_val)
- std::ostream & gdcm::operator<< (std::ostream &_os, const VR &val)

13.193.1 Macro Definition Documentation

13.193.1.1 TYPETOENCODING

```
#define TYPETOENCODING(
              type,
              rep,
              rtype)
```

Value:

```
template<> struct VRToEncoding<VR::type>    \
{ enum:long long { Mode = VR::rep }; };              \
template<> struct VRToType<VR::type>        \
{ typedef rtype Type; };
```

13.193.1.2 VRTypeTemplateCase

```
#define VRTypeTemplateCase(
              type)
```

Value:

```
case VR::type: \
  return sizeof ( VRToType<VR::type>::Type );
```

Referenced by gdcm::VR::GetSize().

13.194 gdcmVR.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVR_H
00015 #define GDCMVR_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmTrace.h"
00019 #include "gdcmString.h"
00020
00021 #include <iostream>
00022 #include <fstream>
00023 #include <assert.h>
00024
00025 //these defines are here to ensure compilation on sunos gcc
00026 #if defined (CS)
00027 # undef CS
00028 #endif
00029 #if defined (DS)
00030 # undef DS
00031 #endif
00032 #if defined (SS)
00033 # undef SS
00034 #endif
00035
00036
00037 namespace gdcm
00038 {
00039
00054 class GDCM_EXPORT VR
00055 {
00056 public:
00057   enum VRType : long long {
00058     // Warning: Do not write if ( vr & VR::INVALID ) but if ( vr == VR::INVALID )
00059     INVALID = 0, // For Item/(Seq) Item Delimitation Item
00060     AE = 1,
00061     AS = 2,
00062     AT = 4,
00063     CS = 8,
00064     DA = 16,
00065     DS = 32,
00066     DT = 64,
00067     FD = 128,
00068     FL = 256,
00069     IS = 512,
00070     LO = 1024,
00071     LT = 2048,
00072     OB = 4096,
00073     OD = 134217728, // 2^27
00074     OF = 8192,
00075     OL = 268435456, // 2^28
00076     OV = 2147483648, // 2^31
00077     OW = 16384,
00078     PN = 32768,
00079     SH = 65536,
00080     SL = 131072,
00081     SQ = 262144,
00082     SS = 524288,
00083     ST = 1048576,
00084     SV = 4294967296, // 2^32
00085     TM = 2097152,
00086     UC = 536870912, // 2^29
00087     UI = 4194304,
00088     UL = 8388608,
00089     UN = 16777216,
```

```
00090     UR = 1073741824, // 2^30
00091     US = 33554432,
00092     UT = 67108864,
00093     UV = 8589934592, // 2^33
00094     OB_OW = OB | OW,
00095     US_SS = US | SS,
00096     US_SS_OW = US | SS | OW,
00097     US_OW = US | OW,
00098     // The following do not have a VRString equivalent (ie cannot be found in PS 3.6)
00099     VL16 = AE | AS | AT | CS | DA | DS | DT | FD | FL | IS | LO | LT | PN | SH | SL | SS | ST | TM | UI |
      UL | US, // if( VR & VL16 ) => VR has its VL coded over 16bits
00100     VL32 = OB | OW | OD | OF | OL | OV | SQ | SV | UC | UN | UR | UT | UV, // if( VR & VL32 ) => VR has
      its VL coded over 32bits
00101     VRASCII = AE | AS | CS | DA | DS | DT | IS | LO | LT | PN | SH | ST | TM | UC | UI | UR | UT,
00102     VRBINARY = AT | FL | FD | OB | OD | OF | OL | OV | OW | SL | SQ | SS | SV | UL | UN | US | UV, //
      FIXME: UN ?
00103     // PS 3.5:
00104     // Data Elements with a VR of SQ, OD, OF, OL, OW, OB or UN shall always have a Value Multiplicity of
      one.
00105     // GDCM is adding a couple more: AS, LT, ST, UT
00106     VR_VM1 = AS | LT | ST | UT | SQ | OF | OL | OV | OD | OW | OB | UN, // All those VR have a VM1
00107     VRALL = VRASCII | VRBINARY,
00108     VR_END = UV+1  // Invalid VR, need to be max(VRType)+1
00109   };
00110
00111   static const char *GetVRString(VRType vr);
00112
00113   // This function will only look at the very first two chars nothing else
00114   static VRType GetVRTypeFromFile(const char *vr);
00115
00116   // You need to make sure end of string is \0
00117   static VRType GetVRType(const char *vr);
00118   static const char *GetVRStringFromFile(VRType vr);
00119
00120   static bool IsValid(const char *vr);
00121   // Check if vr1 is valid against vr2,
00122   // Typically vr1 is read from the file and vr2 is taken from the dict
00123   static bool IsValid(const char *vr1, VRType vr2);
00124   //static bool IsValid(const VRType &vr1, const VRType &vr2);
00125   // Find out if the string read is byte swapped
00126   static bool IsSwap(const char *vr);
00127
00128   // Size read on disk
00129   // FIXME: int ?
00130   int GetLength() const {
00131     return VR::GetLength(VRField);
00132   }
00133   unsigned int GetSizeof() const;
00134   static uint32_t GetLength(VRType vr) {
00135     //if( vr == VR::INVALID ) return 4;
00136     if( vr & VL32 )
00137       {
00138       return 4;
00139       }
00140     else
00141       return 2;
00142   }
00143
00144   // Some use of template metaprograming with ugly macro
00145   static bool IsBinary(VRType vr);
00146   static bool IsASCII(VRType vr);
00147   // TODO: REMOVE ME
00148   static bool CanDisplay(VRType vr);
00149   // TODO: REMOVE ME
00150   static bool IsBinary2(VRType vr);
00151   // TODO: REMOVE ME
00152   static bool IsASCII2(VRType vr);
00153
00154   VR(VRType vr = INVALID):VRField(vr) { }
00155   //VR(VR const &vr):VRField(vr.VRField) { }
00156   std::istream &Read(std::istream &is)
00157     {
00158     char vr[2];
00159     is.read(vr, 2);
00160     VRField = GetVRTypeFromFile(vr);
00161     gdcm_assert( VRField != VR::VR_END );
00162     if( VRField == VR::INVALID )
00163     {
00164       // \0\2 Data/TheralysGDCM120Bug.dcm
00165       // \0\0
      Data/MR_Philips_Intera_PrivateSequenceExplicitVR_in_SQ_2001_e05f_item_wrong_lgt_use_NOSHADOWSEQ.dcm
```

```
00166       // \0\4 Data/BugGDCM2_UndefItemWrongVL.dcm
00167       // \44\0 Data/gdcm-MR-PHILIPS-16-Multi-Seq.dcm
00168       // \0\20 Data/ExplicitVRforPublicElementsImplicitVRforShadowElements.dcm
00169       // \0\3 Data/DMCPACS_ExplicitImplicit_BogusIOP.dcm
00170       // \0\4 Data/THERALYS-12-MONO2-Uncompressed-Even_Length_Tag.dcm
00171       // \0\4 Data/PrivateGEImplicitVRBigEndianTransferSyntax16Bits.dcm
00172       // \0\4 Data/GE_DLX-8-MONO2-PrivateSyntax.dcm
00173       throw Exception( "INVALID VR" );
00174     }
00175     if( VRField & VL32 )
00176       {
00177 #if 0
00178       // For some reason this seems slower on my linux box...
00179       is.seekg(2, std::ios::cur );
00180 #else
00181       char dumb[2];
00182       is.read(dumb, 2);
00183       if( !(dumb[0] == 0 && dumb[1] == 0 ))
00184         {
00185         // JDDICOM_Sample4.dcm
00186         gdcmDebugMacro( "32bits VR contains non zero bytes. Skipped" );
00187         }
00188 #endif
00189       }
00190     return is;
00191     }
00192
00193   const std::ostream &Write(std::ostream &os) const
00194     {
00195     VRType vrfield = VRField;
00196     gdcmAssertAlwaysMacro( !IsDual() );
00197     if( vrfield == VR::INVALID )
00198       {
00199       //vrfield = VR::UN;
00200       }
00201     const char *vr = GetVRString(vrfield);
00202     //gdcm_assert( strlen( vr ) == 2 );
00203     gdcm_assert( vr[0] && vr[1] && vr[2] == 0 );
00204     os.write(vr, 2);
00205     // See PS 3.5, Data Element Structure With Explicit VR
00206     if( vrfield & VL32 )
00207       {
00208       const char dumb[2] = {0, 0};
00209       os.write(dumb,2);
00210       }
00211     return os;
00212     }
00213   friend std::ostream &operator<<(std::ostream &os, const VR &vr);
00214
00215   operator VRType () const { return VRField; }
00216
00217   unsigned int GetSize() const;
00218
00219   bool Compatible(VR const &vr) const;
00220
00221   bool IsVRFile() const;
00222
00223   bool IsDual() const;
00224
00225 private:
00226   // Internal function that map a VRType to an index in the VRStrings table
00227   static unsigned int GetIndex(VRType vr);
00228   VRType VRField;
00229 };
00230 //-----------------------------------------------------------------------------
00231 inline std::ostream &operator<<(std::ostream &_os, const VR &val)
00232 {
00233   //_os << VR::GetVRStringFromFile(val.VRField);
00234   _os << VR::GetVRString(val.VRField);
00235   return _os;
00236 }
00237
00238 // Apparently SWIG is not happy with something, somewhere below...
00239 #ifndef SWIG
00240
00241 // Tells whether VR Type is ASCII or Binary
00242 template<long long T> struct VRToEncoding;
00243 // Convert from VR Type to real underlying type
00244 template<long long T> struct VRToType;
00245 #define TYPETOENCODING(type,rep, rtype)         \
00246   template<> struct VRToEncoding<VR::type>    \
```

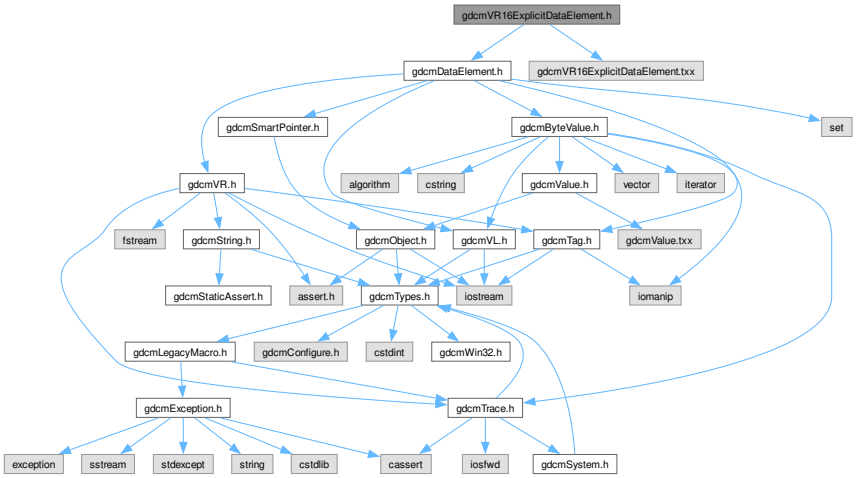
```
00247   { enum:long long { Mode = VR::rep }; };                 \
00248   template<> struct VRToType<VR::type>        \
00249   { typedef rtype Type; };
00250
00251
00252 // Do not use me
00253 struct UI { char Internal[64+1];
00254   friend std::ostream& operator«(std::ostream &_os, const UI &_val);
00255 };
00256 inline std::ostream& operator«(std::ostream &_os, const UI &_val)
00257 {
00258   _os « _val.Internal;
00259   return _os;
00260 }
00261
00262 typedef String<'\\',16> AEComp;
00263 typedef String<'\\',64> ASComp;
00264 typedef String<'\\',16> CSComp;
00265 typedef String<'\\',64> DAComp;
00266 typedef String<'\\',64> DTComp;
00267 typedef String<'\\',64> LOComp;
00268 typedef String<'\\',64> LTComp;
00269 typedef String<'\\',64> PNComp;
00270 typedef String<'\\',64> SHComp;
00271 typedef String<'\\',64> STComp;
00272 typedef String<'\\',4294967294> UCComp;
00273 typedef String<'\\',4294967294> URComp;
00274 typedef String<'\\',16> TMComp;
00275 typedef String<'\\',64,0> UIComp;
00276 typedef String<'\\',64> UTComp;
00277
00278
00279 // TODO: Could be generated from XML file
00280 TYPETOENCODING(AE,VRASCII ,AEComp)
00281 TYPETOENCODING(AS,VRASCII ,ASComp)
00282 TYPETOENCODING(AT,VRBINARY,Tag)
00283 TYPETOENCODING(CS,VRASCII ,CSComp)
00284 TYPETOENCODING(DA,VRASCII ,DAComp)
00285 TYPETOENCODING(DS,VRASCII ,double)
00286 TYPETOENCODING(DT,VRASCII ,DTComp)
00287 TYPETOENCODING(FL,VRBINARY,float)
00288 TYPETOENCODING(FD,VRBINARY,double)
00289 TYPETOENCODING(IS,VRASCII ,int32_t)
00290 TYPETOENCODING(LO,VRASCII ,LOComp)
00291 TYPETOENCODING(LT,VRASCII ,LTComp)
00292 TYPETOENCODING(OB,VRBINARY,uint8_t)
00293 TYPETOENCODING(OD,VRBINARY,double)
00294 TYPETOENCODING(OF,VRBINARY,float)
00295 TYPETOENCODING(OL,VRBINARY,uint32_t)
00296 TYPETOENCODING(OV,VRBINARY,uint64_t)
00297 TYPETOENCODING(OW,VRBINARY,uint16_t)
00298 TYPETOENCODING(PN,VRASCII ,PNComp)
00299 TYPETOENCODING(SH,VRASCII ,SHComp)
00300 TYPETOENCODING(SL,VRBINARY,int32_t)
00301 TYPETOENCODING(SQ,VRBINARY,unsigned char) // FIXME
00302 TYPETOENCODING(SS,VRBINARY,int16_t)
00303 TYPETOENCODING(ST,VRASCII ,STComp)
00304 TYPETOENCODING(SV,VRBINARY,int64_t)
00305 TYPETOENCODING(TM,VRASCII ,TMComp)
00306 TYPETOENCODING(UC,VRASCII ,UCComp)
00307 TYPETOENCODING(UI,VRASCII ,UIComp)
00308 TYPETOENCODING(UL,VRBINARY,uint32_t)
00309 TYPETOENCODING(UN,VRBINARY,uint8_t) // FIXME ?
00310 TYPETOENCODING(UR,VRASCII,URComp)
00311 TYPETOENCODING(US,VRBINARY,uint16_t)
00312 TYPETOENCODING(UT,VRASCII ,UTComp)
00313 TYPETOENCODING(UV,VRBINARY,uint64_t)
00314
00315 #define VRTypeTemplateCase(type) \
00316   case VR::type: \
00317     return sizeof ( VRToType<VR::type>::Type );
00318
00319 inline unsigned int VR::GetSize() const
00320 {
00321   switch(VRField)
00322   {
00323     VRTypeTemplateCase(AE)
00324     VRTypeTemplateCase(AS)
00325     VRTypeTemplateCase(AT)
00326     VRTypeTemplateCase(CS)
00327     VRTypeTemplateCase(DA)
```

```
00328     VRTypeTemplateCase(DS)
00329     VRTypeTemplateCase(DT)
00330     VRTypeTemplateCase(FL)
00331     VRTypeTemplateCase(FD)
00332     VRTypeTemplateCase(IS)
00333     VRTypeTemplateCase(LO)
00334     VRTypeTemplateCase(LT)
00335     VRTypeTemplateCase(OB)
00336     VRTypeTemplateCase(OD)
00337     VRTypeTemplateCase(OF)
00338     VRTypeTemplateCase(OL)
00339     VRTypeTemplateCase(OV)
00340     VRTypeTemplateCase(OW)
00341     VRTypeTemplateCase(PN)
00342     VRTypeTemplateCase(SH)
00343     VRTypeTemplateCase(SL)
00344     VRTypeTemplateCase(SQ)
00345     VRTypeTemplateCase(SS)
00346     VRTypeTemplateCase(ST)
00347     VRTypeTemplateCase(SV)
00348     VRTypeTemplateCase(TM)
00349     VRTypeTemplateCase(UC)
00350     VRTypeTemplateCase(UI)
00351     VRTypeTemplateCase(UL)
00352     VRTypeTemplateCase(UN)
00353     VRTypeTemplateCase(UR)
00354     VRTypeTemplateCase(US)
00355     VRTypeTemplateCase(UT)
00356     VRTypeTemplateCase(UV)
00357     case VR::US_SS:
00358       return 2;
00359
00360     case VR::INVALID:
00361     case VR::OB_OW:
00362     case VR::US_SS_OW:
00363     case VR::US_OW:
00364     case VR::VL16:
00365     case VR::VL32:
00366     case VR::VRASCII:
00367     case VR::VRBINARY:
00368     case VR::VR_VM1:
00369     case VR::VRALL:
00370     case VR::VR_END:
00371     default:
00372        gdcm_assert( 0 && "should not" );
00373   }
00374   return 0;
00375 }
00376 #endif // SWIG
00377
00378
00379 } // end namespace gdcm
00380
00381 #endif //GDCMVR_H
```

13.195 gdcmVR16ExplicitDataElement.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmVR16ExplicitDataElement.txx"
```

Include dependency graph for gdcmVR16ExplicitDataElement.h:



Classes

- class gdcm::VR16ExplicitDataElement

  Class to read/write a DataElement as Explicit Data Element.

Namespaces

- namespace gdcm

13.196 gdcmVR16ExplicitDataElement.h

Go to the documentation of this file.

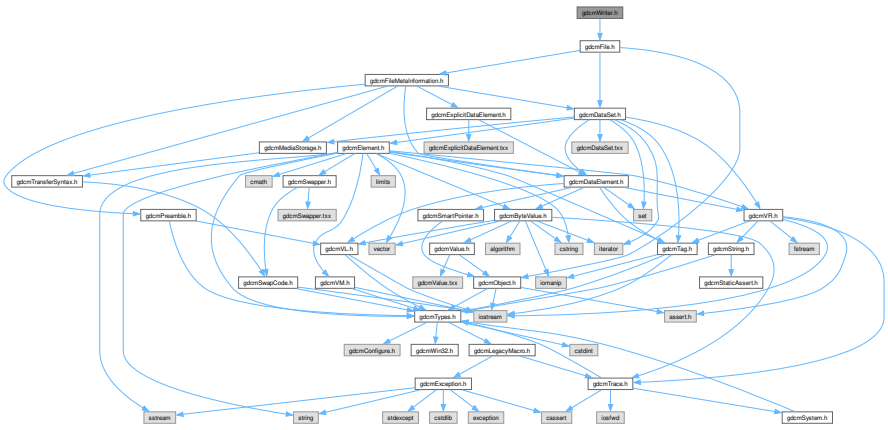
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVR16EXPLICITDATAELEMENT_H
00015 #define GDCMVR16EXPLICITDATAELEMENT_H
00016
00017 #include "gdcmDataElement.h"
00018
00019 namespace gdcm
00020 {
00021 // Data Element (Explicit)
00028 class GDCM_EXPORT VR16ExplicitDataElement : public DataElement
00029 {
```

```
00030 public:
00031   VL GetLength() const;
00032
00033   template <typename TSwap>
00034   std::istream &Read(std::istream &is);
00035
00036   template <typename TSwap>
00037   std::istream &ReadPreValue(std::istream &is);
00038
00039   template <typename TSwap>
00040   std::istream &ReadValue(std::istream &is, bool readvalues = true);
00041
00042   template <typename TSwap>
00043   std::istream &ReadWithLength(std::istream &is, VL & length);
00044
00045   // PURPOSELY do not provide an implementation for writing !
00046   //template <typename TSwap>
00047   //const std::ostream &Write(std::ostream &os) const;
00048 };
00049
00050 } // end namespace gdcm
00051
00052 #include "gdcmVR16ExplicitDataElement.txx"
00053
00054 #endif //GDCMVR16EXPLICITDATAELEMENT_H
```

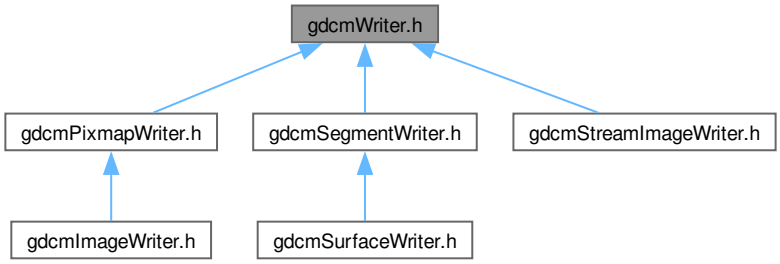
13.197 gdcmWriter.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmWriter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Writer

  Writer ala DOM (Document Object Model).

Namespaces

- namespace gdcm

13.198 gdcmWriter.h

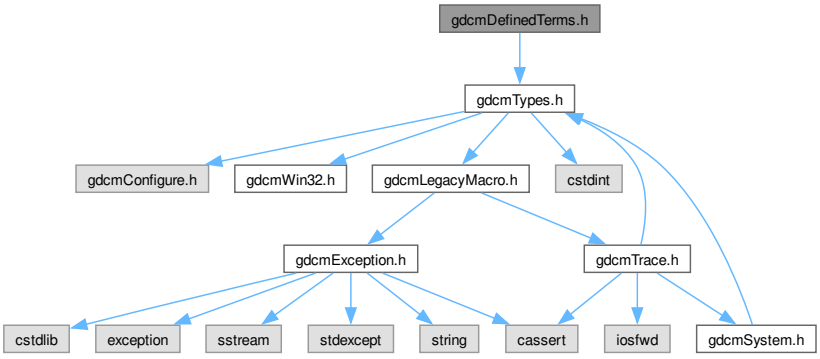
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMWRITER_H
00016 #define GDCMWRITER_H
00017
00018 #include "gdcmFile.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class FileMetaInformation;
00048 class GDCM_EXPORT Writer
00049 {
00050 public:
00051   Writer();
00052   virtual ~Writer();
00053
```

```
00055   virtual bool Write(); // Execute()
00056
00058   void SetFileName(const char *filename_native);
00059
00061   void SetStream(std::ostream &output_stream) {
00062     Stream = &output_stream;
00063   }
00064
00066   void SetFile(const File& f) { F = f; }
00067   File &GetFile() { return *F; }
00068
00070   void SetCheckFileMetaInformation(bool b) { CheckFileMetaInformation = b; }
00071   void CheckFileMetaInformationOff() { CheckFileMetaInformation = false; }
00072   void CheckFileMetaInformationOn() { CheckFileMetaInformation = true; }
00073
00074 protected:
00075   void SetWriteDataSetOnly(bool b) { WriteDataSetOnly = b; }
00076
00077 protected:
00078   friend class StreamImageWriter;
00079   //this function is added for the StreamImageWriter, which needs to write
00080   //up to the pixel data and then stops right before writing the pixel data.
00081   //after that, for the raw codec at least, zeros are written for the length of the data
00082   std::ostream* GetStreamPtr() const { return Stream; }
00083
00084 protected:
00085   std::ostream *Stream;
00086   std::ofstream *Ofstream;
00087   bool GetCheckFileMetaInformation() const { return CheckFileMetaInformation; }
00088
00089 private:
00090   SmartPointer<File> F;
00091   bool CheckFileMetaInformation;
00092   bool WriteDataSetOnly;
00093 };
00094
00095 } // end namespace gdcm
00096
00097 #endif //GDCMWRITER_H
```

13.199 gdcmDefinedTerms.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmDefinedTerms.h:



Classes

- class gdcm::DefinedTerms

Defined Terms are used when the specified explicit Values may be extended by implementors to include additional new Values. These new Values shall be specified in the Conformance Statement (see PS 3.2) and shall not have the same meaning as currently defined Values in this standard. A Data Element with Defined Terms that does not contain a Value equivalent to one of the Values currently specified in this standard shall not be considered to have an invalid value. Note: Interpretation Type ID (4008,0210) is an example of a Data Element having Defined Terms. It is defined to have a Value that may be one of the set of standard Values; REPORT or AMENDMENT (see PS 3.3). Because this Data Element has Defined Terms other Interpretation Type IDs may be defined by the implementor.

Namespaces

- namespace gdcm

13.200 gdcmDefinedTerms.h

Go to the documentation of this file.

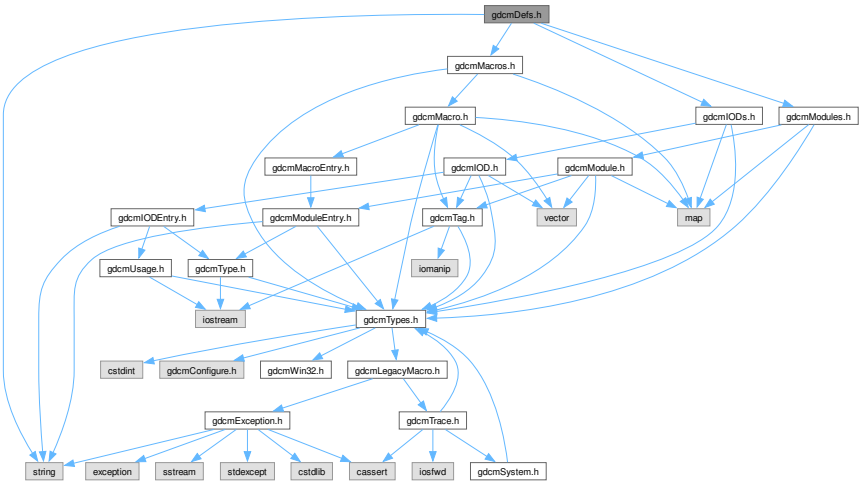
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDEFINEDTERMS_H
00015 #define GDCMDEFINEDTERMS_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00027 class GDCM_EXPORT DefinedTerms
00028 {
00029 public:
00030   DefinedTerms() = default;
00031 private:
00032 };
00033
00034 } // end namespace gdcm
00035
00036 #endif //GDCMDEFINEDTERMS_H
```

13.201 gdcmDefs.h File Reference

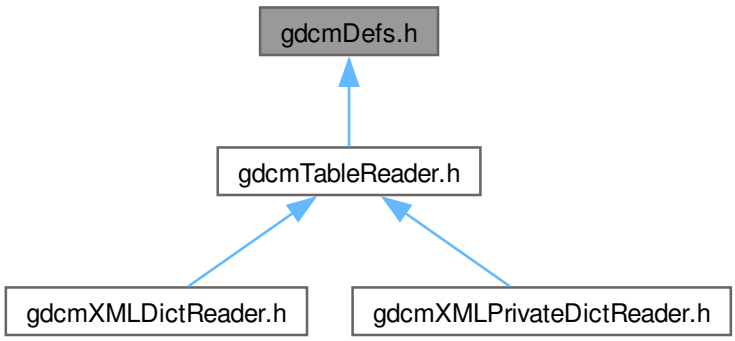
```
#include "gdcmModules.h"
#include "gdcmMacros.h"
#include "gdcmIODs.h"
```

```
#include <string>
```

Include dependency graph for gdcmDefs.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Defs

  FIXME I do not like the name 'Defs'.

Namespaces

- namespace gdcm

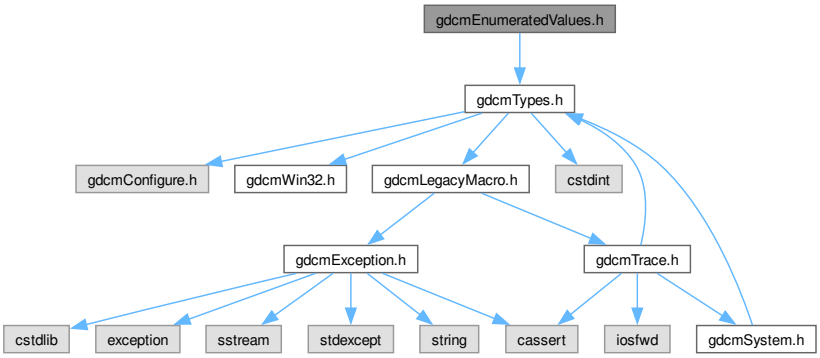
13.202 gdcmDefs.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDEFS_H
00015 #define GDCMDEFS_H
00016
00017 #include "gdcmModules.h"
00018 #include "gdcmMacros.h"
00019 #include "gdcmIODs.h"
00020
00021 #include <string>
00022
00023 namespace gdcm
00024 {
00025 class DataSet;
00026 class File;
00027 class MediaStorage;
00032 class GDCM_EXPORT Defs
00033 {
00034 public:
00035   Defs();
00036   ~Defs();
00037   Defs &operator=(const Defs &val) = delete;
00038   Defs(const Defs &val) = delete;
00039
00040   const Modules &GetModules() const { return Part3Modules; }
00041   Modules &GetModules() { return Part3Modules; }
00042
00045   const Macros &GetMacros() const { return Part3Macros; }
00046   Macros &GetMacros() { return Part3Macros; }
00047
00048   const IODs & GetIODs() const { return Part3IODs; }
00049   IODs & GetIODs() { return Part3IODs; }
00050
00051   bool IsEmpty() const { return GetModules().IsEmpty(); }
00052
00053   bool Verify(const File& file) const;
00054
00055   // \deprecated DO NOT USE
00056   bool Verify(const DataSet& ds) const;
00057
00058   Type GetTypeFromTag(const File& file, const Tag& tag) const;
00059
00060   static const char *GetIODNameFromMediaStorage(MediaStorage const &ms);
00061
00062   const IOD& GetIODFromFile(const File& file) const;
00063
00064 protected:
00065   friend class Global;
00066   void LoadDefaults();
00067   void LoadFromFile(const char *filename);
00068
00069 private:
00070   // Part 3 stuff:
00071   Macros Part3Macros;
00072   Modules Part3Modules;
00073   IODs Part3IODs;
00074
00075 };
00076
00077
00078 } // end namespace gdcm
00079
00080 #endif //GDCMDEFS_H
```

13.203 gdcmEnumeratedValues.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmEnumeratedValues.h:



Classes

- class gdcm::EnumeratedValues

  Element. A Data Element with Enumerated Values that does not have a Value equivalent to one of the Values specified in this standard has an invalid value within the scope of a specific Information Object/SOP Class definition. Note:

Namespaces

- namespace gdcm

13.204 gdcmEnumeratedValues.h

Go to the documentation of this file.

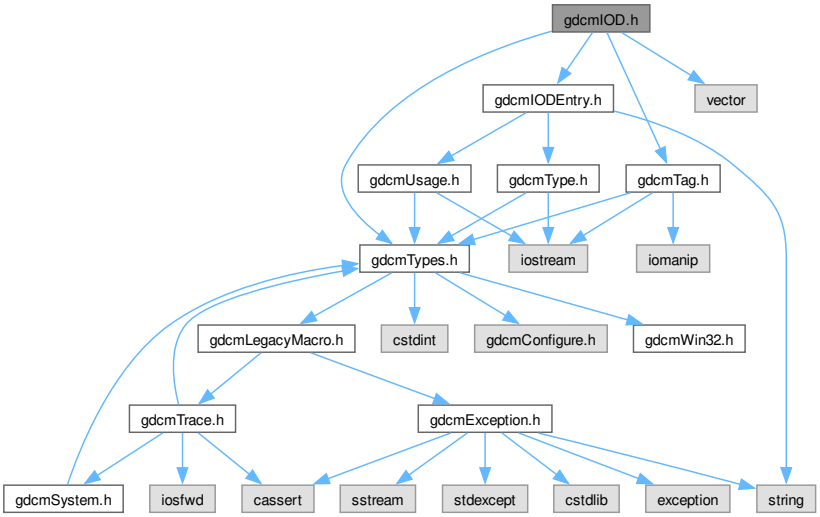
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMENUMERATEDVALUES_H
00015 #define GDCMENUMERATEDVALUES_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
```

```
00034 class GDCM_EXPORT EnumeratedValues
00035 {
00036 public:
00037   EnumeratedValues() = default;
00038 private:
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMENUMERATEDVALUES_H
```

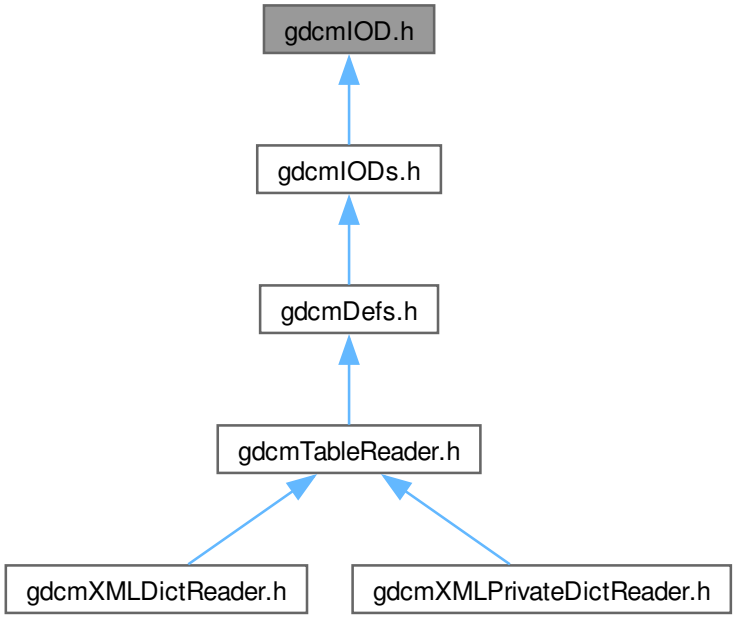
13.205 gdcmIOD.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmIODEntry.h"
#include <vector>
```

Include dependency graph for gdcmIOD.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::IOD

  Class for representing a IOD.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const IOD &_val)

13.206 gdcmIOD.h

Go to the documentation of this file.

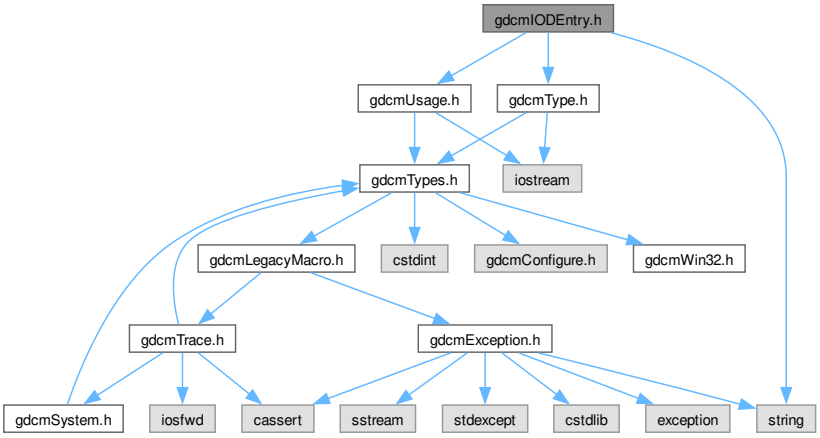
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
```

```
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIOD_H
00015 #define GDCMIOD_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include "gdcmIODEntry.h"
00020
00021 #include <vector>
00022
00023 namespace gdcm
00024 {
00025 class DataSet;
00026 class Defs;
00027
00034 class GDCM_EXPORT IOD
00035 {
00036 public:
00037   typedef std::vector<IODEntry> MapIODEntry;
00038   typedef MapIODEntry::size_type SizeType;
00039
00040   IOD() = default;
00041   friend std::ostream& operator«(std::ostream& _os, const IOD &_val);
00042
00043   void Clear() { IODInternal.clear(); }
00044
00045   void AddIODEntry(const IODEntry & iode)
00046     {
00047     IODInternal.push_back(iode);
00048     }
00049
00050   SizeType GetNumberOfIODs() const {
00051     return IODInternal.size();
00052   }
00053
00054   const IODEntry& GetIODEntry(SizeType idx) const
00055     {
00056     return IODInternal[idx];
00057     }
00058
00059   Type GetTypeFromTag(const Defs &defs, const Tag& tag) const;
00060
00061 private:
00062   //IOD &operator=(const IOD &_val); // purposely not implemented
00063   //IOD(const IOD &_val); // purposely not implemented
00064
00065   MapIODEntry IODInternal;
00066 };
00067 //-----------------------------------------------------------------------------
00068 inline std::ostream& operator«(std::ostream& _os, const IOD &_val)
00069 {
00070   IOD::MapIODEntry::const_iterator it = _val.IODInternal.begin();
00071   for(;it != _val.IODInternal.end(); ++it)
00072     {
00073     _os « *it « '\n';
00074     }
00075
00076   return _os;
00077 }
00078
00079 } // end namespace gdcm
00080
00081 #endif //GDCMIOD_H
```

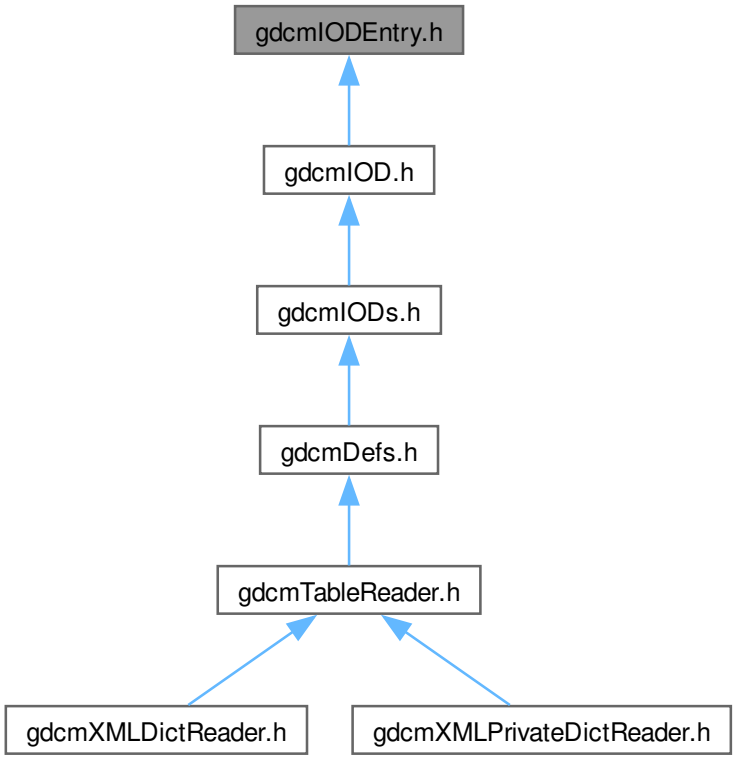
13.207 gdcmIODEntry.h File Reference

```
#include "gdcmUsage.h"
#include "gdcmType.h"
#include <string>
```

Include dependency graph for gdcmIODEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::IODEntry

  Class for representing a IODEntry.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const IODEntry &_val)

13.208 gdcmIODEntry.h

Go to the documentation of this file.

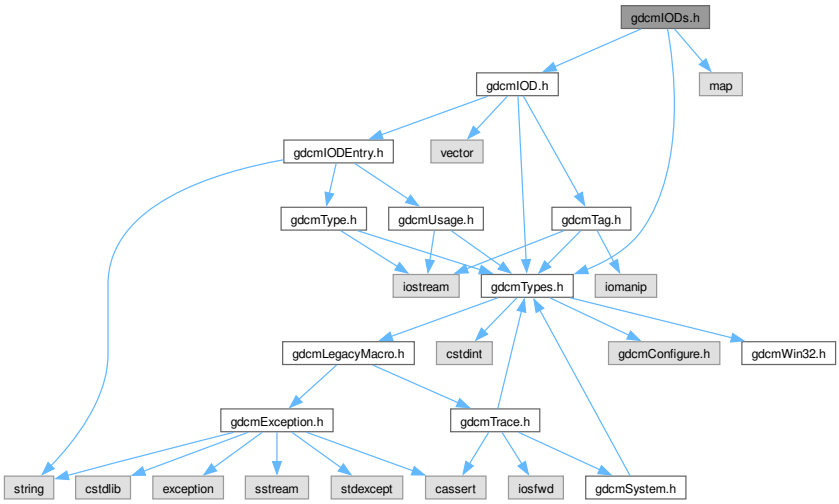
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIODENTRY_H
00015 #define GDCMIODENTRY_H
00016
00017 #include "gdcmUsage.h"
00018 #include "gdcmType.h"
00019
00020 #include <string>
00021
00022 namespace gdcm
00023 {
00051 class GDCM_EXPORT IODEntry
00052 {
00053 public:
00054   IODEntry(const char *name = "", const char *ref = "", const char *inUsage =
      "");:Name(name),Ref(ref),usage(inUsage) {
00055   }
00056   friend std::ostream& operator<<(std::ostream& _os, const IODEntry &_val);
00057
00058   void SetIE(const char *ie) { IE = ie; }
00059   const char *GetIE() const { return IE.c_str(); }
00060
00061   void SetName(const char *name) { Name = name; }
00062   const char *GetName() const { return Name.c_str(); }
00063
00064   void SetRef(const char *ref) { Ref = ref; }
00065   const char *GetRef() const { return Ref.c_str(); }
00066
00067   void SetUsage(const char *inUsage) { usage = inUsage; }
00068   const char *GetUsage() const { return usage.c_str(); }
00069   Usage::UsageType GetUsageType() const;
00070
00071 private:
00072   std::string IE;
00073
00074   std::string Name;
00075
00076   std::string Ref;
00077
00078   std::string usage;
00079 };
00080 //-----------------------------------------------------------------------------
00081 inline std::ostream& operator<<(std::ostream& _os, const IODEntry &_val)
00082 {
00083   _os << _val.IE << "\t" << _val.Name << "\t" << _val.Ref << "\t" << _val.usage;
00084   return _os;
00085 }
00086
00087 } // end namespace gdcm
00088
00089 #endif //GDCMIODENTRY_H
```

13.209 gdcmIODs.h File Reference

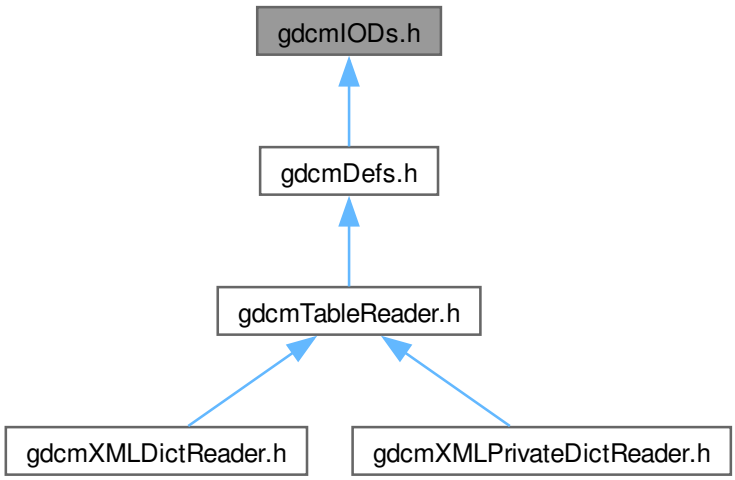
```
#include "gdcmTypes.h"
#include "gdcmIOD.h"
```

```
#include <map>
```

Include dependency graph for gdcmIODs.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::IODs

  Class for representing a IODs.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const IODs &_val)

13.210 gdcmIODs.h

Go to the documentation of this file.

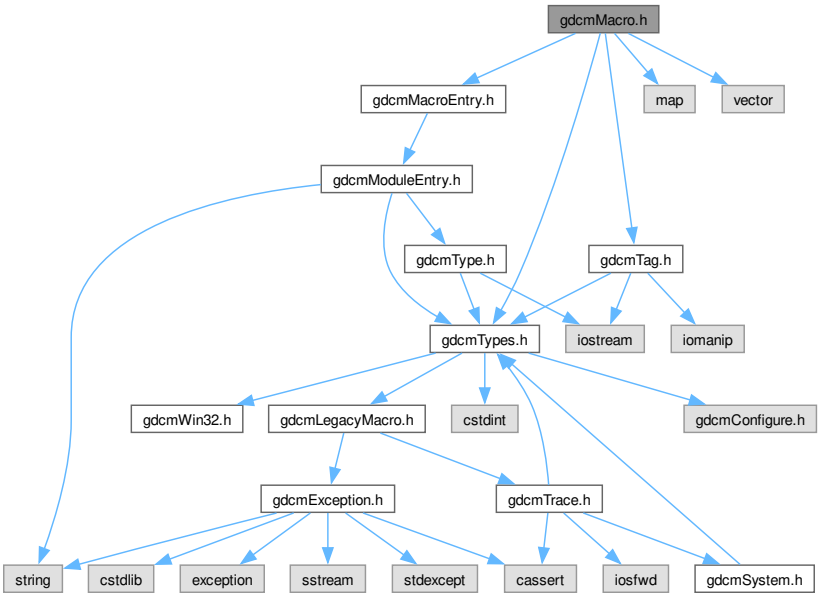
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIODS_H
00015 #define GDCMIODS_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmIOD.h"
00019
00020 #include <map>
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT IODs
00030 {
00031 public:
00032   typedef std::string IODName;
00033   typedef std::map<IODName, IOD> IODMapType;
00034
00035   IODs() = default;
00036   friend std::ostream& operator<<(std::ostream& _os, const IODs &_val);
00037
00038   void Clear() { IODsInternal.clear(); }
00039
00040   void AddIOD(const char *name , const IOD & module )
00041     {
00042     IODsInternal.insert(
00043       IODMapType::value_type(name, module));
00044     }
00045   const IOD &GetIOD(const char *name) const
00046     {
00047     //return IODsInternal[name];
00048     IODMapType::const_iterator it = IODsInternal.find( name );
00049     gdcm_assert( it != IODsInternal.end() );
00050     gdcm_assert( it->first == name );
00051     return it->second;
00052     }
00053
00054   typedef IODMapType::const_iterator IODMapTypeConstIterator;
00055   IODMapTypeConstIterator Begin() const { return IODsInternal.begin(); }
00056   IODMapTypeConstIterator End() const { return IODsInternal.end(); }
00057
00058 private:
00059   IODMapType IODsInternal;
00060 };
00061 //-----------------------------------------------------------------------------
00062 inline std::ostream& operator<<(std::ostream& _os, const IODs &_val)
00063 {
00064   IODs::IODMapType::const_iterator it = _val.IODsInternal.begin();
```

```
00065   for(;it != _val.IODsInternal.end(); ++it)
00066     {
00067     const std::string &name = it->first;
00068     const IOD &m = it->second;
00069     _os « name « " " « m « '\n';
00070     }
00071
00072   return _os;
00073 }
00074
00075
00076 } // end namespace gdcm
00077
00078 #endif //GDCMIODS_H
```

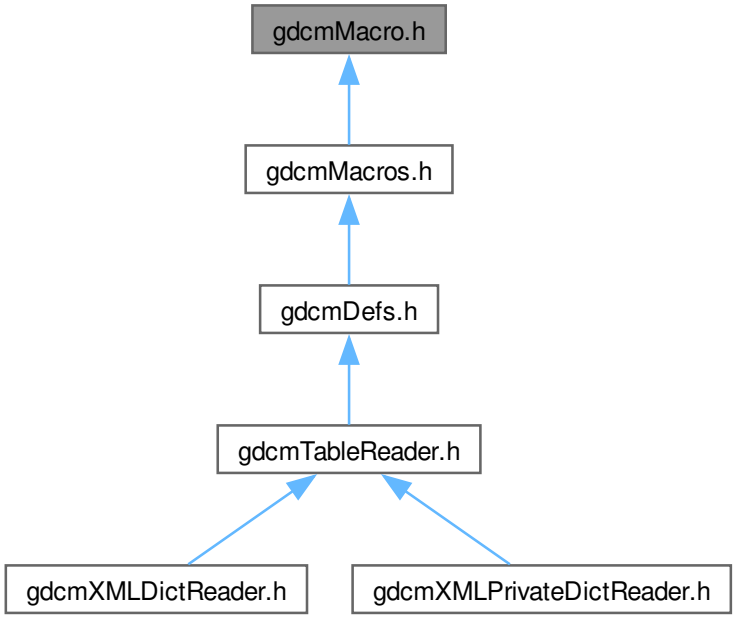
13.211 gdcmMacro.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmMacroEntry.h"
#include <map>
#include <vector>
```

Include dependency graph for gdcmMacro.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Macro

  Class for representing a Macro.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Macro &_val)

13.212 gdcmMacro.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
```

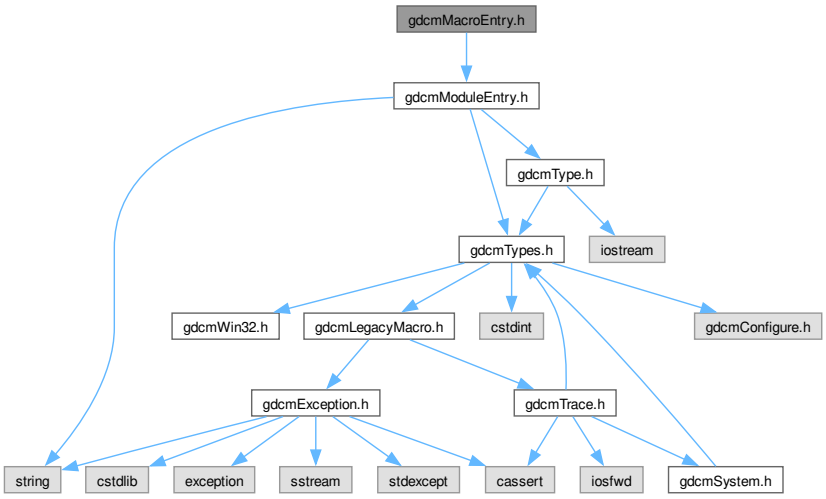
```
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMACRO_H
00015 #define GDCMMACRO_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include "gdcmMacroEntry.h"
00020
00021 #include <map>
00022 #include <vector>
00023
00024 namespace gdcm
00025 {
00026
00027 class DataSet;
00028 class Usage;
00036 class GDCM_EXPORT Macro
00037 {
00038 public:
00039   typedef std::map<Tag, MacroEntry> MapModuleEntry;
00040   typedef std::vector<std::string> ArrayIncludeMacrosType;
00041
00042   //typedef MapModuleEntry::const_iterator ConstIterator;
00043   //typedef MapModuleEntry::iterator Iterator;
00044   //ConstIterator Begin() const { return ModuleInternal.begin(); }
00045   //Iterator Begin() { return ModuleInternal.begin(); }
00046   //ConstIterator End() const { return ModuleInternal.end(); }
00047   //Iterator End() { return ModuleInternal.end(); }
00048
00049   Macro() = default;
00050   friend std::ostream& operator<<(std::ostream& _os, const Macro&_val);
00051
00052   void Clear() { ModuleInternal.clear(); }
00053
00055   void AddMacroEntry(const Tag& tag, const MacroEntry & module)
00056     {
00057     ModuleInternal.insert(
00058       MapModuleEntry::value_type(tag, module));
00059     }
00060
00063   bool FindMacroEntry(const Tag &tag) const;
00064   const MacroEntry& GetMacroEntry(const Tag &tag) const;
00065
00066   void SetName( const char *name) { Name = name; }
00067   const char *GetName() const { return Name.c_str(); }
00068
00069   // Verify will print on std::cerr for error
00070   // Upon success will return true, false otherwise
00071   bool Verify(const DataSet& ds, Usage const & usage) const;
00072
00073 private:
00074   //Module &operator=(const Module &_val); // purposely not implemented
00075   //Module(const Module &_val); // purposely not implemented
00076
00077   MapModuleEntry ModuleInternal;
00078   std::string Name;
00079 };
00080 //-----------------------------------------------------------------------------
00081 inline std::ostream& operator<<(std::ostream& _os, const Macro &_val)
00082 {
00083   _os << _val.Name << '\n';
00084   Macro::MapModuleEntry::const_iterator it = _val.ModuleInternal.begin();
00085   for(;it != _val.ModuleInternal.end(); ++it)
00086     {
00087     const Tag &t = it->first;
00088     const MacroEntry &de = it->second;
00089     _os << t << " " << de << '\n';
00090     }
00091
00092   return _os;
00093 }
00094
```

```
00095 } // end namespace gdcm
00096
00097 #endif //GDCMMACRO_H
```

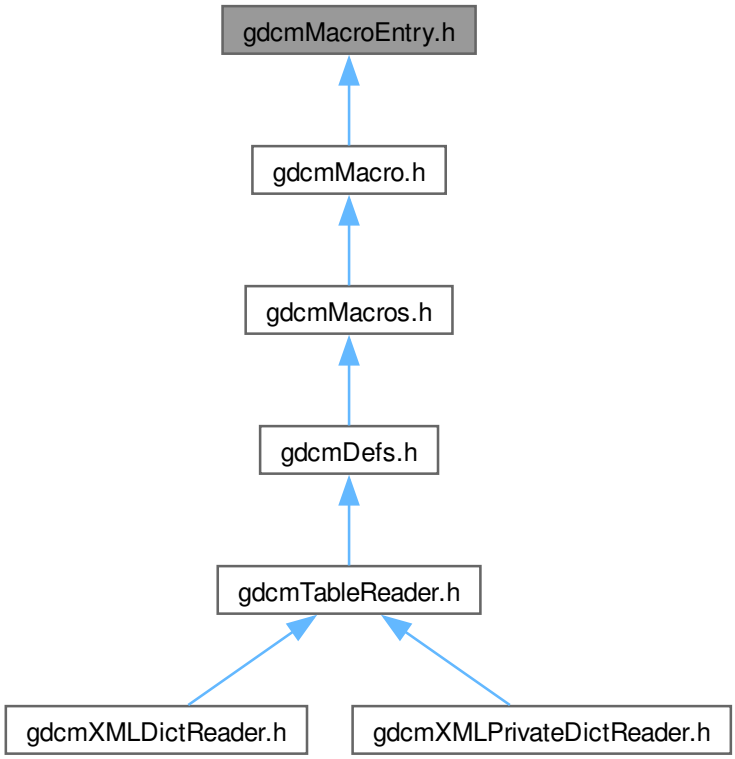
13.213 gdcmMacroEntry.h File Reference

`#include "gdcmModuleEntry.h"`

Include dependency graph for gdcmMacroEntry.h:



This graph shows which files directly or indirectly include this file:



Macros

- #define GDCMMACROENTRY_H

13.213.1 Macro Definition Documentation

13.213.1.1 GDCMMACROENTRY_H

```
#define GDCMMACROENTRY_H
```

13.214 gdcmMacroEntry.h

Go to the documentation of this file.

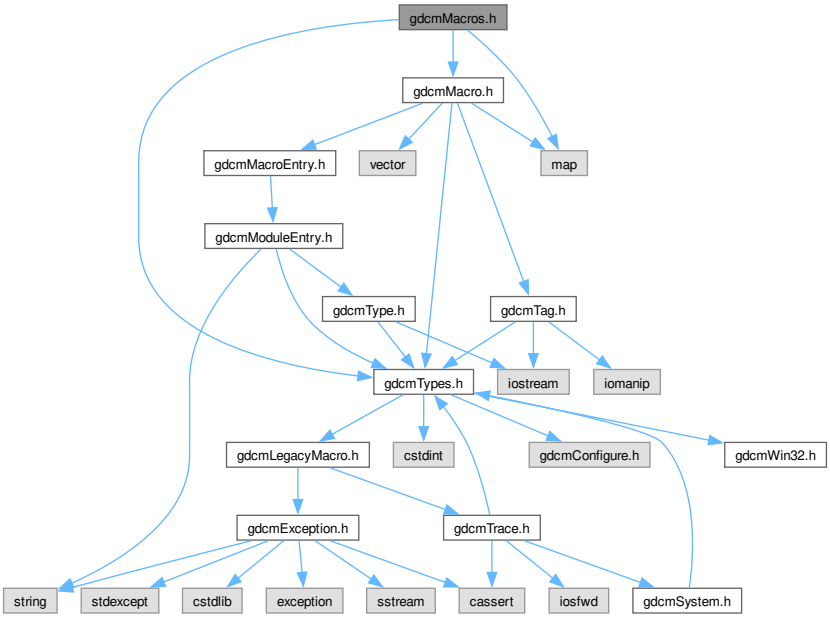
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #if 0
00015 #ifndef GDCMMACROENTRY_H
00016 #define GDCMMACROENTRY_H
00017
00018 #include "gdcmTypes.h"
00019 #include "gdcmType.h"
00020
00021 #include <string>
00022
00023 namespace gdcm
00024 {
00030 class GDCM_EXPORT MacroEntry
00031 {
00032 public:
00033   MacroEntry(const char *name = "", const char *type = "3", const char *description =
      "")):Name(name)/*,Type(type)*/,DescriptionField(description) {
00034     DataElementType = Type::GetTypeType(type);
00035   }
00036   virtual ~MacroEntry() {} // important
00037   friend std::ostream& operator«(std::ostream& _os, const MacroEntry &_val);
00038
00039   void SetName(const char *name) { Name = name; }
00040   const char *GetName() const { return Name.c_str(); }
00041
00042   void SetType(const Type &type) { DataElementType = type; }
00043   const Type &GetType() const { return DataElementType; }
00044
00045   /*
00046    * WARNING: 'Description' is currently a std::string, but it might change in the future
00047    * do not expect it to remain the same, and always use the ModuleEntry::Description typedef
00048    * instead.
00049    */
00050   typedef std::string Description;
00051   void SetDescription(const char *d) { DescriptionField = d; }
00052   const Description & GetDescription() const { return DescriptionField; }
00053
00054 protected:
00055   // PS 3.3 repeats the name of an attribute, but often contains typos
00056   // for now we will not use this info, but instead access the DataDict instead
00057   std::string Name;
00058
00059   // An attribute, encoded as a Data Element, may or may not be required in a
00060   // Data Set, depending on that Attribute's Data Element Type.
00061   Type DataElementType;
00062
00063   // TODO: for now contains the raw description (with enumerated values, defined terms...)
00064   Description DescriptionField;
00065 };
00066 //-----------------------------------------------------------------------------
00067 inline std::ostream& operator«(std::ostream& _os, const MacroEntry &_val)
00068 {
00069   _os « _val.Name « "\t" « _val.DataElementType « "\t" « _val.DescriptionField;
00070   return _os;
00071 }
00072
00073
00074 } // end namespace gdcm
00075
00076 #endif //GDCMMODULEENTRY_H
00077 #endif
00078
00079 #ifndef GDCMMACROENTRY_H
```

```
00080 #define GDCMMACROENTRY_H
00081 #include "gdcmModuleEntry.h"
00082 #endif
```

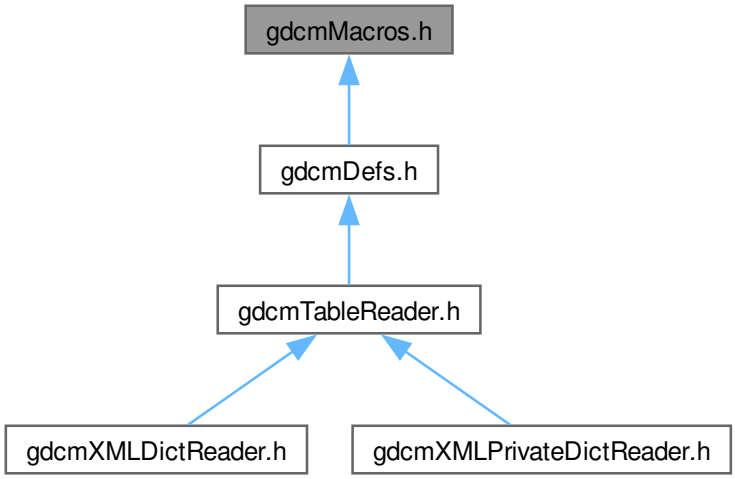
13.215 gdcmMacros.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmMacro.h"
#include <map>
```

Include dependency graph for gdcmMacros.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Macros

  Class for representing a Modules.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Macros &_val)

13.216 gdcmMacros.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
```

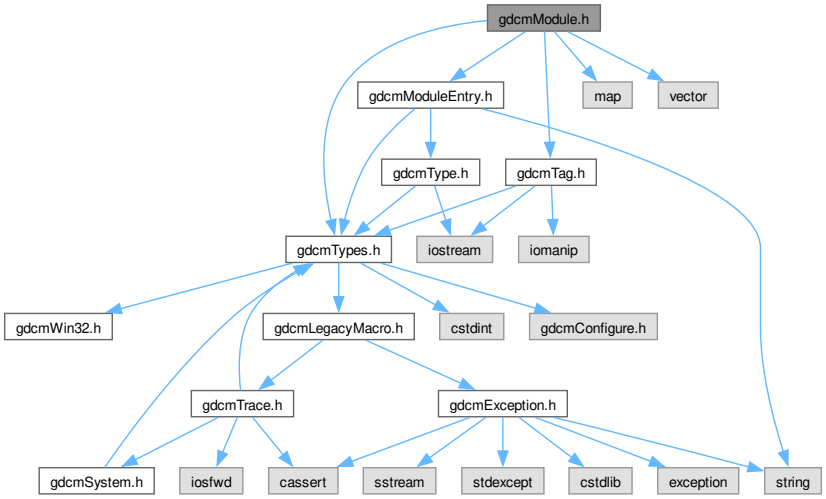
```
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMACROS_H
00015 #define GDCMMACROS_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmMacro.h"
00019
00020 #include <map>
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT Macros
00030 {
00031 public:
00032   typedef std::map<std::string, Macro> ModuleMapType;
00033
00034   Macros() = default;
00035   friend std::ostream& operator«(std::ostream& _os, const Macros&_val);
00036
00037   void Clear() { ModulesInternal.clear(); }
00038
00039   // A Module is inserted based on it's ref
00040   void AddMacro(const char *ref, const Macro & module )
00041     {
00042     gdcm_assert( ref && *ref );
00043     gdcm_assert( ModulesInternal.find( ref ) == ModulesInternal.end() );
00044     ModulesInternal.insert(
00045       ModuleMapType::value_type(ref, module));
00046     }
00047   const Macro &GetMacro(const char *name) const
00048     {
00049     gdcm_assert( name && *name );
00050     ModuleMapType::const_iterator it = ModulesInternal.find( name );
00051     gdcm_assert( it != ModulesInternal.end() );
00052     gdcm_assert( it->first == name );
00053     return it->second;
00054     }
00055
00056   bool IsEmpty() const { return ModulesInternal.empty(); }
00057
00058 private:
00059   ModuleMapType ModulesInternal;
00060 };
00061 //-----------------------------------------------------------------------------
00062 inline std::ostream& operator«(std::ostream& _os, const Macros &_val)
00063 {
00064   Macros::ModuleMapType::const_iterator it = _val.ModulesInternal.begin();
00065   for(;it != _val.ModulesInternal.end(); ++it)
00066     {
00067     const std::string &name = it->first;
00068     const Macro &m = it->second;
00069     _os « name « " " « m « '\n';
00070     }
00071
00072   return _os;
00073 }
00074
00075
00076 } // end namespace gdcm
00077
00078 #endif //GDCMMODULES_H
```

13.217 gdcmModule.h File Reference

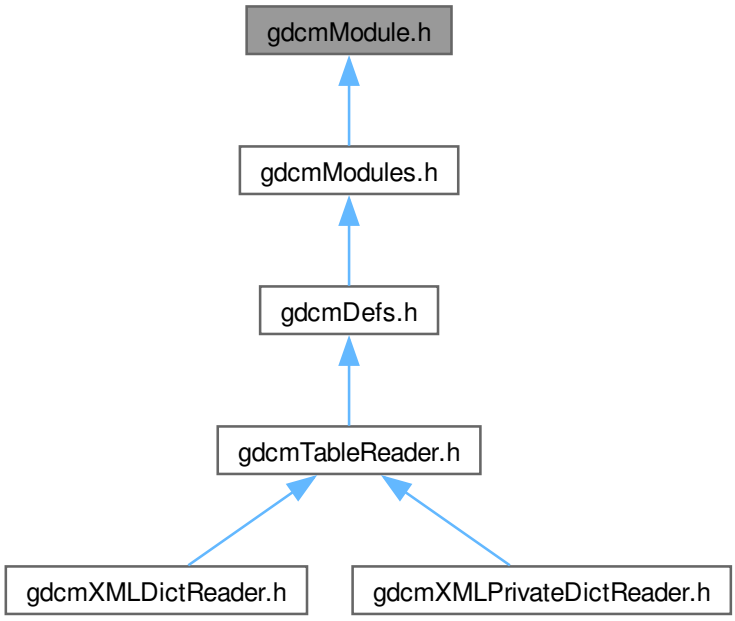
```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include "gdcmModuleEntry.h"
#include <map>
```

```
#include <vector>
```

Include dependency graph for gdcmModule.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Module

  Class for representing a Module.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Module &_val)

13.218 gdcmModule.h

Go to the documentation of this file.

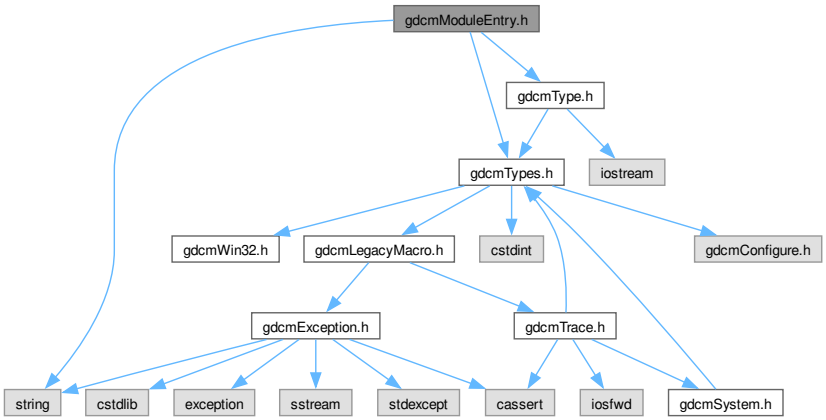
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMODULE_H
00015 #define GDCMMODULE_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include "gdcmModuleEntry.h"
00020
00021 #include <map>
00022 #include <vector>
00023
00024 namespace gdcm
00025 {
00026
00027 class DataSet;
00028 class Usage;
00029 class Macros;
00037 class GDCM_EXPORT Module
00038 {
00039 public:
00040   typedef std::map<Tag, ModuleEntry> MapModuleEntry;
00041   typedef std::vector<std::string> ArrayIncludeMacrosType;
00042
00043   //typedef MapModuleEntry::const_iterator ConstIterator;
00044   //typedef MapModuleEntry::iterator Iterator;
00045   //ConstIterator Begin() const { return ModuleInternal.begin(); }
00046   //Iterator Begin() { return ModuleInternal.begin(); }
00047   //ConstIterator End() const { return ModuleInternal.end(); }
00048   //Iterator End() { return ModuleInternal.end(); }
00049
00050   Module() = default;
00051   friend std::ostream& operator<<(std::ostream& _os, const Module &_val);
00052
00053   void Clear() { ModuleInternal.clear(); }
00054
00056   void AddModuleEntry(const Tag& tag, const ModuleEntry & module)
00057     {
```

```
00058     ModuleInternal.insert(
00059       MapModuleEntry::value_type(tag, module));
00060     }
00061
00062   void AddMacro(const char *include)
00063     {
00064     ArrayIncludeMacros.push_back( include );
00065     }
00066
00069   bool FindModuleEntryInMacros(Macros const &macros, const Tag &tag) const;
00070   const ModuleEntry& GetModuleEntryInMacros(Macros const &macros, const Tag &tag) const;
00071
00072   void SetName( const char *name) { Name = name; }
00073   const char *GetName() const { return Name.c_str(); }
00074
00075   // Verify will print on std::cerr for error
00076   // Upon success will return true, false otherwise
00077   bool Verify(const DataSet& ds, Usage const & usage) const;
00078
00079 private:
00080   //Module &operator=(const Module &_val); // purposely not implemented
00081   //Module(const Module &_val); // purposely not implemented
00082
00083   MapModuleEntry ModuleInternal;
00084   std::string Name;
00085   ArrayIncludeMacrosType ArrayIncludeMacros;
00086 };
00087 //-----------------------------------------------------------------------------
00088 inline std::ostream& operator«(std::ostream& _os, const Module &_val)
00089 {
00090   _os « _val.Name « '\n';
00091   Module::MapModuleEntry::const_iterator it = _val.ModuleInternal.begin();
00092   for(;it != _val.ModuleInternal.end(); ++it)
00093     {
00094     const Tag &t = it->first;
00095     const ModuleEntry &de = it->second;
00096     _os « t « " " « de « '\n';
00097     }
00098
00099   return _os;
00100 }
00101
00102 } // end namespace gdcm
00103
00104 #endif //GDCMMODULE_H
```

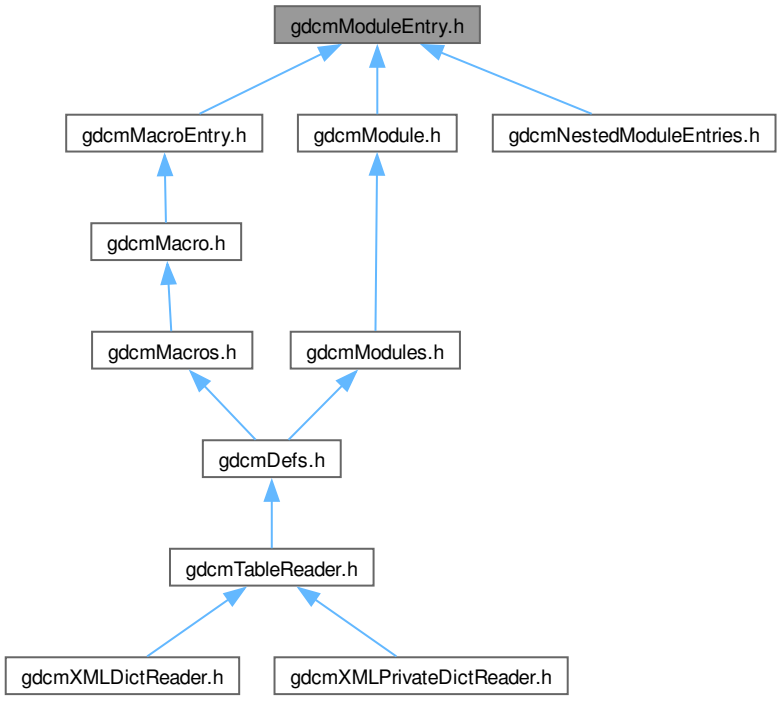
13.219 gdcmModuleEntry.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmType.h"
#include <string>
```

Include dependency graph for gdcmModuleEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ModuleEntry

Class for representing a ModuleEntry.

Namespaces

- namespace gdcm

Typedefs

- typedef ModuleEntry gdcm::MacroEntry

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const ModuleEntry &_val)

13.220 gdcmModuleEntry.h

Go to the documentation of this file.

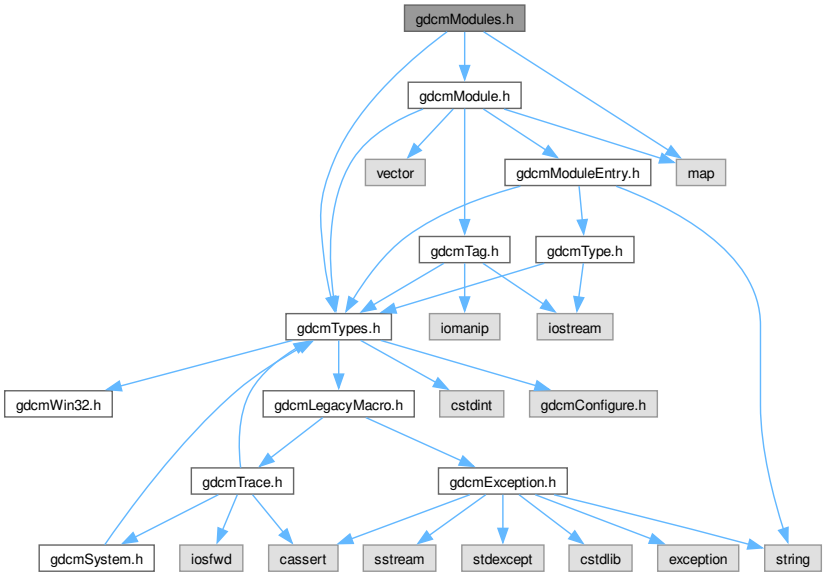
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMODULEENTRY_H
00015 #define GDCMMODULEENTRY_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmType.h"
00019
00020 #include <string>
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT ModuleEntry
00030 {
00031 public:
00032   ModuleEntry(const char *name = "", const char *type = "3", const char *description =
      "");:Name(name)/*,Type(type)*/,DescriptionField(description) {
00033     DataElementType = Type::GetTypeType(type);
00034   }
00035   virtual ~ModuleEntry() = default; // important
00036   friend std::ostream& operator«(std::ostream& _os, const ModuleEntry &_val);
00037
00038   void SetName(const char *name) { Name = name; }
00039   const char *GetName() const { return Name.c_str(); }
00040
00041   void SetType(const Type &type) { DataElementType = type; }
00042   const Type &GetType() const { return DataElementType; }
00043
00044   /*
00045    * WARNING: 'Description' is currently a std::string, but it might change in the future
00046    * do not expect it to remain the same, and always use the ModuleEntry::Description typedef
00047    * instead.
00048    */
00049   typedef std::string Description;
00050   void SetDescription(const char *d) { DescriptionField = d; }
```

```
00051   const Description & GetDescription() const { return DescriptionField; }
00052
00053 protected:
00054   // PS 3.3 repeats the name of an attribute, but often contains typos
00055   // for now we will not use this info, but instead access the DataDict instead
00056   std::string Name;
00057
00058   // An attribute, encoded as a Data Element, may or may not be required in a
00059   // Data Set, depending on that Attribute's Data Element Type.
00060   Type DataElementType;
00061
00062   // TODO: for now contains the raw description (with enumerated values, defined terms...)
00063   Description DescriptionField;
00064 };
00065 //-----------------------------------------------------------------------------
00066 inline std::ostream& operator«(std::ostream& _os, const ModuleEntry &_val)
00067 {
00068   _os « _val.Name « "\t" « _val.DataElementType « "\t" « _val.DescriptionField;
00069   return _os;
00070 }
00071
00072 typedef ModuleEntry MacroEntry;
00073
00074
00075 } // end namespace gdcm
00076
00077 #endif //GDCMMODULEENTRY_H
```

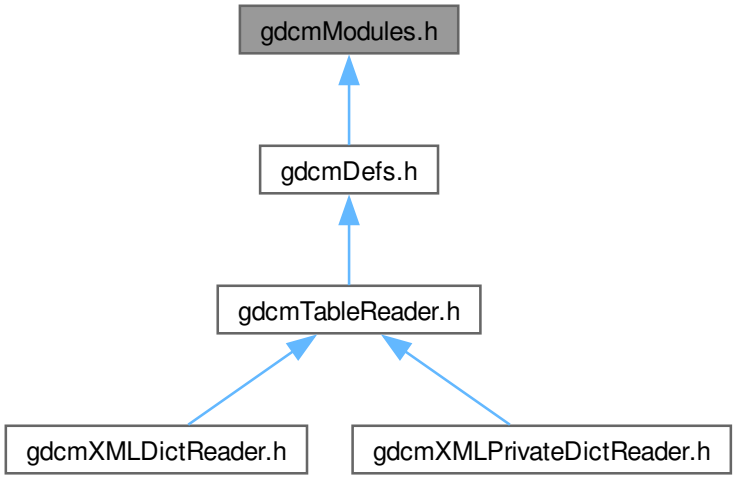
13.221 gdcmModules.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmModule.h"
#include <map>
```

Include dependency graph for gdcmModules.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Modules

  Class for representing a Modules.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Modules &_val)

13.222 gdcmModules.h

Go to the documentation of this file.

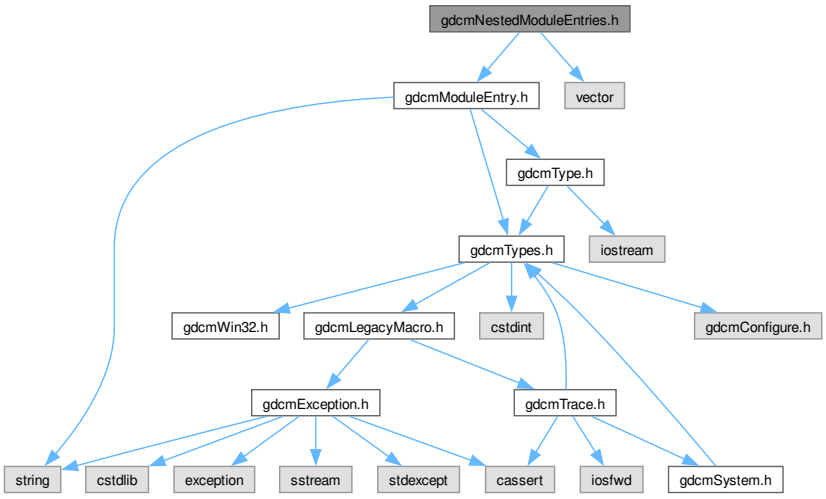
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
```

```
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMODULES_H
00015 #define GDCMMODULES_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmModule.h"
00019
00020 #include <map>
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT Modules
00030 {
00031 public:
00032   typedef std::map<std::string, Module> ModuleMapType;
00033
00034   Modules() = default;
00035   friend std::ostream& operator«(std::ostream& _os, const Modules &_val);
00036
00037   void Clear() { ModulesInternal.clear(); }
00038
00039   // A Module is inserted based on it's ref
00040   void AddModule(const char *ref, const Module & module )
00041     {
00042     gdcm_assert( ref && *ref );
00043     gdcm_assert( ModulesInternal.find( ref ) == ModulesInternal.end() );
00044     ModulesInternal.insert(
00045       ModuleMapType::value_type(ref, module));
00046     }
00047   const Module &GetModule(const char *name) const
00048     {
00049     gdcm_assert( name && *name );
00050     ModuleMapType::const_iterator it = ModulesInternal.find( name );
00051     gdcm_assert( it != ModulesInternal.end() );
00052     gdcm_assert( it->first == name );
00053     return it->second;
00054     }
00055
00056   bool IsEmpty() const { return ModulesInternal.empty(); }
00057
00058 private:
00059   ModuleMapType ModulesInternal;
00060 };
00061 //-----------------------------------------------------------------------------
00062 inline std::ostream& operator«(std::ostream& _os, const Modules &_val)
00063 {
00064   Modules::ModuleMapType::const_iterator it = _val.ModulesInternal.begin();
00065   for(;it != _val.ModulesInternal.end(); ++it)
00066     {
00067     const std::string &name = it->first;
00068     const Module &m = it->second;
00069     _os « name « " " « m « '\n';
00070     }
00071
00072   return _os;
00073 }
00074
00075
00076
00077 } // end namespace gdcm
00078
00079 #endif //GDCMMODULES_H
```

13.223 gdcmNestedModuleEntries.h File Reference

```
#include "gdcmModuleEntry.h"
#include <vector>
```

Include dependency graph for gdcmNestedModuleEntries.h:



Classes

- class gdcm::NestedModuleEntries

  Class for representing a NestedModuleEntries.

Namespaces

- namespace gdcm

Typedefs

- typedef NestedModuleEntries gdcm::NestedMacroEntries

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const NestedModuleEntries &_val)

13.224 gdcmNestedModuleEntries.h

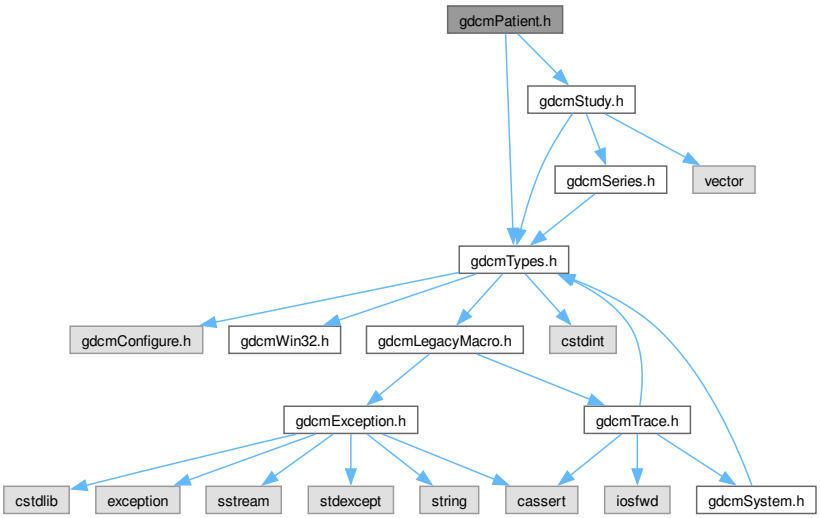
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMNESTEDMODULEENTRIES_H
00015 #define GDCMNESTEDMODULEENTRIES_H
00016
00017 #include "gdcmModuleEntry.h"
00018 #include <vector>
00019
00020 namespace gdcm
00021 {
00027 class GDCM_EXPORT NestedModuleEntries : public ModuleEntry
00028 {
00029 public:
00030   NestedModuleEntries(const char *name = "", const char *type = "3", const char *description =
      "");:ModuleEntry(name,type,description) { }
00031   friend std::ostream& operator«(std::ostream& _os, const NestedModuleEntries &_val);
00032
00033   typedef std::vector<ModuleEntry>::size_type SizeType;
00034   SizeType GetNumberOfModuleEntries() { return ModuleEntriesList.size(); }
00035
00036   const ModuleEntry &GetModuleEntry(SizeType idx) const { return ModuleEntriesList[idx]; }
00037   ModuleEntry &GetModuleEntry(SizeType idx) { return ModuleEntriesList[idx]; }
00038
00039   void AddModuleEntry(const ModuleEntry &me) { ModuleEntriesList.push_back( me ); }
00040
00041 private:
00042   std::vector<ModuleEntry> ModuleEntriesList;
00043 };
00044 //-----------------------------------------------------------------------------
00045 inline std::ostream& operator«(std::ostream& _os, const NestedModuleEntries &_val)
00046 {
00047   _os « "Nested:" « _val.Name « "\t" « _val.DataElementType « "\t" « _val.DescriptionField;
00048   return _os;
00049 }
00050
00051 typedef NestedModuleEntries NestedMacroEntries;
00052
00053
00054 } // end namespace gdcm
00055
00056 #endif //GDCMNESTEDMODULEENTRIES_H
```

13.225 gdcmPatient.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmStudy.h"
```

Include dependency graph for gdcmPatient.h:



Classes

- class gdcm::Patient

  See PS 3.3 - 2007 DICOM MODEL OF THE REAL-WORLD, p 54.

Namespaces

- namespace gdcm

13.226 gdcmPatient.h

Go to the documentation of this file.

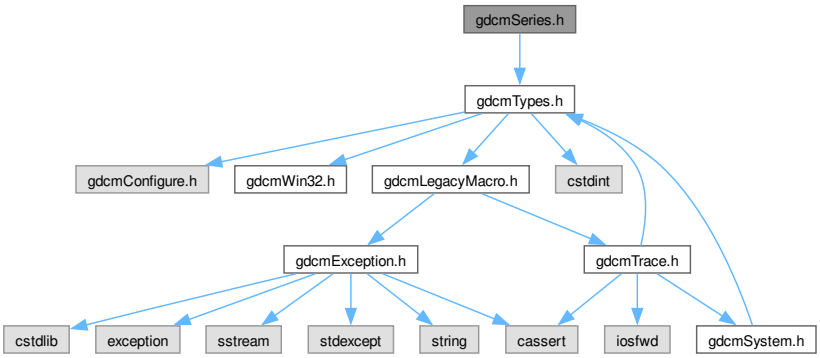
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPATIENT_H
00015 #define GDCMPATIENT_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmStudy.h"
00019
```

```
00020 namespace gdcm
00021 {
00027 class GDCM_EXPORT Patient
00028 {
00029 public:
00030   Patient() = default;
00031
00032 private:
00033   std::vector<Study> StudyList;
00034 };
00035
00036 } // end namespace gdcm
00037
00038 #endif //GDCMPATIENT_H
```

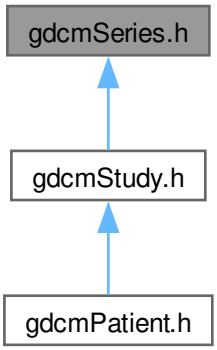
13.227 gdcmSeries.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmSeries.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Series

  Series.

Namespaces

- namespace gdcm

13.228 gdcmSeries.h

Go to the documentation of this file.

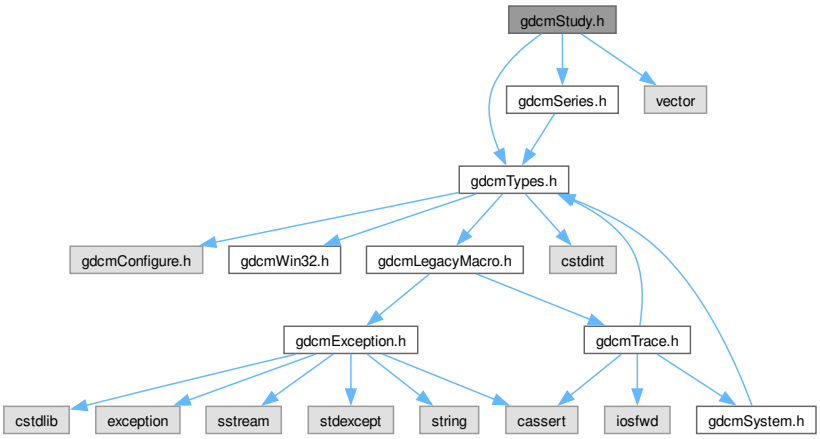
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSERIES_H
00015 #define GDCMSERIES_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00024 class GDCM_EXPORT Series
00025 {
00026 public:
00027   Series() = default;
00028 private:
00029   // Image, Waveform...
00030 };
00031
00032 } // end namespace gdcm
00033
00034 #endif //GDCMSERIES_H
```

13.229 gdcmStudy.h File Reference

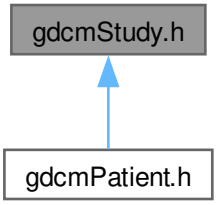
```
#include "gdcmTypes.h"
#include "gdcmSeries.h"
```

```
#include <vector>
```

Include dependency graph for gdcmStudy.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Study

  Study.

Namespaces

- namespace gdcm

13.230 gdcmStudy.h

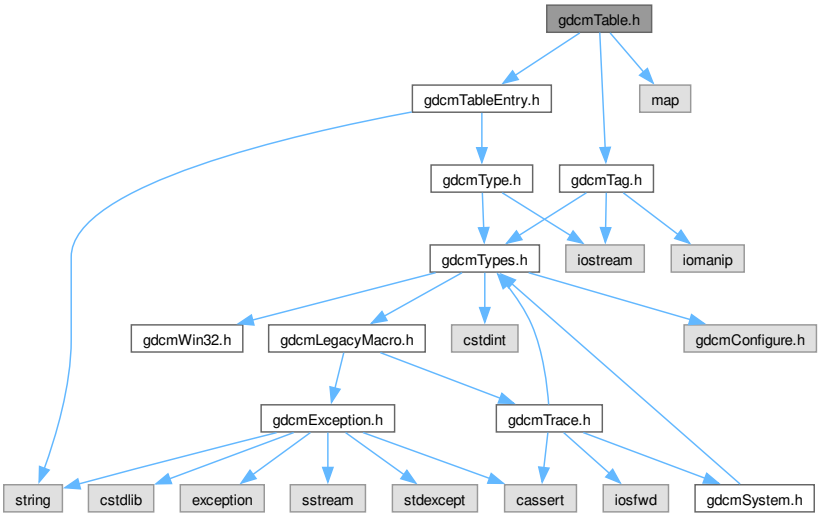
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSTUDY_H
00015 #define GDCMSTUDY_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmSeries.h"
00019
00020 #include <vector>
00021
00022 namespace gdcm
00023 {
00027 class GDCM_EXPORT Study
00028 {
00029 public:
00030   Study() = default;
00031 private:
00032   std::vector<Series> SeriesList;
00033 };
00034
00035 } // end namespace gdcm
00036
00037 #endif //GDCMSTUDY_H
```

13.231 gdcmTable.h File Reference

```
#include "gdcmTableEntry.h"
#include "gdcmTag.h"
#include <map>
```

Include dependency graph for gdcmTable.h:



Classes

- class gdcm::Table
  Table.

Namespaces

- namespace gdcm

13.232 gdcmTable.h

Go to the documentation of this file.

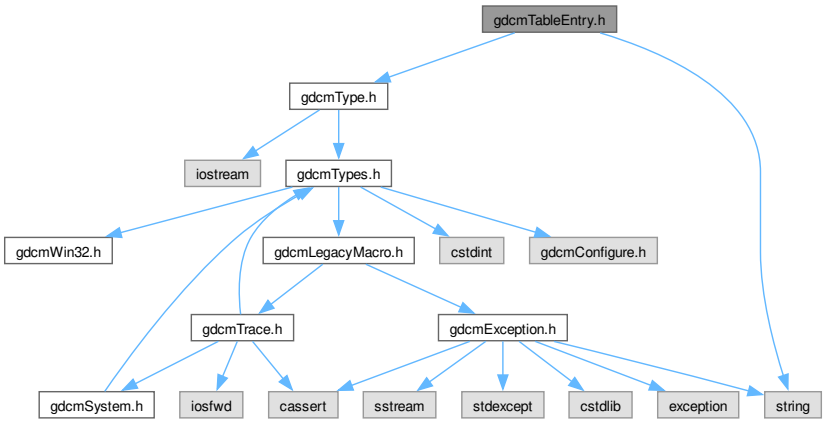
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTABLE_H
00015 #define GDCMTABLE_H
00016
00017 #include "gdcmTableEntry.h"
00018 #include "gdcmTag.h"
00019
00020 #include <map>
```

```
00021
00022 namespace gdcm
00023 {
00024
00028 class Table
00029 {
00030 public:
00031   typedef std::map<Tag, TableEntry> MapTableEntry;
00032   Table() = default;
00033   ~Table() = default;
00034   Table &operator=(const Table &_val) = delete;
00035   Table(const Table&_val) = delete;
00036
00037   friend std::ostream& operator«(std::ostream& _os, const Table &_val);
00038
00039   void InsertEntry(Tag const &tag, TableEntry const &te)
00040     {
00041 #ifndef NDEBUG
00042     MapTableEntry::size_type s = TableInternal.size();
00043 #endif
00044     TableInternal.insert(
00045       MapTableEntry::value_type(tag, te));
00046 #ifndef NDEBUG
00047     gdcm_assert( s < TableInternal.size() );
00048 #endif
00049     }
00050
00051   const TableEntry &GetTableEntry(const Tag &tag) const
00052     {
00053     MapTableEntry::const_iterator it =
00054       TableInternal.find(tag);
00055     if (it == TableInternal.end())
00056       {
00057       gdcm_assert( 0 && "Impossible" );
00058       return GetTableEntry(Tag(0,0));
00059       }
00060     return it->second;
00061     }
00062
00063   MapTableEntry TableInternal;
00064 };
00065
00066 } // end namespace gdcm
00067
00068 #endif //GDCMTABLE_H
```

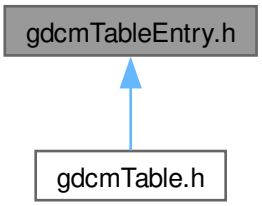
13.233 gdcmTableEntry.h File Reference

```
#include "gdcmType.h"
#include <string>
```

Include dependency graph for gdcmTableEntry.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::TableEntry

  TableEntry.

Namespaces

- namespace gdcm

13.234 gdcmTableEntry.h

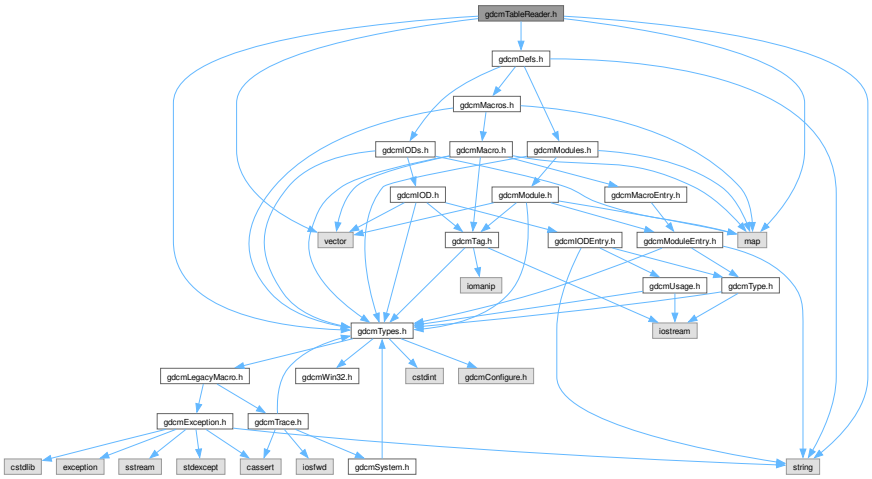
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTABLEENTRY_H
00015 #define GDCMTABLEENTRY_H
00016
00017 #include "gdcmType.h"
00018
00019 #include <string>
00020
00021 namespace gdcm
00022 {
00023
00027 class TableEntry
00028 {
00029 public:
00030   TableEntry(const char *attribute = nullptr,
00031     Type const &type = Type(), const char * des = nullptr ) :
00032     Attribute(attribute ? attribute : ""),TypeField(type),Description(des ? des : "") {}
00033   ~TableEntry() = default;
00034
00035 private:
00036   std::string Attribute;
00037   Type TypeField;
00038   std::string Description;
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMTABLEENTRY_H
```

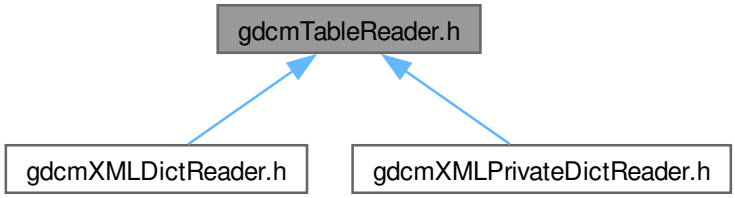
13.235 gdcmTableReader.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDefs.h"
#include <string>
#include <vector>
#include <map>
```

Include dependency graph for gdcmTableReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::TableReader

  Class for representing a TableReader.

Namespaces

- namespace gdcm

13.236 gdcmTableReader.h

Go to the documentation of this file.

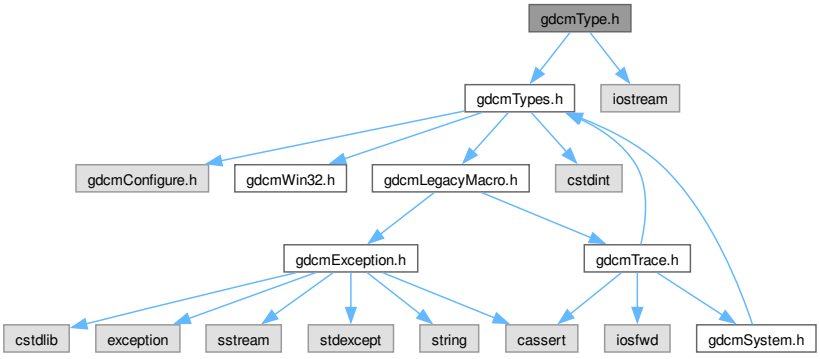
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTABLEREADER_H
00015 #define GDCMTABLEREADER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmDefs.h"
00019 //#include "gdcmModule.h"
00020 //#include "gdcmIOD.h"
00021 //#include "gdcmIODs.h"
00022 //#include "gdcmModules.h"
00023
00024 #include <string>
00025 #include <vector>
00026 #include <map>
00027
00028 namespace gdcm
00029 {
00034 class GDCM_EXPORT TableReader
00035 {
00036 public:
00037   TableReader(Defs &defs):CurrentDefs(defs),ParsingModule(false),ParsingModuleEntry(false),
00038   ParsingModuleEntryDescription(false),
00039   ParsingMacro(false),
00040   ParsingMacroEntry(false),
00041   ParsingMacroEntryDescription(false),
00042   ParsingIOD(false),
00043   ParsingIODEntry(false),
00044   Description() {}
00045   virtual ~TableReader() = default;
00046
00047   // Set/Get filename
00048   void SetFilename(const char *filename) { Filename = filename; }
00049   const char *GetFilename() { return Filename.c_str(); }
00050
00051   int Read();
00052
00053 //protected:
00054   // You need to override those function in your subclasses:
00055   virtual void StartElement(const char *name, const char **atts);
00056   virtual void EndElement(const char *name);
00057   virtual void CharacterDataHandler(const char *data, int length);
00058
00059 void HandleModuleEntry(const char **atts);
00060 void HandleModule(const char **atts);
00061 void HandleModuleEntryDescription(const char **atts);
00062 void HandleMacroEntry(const char **atts);
00063 void HandleMacro(const char **atts);
00064 void HandleMacroEntryDescription(const char **atts);
00065 void HandleModuleInclude(const char **atts);
00066 void HandleIODEntry(const char **atts);
00067 void HandleIOD(const char **atts);
00068
00069   //const Modules & GetModules() const { return CurrentModules; }
00070   //const Macros & GetMacros() const { return CurrentMacros; }
00071   //const IODs & GetIODs() const { return CurrentIODs; }
00072   const Defs & GetDefs() const { return CurrentDefs; }
00073
00074 private:
00075   std::string Filename;
00076   Defs &CurrentDefs;
00077   //Macros CurrentMacros;
00078   //Modules CurrentModules;
00079   //IODs CurrentIODs;
```

```
00080   Macro CurrentMacro;
00081   Module CurrentModule;
00082   IOD CurrentIOD;
00083   MacroEntry CurrentMacroEntry;
00084   ModuleEntry CurrentModuleEntry;
00085   IODEntry CurrentIODEntry;
00086   std::string CurrentModuleName;
00087   std::string CurrentModuleRef;
00088   std::string CurrentMacroRef;
00089   bool ParsingModule;
00090   bool ParsingModuleEntry;
00091   bool ParsingModuleEntryDescription;
00092   bool ParsingMacro;
00093   bool ParsingMacroEntry;
00094   bool ParsingMacroEntryDescription;
00095   bool ParsingIOD;
00096   bool ParsingIODEntry;
00097   Tag CurrentTag;
00098   std::string Description;
00099 };
00100
00101 } // end namespace gdcm
00102
00103 #endif //GDCMTABLEREADER_H
```

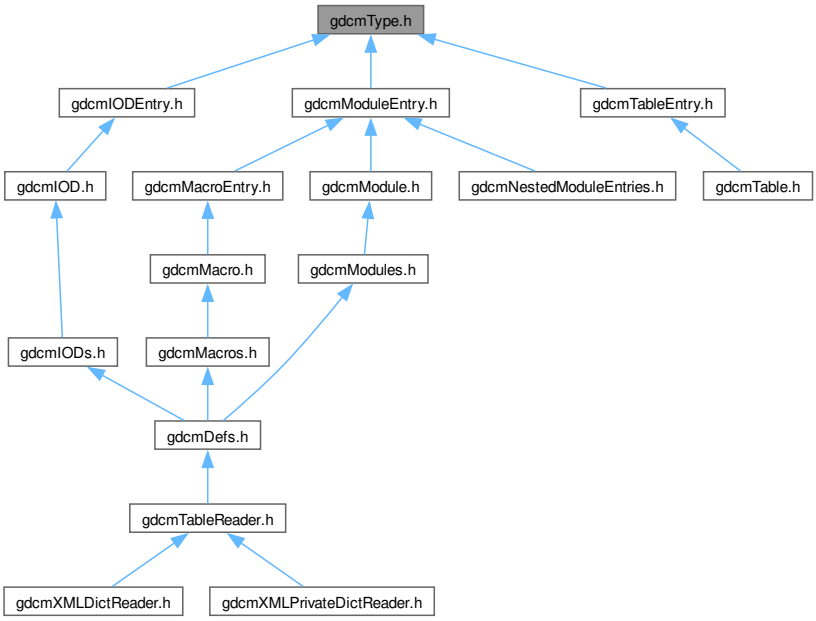
13.237 gdcmType.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmType.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Type
  Type.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Type &val)

13.238 gdcmType.h

Go to the documentation of this file.

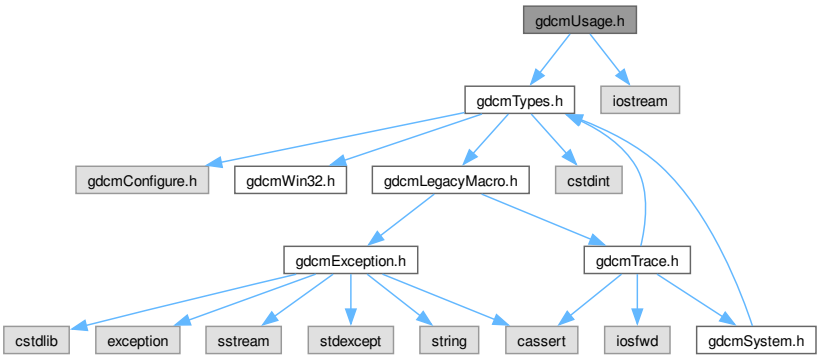
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMTYPE_H
00016 #define GDCMTYPE_H
00017
00018 #include "gdcmTypes.h"
00019
00020 #include <iostream>
00021
00022 namespace gdcm
00023 {
00024
00041 class GDCM_EXPORT Type
00042 {
00043 public:
00044   typedef enum {
00045     T1 = 0,
00046     T1C,
00047     T2,
00048     T2C,
00049     T3,
00050     UNKNOWN
00051   } TypeType;
00052
00053   Type(TypeType type = UNKNOWN) : TypeField(type) { }
00054
00055   operator TypeType () const { return TypeField; }
00056   friend std::ostream &operator<<(std::ostream &os, const Type &vr);
00057
00058   static const char *GetTypeString(TypeType type);
00059   static TypeType GetTypeType(const char *type);
00060
00061 private:
00062   TypeType TypeField;
00063 };
00064 //-----------------------------------------------------------------------------
00065 inline std::ostream &operator<<(std::ostream &_os, const Type &val)
00066 {
00067   _os << Type::GetTypeString(val.TypeField);
00068   return _os;
00069 }
00070
00071 } // end namespace gdcm
00072
00073 #endif //GDCMTYPE_H
```

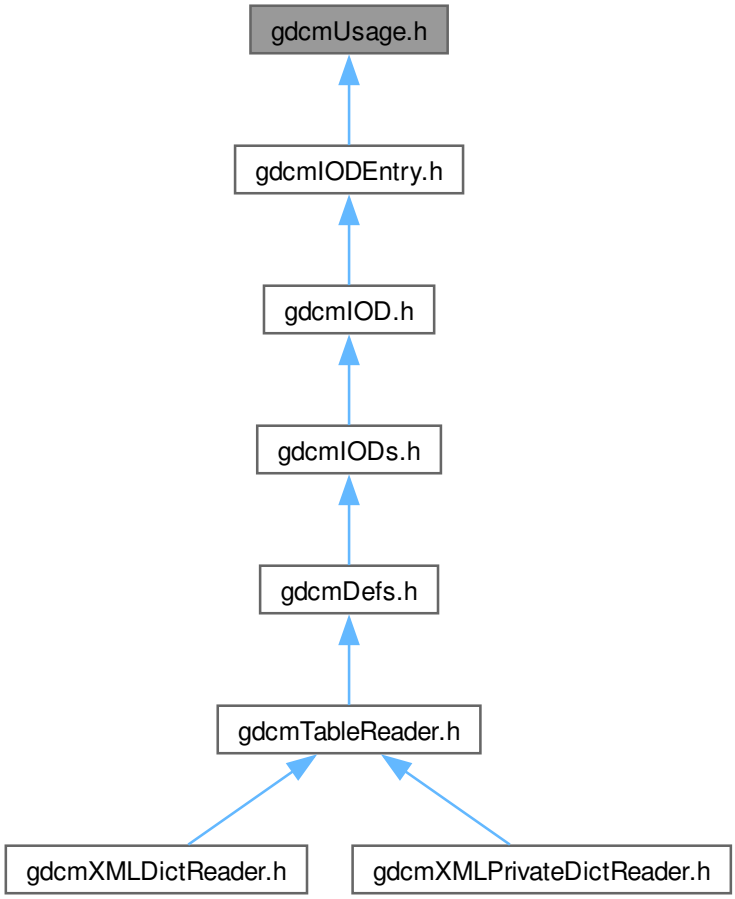
13.239 gdcmUsage.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmUsage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Usage
  Usage.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &_os, const Usage &val)

13.240 gdcmUsage.h

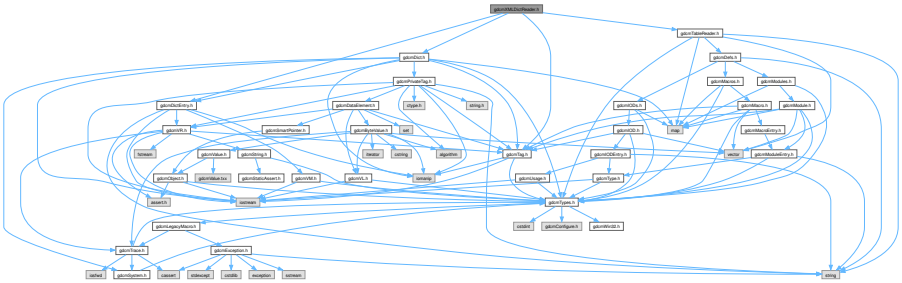
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUSAGE_H
00015 #define GDCMUSAGE_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <iostream>
00020
00021 namespace gdcm
00022 {
00023
00048 class GDCM_EXPORT Usage
00049 {
00050 public:
00051   typedef enum {
00052     Mandatory, // (see A.1.3.1) , abbreviated M
00053     Conditional, // (see A.1.3.2) , abbreviated C
00054     UserOption, // (see A.1.3.3) , abbreviated U
00055     Invalid
00056   } UsageType;
00057
00058   Usage(UsageType type = Invalid) : UsageField(type) { }
00059
00060   operator UsageType () const { return UsageField; }
00061   friend std::ostream &operator<<(std::ostream &os, const Usage &vr);
00062
00063   static const char *GetUsageString(UsageType type);
00064   static UsageType GetUsageType(const char *type);
00065
00066 private:
00067   UsageType UsageField;
00068 };
00069 //-----------------------------------------------------------------------------
00070 inline std::ostream &operator<<(std::ostream &_os, const Usage &val)
00071 {
00072   _os << Usage::GetUsageString(val.UsageField);
00073   return _os;
00074 }
00075
00076 } // end namespace gdcm
00077
00078 #endif //GDCMUSAGE_H
```

13.241 gdcmXMLDictReader.h File Reference

```
#include "gdcmTableReader.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmXMLDictReader.h:



Classes

- class gdcm::XMLDictReader

  Class for representing a XMLDictReader.

Namespaces

- namespace gdcm

13.242 gdcmXMLDictReader.h

Go to the documentation of this file.

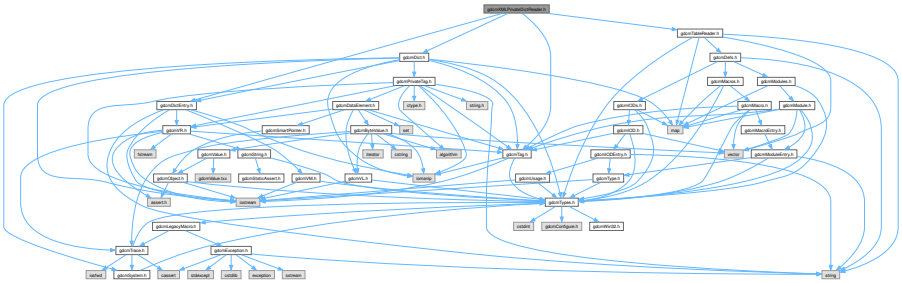
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMXMLDICTREADER_H
00015 #define GDCMXMLDICTREADER_H
00016
00017 #include "gdcmTableReader.h"
00018 #include "gdcmDict.h"
00019 #include "gdcmDictEntry.h"
00020 #include "gdcmTag.h"
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT XMLDictReader : public TableReader
00030 {
00031 public:
00032   XMLDictReader();
00033   ~XMLDictReader() {}
00034
00035   void StartElement(const char *name, const char **atts);
00036   void EndElement(const char *name);
00037   void CharacterDataHandler(const char *data, int length);
00038
00039   const Dict & GetDict() { return DICOMDict; }
```

```
00040
00041 protected:
00042   void HandleEntry(const char **atts);
00043   void HandleDescription(const char **atts);
00044
00045 private:
00046   Dict DICOMDict;
00047   Tag CurrentTag;
00048   DictEntry CurrentDE;
00049   bool ParsingDescription;
00050   std::string Description;
00051 };
00052
00053 } // end namespace gdcm
00054
00055 #endif //GDCMXMLDICTREADER_H
```

13.243 gdcmXMLPrivateDictReader.h File Reference

```
#include "gdcmTableReader.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmXMLPrivateDictReader.h:



Classes

- class gdcm::XMLPrivateDictReader

  Class for representing a XMLPrivateDictReader.

Namespaces

- namespace gdcm

13.244 gdcmXMLPrivateDictReader.h

Go to the documentation of this file.

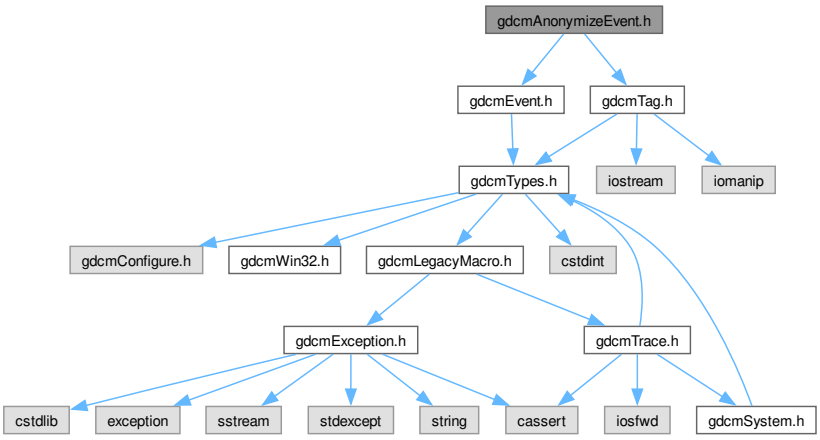
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
```

```
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMXMLPRIVATEDICTREADER_H
00015 #define GDCMXMLPRIVATEDICTREADER_H
00016
00017 #include "gdcmTableReader.h"
00018 #include "gdcmDict.h"
00019 #include "gdcmDictEntry.h"
00020 #include "gdcmTag.h"
00021
00022 namespace gdcm
00023 {
00029 class GDCM_EXPORT XMLPrivateDictReader : public TableReader
00030 {
00031 public:
00032   XMLPrivateDictReader();
00033   ~XMLPrivateDictReader() {}
00034
00035   void StartElement(const char *name, const char **atts);
00036   void EndElement(const char *name);
00037   void CharacterDataHandler(const char *data, int length);
00038
00039   const PrivateDict & GetPrivateDict() { return PDict; }
00040
00041 protected:
00042   void HandleEntry(const char **atts);
00043   void HandleDescription(const char **atts);
00044
00045 private:
00046   PrivateDict PDict;
00047   PrivateTag CurrentTag;
00048   DictEntry CurrentDE;
00049   bool ParsingDescription;
00050   std::string Description;
00051 };
00052
00053 } // end namespace gdcm
00054
00055 #endif //GDCMXMLPRIVATEDICTREADER_H
```

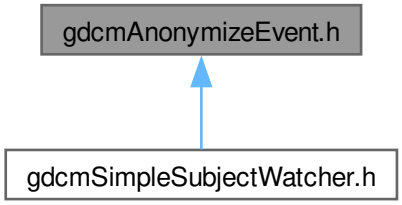
13.245 gdcmAnonymizeEvent.h File Reference

```
#include "gdcmEvent.h"
#include "gdcmTag.h"
```

Include dependency graph for gdcmAnonymizeEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::AnonymizeEvent

  AnonymizeEvent.

Namespaces

- namespace gdcm

13.246 gdcmAnonymizeEvent.h

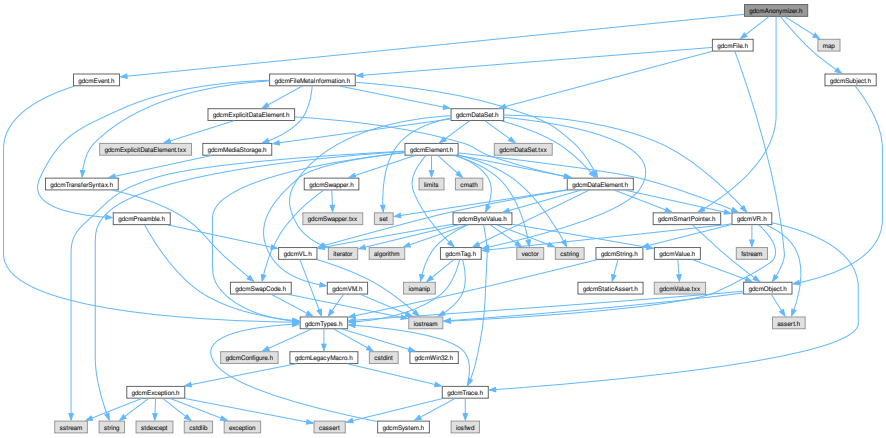
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMANONYMIZEEVENT_H
00015 #define GDCMANONYMIZEEVENT_H
00016
00017 #include "gdcmEvent.h"
00018 #include "gdcmTag.h"
00019
00020 namespace gdcm
00021 {
00022
00029 class AnonymizeEvent : public AnyEvent
00030 {
00031 public:
00032   typedef AnonymizeEvent Self;
00033   typedef AnyEvent Superclass;
00034   AnonymizeEvent(Tag const &tag = 0):m_Tag(tag) {}
00035   ~AnonymizeEvent() override = default;
00036   AnonymizeEvent(const Self&s) : AnyEvent(s){}
00037   void operator=(const Self&) = delete;
00038
00039   const char * GetEventName() const override { return "AnonymizeEvent"; }
00040   bool CheckEvent(const ::gdcm::Event* e) const override
00041   { return (dynamic_cast<const Self*>(e) == nullptr ? false : true) ; }
00042   ::gdcm::Event* MakeObject() const override
00043     { return new Self; }
00044
00045   void SetTag(const Tag& t ) { m_Tag = t; }
00046   Tag const & GetTag() const { return m_Tag; }
00047 private:
00048   Tag m_Tag;
00049 };
00050
00051
00052 } // end namespace gdcm
00053
00054 #endif //GDCMANONYMIZEEVENT_H
```

13.247 gdcmAnonymizer.h File Reference

```
#include "gdcmFile.h"
#include "gdcmSubject.h"
#include "gdcmEvent.h"
#include "gdcmSmartPointer.h"
#include <map>
```

Include dependency graph for gdcmAnonymizer.h:



Classes

- class gdcm::Anonymizer

  Anonymizer.

Namespaces

- namespace gdcm

13.248 gdcmAnonymizer.h

Go to the documentation of this file.

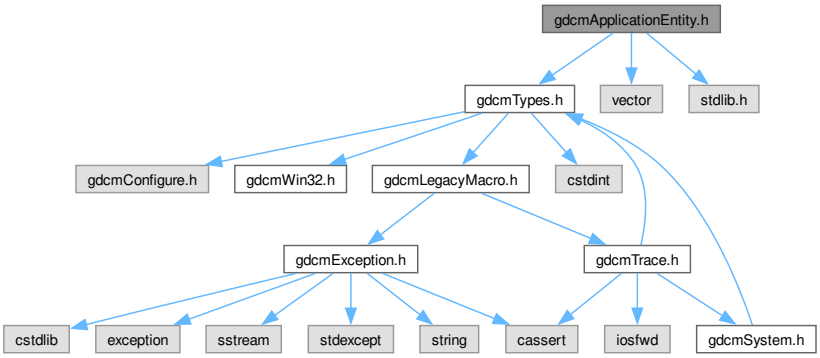
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMANONYMIZER_H
00015 #define GDCMANONYMIZER_H
00016
00017 #include "gdcmFile.h"
00018 #include "gdcmSubject.h"
00019 #include "gdcmEvent.h"
00020 #include "gdcmSmartPointer.h"
00021
00022 #include <map>
00023
00024 namespace gdcm
00025 {
00026 class TagPath;
```

```
00027 class IOD;
00028 class CryptographicMessageSyntax;
00029
00077 class GDCM_EXPORT Anonymizer : public Subject
00078 {
00079 public:
00080   Anonymizer():F(new File),CMS(nullptr) {}
00081   ~Anonymizer() override;
00082
00084   bool Empty( Tag const &t );
00085
00090   bool Empty( PrivateTag const &pt );
00091
00093   bool Clear( Tag const &t );
00094   bool Clear( PrivateTag const &pt );
00095
00097   bool Remove( Tag const &t );
00098
00104   bool Remove( PrivateTag const &pt );
00105
00108   bool Replace( Tag const &t, const char *value );
00109   bool Replace( PrivateTag const &t, const char *value );
00110
00113   bool Replace( Tag const &t, const char *value, VL const & vl );
00114   bool Replace( PrivateTag const &t, const char *value, VL const & vl );
00115
00117   bool RemovePrivateTags();
00118
00120   bool RemoveGroupLength();
00121
00123   bool RemoveRetired();
00124
00126   void SetFile(const File& f) { F = f; }
00127   //const File &GetFile() const { return *F; }
00128   File &GetFile() { return *F; }
00129
00134   bool BasicApplicationLevelConfidentialityProfile(bool deidentify = true);
00135
00137   void SetCryptographicMessageSyntax( CryptographicMessageSyntax *cms );
00138   const CryptographicMessageSyntax *GetCryptographicMessageSyntax() const;
00139
00141   static SmartPointer<Anonymizer> New() { return new Anonymizer; }
00142
00144   static std::vector<Tag> GetBasicApplicationLevelConfidentialityProfileAttributes();
00145
00148   static void ClearInternalUIDs();
00149
00150 protected:
00151   // Internal function used to either empty a tag or set it's value to a dummy value (Type 1 vs Type 2)
00152   bool BALCPProtect(DataSet &ds, Tag const & tag, const IOD &iod);
00153   bool CanEmptyTag(Tag const &tag, const IOD &iod) const;
00154   void RecurseDataSet( DataSet & ds );
00155
00156 private:
00157   bool BasicApplicationLevelConfidentialityProfile1();
00158   bool BasicApplicationLevelConfidentialityProfile2();
00159   bool CheckIfSequenceContainsAttributeToAnonymize(File const &file, SequenceOfItems* sqi) const;
00160
00161 private:
00162   // I would prefer to have a smart pointer to DataSet but DataSet does not derive from Object...
00163   SmartPointer<File> F;
00164   CryptographicMessageSyntax *CMS;
00165
00166   typedef std::pair< Tag, std::string > TagValueKey;
00167   typedef std::map< TagValueKey, std::string > DummyMapNonUIDTags;
00168   typedef std::map< std::string, std::string > DummyMapUIDTags;
00169   static DummyMapNonUIDTags dummyMapNonUIDTags;
00170   static DummyMapUIDTags dummyMapUIDTags;
00171 };
00172
00178
00179 } // end namespace gdcm
00180
00181 #endif //GDCMANONYMIZER_H
```

13.249 gdcmApplicationEntity.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
#include <stdlib.h>
```

Include dependency graph for gdcmApplicationEntity.h:



Classes

- class gdcm::ApplicationEntity

  ApplicationEntity.

Namespaces

- namespace gdcm

13.250 gdcmApplicationEntity.h

Go to the documentation of this file.

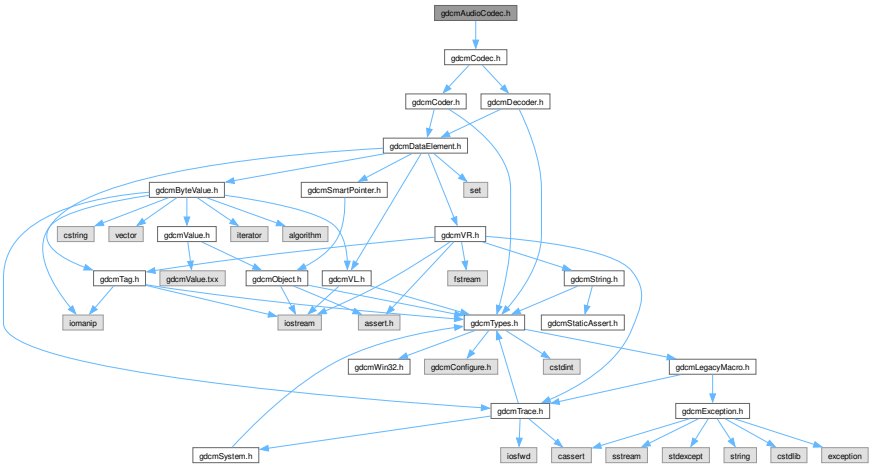
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAPPLICATIONENTITY_H
00015 #define GDCMAPPLICATIONENTITY_H
00016
00017 #include "gdcmTypes.h"
00018 #include <vector>
```

```
00019 #include <stdlib.h> // abort
00020
00021 namespace gdcm
00022 {
00023
00035 class GDCM_EXPORT ApplicationEntity
00036 {
00037 public:
00038   static const unsigned int MaxNumberOfComponents = 1;
00039   static const unsigned int MaxLength = 16;
00040   std::string Internal;
00041   static const char Separator = ' ';
00042   static const char Padding   = ' ';
00043   //static const char Excluded[5] = { '\\' /* 5CH */, '\n' /* LF */, '\f', /* FF */, '\r' /* CR */, 0x1b
      /* ESC */};
00044
00045   bool IsValid() const {
00046     return true;
00047   }
00048   void Squeeze() {
00049     // trim leading and trailing white spaces
00050   }
00051   void SetBlob(const std::vector<char>& v) {
00052     (void)v;
00053     gdcm_assert(0); //TODO
00054   }
00055   void Print(std::ostream &os) const {
00056   (void)os;
00057     gdcm_assert(0); //TODO
00058   }
00059 };
00060
00061 } // end namespace gdcm
00062
00063 #endif //GDCMAPPLICATIONENTITY_H
```

13.251 gdcmAudioCodec.h File Reference

`#include "gdcmCodec.h"`

Include dependency graph for gdcmAudioCodec.h:



Classes

- class gdcm::AudioCodec

  AudioCodec.

Namespaces

- namespace gdcm

13.252 gdcmAudioCodec.h

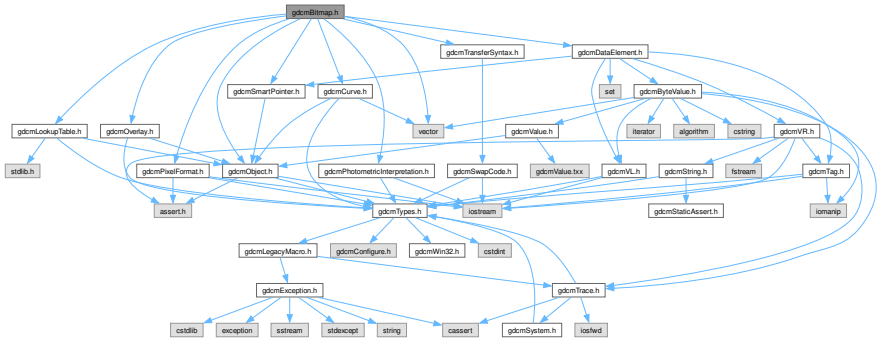
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAUDIOCODEC_H
00015 #define GDCMAUDIOCODEC_H
00016
00017 #include "gdcmCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class GDCM_EXPORT AudioCodec : public Codec
00026 {
00027 public:
00028   AudioCodec();
00029   ~AudioCodec() override;
00030   bool CanCode(TransferSyntax const &) const override { return false; }
00031   bool CanDecode(TransferSyntax const &) const override { return false; }
00032   bool Decode(DataElement const &is, DataElement &os) override;
00033 };
00034
00035 } // end namespace gdcm
00036
00037 #endif //GDCMAUDIOCODEC_H
```

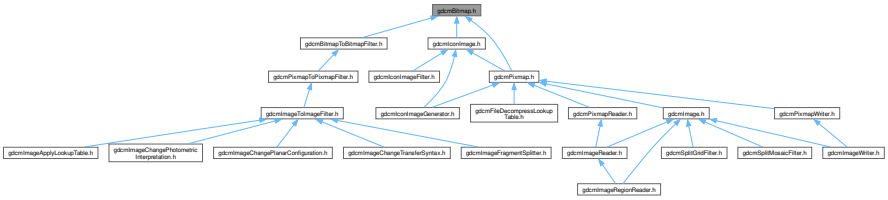
13.253 gdcmBitmap.h File Reference

```
#include "gdcmObject.h"
#include "gdcmCurve.h"
#include "gdcmDataElement.h"
#include "gdcmLookupTable.h"
#include "gdcmOverlay.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmPixelFormat.h"
#include "gdcmSmartPointer.h"
#include "gdcmTransferSyntax.h"
```

`#include <vector>`
Include dependency graph for gdcmBitmap.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Bitmap

  Bitmap class.

Namespaces

- namespace gdcm

13.254 gdcmBitmap.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

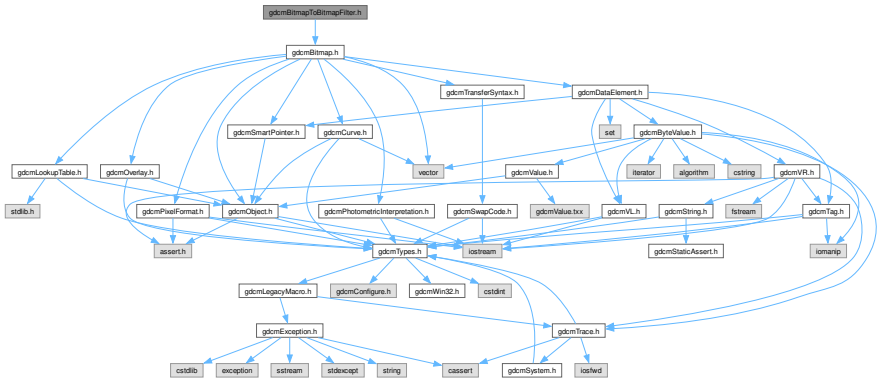
```
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBITMAP_H
00015 #define GDCMBITMAP_H
00016
00017 #include "gdcmObject.h"
00018 #include "gdcmCurve.h"
00019 #include "gdcmDataElement.h"
00020 //#include "gdcmIconImage.h"
00021 #include "gdcmLookupTable.h"
00022 #include "gdcmOverlay.h"
00023 #include "gdcmPhotometricInterpretation.h"
00024 #include "gdcmPixelFormat.h"
00025 #include "gdcmSmartPointer.h"
00026 #include "gdcmTransferSyntax.h"
00027
00028 #include <vector>
00029
00030 namespace gdcm
00031 {
00032
00038 class GDCM_EXPORT Bitmap : public Object
00039 {
00040 public:
00041   Bitmap();
00042   ~Bitmap() override;
00043   void Print(std::ostream &) const override;
00044
00045   virtual bool AreOverlaysInPixelData() const { return false; }
00046   virtual bool UnusedBitsPresentInPixelData() const { return false; }
00047
00049   unsigned int GetNumberOfDimensions() const;
00050   void SetNumberOfDimensions(unsigned int dim);
00051
00053   unsigned int GetPlanarConfiguration() const;
00055   void SetPlanarConfiguration(unsigned int pc);
00056
00058   bool GetNeedByteSwap() const
00059     {
00060     return NeedByteSwap;
00061     }
00062   void SetNeedByteSwap(bool b)
00063     {
00064     NeedByteSwap = b;
00065     }
00066
00067
00069   void SetTransferSyntax(TransferSyntax const &ts) {
00070     TS = ts;
00071   }
00072   const TransferSyntax &GetTransferSyntax() const {
00073     return TS;
00074   }
00075   bool IsTransferSyntaxCompatible( TransferSyntax const & ts ) const;
00076   void SetDataElement(DataElement const &de) {
00077     PixelData = de;
00078   }
00079   const DataElement& GetDataElement() const { return PixelData; }
00080   DataElement& GetDataElement() { return PixelData; }
00081
00083   void SetLUT(LookupTable const &lut)
00084     {
00085     LUT = SmartPointer<LookupTable>( const_cast<LookupTable*>(&lut) );
00086     }
00087   const LookupTable &GetLUT() const
00088     {
00089     return *LUT;
00090     }
00091   LookupTable &GetLUT()
00092     {
00093     return *LUT;
00094     }
00095
00097   const unsigned int *GetDimensions() const;
00098   unsigned int GetDimension(unsigned int idx) const;
00099
00100   void SetColumns(unsigned int col) { SetDimension(0,col); }
00101   unsigned int GetColumns() const { return GetDimension(0); }
00102   void SetRows(unsigned int rows) { SetDimension(1,rows); }
00103   unsigned int GetRows() const { return GetDimension(1); }
```

```
00104   void SetDimensions(const unsigned int dims[3]);
00105   void SetDimension(unsigned int idx, unsigned int dim);
00107   const PixelFormat &GetPixelFormat() const
00108     {
00109     return PF;
00110     }
00111   PixelFormat &GetPixelFormat()
00112     {
00113     return PF;
00114     }
00115   void SetPixelFormat(PixelFormat const &pf)
00116     {
00117     PF = pf;
00118     PF.Validate();
00119     }
00120
00122   const PhotometricInterpretation &GetPhotometricInterpretation() const;
00123   void SetPhotometricInterpretation(PhotometricInterpretation const &pi);
00124
00125   bool IsEmpty() const { return Dimensions.empty(); }
00126   void Clear();
00127
00131   unsigned long GetBufferLength() const;
00132
00134   bool GetBuffer(char *buffer) const;
00135
00137   bool IsLossy() const;
00138
00140   void SetLossyFlag(bool f) { LossyFlag = f; }
00141
00142 protected:
00143   bool TryRAWCodec(char *buffer, bool &lossyflag) const;
00144   bool TryJPEGCodec(char *buffer, bool &lossyflag) const;
00145   bool TryPVRGCodec(char *buffer, bool &lossyflag) const;
00146   bool TryKAKADUCodec(char *buffer, bool &lossyflag) const;
00147   bool TryJPEGLSCodec(char *buffer, bool &lossyflag) const;
00148   bool TryJPEG2000Codec(char *buffer, bool &lossyflag) const;
00149   bool TryRLECodec(char *buffer, bool &lossyflag) const;
00150
00151   bool TryJPEGCodec2(std::ostream &os) const;
00152   bool TryJPEG2000Codec2(std::ostream &os) const;
00153
00154   bool GetBuffer2(std::ostream &os) const;
00155
00156   friend class PixmapReader;
00157   friend class ImageChangeTransferSyntax;
00158   // Function to compute the lossy flag based only on the image buffer.
00159   // Watch out that image can be lossy but in implicit little endian format...
00160   bool ComputeLossyFlag();
00161
00162 //private:
00163 protected:
00164   unsigned int PlanarConfiguration;
00165   unsigned int NumberOfDimensions;
00166   TransferSyntax TS;
00167   PixelFormat PF; // SamplesPerPixel, BitsAllocated, BitsStored, HighBit, PixelRepresentation
00168   PhotometricInterpretation PI;
00169   // Mind dump: unsigned int is required here, since we are reading (0028,0008) Number Of Frames
00170   // which is VR::IS, so I cannot simply assumed that unsigned short is enough... :(
00171   std::vector<unsigned int> Dimensions; // Col/Row
00172   DataElement PixelData; // copied from 7fe0,0010
00173
00174   typedef SmartPointer<LookupTable> LUTPtr;
00175   LUTPtr LUT;
00176   // I believe the following 3 ivars can be derived from TS ...
00177   bool NeedByteSwap; // FIXME: remove me
00178   bool LossyFlag;
00179
00180 private:
00181   bool GetBufferInternal(char *buffer, bool &lossyflag) const;
00182 };
00183
00184 } // end namespace gdcm
00185
00186 #endif //GDCMBITMAP_H
```

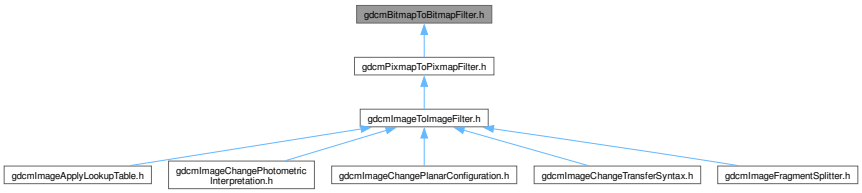
13.255 gdcmBitmapToBitmapFilter.h File Reference

```
#include "gdcmBitmap.h"
```

Include dependency graph for gdcmBitmapToBitmapFilter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::BitmapToBitmapFilter

  BitmapToBitmapFilter class.

Namespaces

- namespace gdcm

13.256 gdcmBitmapToBitmapFilter.h

Go to the documentation of this file.

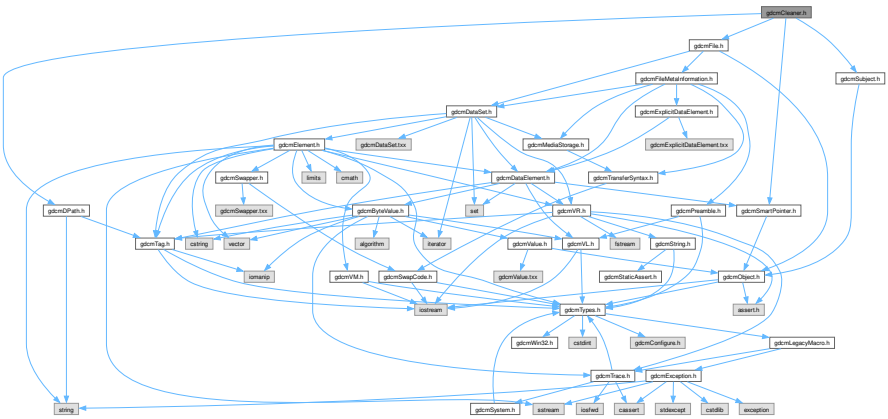
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
```

```
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBITMAPTOBITMAPFILTER_H
00015 #define GDCMBITMAPTOBITMAPFILTER_H
00016
00017 #include "gdcmBitmap.h"
00018
00019 namespace gdcm
00020 {
00021
00026 class GDCM_EXPORT BitmapToBitmapFilter
00027 {
00028 public:
00029   BitmapToBitmapFilter();
00030   ~BitmapToBitmapFilter() = default;
00031
00033   void SetInput(const Bitmap& image);
00034
00036   const Bitmap &GetOutput() const { return *Output; }
00037
00038   // SWIG/Java hack:
00039   const Bitmap &GetOutputAsBitmap() const;
00040
00041 protected:
00042   SmartPointer<Bitmap> Input;
00043   SmartPointer<Bitmap> Output;
00044 };
00045
00046 } // end namespace gdcm
00047
00048 #endif //GDCMBITMAPTOBITMAPFILTER_H
```

13.257 gdcmCleaner.h File Reference

```
#include "gdcmDPath.h"
#include "gdcmFile.h"
#include "gdcmSmartPointer.h"
#include "gdcmSubject.h"
```

Include dependency graph for gdcmCleaner.h:



Classes

- class gdcm::Cleaner

  Cleaner.

Namespaces

- namespace gdcm

13.258 gdcmCleaner.h

Go to the documentation of this file.

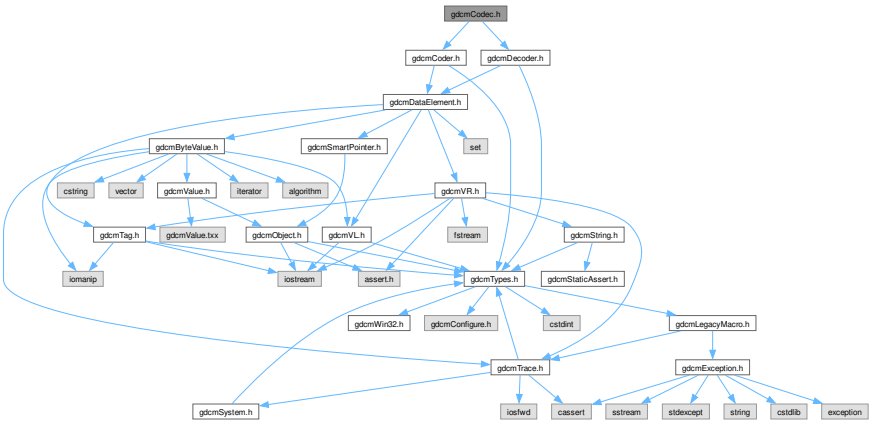
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCLEANER_H
00015 #define GDCMCLEANER_H
00016
00017 #include "gdcmDPath.h"
00018 #include "gdcmFile.h"
00019 #include "gdcmSmartPointer.h"
00020 #include "gdcmSubject.h"
00021
00022 namespace gdcm {
00030 class GDCM_EXPORT Cleaner : public Subject {
00031  public:
00032   Cleaner();
00033   ~Cleaner() override;
00034
00036   bool Empty(Tag const &t);
00037   bool Empty(PrivateTag const &pt);
00038   bool Empty(DPath const &dpath);
00039   bool Empty(VR const &vr);
00040
00041   bool Remove(Tag const &t);
00042   bool Remove(PrivateTag const &pt);
00043   bool Remove(DPath const &dpath);
00044   bool Remove(VR const &vr);
00045
00047   bool Scrub(Tag const &t);
00048   bool Scrub(PrivateTag const &pt);
00049   bool Scrub(DPath const &dpath);
00050   bool Scrub(VR const &vr);
00051
00052   // 8 Encoding of Coded Entry Data
00053   // https://dicom.nema.org/medical/dicom/current/output/chtml/part03/chapter_8.html
00054   typedef std::tuple<std::string, std::string, std::string> CodedEntryData;
00055
00057   bool ReplaceCodeMeaning(CodedEntryData const &ced);
00058
00060   bool Preserve(DPath const &dpath);
00061
00064   void RemoveAllMissingPrivateCreator(bool remove);
00065
00068   bool RemoveMissingPrivateCreator(Tag const &t);
00069
00071   void RemoveAllGroupLength(bool remove);
00072
00074   void RemoveAllIllegal(bool remove);
```

```
00075
00077   void EmptyWhenScrubFails(bool empty);
00078
00080   bool Clean();
00081
00083   void SetFile(const File &f) { F = f; }
00084   // const File &GetFile() const { return *F; }
00085   File &GetFile() { return *F; }
00086
00088   static SmartPointer<Cleaner> New() { return new Cleaner; }
00089
00090  private:
00091   // I would prefer to have a smart pointer to DataSet but DataSet does not
00092   // derive from Object...
00093   SmartPointer<File> F;
00094   struct impl;
00095   // PIMPL idiom
00096   impl *pimpl;
00097 };
00098
00099 }  // end namespace gdcm
00100
00101 #endif  // GDCMCLEANER_H
```

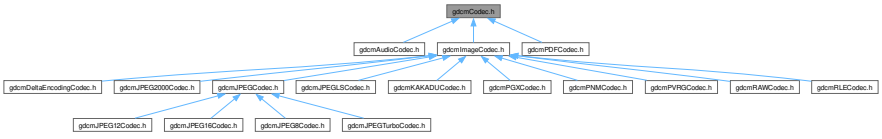
13.259 gdcmCodec.h File Reference

```
#include "gdcmCoder.h"
#include "gdcmDecoder.h"
```

Include dependency graph for gdcmCodec.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Codec

  Codec class.

Namespaces

- namespace gdcm

13.260 gdcmCodec.h

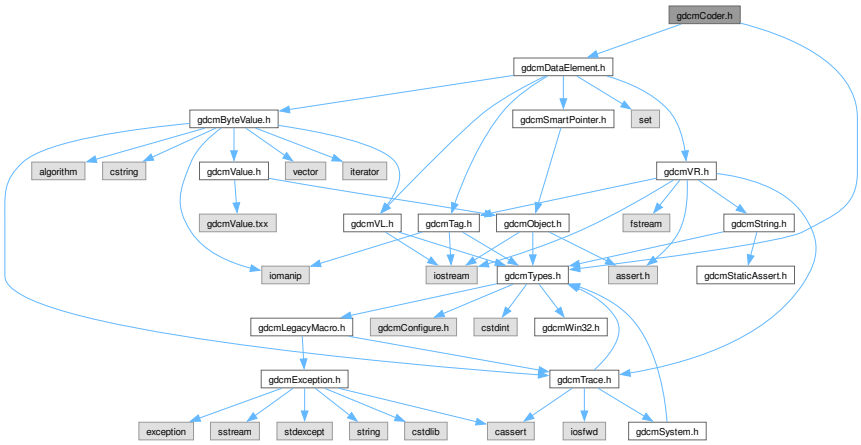
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCODEC_H
00015 #define GDCMCODEC_H
00016
00017 #include "gdcmCoder.h"
00018 #include "gdcmDecoder.h"
00019
00020 namespace gdcm
00021 {
00022
00026 class GDCM_EXPORT Codec : public Coder, public Decoder
00027 {
00028 };
00029
00030 } // end namespace gdcm
00031
00032 #endif //GDCMCODEC_H
```

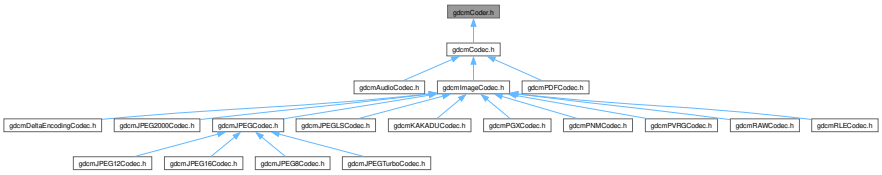
13.261 gdcmCoder.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmCoder.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Coder

  Coder.

Namespaces

- namespace gdcm

13.262 gdcmCoder.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCODER_H
00015 #define GDCMCODER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmDataElement.h" // FIXME
00019
00020 namespace gdcm
00021 {
00022
00023 class TransferSyntax;
00024 class DataElement;
00028 class GDCM_EXPORT Coder
00029 {
00030 public:
00031   virtual ~Coder() = default;
00032
00034   virtual bool CanCode(TransferSyntax const &) const = 0;
00035
00036   // Note: in / out are reserved keyword in C#. Change to in_ / out_
00037
00039   virtual bool Code(DataElement const &in_, DataElement &out_) { (void)in_; (void)out_; return false; }
00040 protected:
00041   virtual bool InternalCode(const char *bv, unsigned long len, std::ostream &os) {
      (void)bv;(void)os;(void)len;return false; }
00042 };
00043
00044 } // end namespace gdcm
00045
00046 #endif //GDCMCODER_H
```

13.263 gdcmConstCharWrapper.h File Reference

Classes

- class gdcm::ConstCharWrapper

  Do not use me.

Namespaces

- namespace gdcm

13.264 gdcmConstCharWrapper.h

Go to the documentation of this file.

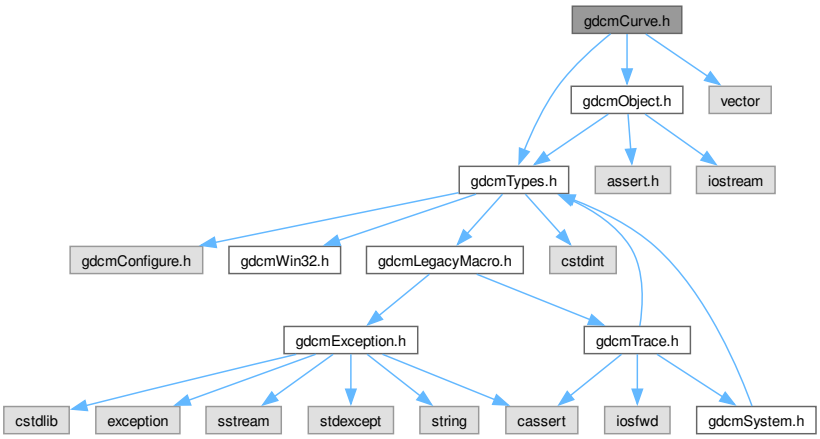
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
```

```
00014 #ifndef GDCMCONSTCHARWRAPPER_H
00015 #define GDCMCONSTCHARWRAPPER_H
00016
00017 namespace gdcm
00018 {
00019
00020 #error
00021
00022 /*
00023  * This class is a pure hack. Its only goal is to work around a bad bug in :
00024  *  $ swig -version
00025  *  SWIG Version 1.3.31
00026  *
00027  *  See
00028  * -
      http://sourceforge.net/mailarchive/forum.php?thread_name=bf0c3b3f0802290552y5163989t76572b80a044ce28%40mail.gmail.com&forum
00029  *
00030  *  As a side note there is also a problem with const reference to enum type:
00031  * -
      http://sourceforge.net/mailarchive/forum.php?thread_name=bf0c3b3f0802290552y5163989t76572b80a044ce28%40mail.gmail.com&forum
00032  *
00033  *   And to keep track of an issue with swig here is the last one:
00034  *
00035  * -
      http://sourceforge.net/mailarchive/forum.php?thread_name=bf0c3b3f0802290552y5163989t76572b80a044ce28%40mail.gmail.com&forum
00036  */
00037
00038
00042 class ConstCharWrapper
00043 {
00044 public:
00045   ConstCharWrapper(const char *i=0):Internal(i) {}
00046   operator const char * () const { return Internal; }
00047 private:
00048   const char *Internal;
00049 };
00050
00051 } // end namespace gdcm
00052
00053 #endif //GDCMCONSTCHARWRAPPER_H
```

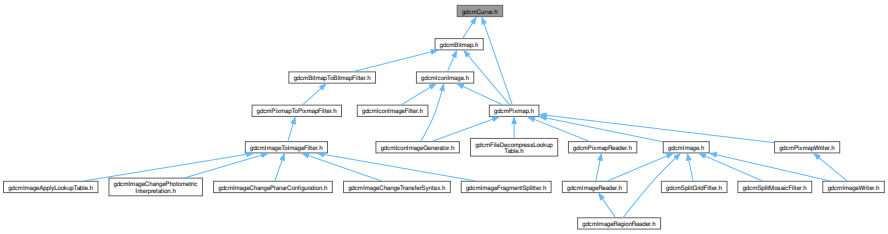
13.265 gdcmCurve.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmObject.h"
#include <vector>
```

Include dependency graph for gdcmCurve.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Curve

  Curve class to handle element 50xx,3000 Curve Data.

Namespaces

- namespace gdcm

13.266 gdcmCurve.h

Go to the documentation of this file.

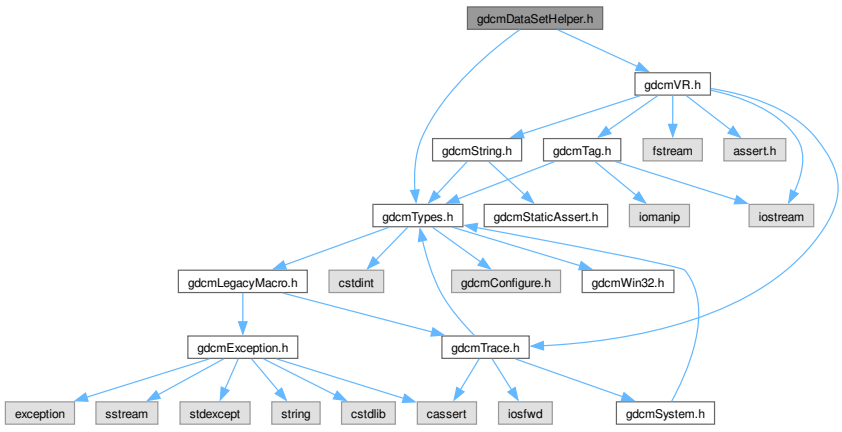
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCURVE_H
00015 #define GDCMCURVE_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmObject.h"
00019
00020 #include <vector>
00021
00022 namespace gdcm
00023 {
00024
00025 class CurveInternal;
00026 class ByteValue;
00027 class DataSet;
00028 class DataElement;
00040 class GDCM_EXPORT Curve : public Object
00041 {
00042 public:
00043   Curve();
00044   ~Curve() override;
00045   void Print(std::ostream &) const override;
00046
00047   void GetAsPoints(float *array) const;
```

```
00048
00049   static unsigned int GetNumberOfCurves(DataSet const & ds);
00050
00051   // Update curve data from dataelmenet de:
00052   void Update(const DataElement & de);
00053
00054   void SetGroup(unsigned short group);
00055   unsigned short GetGroup() const;
00056   void SetDimensions(unsigned short dimensions);
00057   unsigned short GetDimensions() const;
00058   void SetNumberOfPoints(unsigned short numberofpoints);
00059   unsigned short GetNumberOfPoints() const;
00060   void SetTypeOfData(const char *typeofdata);
00061   const char *GetTypeOfData() const;
00062   // See PS 3.3 - 2004 - C.10.2.1.1 Type of data
00063   const char *GetTypeOfDataDescription() const;
00064   void SetCurveDescription(const char *curvedescription);
00065   void SetDataValueRepresentation(unsigned short datavaluerepresentation);
00066   unsigned short GetDataValueRepresentation() const;
00067   void SetCurveDataDescriptor(const uint16_t * values, size_t num);
00068   std::vector<unsigned short> const &GetCurveDataDescriptor() const;
00069   void SetCoordinateStartValue( unsigned short v );
00070   void SetCoordinateStepValue( unsigned short v );
00071
00072   void SetCurve(const char *array, unsigned int length);
00073
00074   bool IsEmpty() const;
00075
00076   void Decode(std::istream &is, std::ostream &os);
00077
00078   Curve(Curve const &ov);
00079 private:
00080   double ComputeValueFromStartAndStep(unsigned int idx) const;
00081   CurveInternal *Internal;
00082 };
00083
00084 } // end namespace gdcm
00085
00086 #endif //GDCMCURVE_H
```

13.267 gdcmDataSetHelper.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
```

Include dependency graph for gdcmDataSetHelper.h:



Classes

- class gdcm::DataSetHelper

  DataSetHelper (internal class, not intended for user level).

Namespaces

- namespace gdcm

13.268 gdcmDataSetHelper.h

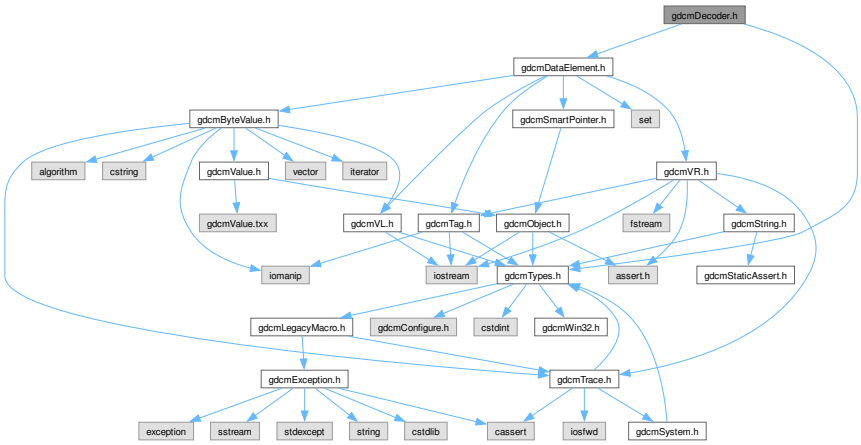
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDATASETHELPER_H
00015 #define GDCMDATASETHELPER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmVR.h"
00019
00020 namespace gdcm
00021 {
00022 class DataSet;
00023 class File;
00024 class Tag;
00025 class SequenceOfItems;
00026
00030 class GDCM_EXPORT DataSetHelper
00031 {
00032 public:
00035   static VR ComputeVR(File const & file, DataSet const &ds, const Tag& tag);
00036
00037   //static SequenceOfItems* ComputeSQFromByteValue(File const & file, DataSet const &ds, const Tag &tag);
00038
00039 protected:
00040 };
00041
00042 } // end namespace gdcm
00043
00044 #endif // GDCMDATASETHELPER_H
```

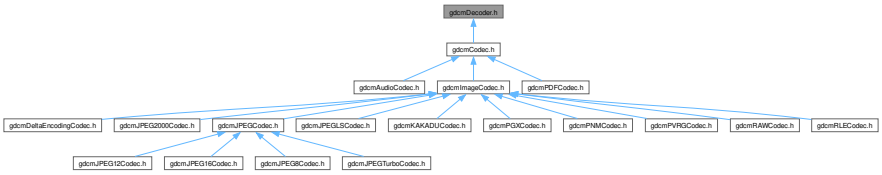
13.269 gdcmDecoder.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmDecoder.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Decoder

  Decoder.

Namespaces

- namespace gdcm

13.270 gdcmDecoder.h

Go to the documentation of this file.

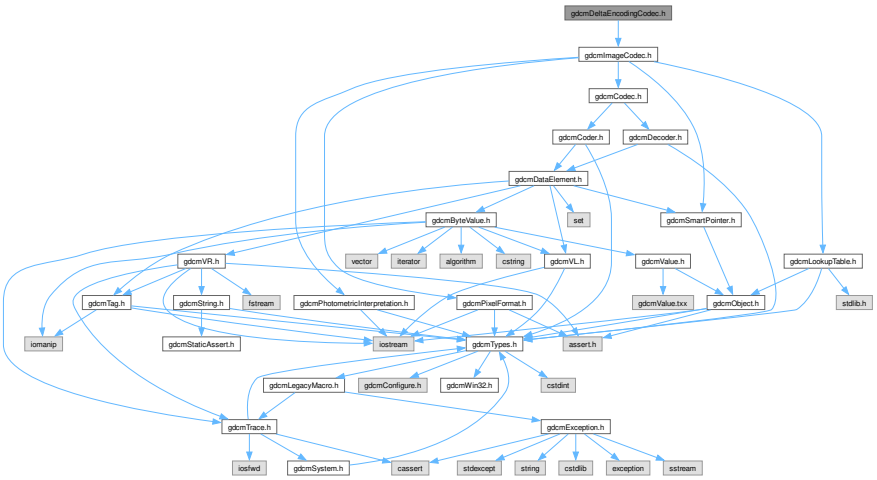
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMDECODER_H
00016 #define GDCMDECODER_H
00017
00018 #include "gdcmTypes.h"
00019 #include "gdcmDataElement.h" // FIXME
00020
00021 namespace gdcm
00022 {
00023
00024 class TransferSyntax;
00025 class DataElement;
00029 class GDCM_EXPORT Decoder
00030 {
00031 public:
00032   virtual ~Decoder() = default;
00033
00035   virtual bool CanDecode(TransferSyntax const &) const = 0;
00036
00038   virtual bool Decode(DataElement const &, DataElement &) { return false; }
00039 protected:
00040   virtual bool DecodeByStreams(std::istream &, std::ostream &) { return false; }
00041 };
00042
00043 } // end namespace gdcm
00044
00045 #endif //GDCMDECODER_H
```

13.271 gdcmDeltaEncodingCodec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmDeltaEncodingCodec.h:



Classes

- class gdcm::DeltaEncodingCodec

  DeltaEncodingCodec compression used by some private vendor.

Namespaces

- namespace gdcm

13.272 gdcmDeltaEncodingCodec.h

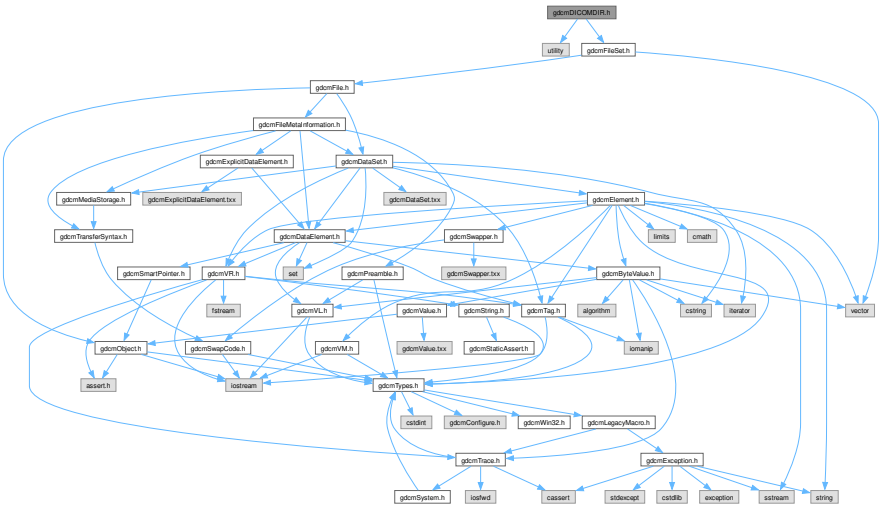
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDELTAENCODINGCODEC_H
00015 #define GDCMDELTAENCODINGCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018 #error do not use
00019
00020 namespace gdcm
00021 {
00022
00027 class DeltaEncodingCodec : public ImageCodec
00028 {
00029 public:
00030   DeltaEncodingCodec();
00031   ~DeltaEncodingCodec();
00032   bool CanDecode(TransferSyntax const &ts);
00033   bool Decode(DataElement const &is, DataElement &os);
00034 protected:
00035   bool Decode(std::istream &is, std::ostream &os);
00036 };
00037
00038 } // end namespace gdcm
00039
00040 #endif //GDCMDELTAENCODINGCODEC_H
```

13.273 gdcmDICOMDIR.h File Reference

```
#include <utility>
#include "gdcmFileSet.h"
```

Include dependency graph for gdcmDICOMDIR.h:



Classes

- class gdcm::DICOMDIR

  DICOMDIR class.

Namespaces

- namespace gdcm

13.274 gdcmDICOMDIR.h

Go to the documentation of this file.

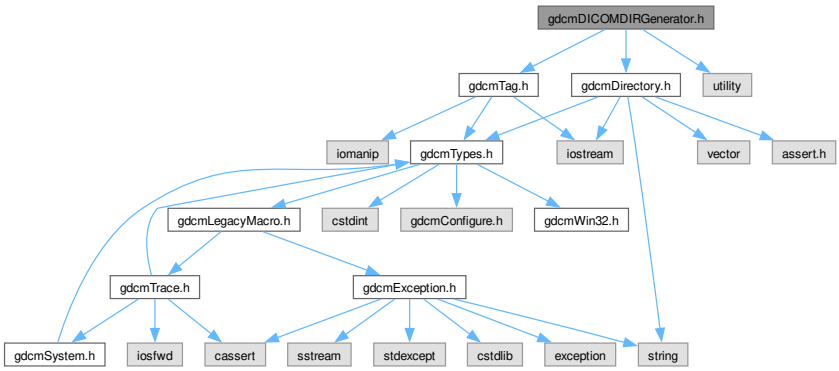
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDICOMDIR_H
00015 #define GDCMDICOMDIR_H
00016
00017 #include <utility>
00018 #include "gdcmFileSet.h"
00019
00020 namespace gdcm
00021 {
00027 class GDCM_EXPORT DICOMDIR
00028 {
```

```
00029 public:
00030   DICOMDIR() = default;
00031   DICOMDIR(FileSet  fs):_FS(std::move(std::move(fs))) {}
00032
00033 private:
00034   FileSet _FS;
00035   //13 sept 2010 mmr-- added the underscore to FS to compile under Sunos gcc
00036 };
00037
00038 } // end namespace gdcm
00039
00040 #endif //GDCMDICOMDIR_H
```

13.275 gdcmDICOMDIRGenerator.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmTag.h"
#include <utility>
```

Include dependency graph for gdcmDICOMDIRGenerator.h:



Classes

- class gdcm::DICOMDIRGenerator

  DICOMDIRGenerator class.

Namespaces

- namespace gdcm

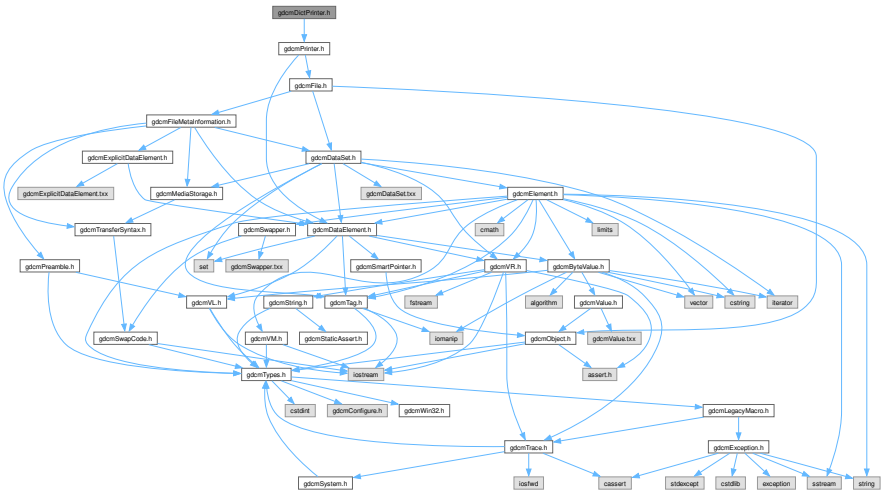
13.276 gdcmDICOMDIRGenerator.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDICOMDIRGENERATOR_H
00015 #define GDCMDICOMDIRGENERATOR_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmTag.h"
00019 #include <utility> // std::pair
00020
00021 namespace gdcm
00022 {
00023 class File;
00024 class Scanner;
00025 class SequenceOfItems;
00026 class VL;
00027 class DICOMDIRGeneratorInternal;
00028
00056 class GDCM_EXPORT DICOMDIRGenerator
00057 {
00058 public:
00059   typedef Directory::FilenamesType  FilenamesType;
00060   typedef Directory::FilenameType  FilenameType;
00061   DICOMDIRGenerator();
00062   ~DICOMDIRGenerator();
00063
00065   void SetFilenames( FilenamesType const & fns );
00066
00068   void SetRootDirectory( FilenameType const & root );
00069
00072   void SetDescriptor( const char *d );
00073
00075   bool Generate();
00076
00078   void SetFile(const File& f);
00079   File &GetFile();
00080
00081 protected:
00082   Scanner &GetScanner();
00083   bool AddPatientDirectoryRecord();
00084   bool AddStudyDirectoryRecord();
00085   bool AddSeriesDirectoryRecord();
00086   bool AddImageDirectoryRecord();
00087
00088 private:
00089   const char *ComputeFileID(const char *);
00090   bool TraverseDirectoryRecords(VL start );
00091   bool ComputeDirectoryRecordsOffset(const SequenceOfItems *sqi, VL start);
00092   size_t FindNextDirectoryRecord( size_t item1, const char *directorytype );
00093   SequenceOfItems *GetDirectoryRecordSequence();
00094   size_t FindLowerLevelDirectoryRecord( size_t item1, const char *directorytype );
00095   typedef std::pair< std::string, Tag> MyPair;
00096   MyPair GetReferenceValueForDirectoryType(size_t item);
00097   bool SeriesBelongToStudy(const char *seriesuid, const char *studyuid);
00098   bool ImageBelongToSeries(const char *sopuid, const char *seriesuid, Tag const &t1, Tag const &t2);
00099   bool ImageBelongToSameSeries(const char *sopuid, const char *seriesuid, Tag const &t);
00100
00101   DICOMDIRGeneratorInternal * Internals;
00102 };
00103
00108
00109 } // end namespace gdcm
00110
00111 #endif //GDCMDICOMDIRGENERATOR_H
```

13.277 gdcmDictPrinter.h File Reference

`#include "gdcmPrinter.h"`
Include dependency graph for gdcmDictPrinter.h:



Classes

- class gdcm::DictPrinter

  DictPrinter class.

Namespaces

- namespace gdcm

13.278 gdcmDictPrinter.h

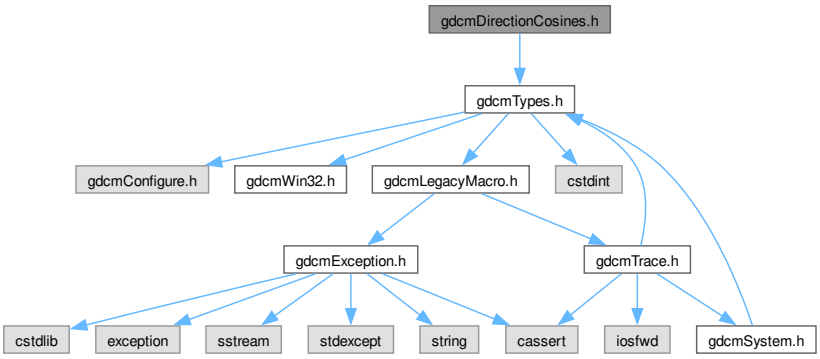
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDICTPRINTER_H
00015 #define GDCMDICTPRINTER_H
00016
00017 #include "gdcmPrinter.h"
00018
```

```
00019 namespace gdcm
00020 {
00021
00025 // It's a sink there is no output
00026 class GDCM_EXPORT DictPrinter : public Printer
00027 {
00028 public:
00029   DictPrinter();
00030   ~DictPrinter() = default;
00031
00032   void Print(std::ostream& os);
00033
00034 protected:
00035   void PrintDataElement2(std::ostream& os, const DataSet &ds, const DataElement &ide);
00036   void PrintDataSet2(std::ostream& os, const DataSet &ds);
00037 };
00038
00039 } // end namespace gdcm
00040
00041 #endif //GDCMDICTPRINTER_H
```

13.279 gdcmDirectionCosines.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmDirectionCosines.h:



Classes

- class gdcm::DirectionCosines

  class to handle DirectionCosines

Namespaces

- namespace gdcm

13.280 gdcmDirectionCosines.h

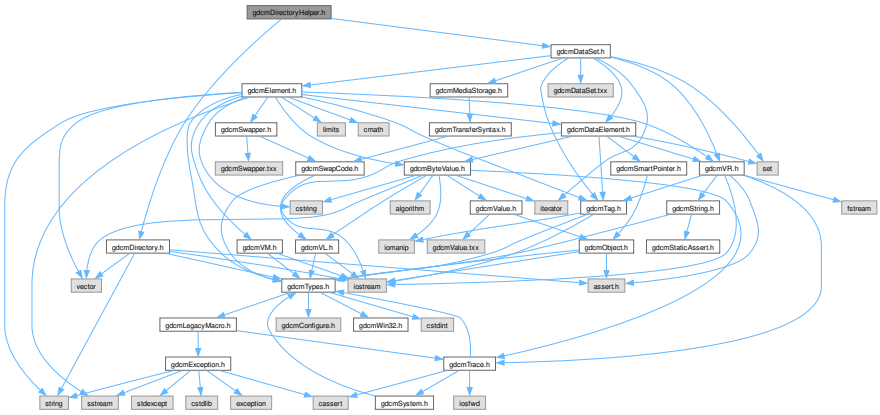
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDIRECTIONCOSINES_H
00015 #define GDCMDIRECTIONCOSINES_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class GDCM_EXPORT DirectionCosines
00026 {
00027 public:
00028   DirectionCosines();
00029   DirectionCosines(const double dircos[6]);
00030   // Cannot get the following signature to be wrapped with swig...
00031   //DirectionCosines(const double *dircos = 0 );
00032   ~DirectionCosines();
00033
00035   void Print(std::ostream &) const;
00036
00038   void Cross(double z[3]) const;
00039
00041   double Dot() const;
00042
00044   static double Dot(const double x[3], const double y[3]);
00045
00047   static double Distance(const double x[3], const double y[3]);
00048
00050   void Normalize();
00051
00053   static void Normalize(double v[3]);
00054
00056   static double Norm(const double v[3]);
00057
00059   operator const double* () const { return Values; }
00060
00062   bool IsValid() const;
00063
00066   bool SetFromString(const char *str);
00067
00069   double CrossDot(DirectionCosines const &dc) const;
00070
00072   double ComputeDistAlongNormal(const double ipp[3]) const;
00073
00074 private:
00075   double Values[6];
00076 };
00077
00078 } // end namespace gdcm
00079
00080 #endif //GDCMDIRECTIONCOSINES_H
```

13.281 gdcmDirectoryHelper.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmDirectoryHelper.h:



Classes

- class gdcm::DirectoryHelper

  DirectoryHelper.

Namespaces

- namespace gdcm

13.282 gdcmDirectoryHelper.h

Go to the documentation of this file.

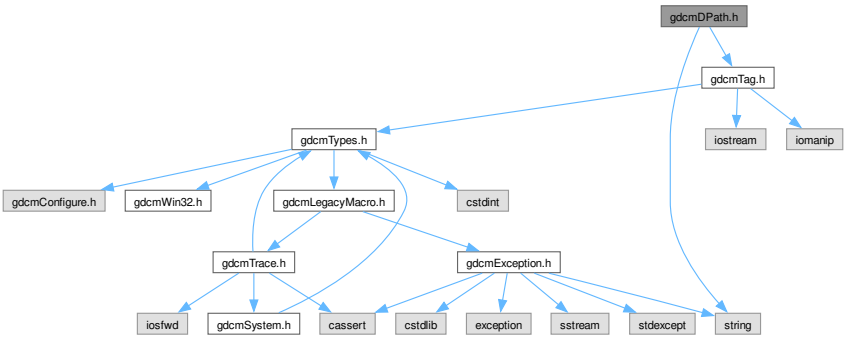
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #include "gdcmDirectory.h"
00016 #include "gdcmDataSet.h"
00017
00018 namespace gdcm
00019 {
00020
00035 class GDCM_EXPORT DirectoryHelper
00036 {
00037 public:
00038   //returns all series UIDs in a given directory that match a particular SOP Instance UID
00039   static Directory::FilenamesType GetSeriesUIDsBySOPClassUID(const std::string& inDirectory,
00040     const std::string& inSOPClassUID);
00041
```

```
00042   //specific implementations of the SOPClassUID grabber, so you don't have to
00043   //remember the SOP Class UIDs of CT or MR images.
00044   static Directory::FilenamesType GetCTImageSeriesUIDs(const std::string& inDirectory);
00045   static Directory::FilenamesType GetMRImageSeriesUIDs(const std::string& inDirectory);
00046   static Directory::FilenamesType GetRTStructSeriesUIDs(const std::string& inDirectory);
00047
00048   //given a directory and a series UID, provide all filenames with that series UID.
00049   static Directory::FilenamesType GetFilenamesFromSeriesUIDs(const std::string& inDirectory,
00050     const std::string& inSeriesUID);
00051
00052   //given a series UID, load all the images associated with that series UID
00053   //these images will be IPP sorted, so that they can be used for gathering all
00054   //the necessary information for generating an RTStruct
00055   //this function should be called by the writer once, if the writer's dataset
00056   //vector is empty.  Make sure to have a new writer for new rtstructs.
00057   static std::vector<DataSet> LoadImageFromFiles(const std::string& inDirectory,
00058     const std::string& inSeriesUID);
00059
00060   //When writing RTStructs, each contour will have z position defined.
00061   //use that z position to determine the SOPInstanceUID for that plane.
00062   static std::string RetrieveSOPInstanceUIDFromZPosition(double inZPos,
00063     const std::vector<DataSet>& inDS);
00064
00065   //When writing RTStructs, the frame of reference is done by planes to start with
00066   static std::string RetrieveSOPInstanceUIDFromIndex(int inIndex,
00067    const std::vector<DataSet>& inDS);
00068
00069   //each plane needs to know the SOPClassUID, and that won't change from image to image
00070   //so, retrieve this once at the start of writing.
00071   static std::string GetSOPClassUID(const std::vector<DataSet>& inDS);
00072
00073   //retrieve the frame of reference from the set of datasets
00074   static std::string GetFrameOfReference(const std::vector<DataSet>& inDS);
00075
00076   //both the image and polydata readers use these functions to get std::strings
00077   static std::string GetStringValueFromTag(const Tag& t, const DataSet& ds);
00078 };
00079
00080 }
```

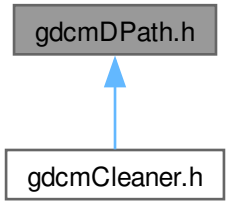
13.283 gdcmDPath.h File Reference

```
#include "gdcmTag.h"
#include <string>
```

Include dependency graph for gdcmDPath.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::DPath

  class to handle a DICOM path While supp 118 did introduced a notion of XPath for XML Native model this convention is too XML-centric. Instead prefer DCMTK style notation `https://groups.google.com/g/comp.protocols.↩dicom/c/IyIH0IOBMPA`

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const DPath &val)

13.284 gdcmDPath.h

Go to the documentation of this file.

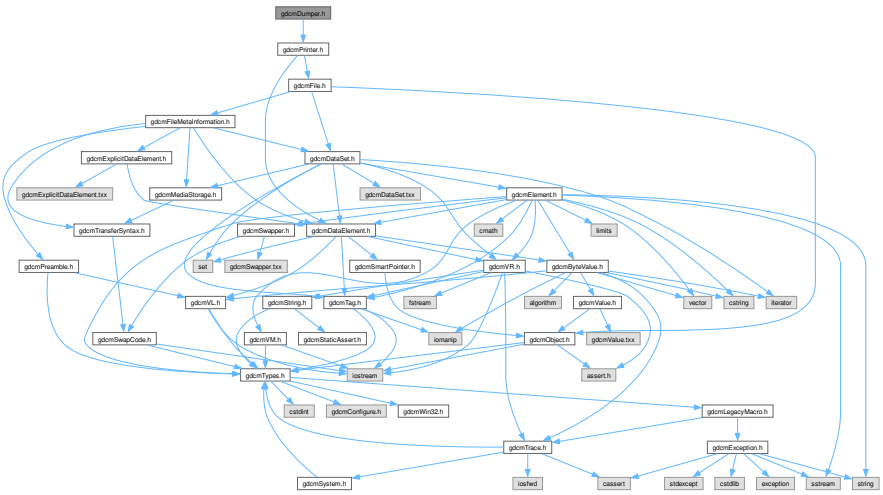
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDPATH_H
00015 #define GDCMDPATH_H
00016
00017 #include "gdcmTag.h"
00018 #include <string>
00019
```

```
00020 namespace gdcm {
00021
00028 class GDCM_EXPORT DPath {
00029   friend std::ostream &operator«(std::ostream &_os, const DPath &_val);
00030
00031  public:
00032   DPath();
00033   ~DPath();
00034   void Print(std::ostream &) const;
00035   bool operator<(const DPath &rhs) const;
00036
00037   bool ConstructFromString(const char *path);
00038
00040   bool Match(DPath const &other) const;
00041
00043   static bool IsValid(const char *path);
00044
00045  private:
00046   std::string Path;
00047 };
00048
00049 inline std::ostream &operator«(std::ostream &os, const DPath &val) {
00050   os « val.Path;
00051   return os;
00052 }
00053
00054 }  // end namespace gdcm
00055
00056 #endif  // GDCMDPATH_H
```

13.285 gdcmDumper.h File Reference

`#include "gdcmPrinter.h"`

Include dependency graph for gdcmDumper.h:



Classes

- class gdcm::Dumper

  Codec class.

Namespaces

- namespace gdcm

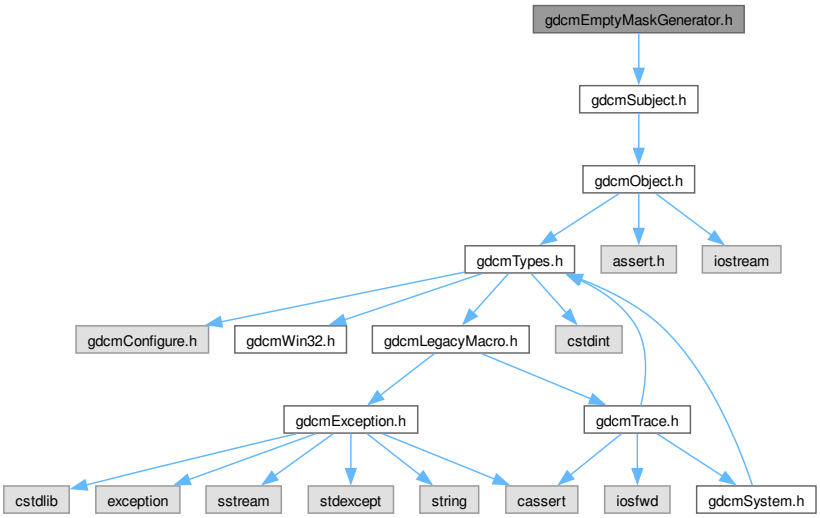
13.286 gdcmDumper.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMDUMPER_H
00015 #define GDCMDUMPER_H
00016
00017 #include "gdcmPrinter.h"
00018
00019 namespace gdcm
00020 {
00021
00022 // It's a sink there is no output
00029 class GDCM_EXPORT Dumper : public Printer
00030 {
00031 public:
00032   Dumper() { PrintStyle = CONDENSED_STYLE; }
00033   ~Dumper() = default;
00034 };
00035
00036 } // end namespace gdcm
00037
00038 #endif //GDCMDUMPER_H
```

13.287 gdcmEmptyMaskGenerator.h File Reference

`#include "gdcmSubject.h"`
Include dependency graph for gdcmEmptyMaskGenerator.h:



Classes

- class gdcm::EmptyMaskGenerator

  EmptyMaskGenerator Main class to generate a Empty Mask Series from an input Series. This class takes an input folder and generates a series of DICOM files in the specified output directory. This class handles multiples DICOM Series within the same input directory.

Namespaces

- namespace gdcm

13.288 gdcmEmptyMaskGenerator.h

Go to the documentation of this file.

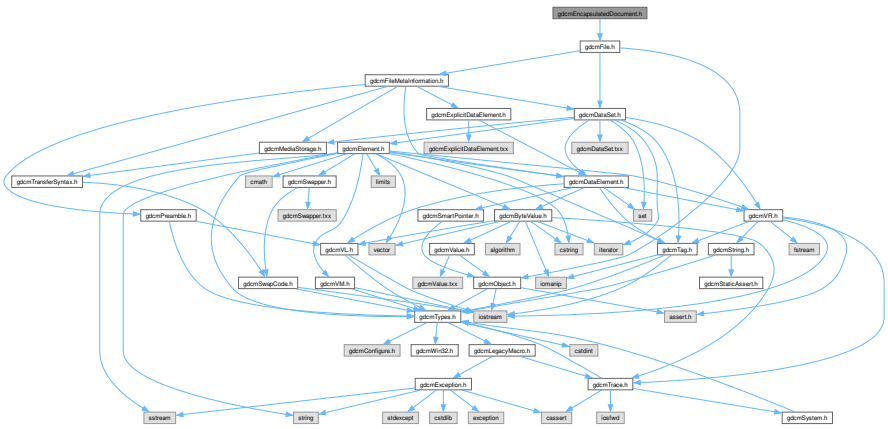
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
```

```
00012
00013 =========================================================================*/
00014 #ifndef GDCMEMPTYMASKGENERATOR_H
00015 #define GDCMEMPTYMASKGENERATOR_H
00016
00017 #include "gdcmSubject.h"
00018
00019 namespace gdcm {
00050 class GDCM_EXPORT EmptyMaskGenerator
00051 {
00052 public:
00053   EmptyMaskGenerator();
00054   ~EmptyMaskGenerator();
00055
00056   enum SOPClassUIDMode {
00057     UseOriginalSOPClassUID = 0, // default
00058     UseGrayscaleSecondaryImageStorage
00059   };
00060
00063   void SetSOPClassUIDMode( SOPClassUIDMode mode );
00064
00066   void SetInputDirectory( const char * dirname );
00067
00069   void SetOutputDirectory( const char * dirname );
00070
00072   bool Execute();
00073
00074 private:
00075   struct impl;
00076   // PIMPL idiom
00077   impl* pimpl;
00078 };
00079 } // end namespace gdcm
00080 #endif //GDCMEMPTYMASKGENERATOR_H
```

13.289 gdcmEncapsulatedDocument.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmEncapsulatedDocument.h:



Classes

- class gdcm::EncapsulatedDocument

  EncapsulatedDocument.

Namespaces

- namespace gdcm

13.290 gdcmEncapsulatedDocument.h

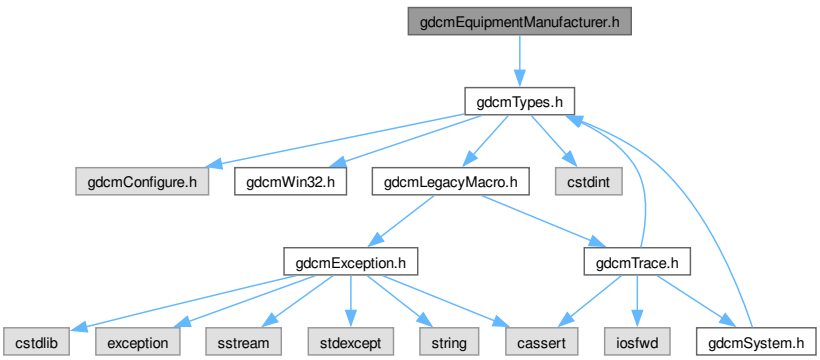
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMENCAPSULATEDDOCUMENT_H
00015 #define GDCMENCAPSULATEDDOCUMENT_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00024 class GDCM_EXPORT EncapsulatedDocument
00025 {
00026 public:
00027   EncapsulatedDocument() = default;
00028
00029 private:
00030 };
00031
00032 } // end namespace gdcm
00033
00034 #endif //GDCMENCAPSULATEDDOCUMENT_H
```

13.291 gdcmEquipmentManufacturer.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmEquipmentManufacturer.h:



Classes

- class gdcm::EquipmentManufacturer

Namespaces

- namespace gdcm

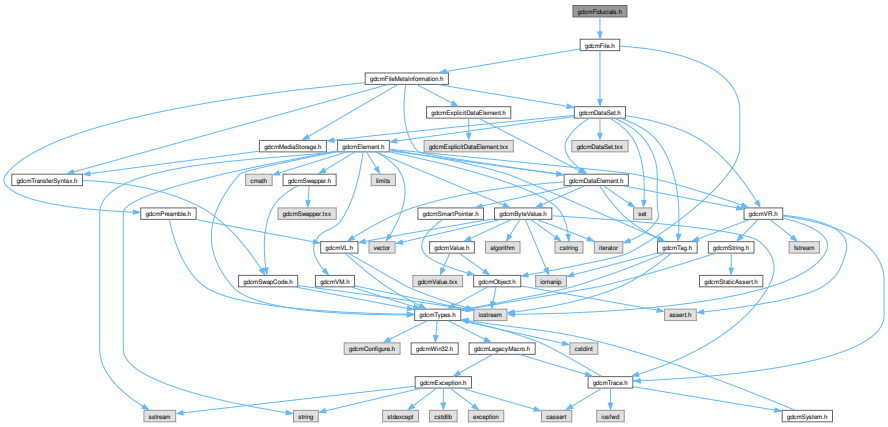
13.292 gdcmEquipmentManufacturer.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMEQUIPMENTMANUFACTURER_H
00015 #define GDCMEQUIPMENTMANUFACTURER_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm {
00020
00021 class DataSet;
00028 class GDCM_EXPORT EquipmentManufacturer {
00029  public:
00030   typedef enum {
00031     UNKNOWN = 0,
00032     AGFA,
00033     FUJI,
00034     GEMS,
00035     HITACHI,
00036     KODAK,
00037     MARCONI,
00038     PMS,
00039     SAMSUNG,
00040     SIEMENS,
00041     TOSHIBA,
00042     UIH
00043   } Type;
00044
00045   static Type Compute(DataSet const &ds);
00046
00047   static const char *TypeToString(Type type);
00048
00049  private:
00050   static EquipmentManufacturer::Type GuessFromPrivateAttributes(
00051       DataSet const &ds);
00052 };
00053
00054 }  // end namespace gdcm
00055
00056 #endif  // GDCMEQUIPMENTMANUFACTURER_H
```

13.293 gdcmFiducials.h File Reference

`#include "gdcmFile.h"`
Include dependency graph for gdcmFiducials.h:



Classes

- class gdcm::Fiducials

  Fiducials.

Namespaces

- namespace gdcm

13.294 gdcmFiducials.h

Go to the documentation of this file.

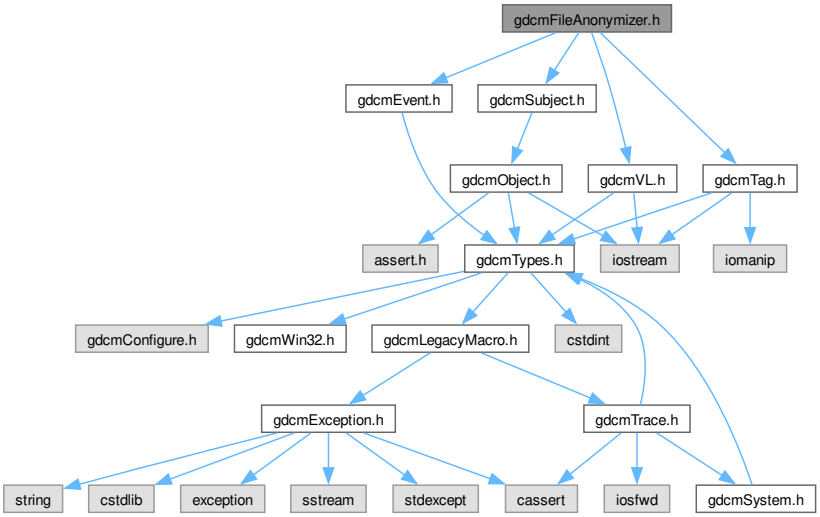
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFIDUCIALS_H
00015 #define GDCMFIDUCIALS_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00024 class GDCM_EXPORT Fiducials
```

```
00025 {
00026 public:
00027   Fiducials() = default;
00028
00029 private:
00030 };
00031
00032 } // end namespace gdcm
00033
00034 #endif //GDCMFIDUCIALS_H
```

13.295 gdcmFileAnonymizer.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmEvent.h"
#include "gdcmTag.h"
#include "gdcmVL.h"
```

Include dependency graph for gdcmFileAnonymizer.h:



Classes

- class gdcm::FileAnonymizer

  FileAnonymizer.

Namespaces

- namespace gdcm

13.296 gdcmFileAnonymizer.h

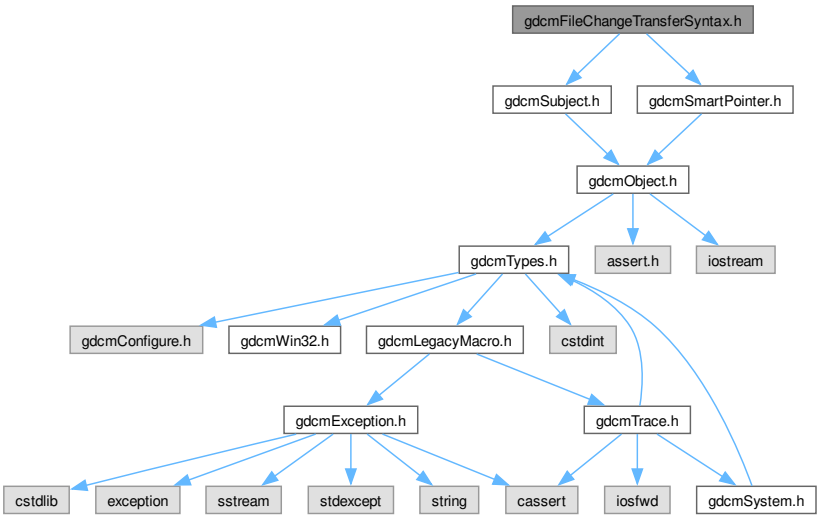
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILEANONYMIZER_H
00015 #define GDCMFILEANONYMIZER_H
00016
00017 #include "gdcmSubject.h"
00018 #include "gdcmEvent.h"
00019 #include "gdcmTag.h"
00020 #include "gdcmVL.h"
00021
00022 namespace gdcm
00023 {
00024 class FileAnonymizerInternals;
00025
00047 class GDCM_EXPORT FileAnonymizer : public Subject
00048 {
00049 public:
00050   FileAnonymizer();
00051   ~FileAnonymizer() override;
00052
00055   void Empty( Tag const &t );
00056
00058   void Remove( Tag const &t );
00059
00063   void Replace( Tag const &t, const char *value_str );
00064
00067   void Replace( Tag const &t, const char *value_data, VL const & vl );
00068
00070   void SetInputFileName(const char *filename_native);
00071
00073   void SetOutputFileName(const char *filename_native);
00074
00076   bool Write();
00077
00078 private:
00079   bool ComputeEmptyTagPosition();
00080   bool ComputeRemoveTagPosition();
00081   bool ComputeReplaceTagPosition();
00082   FileAnonymizerInternals *Internals;
00083 };
00084
00085 } // end namespace gdcm
00086
00087 #endif //GDCMFILEANONYMIZER_H
```

13.297 gdcmFileChangeTransferSyntax.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmSmartPointer.h"
```

Include dependency graph for gdcmFileChangeTransferSyntax.h:



Classes

- class gdcm::FileChangeTransferSyntax

  FileChangeTransferSyntax.

Namespaces

- namespace gdcm

13.298 gdcmFileChangeTransferSyntax.h

Go to the documentation of this file.

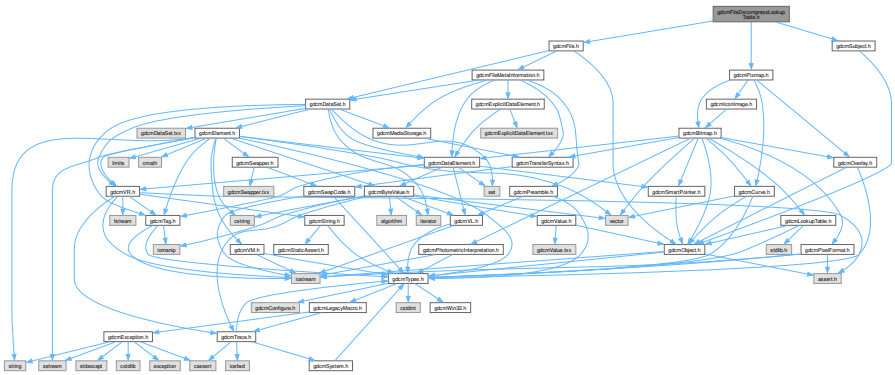
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILECHANGETRANSFERSYNTAX_H
00015 #define GDCMFILECHANGETRANSFERSYNTAX_H
00016
00017 #include "gdcmSubject.h"
00018 #include "gdcmSmartPointer.h"
00019
```

```
00020 namespace gdcm
00021 {
00022 class FileChangeTransferSyntaxInternals;
00023 class ImageCodec;
00024 class TransferSyntax;
00025
00039 class GDCM_EXPORT FileChangeTransferSyntax : public Subject
00040 {
00041 public:
00042   FileChangeTransferSyntax();
00043   ~FileChangeTransferSyntax() override;
00044
00046   void SetInputFileName(const char *filename_native);
00047
00049   void SetOutputFileName(const char *filename_native);
00050
00052   bool Change();
00053
00055   void SetTransferSyntax( TransferSyntax const & ts );
00056
00059   ImageCodec * GetCodec();
00060
00062   static SmartPointer<FileChangeTransferSyntax> New() { return new FileChangeTransferSyntax; }
00063
00064 private:
00065   bool InitializeCopy();
00066   bool UpdateCompressionLevel(double level);
00067   FileChangeTransferSyntaxInternals *Internals;
00068 };
00069
00070 } // end namespace gdcm
00071
00072 #endif //GDCMFILEANONYMIZER_H
```

13.299 gdcmFileDecompressLookupTable.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmFile.h"
#include "gdcmPixmap.h"
```

Include dependency graph for gdcmFileDecompressLookupTable.h:



Classes

- class gdcm::FileDecompressLookupTable

  FileDecompressLookupTable class.

Namespaces

- namespace gdcm

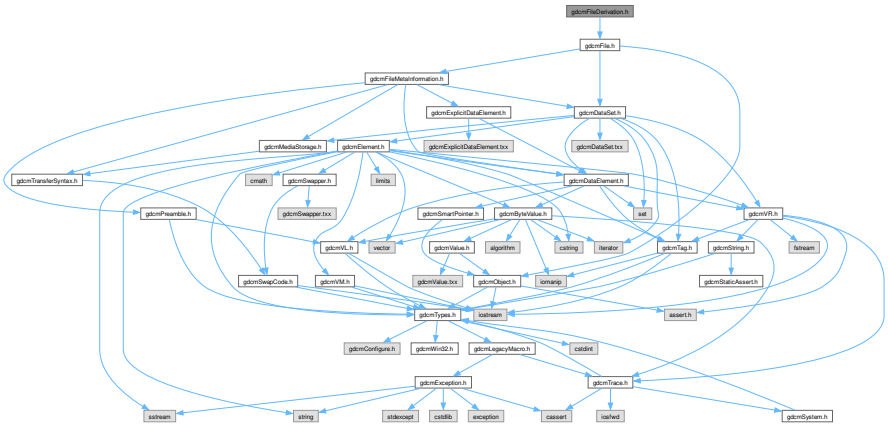
13.300 gdcmFileDecompressLookupTable.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILEDECOMPRESSLOOKUPTABLE_H
00015 #define GDCMFILEDECOMPRESSLOOKUPTABLE_H
00016
00017 #include "gdcmSubject.h"
00018 #include "gdcmFile.h"
00019 #include "gdcmPixmap.h"
00020
00021 namespace gdcm
00022 {
00023
00024 class DataElement;
00030 class GDCM_EXPORT FileDecompressLookupTable : public Subject
00031 {
00032 public:
00033   FileDecompressLookupTable() = default;
00034   ~FileDecompressLookupTable() override = default;
00035
00037   bool Change();
00038
00040   void SetFile(const File& f) { F = f; }
00041   File &GetFile() { return *F; }
00042
00043   const Pixmap& GetPixmap() const { return *PixelData; }
00044   Pixmap& GetPixmap() { return *PixelData; }
00045   void SetPixmap(Pixmap const &img) { PixelData = img; }
00046
00047 protected:
00048
00049 private:
00050   SmartPointer<File> F;
00051   SmartPointer<Pixmap> PixelData;
00052 };
00053
00054 } // end namespace gdcm
00055
00056 #endif //GDCMFILEDECOMPRESSLOOKUPTABLE_H
```

13.301 gdcmFileDerivation.h File Reference

`#include "gdcmFile.h"`
Include dependency graph for gdcmFileDerivation.h:



Classes

- class gdcm::FileDerivation

  FileDerivation class.

Namespaces

- namespace gdcm

13.302 gdcmFileDerivation.h

Go to the documentation of this file.

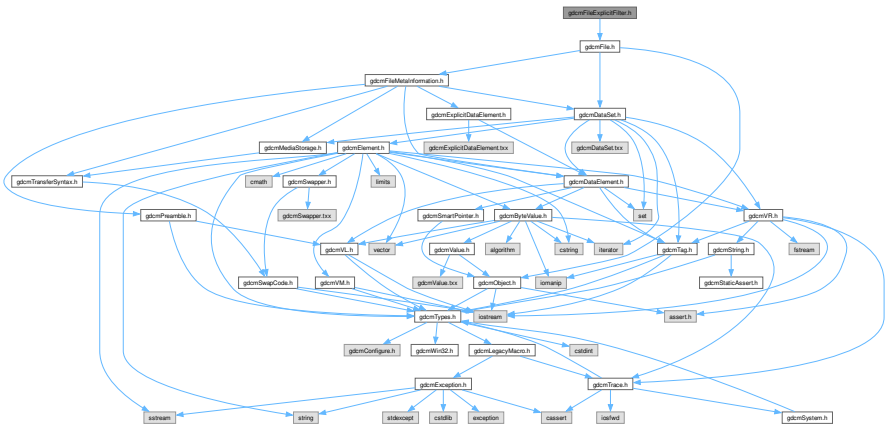
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILEDERIVATION_H
00015 #define GDCMFILEDERIVATION_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00021
```

```
00022 class FileDerivationInternals;
00023 class DataSet;
00039 class GDCM_EXPORT FileDerivation
00040 {
00041 public:
00042   FileDerivation();
00043   ~FileDerivation();
00044
00049   bool AddReference(const char *referencedsopclassuid, const char *referencedsopinstanceuid);
00050
00051   // CID 7202 Source Image Purposes of Reference
00052   // {"DCM",121320,"Uncompressed predecessor"},
00053
00055   void SetPurposeOfReferenceCodeSequenceCodeValue(unsigned int codevalue);
00056
00057   // CID 7203 Image Derivation
00058   // { "DCM",113040,"Lossy Compression" },
00059
00061   void SetDerivationCodeSequenceCodeValue(unsigned int codevalue);
00062
00064   void SetDerivationDescription( const char *dd );
00065
00069   void SetAppendDerivationHistory(bool b);
00070
00072   bool Derive();
00073
00075   void SetFile(const File& f) { F = f; }
00076   File &GetFile() { return *F; }
00077   const File &GetFile() const { return *F; }
00078
00079 protected:
00080   bool AddDerivationDescription();
00081   bool AddSourceImageSequence();
00082   bool AddPurposeOfReferenceCodeSequence(DataSet &ds);
00083
00084 private:
00085   SmartPointer<File> F;
00086   FileDerivationInternals *Internals;
00087 };
00088
00094
00095
00096 } // end namespace gdcm
00097
00098 #endif //GDCMFILEDERIVATION_H
```

13.303 gdcmFileExplicitFilter.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmFileExplicitFilter.h:



Classes

- class gdcm::FileExplicitFilter

  FileExplicitFilter class.

Namespaces

- namespace gdcm

13.304 gdcmFileExplicitFilter.h

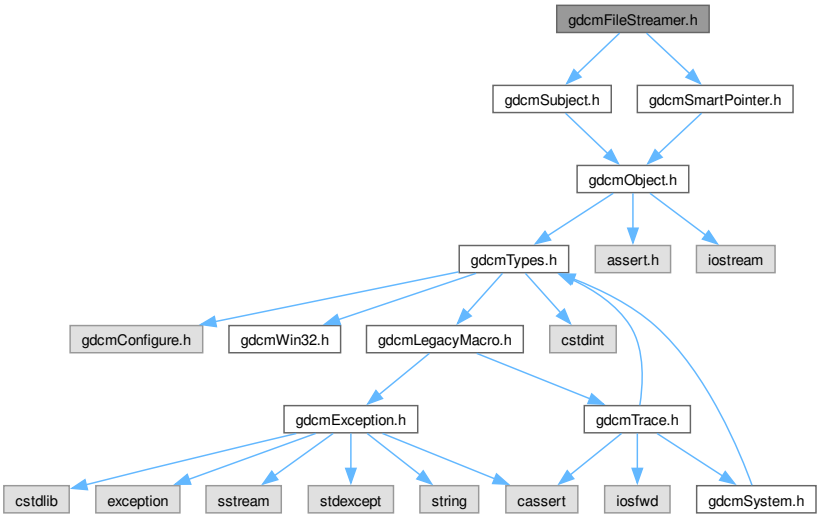
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFILEEXPLICITFILTER_H
00015 #define GDCMFILEEXPLICITFILTER_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00021 class Dicts;
00022
00038 class GDCM_EXPORT FileExplicitFilter
00039 {
00040 public:
00041   FileExplicitFilter():F(new
      File),ChangePrivateTags(false),UseVRUN(true),RecomputeItemLength(false),RecomputeSequenceLength(false) {}
00042   ~FileExplicitFilter() = default;
00043
00045   void SetChangePrivateTags(bool b) { ChangePrivateTags = b;}
00046
00048   void SetUseVRUN(bool b) { UseVRUN = b; }
00049
00051   void SetRecomputeItemLength(bool b);
00052   void SetRecomputeSequenceLength(bool b);
00053
00055
00057   bool Change();
00058
00060   void SetFile(const File& f) { F = f; }
00061   File &GetFile() { return *F; }
00062
00063 protected:
00064   bool ProcessDataSet(DataSet &ds, Dicts const & dicts);
00065   bool ChangeFMI();
00066
00067 private:
00068   SmartPointer<File> F;
00069   bool ChangePrivateTags;
00070   bool UseVRUN;
00071   bool RecomputeItemLength;
00072   bool RecomputeSequenceLength;
00073 };
00074
00075
00076 } // end namespace gdcm
00077
00078 #endif //GDCMFILEEXPLICITFILTER_H
```

13.305 gdcmFileStreamer.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmSmartPointer.h"
```

Include dependency graph for gdcmFileStreamer.h:



Classes

- class gdcm::FileStreamer

  FileStreamer.

Namespaces

- namespace gdcm

13.306 gdcmFileStreamer.h

Go to the documentation of this file.

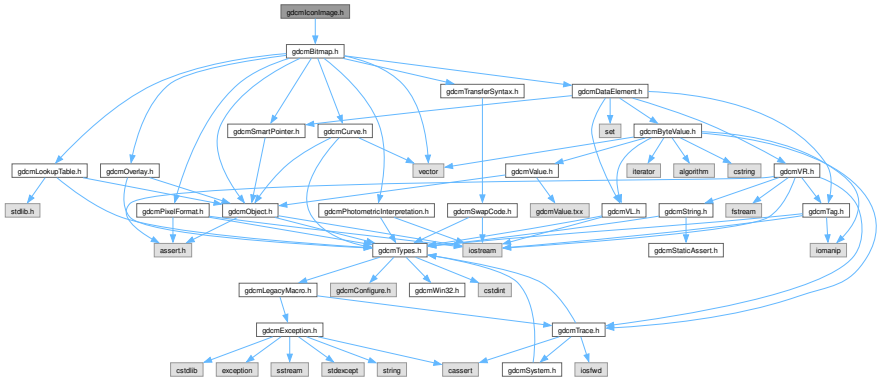
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
```

```
00013 ============================================================================*/
00014 #ifndef GDCMFILESTREAMER_H
00015 #define GDCMFILESTREAMER_H
00016
00017 #include "gdcmSubject.h"
00018 #include "gdcmSmartPointer.h"
00019
00020 namespace gdcm
00021 {
00022 class FileStreamerInternals;
00023
00024 class Tag;
00025 class PrivateTag;
00041 class GDCM_EXPORT FileStreamer : public Subject
00042 {
00043 public:
00044   FileStreamer();
00045   ~FileStreamer() override;
00046
00048   void SetTemplateFileName(const char *filename_native);
00049
00050   // Decide to check template or not (default: false)
00055   void CheckTemplateFileName(bool check);
00056
00058   void SetOutputFileName(const char *filename_native);
00059
00064   bool CheckDataElement( const Tag & t );
00065
00068   bool StartDataElement( const Tag & t );
00070   bool AppendToDataElement( const Tag & t, const char *array, size_t len );
00072   bool StopDataElement( const Tag & t );
00076   bool ReserveDataElement( size_t len );
00077
00085   bool StartGroupDataElement( const PrivateTag & pt, size_t maxsizede = 0, uint8_t startoffset = 0 );
00087   bool AppendToGroupDataElement( const PrivateTag & pt, const char *array, size_t len );
00089   bool StopGroupDataElement( const PrivateTag & pt );
00092   bool ReserveGroupDataElement( unsigned short ndataelement );
00093
00095   static SmartPointer<FileStreamer> New() { return new FileStreamer; }
00096
00097 private:
00098   bool InitializeCopy();
00099   FileStreamerInternals *Internals;
00100 };
00101
00102 } // end namespace gdcm
00103
00104 #endif //GDCMFILESTREAMER_H
```

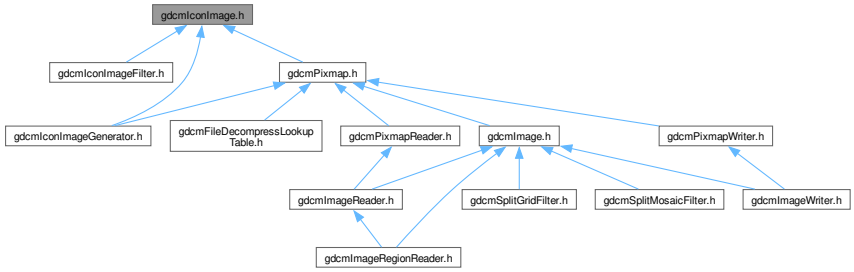
13.307 gdcmIconImage.h File Reference

`#include "gdcmBitmap.h"`

Include dependency graph for gdcmIconImage.h:



This graph shows which files directly or indirectly include this file:



Namespaces

- namespace gdcm

Typedefs

- typedef Bitmap gdcm::IconImage

13.308 gdcmIconImage.h

Go to the documentation of this file.

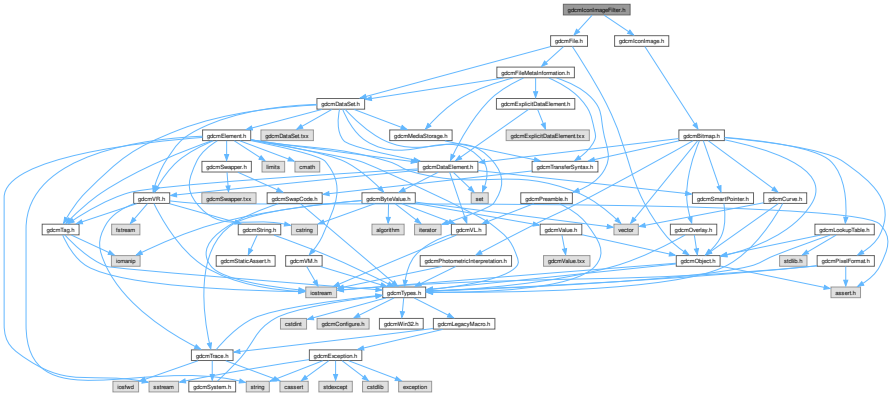
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMICONIMAGE_H
00015 #define GDCMICONIMAGE_H
00016
00017 #if 0
00018 #include "gdcmObject.h"
00019 #include "gdcmDataElement.h"
00020 #include "gdcmPhotometricInterpretation.h"
00021 #include "gdcmPixelFormat.h"
00022 #include "gdcmTransferSyntax.h"
00023
00024 #include <vector>
00025
00026 namespace gdcm
00027 {
00028
00032 class GDCM_EXPORT IconImage : public Object
00033 {
00034 public:
00035   IconImage();
00036   ~IconImage();
00037   void Print(std::ostream &) const {}
```

```
00038
00040   void SetTransferSyntax(TransferSyntax const &ts) {
00041     TS = ts;
00042   }
00043   const TransferSyntax &GetTransferSyntax() const {
00044     return TS;
00045   }
00046   void SetDataElement(DataElement const &de) {
00047     PixelData = de;
00048   }
00049   const DataElement& GetDataElement() const { return PixelData; }
00050
00051   void SetColumns(unsigned int col) { SetDimension(0,col); }
00052   void SetRows(unsigned int rows) { SetDimension(1,rows); }
00053   void SetDimension(unsigned int idx, unsigned int dim);
00054   int GetColumns() const { return Dimensions[0]; }
00055   int GetRows() const { return Dimensions[1]; }
00056   // Get/Set PixelFormat
00057   const PixelFormat &GetPixelFormat() const
00058     {
00059     return PF;
00060     }
00061   void SetPixelFormat(PixelFormat const &pf)
00062     {
00063     PF = pf;
00064     }
00065
00066   const PhotometricInterpretation &GetPhotometricInterpretation() const;
00067   void SetPhotometricInterpretation(PhotometricInterpretation const &pi);
00068
00069   bool IsEmpty() const { return Dimensions.size() == 0; }
00070   void Clear();
00071
00072   bool GetBuffer(char *buffer) const;
00073
00074 private:
00075   TransferSyntax TS;
00076   PixelFormat PF; // SamplesPerPixel, BitsAllocated, BitsStored, HighBit, PixelRepresentation
00077   PhotometricInterpretation PI;
00078   std::vector<unsigned int> Dimensions; // Col/Row
00079   std::vector<double> Spacing; // PixelAspectRatio ?
00080   DataElement PixelData; // copied from 7fe0,0010
00081   static const unsigned int NumberOfDimensions = 2;
00082 };
00083
00084 } // end namespace gdcm
00085 #endif
00086 #include "gdcmBitmap.h"
00087
00088 namespace gdcm
00089 {
00090   //class GDCM_EXPORT IconImage : public Pixmap {};
00091   typedef Bitmap IconImage;
00092 }
00093
00094 #endif //GDCMICONIMAGE_H
```

13.309 gdcmIconImageFilter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmIconImage.h"
```

Include dependency graph for gdcmIconImageFilter.h:



Classes

- class gdcm::IconImageFilter

  IconImageFilter.

Namespaces

- namespace gdcm

13.310 gdcmIconImageFilter.h

Go to the documentation of this file.

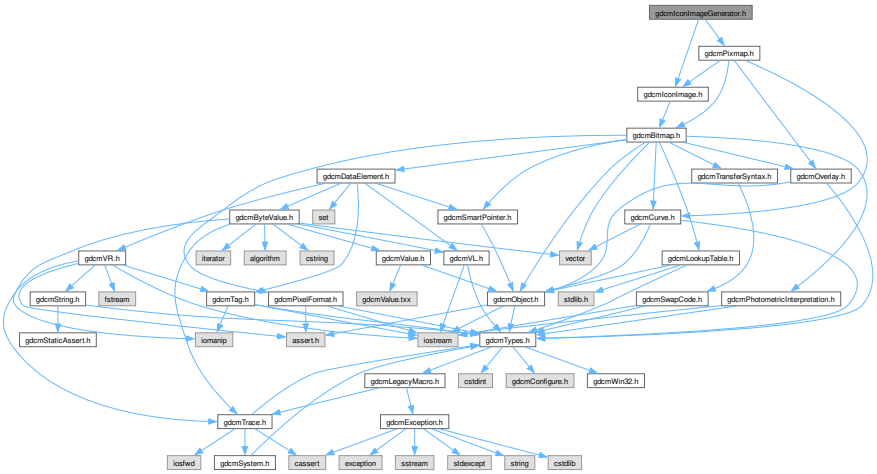
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMICONIMAGEFILTER_H
00015 #define GDCMICONIMAGEFILTER_H
00016
00017 #include "gdcmFile.h"
00018 #include "gdcmIconImage.h"
00019
00020 namespace gdcm
00021 {
00022 class IconImageFilterInternals;
00023
00049 class GDCM_EXPORT IconImageFilter
00050 {
00051 public:
00052   IconImageFilter();
00053   ~IconImageFilter();
```

```
00054
00056   void SetFile(const File& f) { F = f; }
00057   File &GetFile() { return *F; }
00058   const File &GetFile() const { return *F; }
00059
00061   bool Extract();
00062
00064   unsigned int GetNumberOfIconImages() const;
00065   IconImage& GetIconImage( unsigned int i ) const;
00066
00067 protected:
00068   void ExtractIconImages();
00069   void ExtractVeproIconImages();
00070
00071 private:
00072   SmartPointer<File> F;
00073   IconImageFilterInternals *Internals;
00074 };
00075
00076 } // end namespace gdcm
00077
00078 #endif //GDCMICONIMAGEFILTER_H
```

13.311 gdcmIconImageGenerator.h File Reference

```
#include "gdcmPixmap.h"
#include "gdcmIconImage.h"
```

Include dependency graph for gdcmIconImageGenerator.h:



Classes

- class gdcm::IconImageGenerator

  IconImageGenerator.

Namespaces

- namespace gdcm

13.312 gdcmIconImageGenerator.h

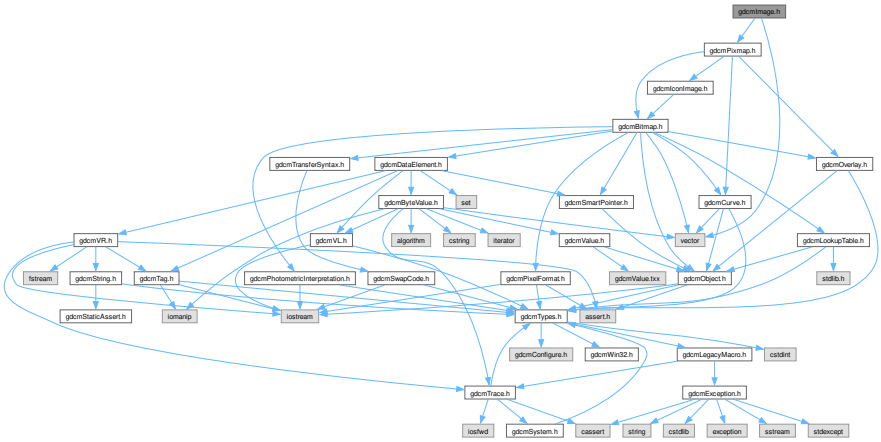
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMICONIMAGEGENERATOR_H
00015 #define GDCMICONIMAGEGENERATOR_H
00016
00017 #include "gdcmPixmap.h"
00018 #include "gdcmIconImage.h"
00019
00020 namespace gdcm
00021 {
00022 class IconImageGeneratorInternals;
00041 class GDCM_EXPORT IconImageGenerator
00042 {
00043 public:
00044   IconImageGenerator();
00045   ~IconImageGenerator();
00046
00048   void SetPixmap(const Pixmap& p) { P = p; }
00049   Pixmap &GetPixmap() { return *P; }
00050   const Pixmap &GetPixmap() const { return *P; }
00051
00053   void SetOutputDimensions(const unsigned int dims[2]);
00054
00058   void SetPixelMinMax(double min, double max);
00059
00063   void AutoPixelMinMax(bool b);
00064
00069   void ConvertRGBToPaletteColor(bool b);
00070
00074   void SetOutsideValuePixel(double v);
00075
00077   bool Generate();
00078
00080   const IconImage& GetIconImage() const { return *I; }
00081
00082 protected:
00083
00084 private:
00085   void BuildLUT( Bitmap & bitmap, unsigned int maxcolor );
00086
00087   SmartPointer<Pixmap> P;
00088   SmartPointer<IconImage> I;
00089   IconImageGeneratorInternals *Internals;
00090 };
00091
00092 } // end namespace gdcm
00093
00094 #endif //GDCMICONIMAGEGENERATOR_H
```

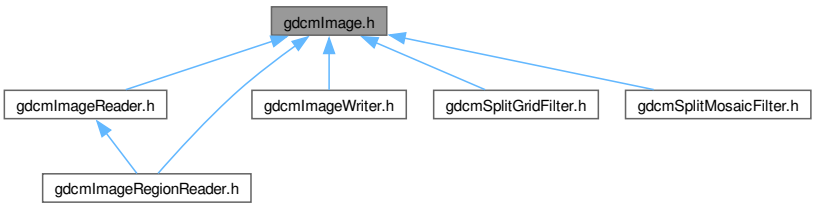
13.313 gdcmImage.h File Reference

```
#include "gdcmPixmap.h"
#include <vector>
```

Include dependency graph for gdcmImage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Image

  Image.

Namespaces

- namespace gdcm

13.314 gdcmImage.h

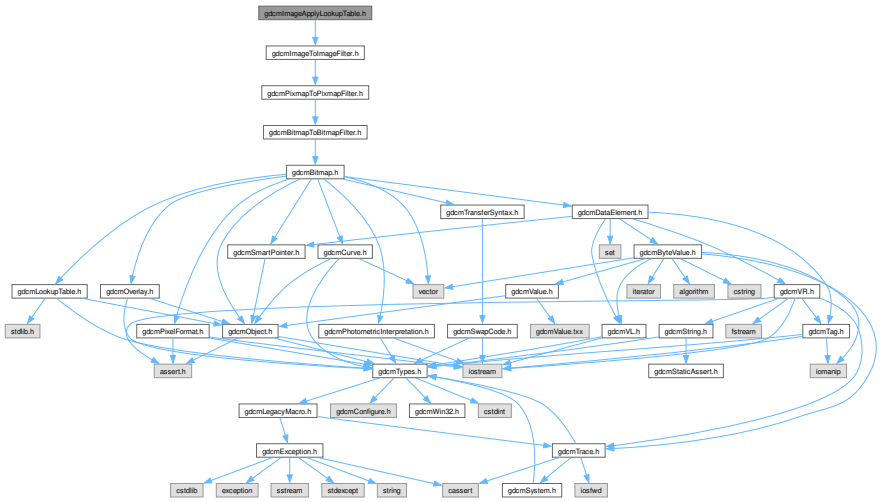
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
```

```
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGE_H
00015 #define GDCMIMAGE_H
00016
00017 #include "gdcmPixmap.h"
00018
00019 #include <vector>
00020
00021 namespace gdcm
00022 {
00023
00046 class GDCM_EXPORT Image : public Pixmap
00047 {
00048 public:
00049   Image ():Spacing(),SC(),Intercept(0),Slope(1) {
00050     //DirectionCosines.resize(6);
00051   Origin.resize( 3 /*NumberOfDimensions*/ ); // fill with 0
00052   DirectionCosines.resize( 6 ); // fill with 0
00053   DirectionCosines[0] = 1;
00054   DirectionCosines[4] = 1;
00055   Spacing.resize( 3 /*NumberOfDimensions*/, 1 ); // fill with 1
00056
00057   }
00058   ~Image() override = default;
00059
00063   const double *GetSpacing() const;
00064   double GetSpacing(unsigned int idx) const;
00065   void SetSpacing(const double spacing[3]);
00066   void SetSpacing(unsigned int idx, double spacing);
00067
00070   const double *GetOrigin() const;
00071   double GetOrigin(unsigned int idx) const;
00072   void SetOrigin(const float origin[3]);
00073   void SetOrigin(const double origin[3]);
00074   void SetOrigin(unsigned int idx, double ori);
00075
00078   const double *GetDirectionCosines() const;
00079   double GetDirectionCosines(unsigned int idx) const;
00080   void SetDirectionCosines(const float dircos[6]);
00081   void SetDirectionCosines(const double dircos[6]);
00082   void SetDirectionCosines(unsigned int idx, double dircos);
00083
00085   void Print(std::ostream &os) const override;
00086
00088   void SetIntercept(double intercept) { Intercept = intercept; }
00089   double GetIntercept() const { return Intercept; }
00090
00092   void SetSlope(double slope) { Slope = slope; }
00093   double GetSlope() const { return Slope; }
00094
00095 private:
00096   std::vector<double> Spacing;
00097   std::vector<double> Origin;
00098   std::vector<double> DirectionCosines;
00099
00100   // I believe the following 3 ivars can be derived from TS ...
00101   SwapCode SC;
00102   double Intercept;
00103   double Slope;
00104 };
00105
00110
00111 } // end namespace gdcm
00112
00113 #endif //GDCMIMAGE_H
```

13.315 gdcmImageApplyLookupTable.h File Reference

`#include "gdcmImageToImageFilter.h"`
Include dependency graph for gdcmImageApplyLookupTable.h:



Classes

- class gdcm::ImageApplyLookupTable

  ImageApplyLookupTable class.

Namespaces

- namespace gdcm

13.316 gdcmImageApplyLookupTable.h

Go to the documentation of this file.

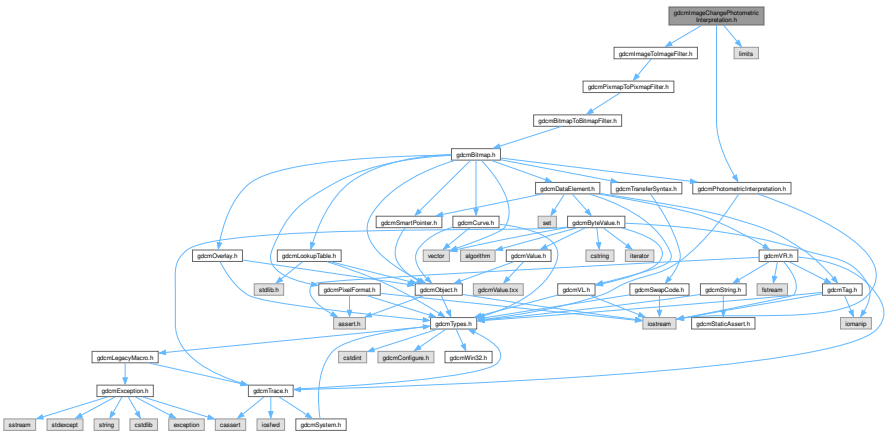
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEAPPLYLOOKUPTABLE_H
00015 #define GDCMIMAGEAPPLYLOOKUPTABLE_H
00016
00017 #include "gdcmImageToImageFilter.h"
```

```
00018
00019 namespace gdcm
00020 {
00021
00022 class DataElement;
00028 class GDCM_EXPORT ImageApplyLookupTable : public ImageToImageFilter
00029 {
00030 public:
00031   ImageApplyLookupTable();
00032   ~ImageApplyLookupTable();
00033
00035   bool Apply();
00036
00038   void SetRGB8(bool b);
00039
00040 protected:
00041
00042 private:
00043   struct impl;
00044   // PIMPL idiom
00045   impl* pimpl;
00046 };
00047
00048 } // end namespace gdcm
00049
00050 #endif //GDCMIMAGEAPPLYLOOKUPTABLE_H
```

13.317 gdcmImageChangePhotometricInterpretation.h File Reference

```
#include "gdcmImageToImageFilter.h"
#include "gdcmPhotometricInterpretation.h"
#include <limits>
```

Include dependency graph for gdcmImageChangePhotometricInterpretation.h:



Classes

- class gdcm::ImageChangePhotometricInterpretation

  ImageChangePhotometricInterpretation class.

Namespaces

- namespace gdcm

Functions

- template<typename T>
  static T gdcm::Clamp (int v)
- template<typename T>
  static int gdcm::Round (T x)

13.318 gdcmImageChangePhotometricInterpretation.h

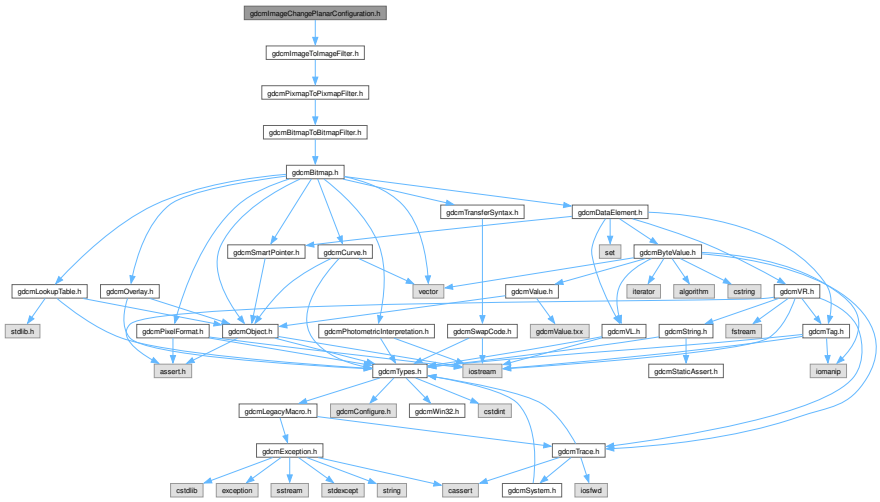
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGECHANGEPHOTOMETRICINTERPRETATION_H
00015 #define GDCMIMAGECHANGEPHOTOMETRICINTERPRETATION_H
00016
00017 #include "gdcmImageToImageFilter.h"
00018 #include "gdcmPhotometricInterpretation.h"
00019 #include <limits>
00020
00021 namespace gdcm
00022 {
00023
00024 class DataElement;
00029 class GDCM_EXPORT ImageChangePhotometricInterpretation : public ImageToImageFilter
00030 {
00031 public:
00032   ImageChangePhotometricInterpretation():PI() {}
00033   ~ImageChangePhotometricInterpretation() = default;
00034
00036   void SetPhotometricInterpretation(PhotometricInterpretation const &pi) { PI = pi; }
00037   const PhotometricInterpretation &GetPhotometricInterpretation() const { return PI; }
00038
00040   bool Change();
00041
00044   template <typename T>
00045   static void RGB2YBR(T ybr[3], const T rgb[3], unsigned short storedbits = 8);
00046   template <typename T>
00047   static void YBR2RGB(T rgb[3], const T ybr[3], unsigned short storedbits = 8);
00048
00049 protected:
00050   bool ChangeMonochrome();
00051   bool ChangeYBR2RGB();
00052   bool ChangeRGB2YBR();
00053
00054 private:
00055   PhotometricInterpretation PI;
00056 };
00057
00058 template <typename T>
00059 static inline int Round(T x)
00060 {
00061   return (int)(x+0.5);
00062 }
00063
00064 template <typename T>
00065 static inline T Clamp(int v)
00066 {
00067   gdcm_assert( std::numeric_limits<T>::min() == 0 );
00068   return v < 0 ? 0 : (v > std::numeric_limits<T>::max() ? std::numeric_limits<T>::max() : v);
00069 }
00070
```

```
00071
00072 template <typename T>
00073 void ImageChangePhotometricInterpretation::RGB2YBR(T ybr[3], const T rgb[3], unsigned short storedbits)
00074 {
00075   // Implementation details, since the equations from:
00076   // http://dicom.nema.org/medical/dicom/current/output/chtml/part03/sect_C.7.6.3.html#sect_C.7.6.3.1.2
00077   // are rounded to the 4th decimal precision, prefer the exact equation from the original document at:
00078   // CCIR Recommendation 601-2, also found in T.871 (Section §7, page 4)
00079   const double R = rgb[0];
00080   const double G = rgb[1];
00081   const double B = rgb[2];
00082   gdcm_assert( storedbits <= sizeof(T) * 8 );
00083   const int halffullscale = 1 « (storedbits - 1);
00084   const int Y  = Round(  0.299 * R + 0.587 * G + 0.114 * B                      );
00085   const int CB = Round((-0.299 * R - 0.587 * G + 0.886 * B)/1.772 + halffullscale);
00086   const int CR = Round(( 0.701 * R - 0.587 * G - 0.114 * B)/1.402 + halffullscale);
00087   ybr[0] = Clamp<T>(Y );
00088   ybr[1] = Clamp<T>(CB);
00089   ybr[2] = Clamp<T>(CR);
00090 }
00091
00092 template <typename T>
00093 void ImageChangePhotometricInterpretation::YBR2RGB(T rgb[3], const T ybr[3], unsigned short storedbits)
00094 {
00095   const double Y  = ybr[0];
00096   const double Cb = ybr[1];
00097   const double Cr = ybr[2];
00098   gdcm_assert( storedbits <= sizeof(T) * 8 );
00099   const int halffullscale = 1 « (storedbits - 1);
00100   const int R = Round(Y                                       + 1.402 * (Cr-halffullscale)
      );
00101   const int G = Round(Y -( 0.114 * 1.772 * (Cb-halffullscale) + 0.299 * 1.402 *
      (Cr-halffullscale))/0.587);
00102   const int B = Round(Y          + 1.772 * (Cb-halffullscale)
      );
00103   rgb[0] = Clamp<T>(R);
00104   rgb[1] = Clamp<T>(G);
00105   rgb[2] = Clamp<T>(B);
00106 }
00107
00108 } // end namespace gdcm
00109
00110 #endif //GDCMIMAGECHANGEPHOTOMETRICINTERPRETATION_H
```

13.319 gdcmImageChangePlanarConfiguration.h File Reference

`#include "gdcmImageToImageFilter.h"`
Include dependency graph for gdcmImageChangePlanarConfiguration.h:



Classes

- class gdcm::ImageChangePlanarConfiguration

  ImageChangePlanarConfiguration class.

Namespaces

- namespace gdcm

13.320 gdcmImageChangePlanarConfiguration.h

Go to the documentation of this file.

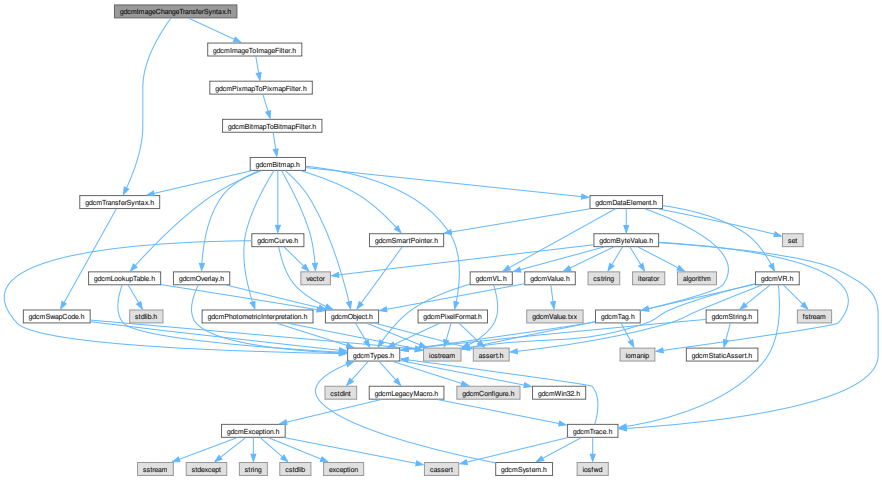
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGECHANGEPLANARCONFIGURATION_H
00015 #define GDCMIMAGECHANGEPLANARCONFIGURATION_H
00016
00017 #include "gdcmImageToImageFilter.h"
```

```
00018
00019 namespace gdcm
00020 {
00021
00022 class DataElement;
00028 class GDCM_EXPORT ImageChangePlanarConfiguration : public ImageToImageFilter
00029 {
00030 public:
00031   ImageChangePlanarConfiguration():PlanarConfiguration(0) {}
00032   ~ImageChangePlanarConfiguration() = default;
00033
00035   void SetPlanarConfiguration(unsigned int pc) { PlanarConfiguration = pc; }
00036   unsigned int GetPlanarConfiguration() const { return PlanarConfiguration; }
00037
00040   template <typename T>
00041   static size_t RGBPlanesToRGBPixels(T *out, const T *r, const T *g, const T *b, size_t s);
00042
00046   template <typename T>
00047   static size_t RGBPixelsToRGBPlanes(T *r, T *g, T *b, const T* rgb, size_t s);
00048
00050   bool Change();
00051
00052 protected:
00053
00054 private:
00055   unsigned int PlanarConfiguration;
00056 };
00057
00058 template <typename T>
00059 size_t ImageChangePlanarConfiguration::RGBPlanesToRGBPixels(T *out, const T *r, const T *g, const T *b,
      size_t s)
00060 {
00061   T *pout = out;
00062   for(size_t i = 0; i < s; ++i )
00063     {
00064     *pout++ = *r++;
00065     *pout++ = *g++;
00066     *pout++ = *b++;
00067     }
00068
00069   gdcm_assert( (size_t)(pout - out) == 3 * s );
00070   return pout - out;
00071 }
00072
00073 template <typename T>
00074 size_t ImageChangePlanarConfiguration::RGBPixelsToRGBPlanes(T *r, T *g, T *b, const T *rgb, size_t s)
00075 {
00076   const T *prgb = rgb;
00077   for(size_t i = 0; i < s; ++i )
00078     {
00079     *r++ = *prgb++;
00080     *g++ = *prgb++;
00081     *b++ = *prgb++;
00082     }
00083   gdcm_assert( (size_t)(prgb - rgb) == 3 * s );
00084   return prgb - rgb;
00085 }
00086
00087
00088 } // end namespace gdcm
00089
00090 #endif //GDCMIMAGECHANGEPLANARCONFIGURATION_H
```

13.321 gdcmImageChangeTransferSyntax.h File Reference

```
#include "gdcmImageToImageFilter.h"
#include "gdcmTransferSyntax.h"
```

Include dependency graph for gdcmImageChangeTransferSyntax.h:



Classes

- class gdcm::ImageChangeTransferSyntax

  ImageChangeTransferSyntax class.

Namespaces

- namespace gdcm

13.322 gdcmImageChangeTransferSyntax.h

Go to the documentation of this file.

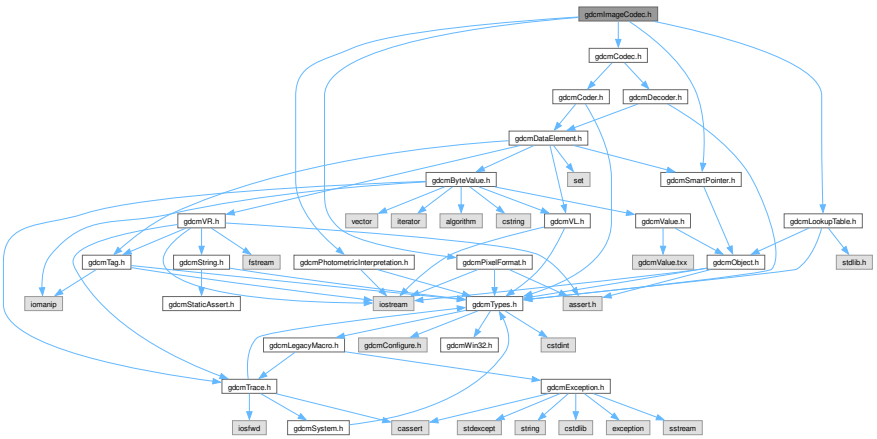
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGECHANGETRANSFERSYNTAX_H
00015 #define GDCMIMAGECHANGETRANSFERSYNTAX_H
00016
00017 #include "gdcmImageToImageFilter.h"
00018 #include "gdcmTransferSyntax.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class DataElement;
00024 class ImageCodec;
```

```
00039 class GDCM_EXPORT ImageChangeTransferSyntax : public ImageToImageFilter
00040 {
00041 public:
00042
      ImageChangeTransferSyntax():TS(TransferSyntax::TS_END),Force(false),CompressIconImage(false),UserCodec(nullptr)
      {}
00043   ~ImageChangeTransferSyntax() = default;
00044
00046   void SetTransferSyntax(const TransferSyntax &ts) { TS = ts; }
00048   const TransferSyntax &GetTransferSyntax() const { return TS; }
00049
00051   bool Change();
00052
00055   void SetCompressIconImage(bool b) { CompressIconImage = b; }
00056
00061   void SetForce( bool f ) { Force = f; }
00062
00068   void SetUserCodec(ImageCodec *ic) { UserCodec = ic; }
00069
00070 protected:
00071   bool TryJPEGCodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
00072   bool TryJPEG2000Codec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
00073   bool TryJPEGLSCodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
00074   bool TryRAWCodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
00075   bool TryRLECodec(const DataElement &pixelde, Bitmap const &input, Bitmap &output);
00076
00077 private:
00078   TransferSyntax TS;
00079   bool Force;
00080   bool CompressIconImage;
00081
00082   ImageCodec *UserCodec;
00083 };
00084
00089
00090 } // end namespace gdcm
00091
00092 #endif //GDCMIMAGECHANGETRANSFERSYNTAX_H
```

13.323 gdcmImageCodec.h File Reference

```
#include "gdcmCodec.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmLookupTable.h"
#include "gdcmSmartPointer.h"
#include "gdcmPixelFormat.h"
```

Include dependency graph for gdcmImageCodec.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::ImageCodec

  ImageCodec.

Namespaces

- namespace gdcm

13.324 gdcmImageCodec.h

Go to the documentation of this file.

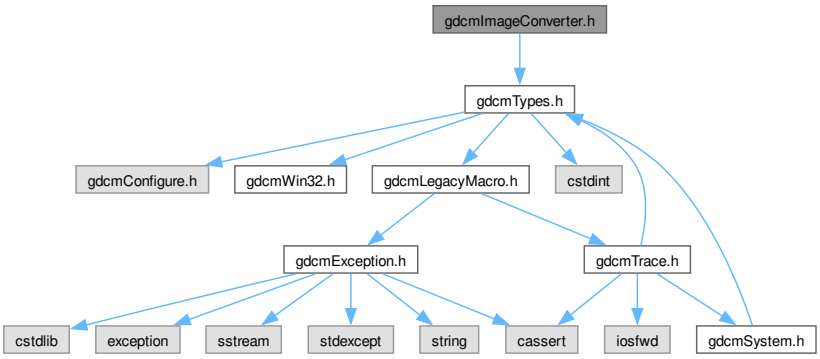
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGECODEC_H
00015 #define GDCMIMAGECODEC_H
00016
00017 #include "gdcmCodec.h"
00018 #include "gdcmPhotometricInterpretation.h"
00019 #include "gdcmLookupTable.h"
00020 #include "gdcmSmartPointer.h"
00021 #include "gdcmPixelFormat.h"
00022
00023 namespace gdcm
00024 {
00025
00030 class GDCM_EXPORT ImageCodec : public Codec
00031 {
00032   friend class ImageChangePhotometricInterpretation;
00033 public:
00034   ImageCodec();
00035   ~ImageCodec() override;
00036   bool CanCode(TransferSyntax const &) const override { return false; }
00037   bool CanDecode(TransferSyntax const &) const override { return false; }
00038   bool Decode(DataElement const &is_, DataElement &os) override;
00039   bool IsLossy() const;
00040   void SetLossyFlag(bool l);
00041   bool GetLossyFlag() const;
00042
00043   virtual bool GetHeaderInfo(std::istream &is_, TransferSyntax &ts);
00044
00045   virtual ImageCodec * Clone() const = 0;
00046
```

```
00047 protected:
00048   bool DecodeByStreams(std::istream &is_, std::ostream &os) override;
00049   virtual bool IsValid(PhotometricInterpretation const &pi);
00050 public:
00051
00052   unsigned int GetPlanarConfiguration() const
00053     {
00054     return PlanarConfiguration;
00055     }
00056   void SetPlanarConfiguration(unsigned int pc)
00057     {
00058     gdcm_assert( pc == 0 || pc == 1 );
00059     PlanarConfiguration = pc;
00060     }
00061
00062   PixelFormat &GetPixelFormat()
00063     {
00064     return PF;
00065     }
00066   const PixelFormat &GetPixelFormat() const
00067     {
00068     return PF;
00069     }
00070   virtual void SetPixelFormat(PixelFormat const &pf)
00071     {
00072     PF = pf;
00073     }
00074   const PhotometricInterpretation &GetPhotometricInterpretation() const;
00075   void SetPhotometricInterpretation(PhotometricInterpretation const &pi);
00076
00077   bool GetNeedByteSwap() const
00078     {
00079     return NeedByteSwap;
00080     }
00081   void SetNeedByteSwap(bool b)
00082     {
00083     NeedByteSwap = b;
00084     }
00085   void SetNeedOverlayCleanup(bool b)
00086     {
00087     NeedOverlayCleanup = b;
00088     }
00089   void SetLUT(LookupTable const &lut)
00090     {
00091     LUT = SmartPointer<LookupTable>( const_cast<LookupTable*>(&lut) );
00092     }
00093   const LookupTable &GetLUT() const
00094     {
00095     return *LUT;
00096     }
00097
00098   void SetDimensions(const unsigned int d[3]);
00099   void SetDimensions(const std::vector<unsigned int> & d);
00100   const unsigned int *GetDimensions() const { return Dimensions; }
00101   void SetNumberOfDimensions(unsigned int dim);
00102   unsigned int GetNumberOfDimensions() const;
00103
00104   bool CleanupUnusedBits(char * data, size_t datalen);
00105
00106 protected:
00107   // Streaming (write) API:
00114   friend class FileChangeTransferSyntax;
00115   virtual bool StartEncode( std::ostream & os );
00116   virtual bool IsRowEncoder();
00117   virtual bool IsFrameEncoder();
00118   virtual bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen );
00119   virtual bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen );
00120   virtual bool StopEncode( std::ostream & os);
00121
00122 protected:
00123   bool RequestPlanarConfiguration;
00124   bool RequestPaddedCompositePixelCode;
00125 //private:
00126   unsigned int PlanarConfiguration;
00127   PhotometricInterpretation PI;
00128   PixelFormat PF;
00129   bool NeedByteSwap;
00130   bool NeedOverlayCleanup;
00131
00132   typedef SmartPointer<LookupTable> LUTPtr;
00133   LUTPtr LUT;
```

```
00134   unsigned int Dimensions[3]; // FIXME
00135   unsigned int NumberOfDimensions;
00136   bool LossyFlag;
00137
00138   bool DoOverlayCleanup(std::istream &is_, std::ostream &os);
00139   bool DoByteSwap(std::istream &is_, std::ostream &os);
00140   bool DoYBR(std::istream &is_, std::ostream &os);
00141   bool DoYBRFull422(std::istream &is_, std::ostream &os);
00142   bool DoPlanarConfiguration(std::istream &is_, std::ostream &os);
00143   bool DoSimpleCopy(std::istream &is_, std::ostream &os);
00144   bool DoPaddedCompositePixelCode(std::istream &is_, std::ostream &os);
00145   bool DoInvertMonochrome(std::istream &is_, std::ostream &os);
00146
00147   //template <typename T>
00148   //bool DoInvertPlanarConfiguration(T *output, const T *input, uint32_t length);
00149 };
00150
00151 } // end namespace gdcm
00152
00153 #endif //GDCMIMAGECODEC_H
```

13.325 gdcmImageConverter.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmImageConverter.h:



Classes

- class gdcm::ImageConverter

  Image Converter.

Namespaces

- namespace gdcm

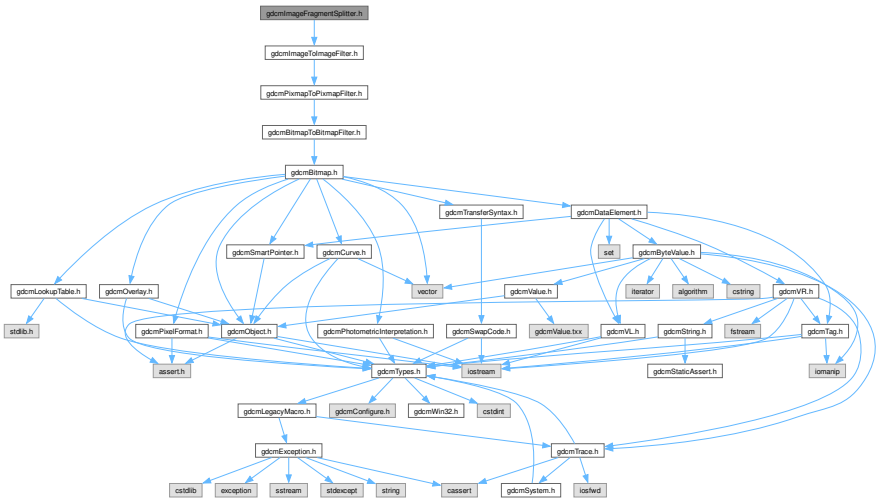
13.326 gdcmImageConverter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMIMAGECONVERTER_H
00016 #define GDCMIMAGECONVERTER_H
00017
00018 #include "gdcmTypes.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class Image;
00033 class GDCM_EXPORT ImageConverter
00034 {
00035 public:
00036   ImageConverter();
00037   ~ImageConverter();
00038
00039   void SetInput(Image const &input);
00040   const Image& GetOuput() const;
00041
00042   void Convert();
00043
00044 private:
00045   Image *Input;
00046   Image *Output;
00047 };
00048
00049 } // end namespace gdcm
00050
00051 #endif //GDCMIMAGECONVERTER_H
```

13.327 gdcmImageFragmentSplitter.h File Reference

`#include "gdcmImageToImageFilter.h"`
Include dependency graph for gdcmImageFragmentSplitter.h:



Classes

- class gdcm::ImageFragmentSplitter

  ImageFragmentSplitter class.

Namespaces

- namespace gdcm

13.328 gdcmImageFragmentSplitter.h

Go to the documentation of this file.

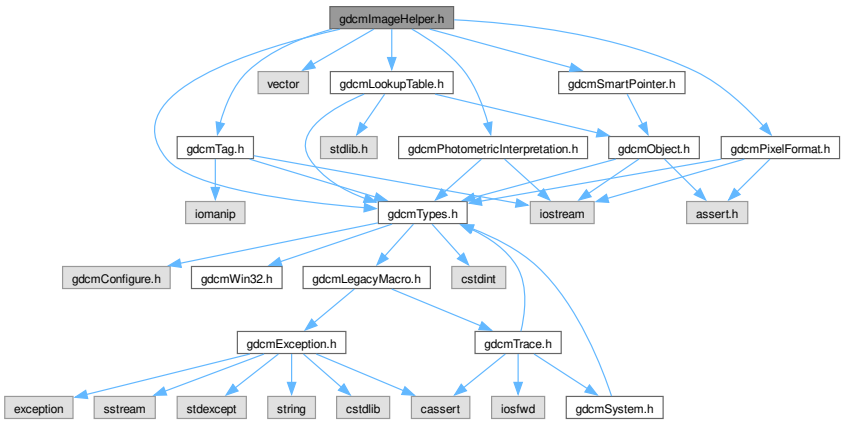
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEFRAGMENTSPLITTER_H
00015 #define GDCMIMAGEFRAGMENTSPLITTER_H
00016
00017 #include "gdcmImageToImageFilter.h"
```

```
00018
00019 namespace gdcm
00020 {
00021
00022 class DataElement;
00027 class GDCM_EXPORT ImageFragmentSplitter : public ImageToImageFilter
00028 {
00029 public:
00030   ImageFragmentSplitter():FragmentSizeMax(0),Force(false) {}
00031   ~ImageFragmentSplitter() = default;
00032
00034   bool Split();
00035
00037   void SetFragmentSizeMax(unsigned int fragsize);
00038   unsigned int GetFragmentSizeMax() const { return FragmentSizeMax; }
00039
00042   void SetForce( bool f ) { Force = f; }
00043
00044 protected:
00045
00046 private:
00047   unsigned int FragmentSizeMax;
00048   bool Force;
00049 };
00050
00051 } // end namespace gdcm
00052
00053 #endif //GDCMIMAGEFRAGMENTSPLITTER_H
```

13.329 gdcmImageHelper.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTag.h"
#include <vector>
#include "gdcmPixelFormat.h"
#include "gdcmPhotometricInterpretation.h"
#include "gdcmSmartPointer.h"
#include "gdcmLookupTable.h"
```

Include dependency graph for gdcmImageHelper.h:



Classes

- class gdcm::ImageHelper

ImageHelper (internal class, not intended for user level).

- struct gdcm::RealWorldValueMappingContent

Namespaces

- namespace gdcm

13.330 gdcmImageHelper.h

Go to the documentation of this file.

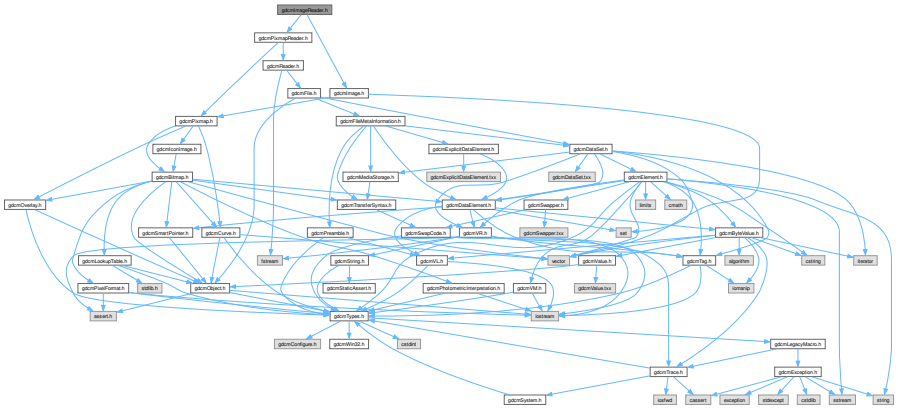
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEHELPER_H
00015 #define GDCMIMAGEHELPER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTag.h"
00019 #include <vector>
00020 #include "gdcmPixelFormat.h"
00021 #include "gdcmPhotometricInterpretation.h"
00022 #include "gdcmSmartPointer.h"
00023 #include "gdcmLookupTable.h"
00024
00025 namespace gdcm
00026 {
00027
00028 class MediaStorage;
00029 class DataSet;
00030 class File;
00031 class Image;
00032 class Pixmap;
00033 class ByteValue;
00034
00035 // minimal struct:
00036 struct RealWorldValueMappingContent {
00037   double RealWorldValueIntercept;
00038   double RealWorldValueSlope;
00039   // http://dicom.nema.org/MEDICAL/DICOM/2014c/output/chtml/part16/sect_CID_7181.html
00040   std::string CodeValue;
00041   std::string CodeMeaning;
00042 };
00043
00059 class GDCM_EXPORT ImageHelper
00060 {
00061 public:
00068   static void SetForceRescaleInterceptSlope(bool);
00069   static bool GetForceRescaleInterceptSlope();
00070
00076   static void SetPMSRescaleInterceptSlope(bool);
00077   static bool GetPMSRescaleInterceptSlope();
00078
00085   static void SetForcePixelSpacing(bool);
00086   static bool GetForcePixelSpacing();
00087
00092   static void SetSecondaryCaptureImagePlaneModule(bool);
00093   static bool GetSecondaryCaptureImagePlaneModule();
00094
00098   static std::vector<unsigned int> GetDimensionsValue(const File& f);
00099   static void SetDimensionsValue(File& f, const Pixmap & img);
```

```
00100
00103   static PixelFormat GetPixelFormatValue(const File& f);
00104
00109   static std::vector<double> GetRescaleInterceptSlopeValue(File const & f);
00110   static void SetRescaleInterceptSlopeValue(File & f, const Image & img);
00111
00112   // read only for now
00113   static bool GetRealWorldValueMappingContent(File const & f, RealWorldValueMappingContent & rwvmc);
00114
00116   static std::vector<double> GetOriginValue(File const & f);
00117   static void SetOriginValue(DataSet & ds, const Image & img);
00118
00121   static std::vector<double> GetDirectionCosinesValue(File const & f);
00127   // FIXME: There is a major issue for image with multiple IOP (eg. Enhanced * Image Storage).
00128   static void SetDirectionCosinesValue(DataSet & ds, const std::vector<double> & dircos);
00129
00131   static std::vector<double> GetSpacingValue(File const & f);
00133   static void SetSpacingValue(DataSet & ds, const std::vector<double> & spacing);
00134
00136   static bool ComputeSpacingFromImagePositionPatient(const std::vector<double> &imageposition,
      std::vector<double> & spacing);
00137
00138   static bool GetDirectionCosinesFromDataSet(DataSet const & ds, std::vector<double> & dircos);
00139
00140   //functions to get more information from a file
00141   //useful for the stream image reader, which fills in necessary image information
00142   //distinctly from the reader-style data input
00143   static PhotometricInterpretation GetPhotometricInterpretationValue(File const& f);
00144   //returns the configuration of colors in a plane, either RGB RGB RGB or RRR GGG BBB
00145   static unsigned int GetPlanarConfigurationValue(const File& f);
00146
00148   static SmartPointer<LookupTable> GetLUT(File const& f);
00149
00150   // Moved from PixampReader to here. Generally used for photometric interpretation.
00151   static const ByteValue* GetPointerFromElement(Tag const &tag, File const& f);
00152
00154   static MediaStorage ComputeMediaStorageFromModality(const char *modality,
00155     unsigned int dimension = 2, PixelFormat const & pf = PixelFormat(),
00156     PhotometricInterpretation const & pi = PhotometricInterpretation(),
00157     double rescaleintercept = 0, double rescaleslope = 1 );
00158
00159 protected:
00160   static Tag GetSpacingTagFromMediaStorage(MediaStorage const &ms);
00161   static Tag GetZSpacingTagFromMediaStorage(MediaStorage const &ms);
00162
00163 private:
00164   static bool ForceRescaleInterceptSlope;
00165   static bool PMSRescaleInterceptSlope;
00166   static bool ForcePixelSpacing;
00167   static bool SecondaryCaptureImagePlaneModule;
00168 };
00169
00170 } // end namespace gdcm
00171
00172 #endif // GDCMIMAGEHELPER_H
```

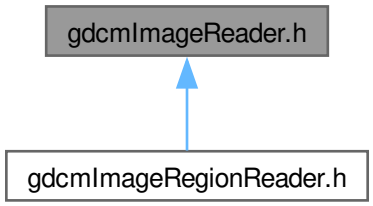
13.331 gdcmImageReader.h File Reference

```
#include "gdcmPixmapReader.h"
#include "gdcmImage.h"
```

Include dependency graph for gdcmImageReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ImageReader

  ImageReader.

Namespaces

- namespace gdcm

13.332 gdcmImageReader.h

Go to the documentation of this file.

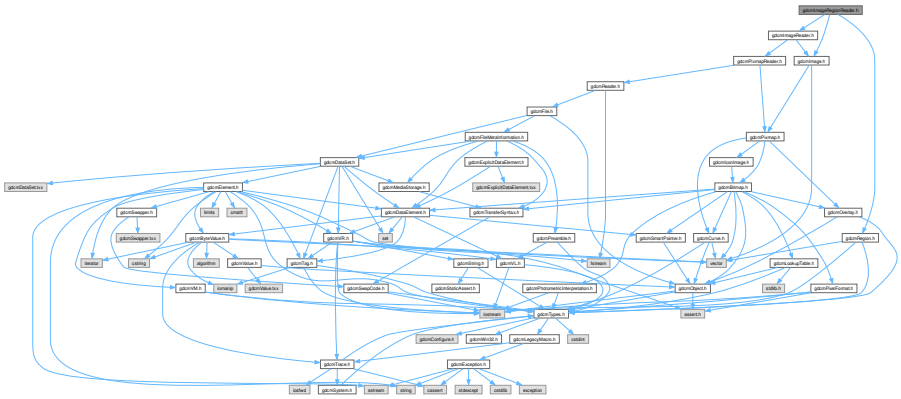
```
00001 /*=========================================================================
00002
```

```
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEREADER_H
00015 #define GDCMIMAGEREADER_H
00016
00017 #include "gdcmPixmapReader.h"
00018 #include "gdcmImage.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class MediaStorage;
00033 class GDCM_EXPORT ImageReader : public PixmapReader
00034 {
00035 public:
00036   ImageReader();
00037   ~ImageReader() override;//needs to be virtual to ensure lack of memory leaks
00038
00042
00043   bool Read() override;
00044
00045   // Following methods are valid only after a call to 'Read'
00046
00048   const Image& GetImage() const;
00049   Image& GetImage();
00050   //void SetImage(Image const &img);
00051
00052 protected:
00053   bool ReadImage(MediaStorage const &ms) override;
00054   bool ReadACRNEMAImage() override;
00055 };
00056
00057 } // end namespace gdcm
00058
00059 #endif //GDCMIMAGEREADER_H
```

13.333 gdcmImageRegionReader.h File Reference

```
#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmRegion.h"
```

Include dependency graph for gdcmImageRegionReader.h:



Classes

- class gdcm::ImageRegionReader

  ImageRegionReader.

Namespaces

- namespace gdcm

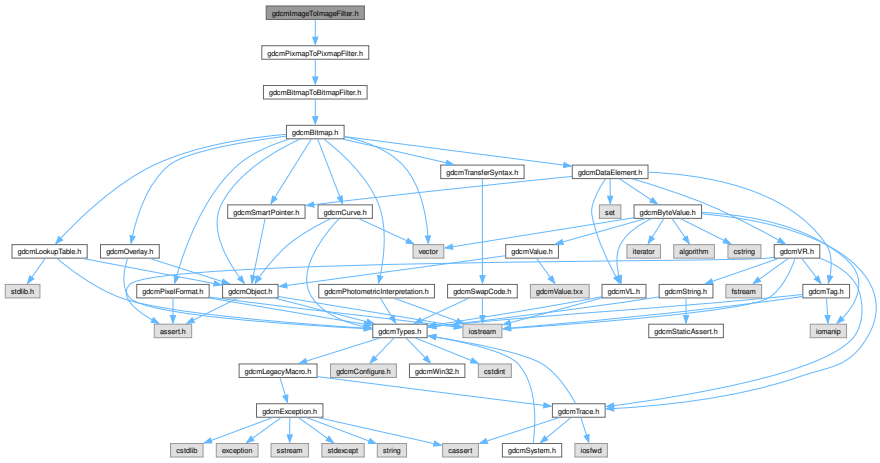
13.334 gdcmImageRegionReader.h

Go to the documentation of this file.

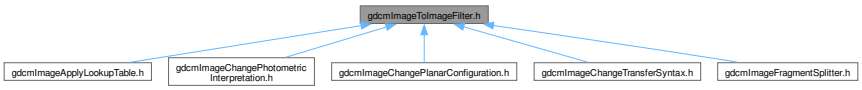
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEEXTENTREADER_H
00015 #define GDCMIMAGEEXTENTREADER_H
00016
00017 #include "gdcmImageReader.h"
00018 #include "gdcmImage.h"
00019 #include "gdcmRegion.h"
00020
00021 namespace gdcm
00022 {
00023
00024 class ImageRegionReaderInternals;
00034 class GDCM_EXPORT ImageRegionReader : public ImageReader
00035 {
00036 public:
00037   ImageRegionReader();
00038   ~ImageRegionReader() override;
00039
00041   void SetRegion(Region const & region);
00042   Region const &GetRegion() const;
00043
00047   size_t ComputeBufferLength() const;
00048
00051   bool ReadInformation();
00052
00057   bool ReadIntoBuffer(char *inreadbuffer, size_t buflen);
00058
00059 protected:
00061   bool Read() override;
00062
00063 private:
00064   BoxRegion ComputeBoundingBox();
00065   bool ReadRAWIntoBuffer(char *buffer, size_t buflen);
00066   bool ReadRLEIntoBuffer(char *buffer, size_t buflen);
00067   bool ReadJPEG2000IntoBuffer(char *buffer, size_t buflen);
00068   bool ReadJPEGIntoBuffer(char *buffer, size_t buflen);
00069   bool ReadJPEGLSIntoBuffer(char *buffer, size_t buflen);
00070   ImageRegionReaderInternals *Internals;
00071 };
00072
00073 } // end namespace gdcm
00074
00075 #endif //GDCMIMAGEEXTENTREADER_H
```

13.335 gdcmImageToImageFilter.h File Reference

`#include "gdcmPixmapToPixmapFilter.h"`
Include dependency graph for gdcmImageToImageFilter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::ImageToImageFilter
  ImageToImageFilter class.

Namespaces

- namespace gdcm

13.336 gdcmImageToImageFilter.h

Go to the documentation of this file.

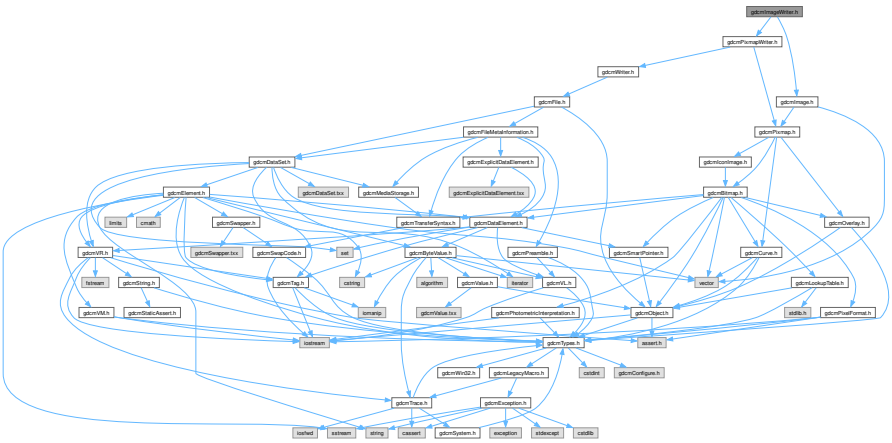
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
```

```
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGETOIMAGEFILTER_H
00015 #define GDCMIMAGETOIMAGEFILTER_H
00016
00017 #include "gdcmPixmapToPixmapFilter.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class Image;
00027 class GDCM_EXPORT ImageToImageFilter : public PixmapToPixmapFilter
00028 {
00029 public:
00030   ImageToImageFilter();
00031   ~ImageToImageFilter() = default;
00032
00033   Image &GetInput();
00034
00035   // NOTE: covariant return-type to preserve backward compatible API
00037   const Image &GetOutput() const;
00038
00039 protected:
00040 };
00041
00042 } // end namespace gdcm
00043
00044 #endif //GDCMIMAGETOIMAGEFILTER_H
```

13.337 gdcmImageWriter.h File Reference

```
#include "gdcmPixmapWriter.h"
#include "gdcmImage.h"
```

Include dependency graph for gdcmImageWriter.h:



Classes

- class gdcm::ImageWriter

  ImageWriter.

Namespaces

- namespace gdcm

13.338 gdcmImageWriter.h

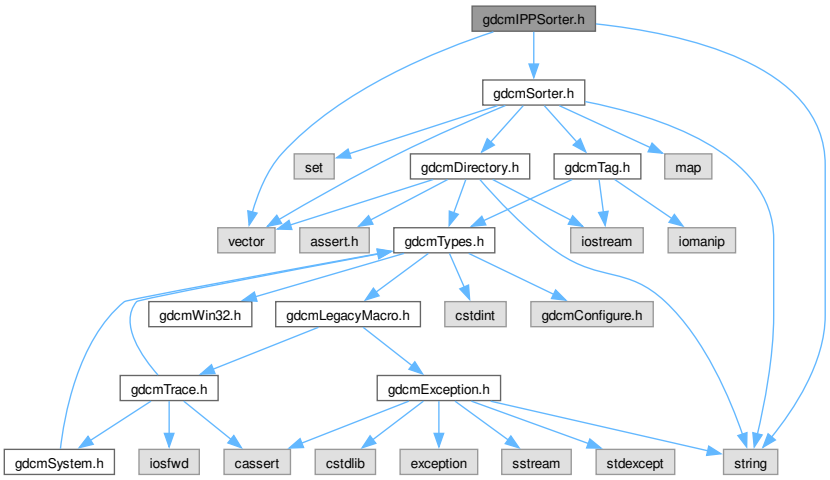
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMAGEWRITER_H
00015 #define GDCMIMAGEWRITER_H
00016
00017 #include "gdcmPixmapWriter.h"
00018 #include "gdcmImage.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class Image;
00032 class GDCM_EXPORT ImageWriter : public PixmapWriter
00033 {
00034 public:
00035   ImageWriter();
00036   ~ImageWriter() override;
00037
00041   const Image& GetImage() const override { return dynamic_cast<const Image&>(*PixelData); }
00042   Image& GetImage() override { return dynamic_cast<Image&>(*PixelData); } // FIXME
00043   //void SetImage(Image const &img);
00044
00046   bool Write() override; // Execute()
00047
00050   MediaStorage ComputeTargetMediaStorage();
00051 protected:
00052
00053 private:
00054 };
00055
00056 } // end namespace gdcm
00057
00058 #endif //GDCMIMAGEWRITER_H
```

13.339 gdcmIPPSorter.h File Reference

```
#include "gdcmSorter.h"
#include <vector>
```

#include <string>
Include dependency graph for gdcmIPPSorter.h:



Classes

- class gdcm::IPPSorter
  IPPSorter.

Namespaces

- namespace gdcm

13.340 gdcmIPPSorter.h

Go to the documentation of this file.

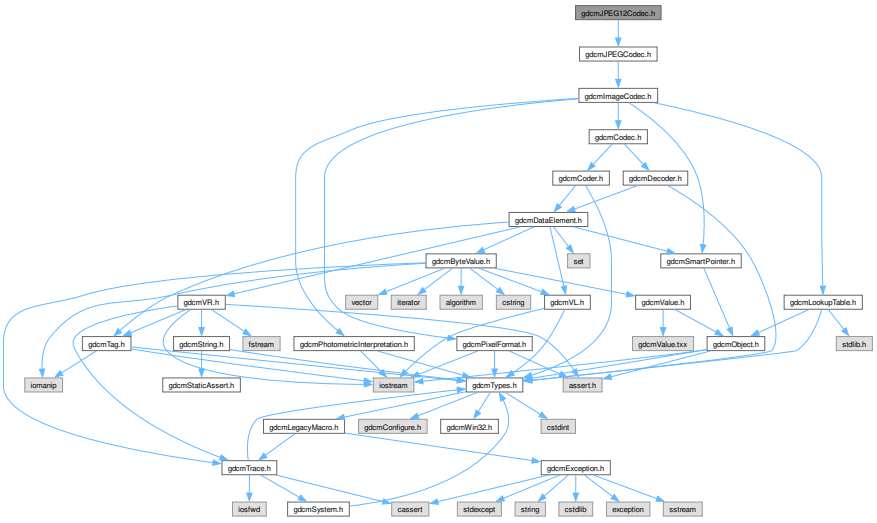
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIPPSORTER_H
00015 #define GDCMIPPSORTER_H
00016
00017 #include "gdcmSorter.h"
00018
00019 #include <vector>
00020 #include <string>
```

```
00021
00022 namespace gdcm
00023 {
00043 class GDCM_EXPORT IPPSorter : public Sorter
00044 {
00045 public:
00046   IPPSorter();
00047
00048   // FIXME: I do not like public virtual function...
00055   bool Sort(std::vector<std::string> const & filenames) override;
00056
00064   void SetComputeZSpacing(bool b) { ComputeZSpacing = b; }
00068   void SetZSpacingTolerance(double tol) { ZTolerance = tol; }
00069   double GetZSpacingTolerance() const { return ZTolerance; }
00070
00080   void SetDirectionCosinesTolerance(double tol) { DirCosTolerance = tol; }
00081   double GetDirectionCosinesTolerance() const { return DirCosTolerance; }
00082
00086   void SetDropDuplicatePositions(bool b) { DropDuplicatePositions = b; }
00087
00094   double GetZSpacing() const { return ZSpacing; }
00095
00096 protected:
00097   bool ComputeZSpacing;
00098   bool DropDuplicatePositions;
00099   double ZSpacing;
00100   double ZTolerance;
00101   double DirCosTolerance;
00102
00103 private:
00104   GDCM_LEGACY(bool ComputeSpacing(std::vector<std::string> const & filenames))
00105 };
00106
00107
00108 } // end namespace gdcm
00109
00110 #endif //GDCMIPPSORTER_H
```

13.341 gdcmJPEG12Codec.h File Reference

`#include "gdcmJPEGCodec.h"`

Include dependency graph for gdcmJPEG12Codec.h:



Classes

- class gdcm::JPEG12Codec

  Class to do JPEG 12bits (lossy & lossless).

Namespaces

- namespace gdcm

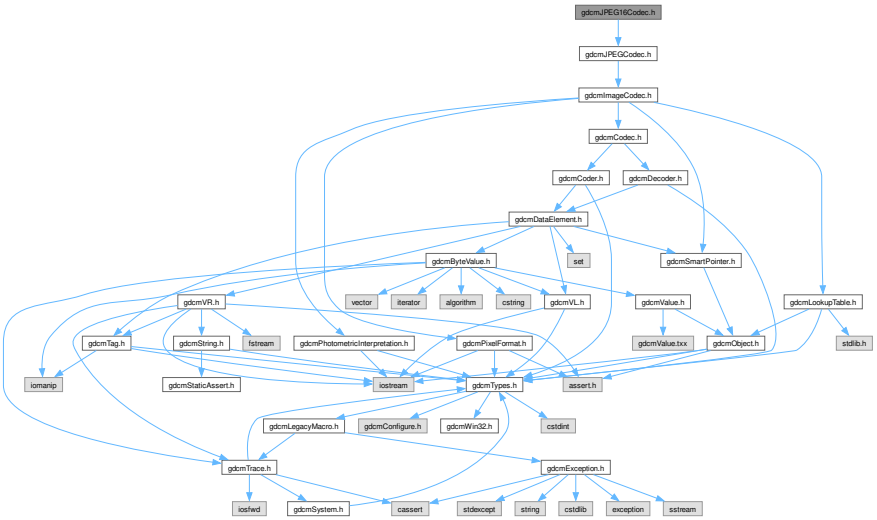
13.342 gdcmJPEG12Codec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEG12CODEC_H
00015 #define GDCMJPEG12CODEC_H
00016
00017 #include "gdcmJPEGCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class JPEGInternals_12BIT;
00023 class ByteValue;
00028 class JPEG12Codec : public JPEGCodec
00029 {
00030 public:
00031   JPEG12Codec();
00032   ~JPEG12Codec() override;
00033
00034   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00035   bool InternalCode(const char *input, unsigned long len, std::ostream &os) override;
00036
00037   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00038
00039 protected:
00040   bool IsStateSuspension() const override;
00041   bool EncodeBuffer(std::ostream &os, const char *data, size_t datalen) override;
00042
00043 private:
00044   JPEGInternals_12BIT *Internals;
00045 };
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMJPEG12CODEC_H
```

13.343 gdcmJPEG16Codec.h File Reference

`#include "gdcmJPEGCodec.h"`
Include dependency graph for gdcmJPEG16Codec.h:



Classes

- class gdcm::JPEG16Codec

  Class to do JPEG 16bits (lossless).

Namespaces

- namespace gdcm

13.344 gdcmJPEG16Codec.h

Go to the documentation of this file.

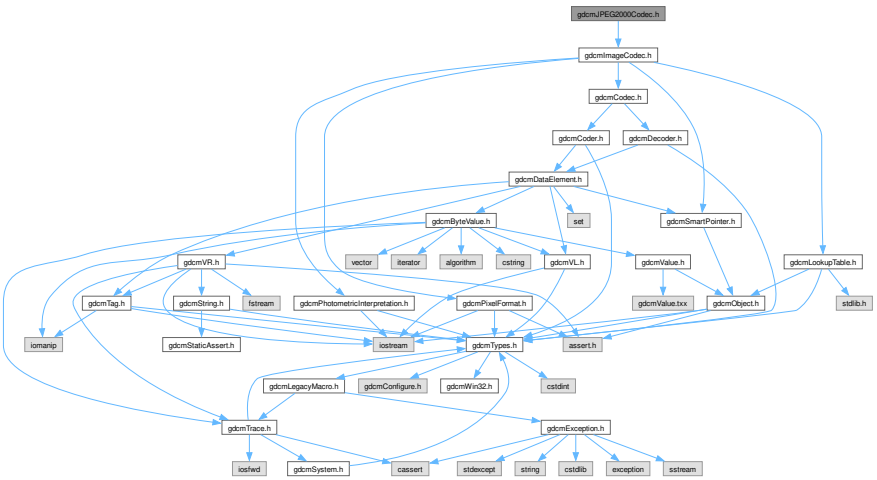
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEG16CODEC_H
00015 #define GDCMJPEG16CODEC_H
00016
```

```
00017 #include "gdcmJPEGCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class JPEGInternals_16BIT;
00023 class ByteValue;
00028 class JPEG16Codec : public JPEGCodec
00029 {
00030 public:
00031   JPEG16Codec();
00032   ~JPEG16Codec() override;
00033
00034   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00035   bool InternalCode(const char *input, unsigned long len, std::ostream &os) override;
00036
00037   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00038
00039 protected:
00040   bool IsStateSuspension() const override;
00041   bool EncodeBuffer(std::ostream &os, const char *data, size_t datalen) override;
00042
00043 private:
00044   JPEGInternals_16BIT *Internals;
00045 };
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMJPEG16CODEC_H
```

13.345 gdcmJPEG2000Codec.h File Reference

`#include "gdcmImageCodec.h"`

Include dependency graph for gdcmJPEG2000Codec.h:



Classes

- class gdcm::JPEG2000Codec

  Class to do JPEG 2000.

Namespaces

- namespace gdcm

13.346 gdcmJPEG2000Codec.h

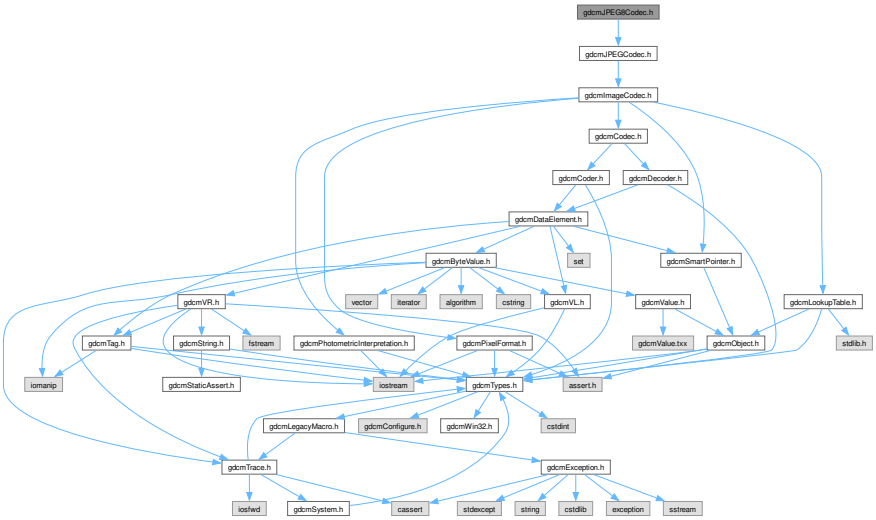
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEG2000CODEC_H
00015 #define GDCMJPEG2000CODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class JPEG2000Internals;
00030 class GDCM_EXPORT JPEG2000Codec : public ImageCodec
00031 {
00032 friend class ImageRegionReader;
00033   friend class Bitmap;
00034 public:
00035   JPEG2000Codec();
00036   ~JPEG2000Codec() override;
00037
00038   bool CanDecode(TransferSyntax const &ts) const override;
00039   bool CanCode(TransferSyntax const &ts) const override;
00040
00041   bool Decode(DataElement const &is, DataElement &os) override;
00042   bool Code(DataElement const &in, DataElement &out) override;
00043
00044   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00045   ImageCodec * Clone() const override;
00046
00047   // JPEG-2000 / OpenJPEG specific way of encoding lossy-ness
00048   // ref: http://www.openjpeg.org/index.php?menu=doc#encoder
00049   void SetRate(unsigned int idx, double rate);
00050   double GetRate(unsigned int idx = 0) const;
00051
00052   void SetQuality(unsigned int idx, double q);
00053   double GetQuality(unsigned int idx = 0) const;
00054
00055   void SetTileSize(unsigned int tx, unsigned int ty);
00056
00057   void SetNumberOfResolutions(unsigned int nres);
00058
00061   void SetNumberOfThreadsForDecompression(int nThreads);
00062
00063   void SetReversible(bool res);
00064   void SetMCT(unsigned int mct);
00065
00066 protected:
00067   bool DecodeExtent(
00068     char *buffer,
00069     unsigned int xmin, unsigned int xmax,
00070     unsigned int ymin, unsigned int ymax,
00071     unsigned int zmin, unsigned int zmax,
00072     std::istream & is
00073   );
00074
00075   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
```

```
00076
00077   bool StartEncode( std::ostream & ) override;
00078   bool IsRowEncoder() override;
00079   bool IsFrameEncoder() override;
00080   bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen ) override;
00081   bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen ) override;
00082   bool StopEncode( std::ostream & ) override;
00083
00084 private:
00085   std::pair<char *, size_t> DecodeByStreamsCommon(char *dummy_buffer, size_t buf_size);
00086   bool CodeFrameIntoBuffer(char * outdata, size_t outlen, size_t & complen, const char * indata, size_t
      inlen );
00087   bool GetHeaderInfo(const char * dummy_buffer, size_t len, TransferSyntax &ts);
00088   JPEG2000Internals *Internals;
00089 };
00090
00091 } // end namespace gdcm
00092
00093 #endif //GDCMJPEG2000CODEC_H
```

13.347 gdcmJPEG8Codec.h File Reference

`#include "gdcmJPEGCodec.h"`
Include dependency graph for gdcmJPEG8Codec.h:



Classes

- class gdcm::JPEG8Codec

  Class to do JPEG 8bits (lossy & lossless).

Namespaces

- namespace gdcm

13.348 gdcmJPEG8Codec.h

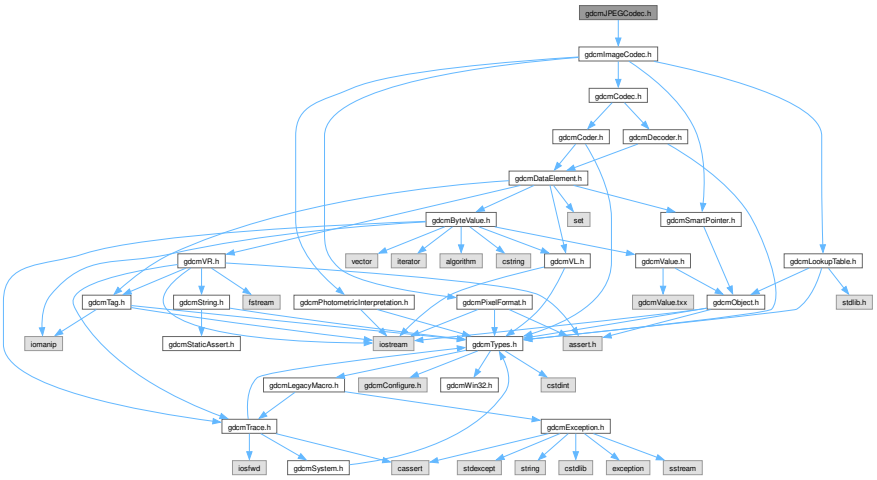
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEG8CODEC_H
00015 #define GDCMJPEG8CODEC_H
00016
00017 #include "gdcmJPEGCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class JPEGInternals_8BIT;
00023 class ByteValue;
00028 class JPEG8Codec : public JPEGCodec
00029 {
00030 public:
00031   JPEG8Codec();
00032   ~JPEG8Codec() override;
00033
00034   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00035   bool InternalCode(const char *input, unsigned long len, std::ostream &os) override;
00036
00037   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00038
00039 protected:
00040   bool IsStateSuspension() const override;
00041   bool EncodeBuffer(std::ostream &os, const char *data, size_t datalen) override;
00042
00043 private:
00044   JPEGInternals_8BIT *Internals;
00045 };
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMJPEG8CODEC_H
```

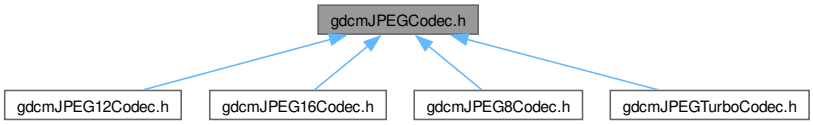
13.349 gdcmJPEGCodec.h File Reference

```
#include "gdcmImageCodec.h"
```

Include dependency graph for gdcmJPEGCodec.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::JPEGCodec

  JPEG codec.

Namespaces

- namespace gdcm

13.350 gdcmJPEGCodec.h

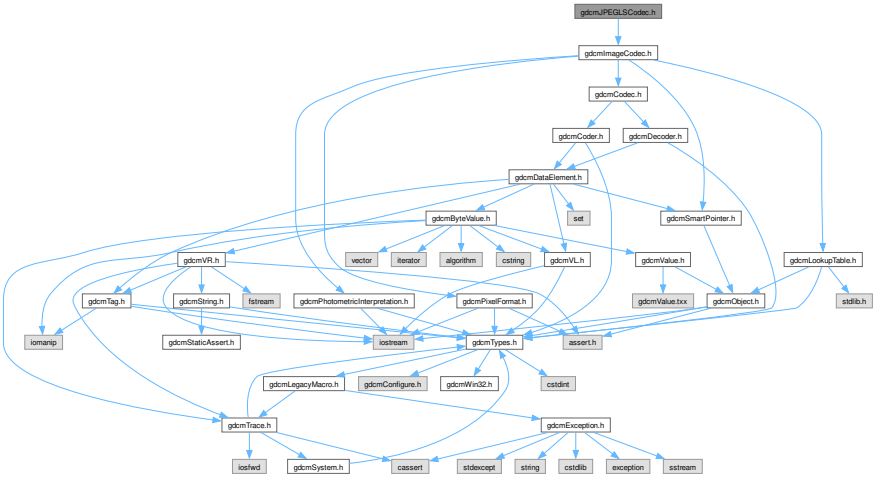
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEGCODEC_H
00015 #define GDCMJPEGCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class PixelFormat;
00023 class TransferSyntax;
00040 class GDCM_EXPORT JPEGCodec : public ImageCodec
00041 {
00042 friend class ImageRegionReader;
00043 public:
00044   JPEGCodec();
00045   ~JPEGCodec() override;
00046   bool CanDecode(TransferSyntax const &ts) const override;
00047   bool CanCode(TransferSyntax const &ts) const override;
00048   bool Decode(DataElement const &is, DataElement &os) override;
00049   void SetPixelFormat(PixelFormat const &pf) override;
00050
00052   void ComputeOffsetTable(bool b);
00053
00055   bool Code(DataElement const &in, DataElement &out) override;
00056
00057   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00058   ImageCodec * Clone() const override;
00059
00060   //void SetReversible(bool res);
00061
00062   void SetQuality(double q);
00063   double GetQuality() const;
00064
00065   void SetLossless(bool l);
00066   bool GetLossless() const;
00067
00068   virtual bool EncodeBuffer( std::ostream & out,
00069     const char *inbuffer, size_t inlen);
00070
00071 protected:
00072   bool DecodeExtent(
00073     char *buffer,
00074     unsigned int xmin, unsigned int xmax,
00075     unsigned int ymin, unsigned int ymax,
00076     unsigned int zmin, unsigned int zmax,
00077     std::istream & is
00078   );
00079
00080   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00081   bool IsValid(PhotometricInterpretation const &pi) override;
00082
00083   bool StartEncode( std::ostream & ) override;
00084   bool IsRowEncoder() override;
00085   bool IsFrameEncoder() override;
00086   bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen ) override;
00087   bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen ) override;
00088   bool StopEncode( std::ostream & ) override;
00089
00090 protected:
00091   // Internal method called by SetPixelFormat
00092   // Instantiate the right jpeg codec (8, 12 or 16)
00093   void SetBitSample(int bit);
```

```
00094
00095   virtual bool IsStateSuspension() const;
00096
00097 protected:
00098   int BitSample;
00099   //bool Lossless;
00100   int Quality;
00101
00102 private:
00103   void SetupJPEGBitCodec(int bit);
00104   JPEGCodec *Internal;
00105 };
00106
00107 } // end namespace gdcm
00108
00109 #endif //GDCMJPEGCODEC_H
```

13.351 gdcmJPEGLSCodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmJPEGLSCodec.h:



Classes

- class gdcm::JPEGLSCodec
  JPEG-LS.

Namespaces

- namespace gdcm

13.352 gdcmJPEGLSCodec.h

Go to the documentation of this file.

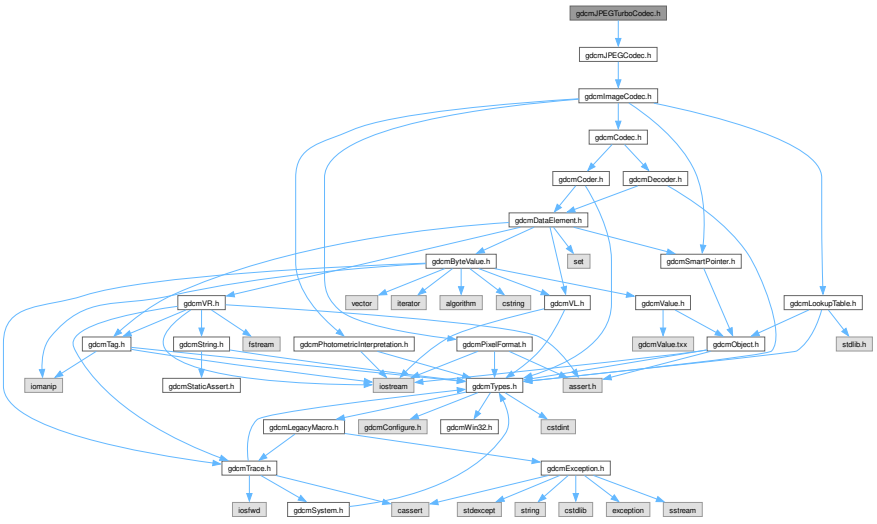
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEGLSCODEC_H
00015 #define GDCMJPEGLSCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class JPEGLSInternals;
00030 class GDCM_EXPORT JPEGLSCodec : public ImageCodec
00031 {
00032 friend class ImageRegionReader;
00033 public:
00034   JPEGLSCodec();
00035   ~JPEGLSCodec() override;
00036   bool CanDecode(TransferSyntax const &ts) const override;
00037   bool CanCode(TransferSyntax const &ts) const override;
00038
00039   unsigned long GetBufferLength() const { return BufferLength; }
00040   void SetBufferLength(unsigned long l) { BufferLength = l; }
00041
00042   bool Decode(DataElement const &is, DataElement &os) override;
00043   bool Decode(DataElement const &in, char* outBuffer, size_t inBufferLength,
00044               uint32_t inXMin, uint32_t inXMax, uint32_t inYMin,
00045               uint32_t inYMax, uint32_t inZMin, uint32_t inZMax);
00046   bool Code(DataElement const &in, DataElement &out) override;
00047
00048   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00049   ImageCodec * Clone() const override;
00050
00051   void SetLossless(bool l);
00052   bool GetLossless() const;
00053
00054 /*
00055  * test.acr can look pretty bad, even with a lossy error of 2. Explanation follows:
00056  * I agree that the test image looks ugly. In this particular case I can
00057  * explain though.
00058  *
00059  * The image is 8 bit, but it does not use the full 8 bit dynamic range. The
00060  * black pixels have value 234 and the white 255. If you set allowed lossy
00061  * error to 2, you allow an error of about 10% of the actual dynamic range.
00062  * That is of course very visible.
00063  */
00065   void SetLossyError(int error);
00066
00067 protected:
00068   bool DecodeExtent(
00069     char *buffer,
00070     unsigned int xmin, unsigned int xmax,
00071     unsigned int ymin, unsigned int ymax,
00072     unsigned int zmin, unsigned int zmax,
00073     std::istream & is
00074   );
00075
00076   bool StartEncode( std::ostream & ) override;
00077   bool IsRowEncoder() override;
00078   bool IsFrameEncoder() override;
00079   bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen ) override;
00080   bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen ) override;
00081   bool StopEncode( std::ostream & ) override;
00082
00083 private:
```

```
00084   bool DecodeByStreamsCommon(const char *buffer, size_t totalLen, std::vector<unsigned char> &rgbyteOut);
00085   bool CodeFrameIntoBuffer(char * outdata, size_t outlen, size_t & complen, const char * indata, size_t
    inlen );
00086
00087   unsigned long BufferLength;
00088   int LossyError;
00089 };
00090
00091 } // end namespace gdcm
00092
00093 #endif //GDCMJPEGLSCODEC_H
```

13.353 gdcmJPEGTurboCodec.h File Reference

`#include "gdcmJPEGCodec.h"`

Include dependency graph for gdcmJPEGTurboCodec.h:



Classes

- class gdcm::JPEGTurboCodec

  Class to do JPEG using libjpeg-turbo (8/12/16 bits, lossy & lossless).

Namespaces

- namespace gdcm

13.354 gdcmJPEGTurboCodec.h

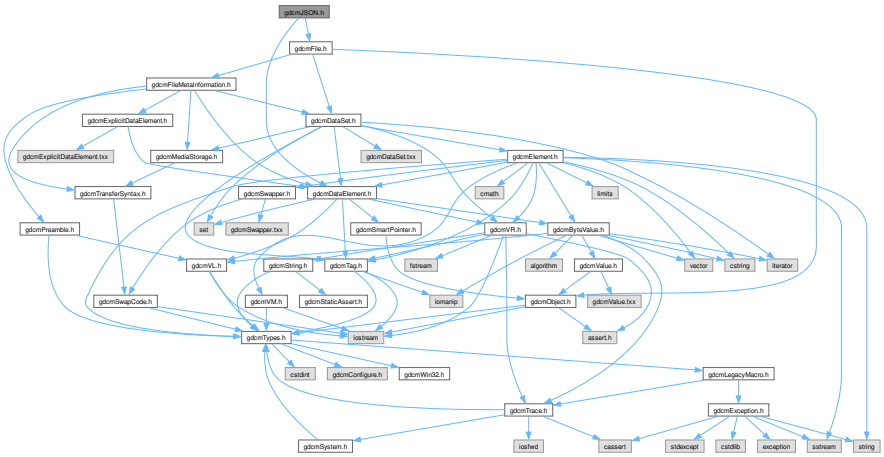
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJPEGTURBOCODEC_H
00015 #define GDCMJPEGTURBOCODEC_H
00016
00017 #include "gdcmJPEGCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class JPEGTurboInternals;
00027 class GDCM_EXPORT JPEGTurboCodec : public JPEGCodec
00028 {
00029 public:
00030   JPEGTurboCodec();
00031   ~JPEGTurboCodec() override;
00032
00033   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00034   bool InternalCode(const char *input, unsigned long len, std::ostream &os) override;
00035
00036   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00037
00038 protected:
00039   bool IsStateSuspension() const override;
00040   bool EncodeBuffer(std::ostream &os, const char *data, size_t datalen) override;
00041
00042 private:
00043   JPEGTurboInternals *Internals;
00044 };
00045
00046 } // end namespace gdcm
00047
00048 #endif //GDCMJPEGTURBOCODEC_H
```

13.355 gdcmJSON.h File Reference

```
#include "gdcmFile.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmJSON.h:



Classes

- class gdcm::JSON

Namespaces

- namespace gdcm

13.356 gdcmJSON.h

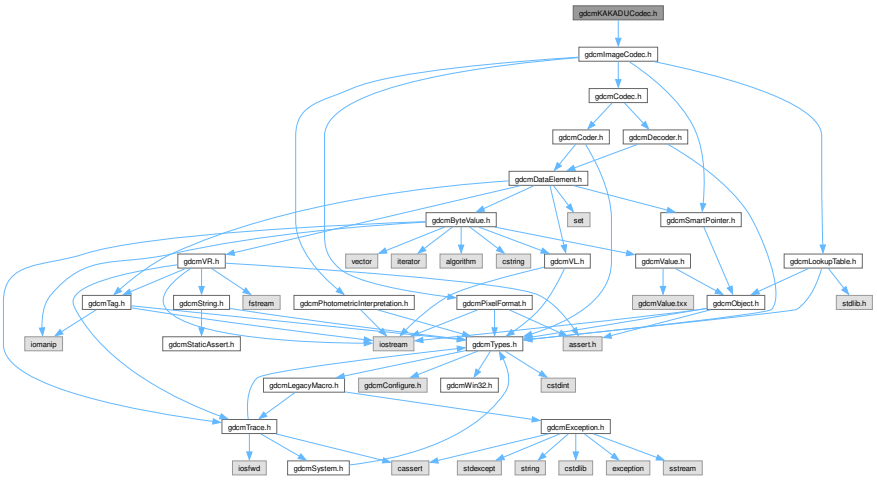
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMJSON_H
00015 #define GDCMJSON_H
00016
00017 /*
00018 See Sup 166 (QIDO-RS)
00019 http://www.dclunie.com/dicom-status/status.html#Supplement166
00020 */
00021
00022 #include "gdcmFile.h"
00023 #include "gdcmDataElement.h"
00024
00025 namespace gdcm
00026 {
00027
```

```
00028 class JSONInternal;
00029 class GDCM_EXPORT JSON
00030 {
00031 public:
00032   JSON();
00033   ~JSON();
00034
00035   bool GetPrettyPrint() const;
00036   void SetPrettyPrint(bool onoff);
00037   void PrettyPrintOn();
00038   void PrettyPrintOff();
00039
00040   bool Code(DataSet const & in, std::ostream & os);
00041   bool Decode(std::istream & is, DataSet & out);
00042
00043 private:
00044   JSONInternal *Internals;
00045 };
00046
00047 } // end namespace gdcm
00048
00049 #endif //GDCMXMLPRINTER_H
```

13.357 gdcmKAKADUCodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmKAKADUCodec.h:



Classes

- class gdcm::KAKADUCodec
  KAKADUCodec.

Namespaces

- namespace gdcm

13.358 gdcmKAKADUCodec.h

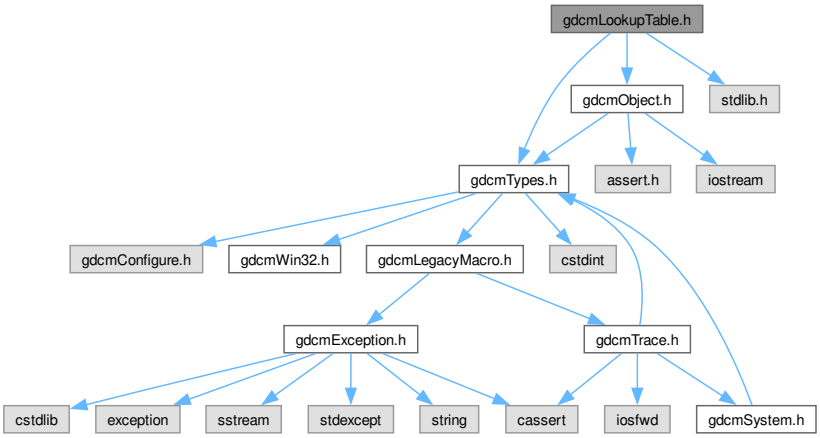
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMKAKADUCODEC_H
00015 #define GDCMKAKADUCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class KAKADUCodec : public ImageCodec
00026 {
00027 public:
00028   KAKADUCodec();
00029   ~KAKADUCodec() override;
00030   bool CanDecode(TransferSyntax const &ts) const override;
00031   bool CanCode(TransferSyntax const &ts) const override;
00032
00033   bool Decode(DataElement const &is, DataElement &os) override;
00034   bool Code(DataElement const &in, DataElement &out) override;
00035
00036   ImageCodec * Clone() const override;
00037 private:
00038 };
00039
00040 } // end namespace gdcm
00041
00042 #endif //GDCMKAKADUCODEC_H
```

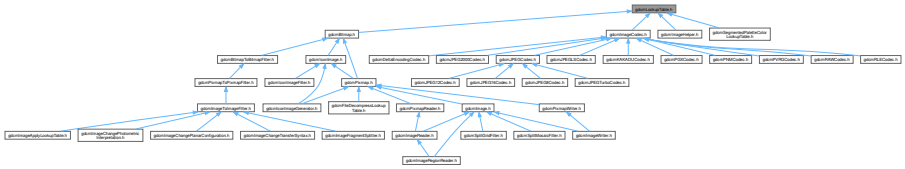
13.359 gdcmLookupTable.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmObject.h"
#include <stdlib.h>
```

Include dependency graph for gdcmLookupTable.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::LookupTable

  LookupTable class.

Namespaces

- namespace gdcm

13.360 gdcmLookupTable.h

Go to the documentation of this file.

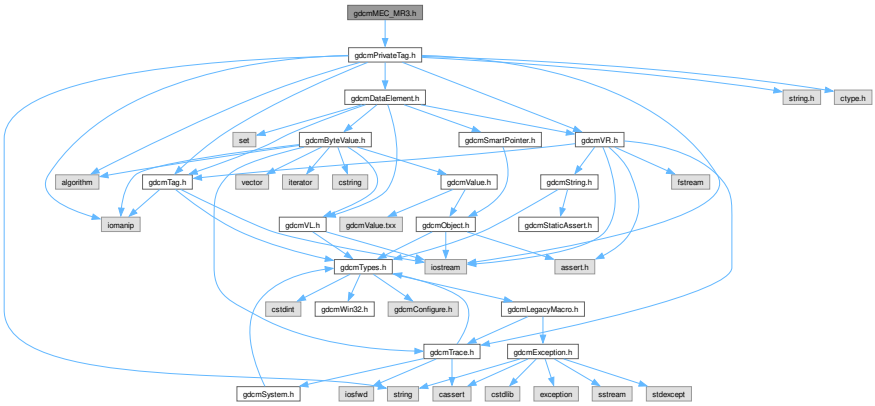
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMLOOKUPTABLE_H
00016 #define GDCMLOOKUPTABLE_H
00017
00018 #include "gdcmTypes.h"
00019 #include "gdcmObject.h"
00020 #include <stdlib.h>
00021
00022 namespace gdcm
00023 {
00024
00025 class LookupTableInternal;
00029 class GDCM_EXPORT LookupTable : public Object
00030 {
00031 public:
00032   typedef enum {
00033     RED = 0,  // Keep RED == 0
00034     GREEN,
00035     BLUE,
00036     GRAY,
00037     UNKNOWN
00038   } LookupTableType;
00039
00040   LookupTable();
00041   ~LookupTable() override;
00042   void Print(std::ostream &) const override;
00043
00045   void Allocate( unsigned short bitsample = 8 );
00047   //TODO: check to see if length should be unsigned short, unsigned int, or whatever
00048   void InitializeLUT(LookupTableType type, unsigned short length,
00049     unsigned short subscript, unsigned short bitsize);
00050   unsigned int GetLUTLength(LookupTableType type) const;
00051   virtual void SetLUT(LookupTableType type, const unsigned char *array,
00052     unsigned int length);
00053   void GetLUT(LookupTableType type, unsigned char *array, unsigned int &length) const;
00054   void GetLUTDescriptor(LookupTableType type, unsigned short &length,
00055     unsigned short &subscript, unsigned short &bitsize) const;
00056
00058   void InitializeRedLUT(unsigned short length, unsigned short subscript,
00059     unsigned short bitsize);
00060   void SetRedLUT(const unsigned char *red, unsigned int length);
00061   void InitializeGreenLUT(unsigned short length, unsigned short subscript,
00062     unsigned short bitsize);
00063   void SetGreenLUT(const unsigned char *green, unsigned int length);
00064   void InitializeBlueLUT(unsigned short length, unsigned short subscript,
00065     unsigned short bitsize);
00066   void SetBlueLUT(const unsigned char *blue, unsigned int length);
00067
00069   void Clear();
00070
00072   void Decode(std::istream &is, std::ostream &os) const;
00073
00077   bool Decode(char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const;
00078
00080   bool IsRGB8() const;
00081
00083   bool Decode8(char *outputbuffer, size_t outlen, const char *inputbuffer, size_t inlen) const;
00084
00085   LookupTable(LookupTable const &lut):Object(lut), Internal(nullptr), BitSample(0), IncompleteLUT(false)
00086     {
00087     gdcm_assert(0);
00088     }
00089
00091   bool GetBufferAsRGBA(unsigned char *rgba) const;
00092
00094   const unsigned char *GetPointer() const;
00095
00097   bool WriteBufferAsRGBA(const unsigned char *rgba);
00098
00100   unsigned short GetBitSample() const { return BitSample; }
00101
00103   bool Initialized() const;
00104
00105 private:
00107   void Encode(std::istream &is, std::ostream &os);
```

```
00108
00109 protected:
00110   LookupTableInternal *Internal;
00111   unsigned short BitSample; // refer to the pixel type (not the bit size of LUT)
00112   bool IncompleteLUT:1;
00113 };
00114
00115 } // end namespace gdcm
00116
00117 #endif //GDCMLOOKUPTABLE_H
```

13.361 gdcmMEC_MR3.h File Reference

`#include "gdcmPrivateTag.h"`
Include dependency graph for gdcmMEC_MR3.h:



Classes

- class gdcm::MEC_MR3

  Class for MEC_MR3.

Namespaces

- namespace gdcm

13.362 gdcmMEC_MR3.h

Go to the documentation of this file.

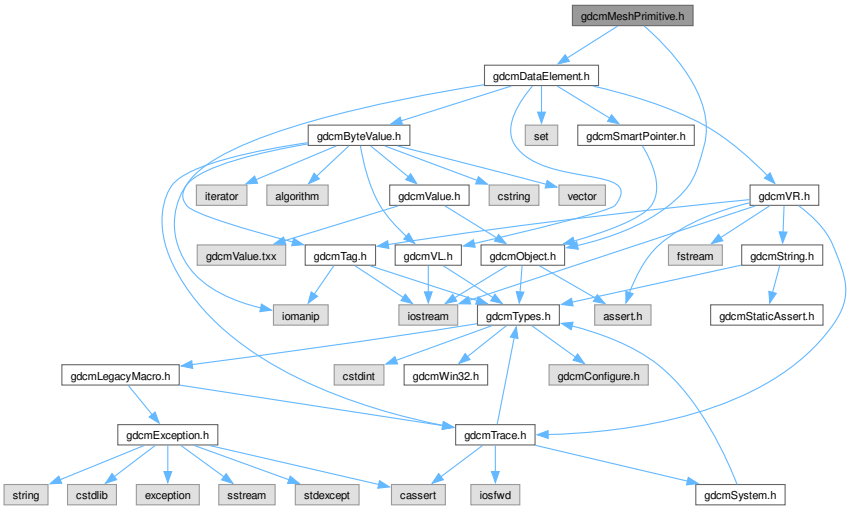
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMEC_MR3_H
00015 #define GDCMMEC_MR3_H
00016
00017 #include "gdcmPrivateTag.h"
00018
00019 namespace gdcm {
00024 class GDCM_EXPORT MEC_MR3 {
00025  public:
00026   static bool Print(const char *src, size_t srclen);
00027
00030   static const PrivateTag &GetPMTFInformationDataTag();
00031
00034   static const PrivateTag &GetCanonMECMR3Tag();
00035
00038   static const PrivateTag &GetToshibaMECMR3Tag();
00039 };
00040
00041 }  // end namespace gdcm
00042
00043 #endif  // GDCMMEC_MR3_H
```

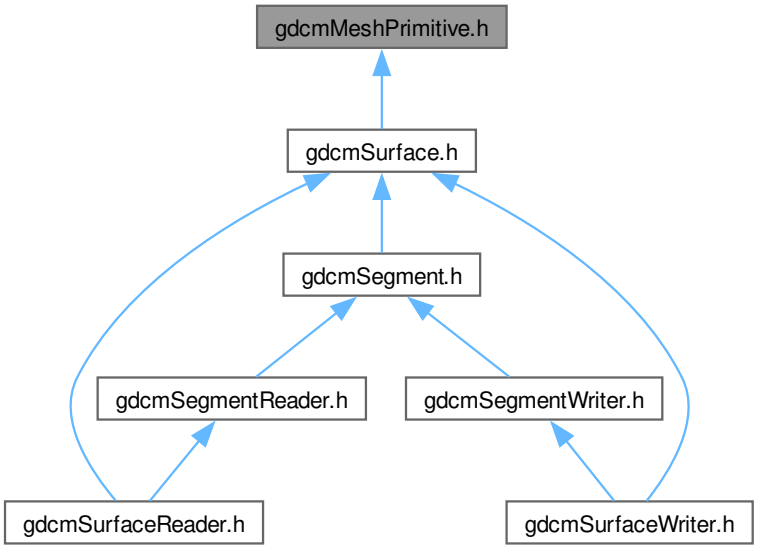
13.363 gdcmMeshPrimitive.h File Reference

```
#include <gdcmObject.h>
#include <gdcmDataElement.h>
```

Include dependency graph for gdcmMeshPrimitive.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::MeshPrimitive

  This class defines surface mesh primitives.

Namespaces

- namespace gdcm

13.364 gdcmMeshPrimitive.h

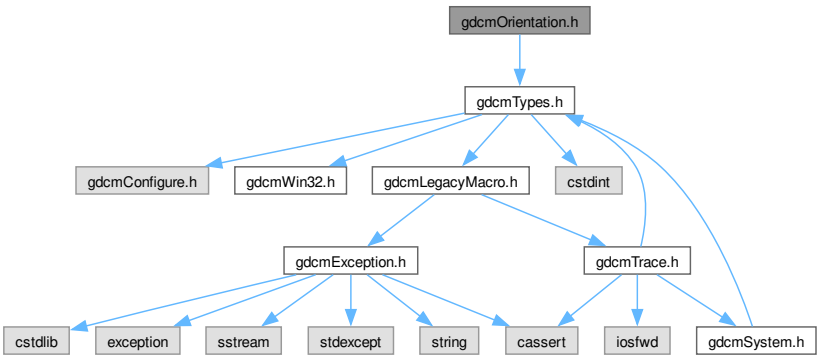
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMMESHPRIMITIVE_H
```

```
00016 #define GDCMMESHPRIMITIVE_H
00017
00018 #include <gdcmObject.h>
00019 #include <gdcmDataElement.h>
00020
00021 namespace gdcm
00022 {
00023
00030 class GDCM_EXPORT MeshPrimitive : public Object
00031 {
00032 public:
00033
00034   typedef std::vector< DataElement > PrimitivesData;
00035
00041     typedef enum {
00042         VERTEX = 0,
00043         EDGE,
00044         TRIANGLE,
00045         TRIANGLE_STRIP,
00046         TRIANGLE_FAN,
00047         LINE,
00048         FACET,
00049         MPType_END
00050         } MPType;
00051
00052     static const char * GetMPTypeString(const MPType type);
00053
00054     static MPType GetMPType(const char * type);
00055
00056     MeshPrimitive();
00057
00058     ~MeshPrimitive() override;
00059
00060     MPType GetPrimitiveType() const;
00061     void SetPrimitiveType(const MPType type);
00062
00063     const DataElement & GetPrimitiveData() const;
00064     DataElement & GetPrimitiveData();
00065     void SetPrimitiveData(DataElement const & de);
00066
00067     const PrimitivesData & GetPrimitivesData() const;
00068     PrimitivesData & GetPrimitivesData();
00069     void SetPrimitivesData(PrimitivesData const & DEs);
00070
00071     const DataElement & GetPrimitiveData(const unsigned int idx) const;
00072     DataElement & GetPrimitiveData(const unsigned int idx);
00073     void SetPrimitiveData(const unsigned int idx, DataElement const & de);
00074     void AddPrimitiveData(DataElement const & de);
00075
00076     unsigned int GetNumberOfPrimitivesData() const;
00077
00078 protected:
00079
00080     // Use to define tag where PrimitiveData will be put.
00081     MPType          PrimitiveType;
00082
00083     // PrimitiveData contains point index list.
00084     // It shall have 1 or 1-n DataElement following PrimitiveType.
00085     PrimitivesData  PrimitiveData;
00086 };
00087
00088 }
00089
00090 #endif // GDCMMESHPRIMITIVE_H
```

13.365 gdcmOrientation.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmOrientation.h:



Classes

- class gdcm::Orientation

  class to handle Orientation

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Orientation &o)

13.366 gdcmOrientation.h

Go to the documentation of this file.

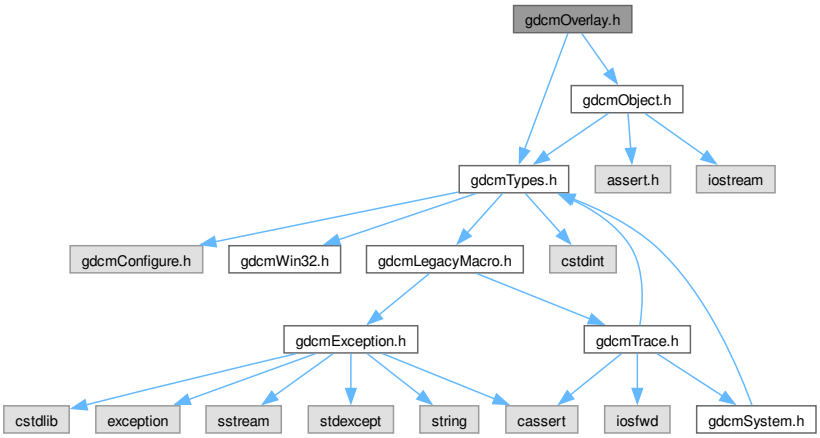
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
```

```
00014 #ifndef GDCMORIENTATION_H
00015 #define GDCMORIENTATION_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class GDCM_EXPORT Orientation
00026 {
00027   friend std::ostream& operator<<(std::ostream &_os, const Orientation &o);
00028 public:
00029   Orientation();
00030   ~Orientation() = default;
00031
00033   void Print(std::ostream &) const;
00034
00035   typedef enum {
00036     UNKNOWN,
00037     AXIAL,
00038     CORONAL,
00039     SAGITTAL,
00040     OBLIQUE
00041   } OrientationType;
00042
00045   static OrientationType GetType(const double dircos[6]);
00046
00048   static void SetObliquityThresholdCosineValue(double val);
00049   static double GetObliquityThresholdCosineValue();
00050
00052   static const char *GetLabel(OrientationType type);
00053
00054 protected:
00055   static char GetMajorAxisFromPatientRelativeDirectionCosine(double x, double y, double z);
00056
00057 private:
00058   static double ObliquityThresholdCosineValue;
00059 };
00060 //-----------------------------------------------------------------------------
00061 inline std::ostream& operator<<(std::ostream &os, const Orientation &o)
00062 {
00063   o.Print( os );
00064   return os;
00065 }
00066
00067 } // end namespace gdcm
00068
00069 #endif //GDCMORIENTATION_H
```

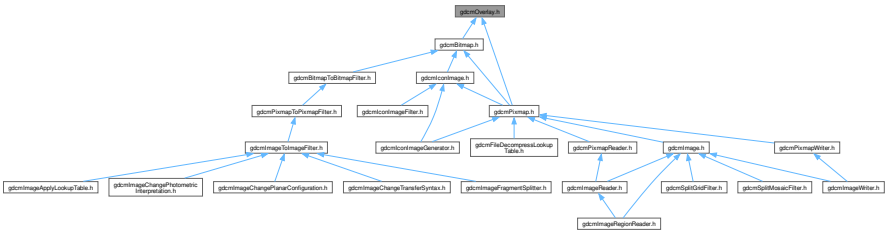
13.367 gdcmOverlay.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmObject.h"
```

Include dependency graph for gdcmOverlay.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Overlay
  Overlay class.

Namespaces

- namespace gdcm

13.368 gdcmOverlay.h

Go to the documentation of this file.

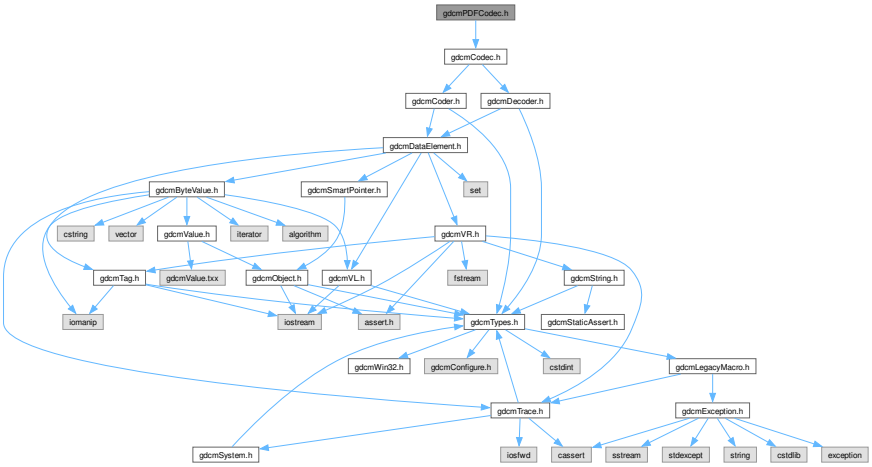
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
```

```
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMOVERLAY_H
00015 #define GDCMOVERLAY_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmObject.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class OverlayInternal;
00024 class ByteValue;
00025 class DataSet;
00026 class DataElement;
00038 class GDCM_EXPORT Overlay : public Object
00039 {
00040 public:
00041   Overlay();
00042   ~Overlay() override;
00044   void Print(std::ostream &) const override;
00045
00047   void Update(const DataElement & de);
00048
00050   void SetGroup(unsigned short group);
00052   unsigned short GetGroup() const;
00054   void SetRows(unsigned short rows);
00056   unsigned short GetRows() const;
00058   void SetColumns(unsigned short columns);
00060   unsigned short GetColumns() const;
00062   void SetNumberOfFrames(unsigned int numberofframes);
00064   void SetDescription(const char* description);
00066   const char *GetDescription() const;
00067   typedef enum {
00068     Invalid  = 0,
00069     Graphics = 1,
00070     ROI      = 2
00071   } OverlayType;
00073   void SetType(const char* type);
00075   const char *GetType() const;
00076   OverlayType GetTypeAsEnum() const;
00077   static const char *GetOverlayTypeAsString(OverlayType ot);
00078   static OverlayType GetOverlayTypeFromString(const char *);
00080   void SetOrigin(const signed short origin[2]);
00082   const signed short * GetOrigin() const;
00084   void SetFrameOrigin(unsigned short frameorigin);
00086   void SetBitsAllocated(unsigned short bitsallocated);
00088   unsigned short GetBitsAllocated() const;
00090   void SetBitPosition(unsigned short bitposition);
00092   unsigned short GetBitPosition() const;
00093
00095   void SetOverlay(const char *array, size_t length);
00096
00102   bool GrabOverlayFromPixelData(DataSet const &ds);
00103
00106   const ByteValue &GetOverlayData() const;
00107
00109   bool IsEmpty() const;
00110
00112   bool IsZero() const;
00113
00115   bool IsInPixelData() const;
00116
00118   void IsInPixelData(bool b);
00119
00121   void Decompress(std::ostream &os) const;
00122
00125   size_t GetUnpackBufferLength() const;
00126
00129   bool GetUnpackBuffer(char *buffer, size_t len) const;
00130
00131   Overlay(Overlay const &ov);
00132   Overlay &operator=(Overlay const &ov);
```

```
00133
00134 private:
00135   OverlayInternal *Internal;
00136 };
00137
00138 } // end namespace gdcm
00139
00140 #endif //GDCMOVERLAY_H
```

13.369 gdcmPDFCodec.h File Reference

`#include "gdcmCodec.h"`
Include dependency graph for gdcmPDFCodec.h:



Classes

- class gdcm::PDFCodec
  PDFCodec class.

Namespaces

- namespace gdcm

13.370 gdcmPDFCodec.h

Go to the documentation of this file.

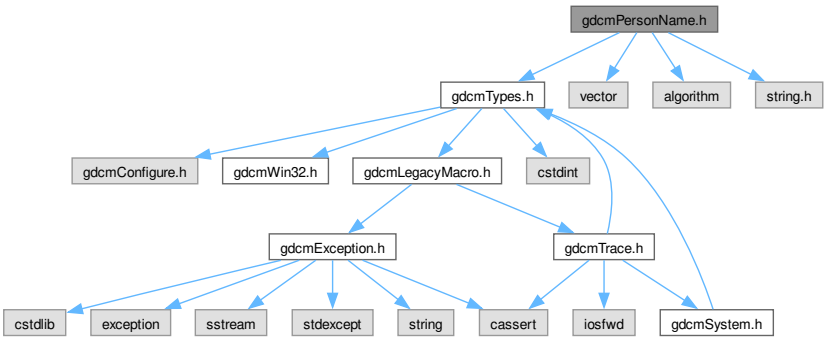
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
```

```
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPDFCODEC_H
00015 #define GDCMPDFCODEC_H
00016
00017 #include "gdcmCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class GDCM_EXPORT PDFCodec : public Codec
00026 {
00027 public:
00028   PDFCodec();
00029   ~PDFCodec() override;
00030   bool CanCode(TransferSyntax const &) const override { return false; }
00031   bool CanDecode(TransferSyntax const &) const override { return false; }
00032   bool Decode(DataElement const &is, DataElement &os) override;
00033 };
00034
00035 } // end namespace gdcm
00036
00037 #endif //GDCMPDFCODEC_H
```

13.371 gdcmPersonName.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
#include <algorithm>
#include <string.h>
```

Include dependency graph for gdcmPersonName.h:



Classes

- class gdcm::PersonName

  PersonName class.

Namespaces

- namespace gdcm

13.372 gdcmPersonName.h

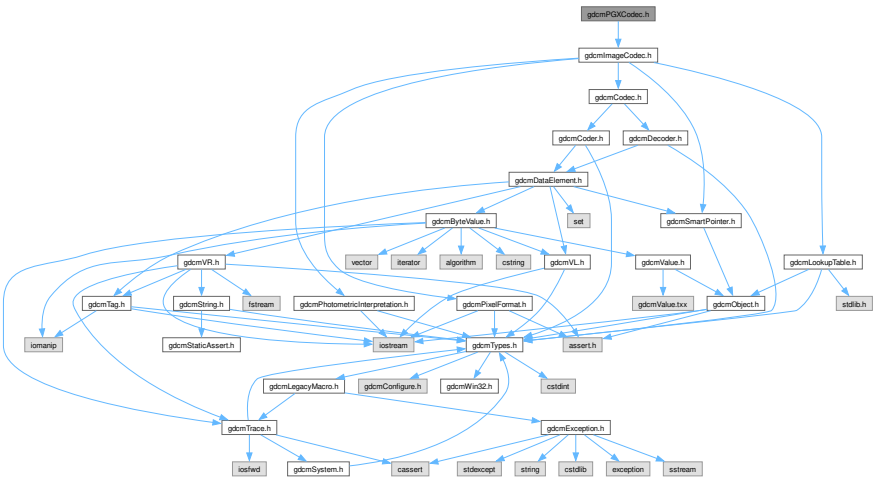
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMPERSONNAME_H
00016 #define GDCMPERSONNAME_H
00017
00018 #include "gdcmTypes.h"
00019 #include <vector>
00020 #include <algorithm> // std::min
00021 #include <string.h> // strlen
00022
00023 namespace gdcm
00024 {
00025
00029 class GDCM_EXPORT PersonName
00030 {
00031 public:
00032   static const unsigned int MaxNumberOfComponents = 5;
00033   static const unsigned int MaxLength = 64;
00034   char Component[MaxNumberOfComponents][MaxLength+1];
00035   static const char Separator = '^';
00036   static const char Padding   = ' ';
00037
00038   unsigned int GetNumberOfComponents() const {
00039     unsigned int r = 0;
00040     for(unsigned int i = 0; i < 5; ++i) {
00041       if( *Component[i] != '\0' ) r = i;
00042       }
00043     return r+1;
00044   }
00045   unsigned int GetMaxLength() const { return MaxLength; }
00046   void SetBlob(const std::vector<char>& v) {
00047   (void)v;
00048     //gdcm_assert(0); //TODO
00049   }
00050   void SetComponents(const char *comp1 = "",
00051     const char *comp2 = "",
00052     const char *comp3 = "",
00053     const char *comp4 = "",
00054     const char *comp5 = "") {
00055     const char *components[5] = { comp1, comp2, comp3, comp4, comp5 };
00056     SetComponents( components );
00057   }
00058   void SetComponents(const char *components[]) {
00059     if( components )
00060       for(unsigned int i = 0; i < 5; ++i) {
00061         if( components[i] && strlen(components[i]) < GetMaxLength() )
00062           strcpy(Component[i], components[i]);
00063         gdcm_assert( strlen(Component[i]) < GetMaxLength() );
00064       }
00065   }
00066   void Print(std::ostream &os) const
00067   {
00068     //os « "Family Name Complex: " « Component[0] « std::endl;
00069     //os « "Given  Name Complex: " « Component[1] « std::endl;
```

```
00070     //os « "Middle Name        : " « Component[2] « std::endl;
00071     //os « "Name Suffix        : " « Component[3] « std::endl;
00072     //os « "Name Prefix        : " « Component[4] « std::endl;
00073     os « Component[0] « '^';
00074     os « Component[1] « '^';
00075     os « Component[2] « '^';
00076     os « Component[3] « '^';
00077     os « Component[4];
00078   }
00079 };
00080
00081 } // end namespace gdcm
00082
00083 #endif //GDCMPERSONNAME_H
```

13.373 gdcmPGXCodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmPGXCodec.h:



Classes

- class gdcm::PGXCodec

  Class to do PGX.

Namespaces

- namespace gdcm

13.374 gdcmPGXCodec.h

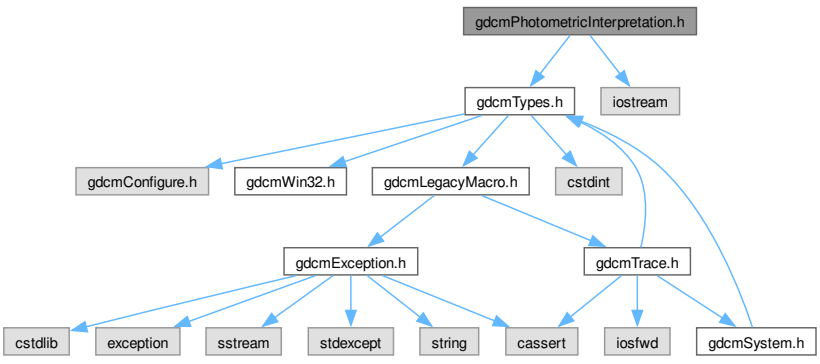
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPGXCODEC_H
00015 #define GDCMPGXCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00026 class GDCM_EXPORT PGXCodec : public ImageCodec
00027 {
00028 public:
00029   PGXCodec();
00030   ~PGXCodec() override;
00031   bool CanDecode(TransferSyntax const &ts) const override;
00032   bool CanCode(TransferSyntax const &ts) const override;
00033
00034   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00035   ImageCodec * Clone() const override;
00036
00037   bool Read(const char *filename, DataElement &out) const;
00038   bool Write(const char *filename, const DataElement &out) const;
00039 private:
00040 };
00041
00042 } // end namespace gdcm
00043
00044 #endif //GDCMPGXCODEC_H
```

13.375 gdcmPhotometricInterpretation.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
```

Include dependency graph for gdcmPhotometricInterpretation.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::PhotometricInterpretation

  Class to represent an PhotometricInterpretation.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PhotometricInterpretation &val)

13.376 gdcmPhotometricInterpretation.h

Go to the documentation of this file.

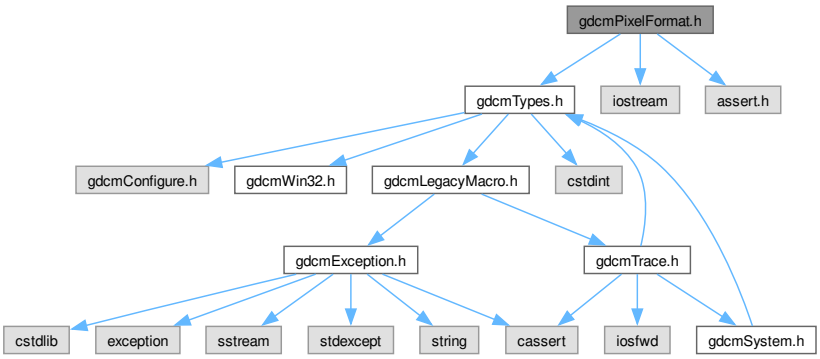
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMPHOTOMETRICINTERPRETATION_H
00016 #define GDCMPHOTOMETRICINTERPRETATION_H
00017
00018 #include "gdcmTypes.h"
00019 #include <iostream>
00020
00021 namespace gdcm
00022 {
00023
00024 class TransferSyntax;
00028 class GDCM_EXPORT PhotometricInterpretation
00029 {
00030 public:
00031   typedef enum {
00032     UNKNOWN = 0,
00033     MONOCHROME1,
00034     MONOCHROME2,
00035     PALETTE_COLOR,
00036     RGB,
00037     HSV,
```

```
00038     ARGB, // retired
00039     CMYK,
00040     YBR_FULL,
00041     YBR_FULL_422,
00042     YBR_PARTIAL_422,
00043     YBR_PARTIAL_420,
00044     YBR_ICT,
00045     YBR_RCT,
00046     // PALETTE_COLOR ?
00047     //MONOCHROME = MONOCHROME1 | MONOCHROME2,
00048     //COLOR      = RGB | HSV | ARGB | CMYK | YBR_FULL | YBR_FULL_422 | YBR_PARTIAL_422 | YBR_PARTIAL_420 |
      YBR_ICT | YBR_RCT,
00049     PI_END  // Helpful for internal implementation
00050   } PIType; // PhotometricInterpretationType
00051
00052   PhotometricInterpretation(PIType pi = UNKNOWN):PIField(pi) {}
00053
00054   static const char *GetPIString(PIType pi);
00055
00056   const char *GetString() const;
00057
00058   // You need to make sure end of string is \0
00059   static PIType GetPIType(const char *pi);
00060
00061   static bool IsRetired(PIType pi);
00062
00063   bool IsLossy() const;
00064   bool IsLossless() const;
00065
00067   unsigned short GetSamplesPerPixel() const;
00068
00069   // TODO
00070   // not all PhotometricInterpretation are allowed for compressed Transfer
00071   // syntax
00072   // static bool IsAllowedForCompressedTS(PIType pi);
00073
00074   friend std::ostream& operator<<(std::ostream& os, const PhotometricInterpretation& pi);
00075
00076   operator PIType () const { return PIField; }
00077
00078   PIType GetType () const { return PIField; }
00079
00080   // Will return whether current PhotometricInterpretation is the same Color Space as input:
00081   // eg. RGB and YBR_RCT are
00082   bool IsSameColorSpace( PhotometricInterpretation const &pi ) const;
00083
00084   //static PIType GetEquivalent(TransferSyntax const &ts);
00085
00086 private:
00087   PIType PIField;
00088 };
00089 //-----------------------------------------------------------------------------
00090 inline std::ostream& operator<<(std::ostream& os, const PhotometricInterpretation &val)
00091 {
00092   const char *s = PhotometricInterpretation::GetPIString(val.PIField);
00093   os << (s ? s : "");
00094   return os;
00095 }
00096
00097
00098 } // end namespace gdcm
00099
00100 #endif //GDCMPHOTOMETRICINTERPRETATION_H
```

13.377 gdcmPixelFormat.h File Reference

```
#include "gdcmTypes.h"
#include <iostream>
#include <assert.h>
```

Include dependency graph for gdcmPixelFormat.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::PixelFormat

  PixelFormat.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const PixelFormat &pf)

13.378 gdcmPixelFormat.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014
00015 #ifndef GDCMPIXELFORMAT_H
00016 #define GDCMPIXELFORMAT_H
00017
00018 #include "gdcmTypes.h"
00019 #include <iostream>
00020 #include <assert.h>
00021
00022 namespace gdcm
00023 {
00024
00025 class TransferSyntax;
00026
00045 class GDCM_EXPORT PixelFormat
00046 {
00047   friend class Bitmap;
00048   friend std::ostream& operator<<(std::ostream &_os, const PixelFormat &pf);
00049 public:
00050   // When adding a type please add its dual type (its unsigned counterpart)
00051   typedef enum {
00052     UINT8,
00053     INT8,
00054     UINT12,
00055     INT12,
00056     UINT16,
00057     INT16,
00058     UINT32,  // For some DICOM files (RT or SC)
00059     INT32,   //                          "   "
00060     UINT64,  // Needed when input is 32bits + intercept/slope (incomplete support)
00061     INT64,   //                          "   "
00062     FLOAT16, // sure why not...
00063     FLOAT32, // good ol' 'float'
00064     FLOAT64, // aka 'double'
00065     SINGLEBIT, // bool / monochrome
00066     UNKNOWN // aka BitsAllocated == 0 && PixelRepresentation == 0
00067   } ScalarType;
00068
00069   // default cstor:
00070   PixelFormat () : PixelFormat(1, 8, 8, 7, 0) {}
00071
00072   explicit PixelFormat (
00073     unsigned short samplesperpixel,
00074     unsigned short bitsallocated = 8,
00075     unsigned short bitsstored = 8,
00076     unsigned short highbit = 7,
00077     unsigned short pixelrepresentation = 0 ) :
00078   SamplesPerPixel(samplesperpixel),
00079   BitsAllocated(bitsallocated),
00080   BitsStored(bitsstored),
00081   HighBit(highbit),
00082   PixelRepresentation(pixelrepresentation) {}
00083   // helper, for the common case
00084   PixelFormat(ScalarType st);
00085
00086   // For transparency of use
00087   operator ScalarType() const { return GetScalarType(); }
00088
00091   unsigned short GetSamplesPerPixel() const;
00092   void SetSamplesPerPixel(unsigned short spp)
00093     {
00094     gdcmAssertMacro( spp <= 4 );
00095     SamplesPerPixel = spp;
```

```
00096     gdcm_assert( SamplesPerPixel == 1 || SamplesPerPixel == 3 || SamplesPerPixel == 4 );
00097     }
00098
00100   unsigned short GetBitsAllocated() const
00101     {
00102     return BitsAllocated;
00103     }
00104   void SetBitsAllocated(unsigned short ba)
00105     {
00106     if( ba )
00107       {
00108       switch( ba )
00109         {
00110         /* some devices (FUJIFILM CR + MONO1) incorrectly set BitsAllocated/BitsStored
00111          * as bitmask instead of value. Do what they mean instead of what they say.
00112          */
00113         case 0xffff: ba = 16; break;
00114         case 0x0fff: ba = 12; break;
00115         case 0x00ff: ba =  8; break;
00116         }
00117       BitsAllocated = ba;
00118       BitsStored = ba;
00119       HighBit = (unsigned short)(ba - 1);
00120       }
00121     else // Make the PixelFormat as UNKNOWN
00122       {
00123       BitsAllocated = 0;
00124       PixelRepresentation = 0;
00125       }
00126     }
00127
00129   unsigned short GetBitsStored() const
00130     {
00131     gdcm_assert( BitsStored <= BitsAllocated );
00132     return BitsStored;
00133     }
00134   void SetBitsStored(unsigned short bs)
00135     {
00136     switch( bs )
00137       {
00138       /* see SetBitsAllocated for explanation
00139        */
00140       case 0xffff: bs = 16; break;
00141       case 0x0fff: bs = 12; break;
00142       case 0x00ff: bs =  8; break;
00143       }
00144     if( bs <= BitsAllocated && bs )
00145       {
00146       BitsStored = bs;
00147       SetHighBit( (unsigned short) (bs - 1) );
00148       }
00149     }
00150
00152   unsigned short GetHighBit() const
00153     {
00154     gdcm_assert( HighBit < BitsStored );
00155     return HighBit;
00156     }
00157   void SetHighBit(unsigned short hb)
00158     {
00159     switch( hb )
00160       {
00161       /* broken implementations that use bitmask for BitsAllocated/Stored
00162        * nonetheless use (BitsStored-1) for HighBit. correct for this here.
00163        */
00164       case 0xfffe: hb = 15; break;
00165       case 0x0ffe: hb = 11; break;
00166       case 0x00fe: hb =  7; break;
00167       }
00168     if( BitsStored > 1 && hb == 0 )
00169       HighBit = BitsStored - 1;
00170     else if( hb < BitsStored )
00171       HighBit = hb;
00172     }
00173
00175   unsigned short GetPixelRepresentation() const
00176     {
00177     return (unsigned short)(PixelRepresentation ? 1 : 0);
00178     }
00179   void SetPixelRepresentation(unsigned short pr)
00180     {
```

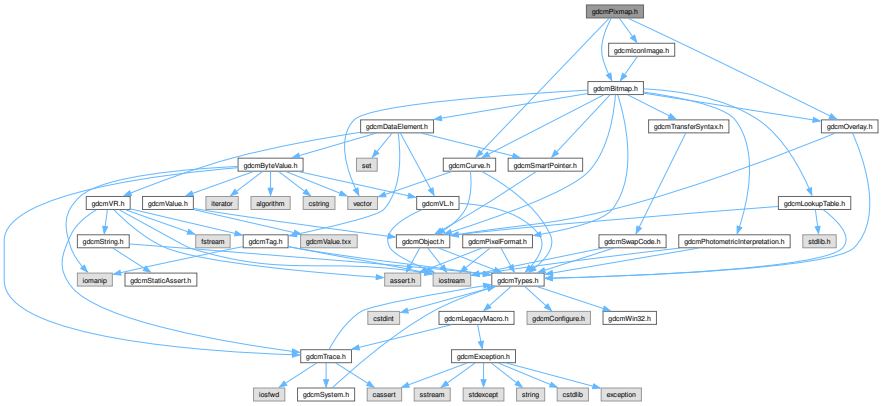
```
00181     PixelRepresentation = (unsigned short)(pr ? 1 : 0);
00182     }
00183
00185   ScalarType GetScalarType() const;
00186
00189   void SetScalarType(ScalarType st);
00190   const char *GetScalarTypeAsString() const;
00191
00197   uint8_t GetPixelSize() const;
00198
00200   void Print(std::ostream &os) const;
00201
00203   int64_t GetMin() const;
00204
00206   int64_t GetMax() const;
00207
00209   bool IsValid() const;
00210
00211   bool operator==(ScalarType st) const
00212     {
00213     return GetScalarType() == st;
00214     }
00215   bool operator!=(ScalarType st) const
00216     {
00217     return GetScalarType() != st;
00218     }
00219   bool operator==(const PixelFormat &pf) const
00220     {
00221     return
00222       SamplesPerPixel     == pf.SamplesPerPixel &&
00223       BitsAllocated       == pf.BitsAllocated &&
00224       BitsStored          == pf.BitsStored &&
00225       HighBit             == pf.HighBit &&
00226       PixelRepresentation == pf.PixelRepresentation;
00227     }
00228   bool operator!=(const PixelFormat &pf) const
00229     {
00230     return
00231       SamplesPerPixel     != pf.SamplesPerPixel ||
00232       BitsAllocated       != pf.BitsAllocated ||
00233       BitsStored          != pf.BitsStored ||
00234       HighBit             != pf.HighBit ||
00235       PixelRepresentation != pf.PixelRepresentation;
00236     }
00237
00238   bool IsCompatible(const TransferSyntax & ts ) const;
00239 protected:
00241   bool Validate();
00242
00243 private:
00244   // D 0028|0002 [US] [Samples per Pixel] [1]
00245   unsigned short SamplesPerPixel;
00246   // D 0028|0100 [US] [Bits Allocated] [8]
00247   unsigned short BitsAllocated;
00248   // D 0028|0101 [US] [Bits Stored] [8]
00249   unsigned short BitsStored;
00250   // D 0028|0102 [US] [High Bit] [7]
00251   unsigned short HighBit;
00252   // D 0028|0103 [US] [Pixel Representation] [0]
00253   unsigned short PixelRepresentation;
00254 };
00255 //-----------------------------------------------------------------------------
00256 inline std::ostream& operator<<(std::ostream &os, const PixelFormat &pf)
00257 {
00258   pf.Print( os );
00259   return os;
00260 }
00261
00262 } // end namespace gdcm
00263
00264 #endif //GDCMPIXELFORMAT_H
```

13.379 gdcmPixmap.h File Reference

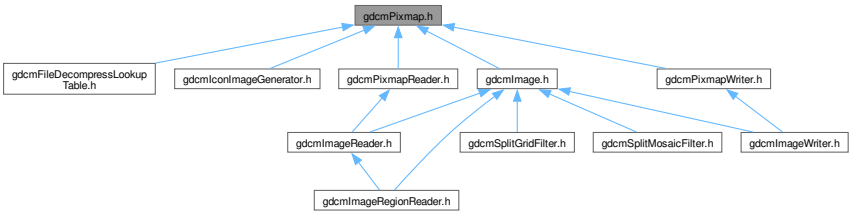
```
#include "gdcmBitmap.h"
#include "gdcmCurve.h"
```

```
#include "gdcmIconImage.h"
#include "gdcmOverlay.h"
```

Include dependency graph for gdcmPixmap.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Pixmap

  Pixmap class.

Namespaces

- namespace gdcm

13.380 gdcmPixmap.h

Go to the documentation of this file.

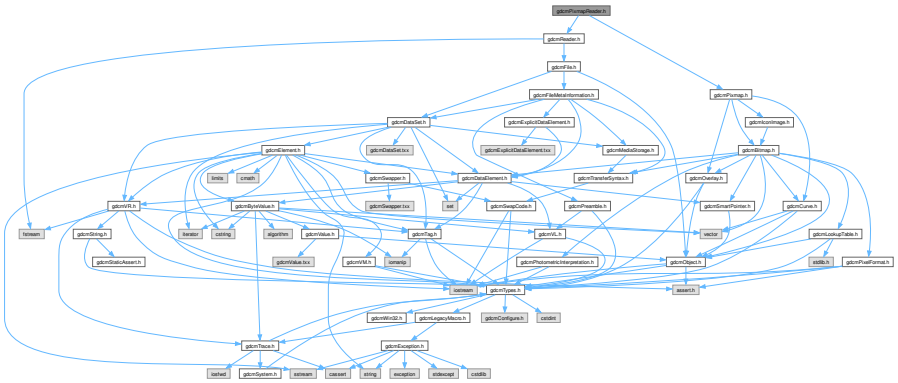
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
```

```
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPIXMAP_H
00015 #define GDCMPIXMAP_H
00016
00017 #include "gdcmBitmap.h"
00018 #include "gdcmCurve.h"
00019 #include "gdcmIconImage.h"
00020 #include "gdcmOverlay.h"
00021
00022 namespace gdcm
00023 {
00024
00032 class GDCM_EXPORT Pixmap : public Bitmap
00033 {
00034 public:
00035   Pixmap();
00036   ~Pixmap() override;
00037   void Print(std::ostream &) const override;
00038
00040   bool AreOverlaysInPixelData() const override;
00042   bool UnusedBitsPresentInPixelData() const override;
00043
00045   Curve& GetCurve(size_t i = 0) {
00046     gdcm_assert( i < Curves.size() );
00047     return Curves[i];
00048   }
00049   const Curve& GetCurve(size_t i = 0) const {
00050     gdcm_assert( i < Curves.size() );
00051     return Curves[i];
00052   }
00053   size_t GetNumberOfCurves() const { return Curves.size(); }
00054   void SetNumberOfCurves(size_t n) { Curves.resize(n); }
00055
00057   Overlay& GetOverlay(size_t i = 0) {
00058     gdcm_assert( i < Overlays.size() );
00059     return Overlays[i];
00060   }
00061   const Overlay& GetOverlay(size_t i = 0) const {
00062     gdcm_assert( i < Overlays.size() );
00063     return Overlays[i];
00064   }
00065   size_t GetNumberOfOverlays() const { return Overlays.size(); }
00066   void SetNumberOfOverlays(size_t n) { Overlays.resize(n); }
00067   void RemoveOverlay(size_t i) {
00068     gdcm_assert( i < Overlays.size() );
00069     Overlays.erase( Overlays.begin() + i );
00070   }
00071
00073   const IconImage &GetIconImage() const { return *Icon; }
00074   IconImage &GetIconImage() { return *Icon; }
00075   void SetIconImage(IconImage const &ii) { Icon = ii; }
00076
00077 //private:
00078 protected:
00079   std::vector<Overlay>  Overlays;
00080   std::vector<Curve>  Curves;
00081   SmartPointer<IconImage> Icon;
00082 };
00083
00084 } // end namespace gdcm
00085
00086 #endif //GDCMPIXMAP_H
```

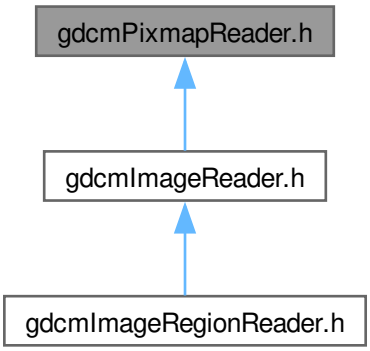
13.381 gdcmPixmapReader.h File Reference

```
#include "gdcmReader.h"
#include "gdcmPixmap.h"
```

Include dependency graph for gdcmPixmapReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PixmapReader
  PixmapReader.

Namespaces

- namespace gdcm

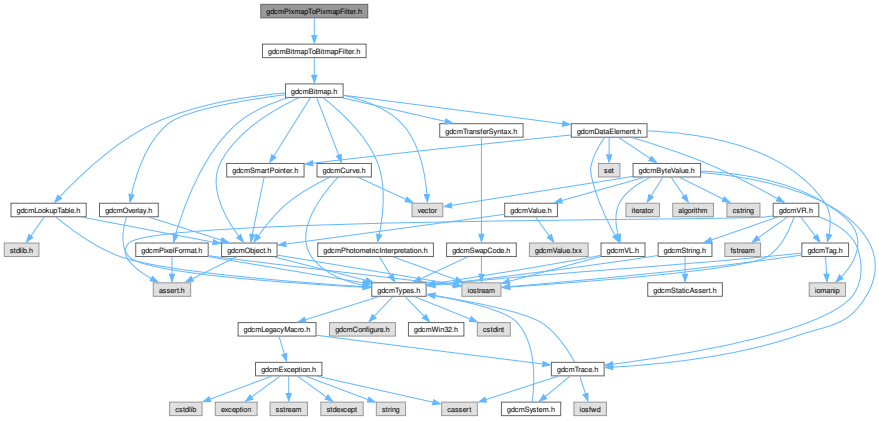
13.382 gdcmPixmapReader.h

Go to the documentation of this file.

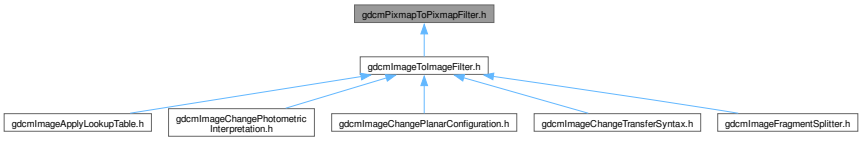
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPIXMAPREADER_H
00015 #define GDCMPIXMAPREADER_H
00016
00017 #include "gdcmReader.h"
00018 #include "gdcmPixmap.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class ByteValue;
00024 class MediaStorage;
00039 class GDCM_EXPORT PixmapReader : public Reader
00040 {
00041 public:
00042   PixmapReader();
00043   ~PixmapReader() override; //needs to be virtual to ensure lack of memory leaks
00044
00048
00049   bool Read() override;
00050
00051   // Following methods are valid only after a call to 'Read'
00052
00054   const Pixmap& GetPixmap() const;
00055   Pixmap& GetPixmap();
00056   //void SetPixamp(Pixmap const &pix);
00057
00058 protected:
00059   bool ReadImageInternal(MediaStorage const &ms, bool handlepixeldata = true);
00060   virtual bool ReadImage(MediaStorage const &ms);
00061   virtual bool ReadACRNEMAImage();
00062
00063   SmartPointer<Pixmap> PixelData;
00064 };
00065
00070
00071 } // end namespace gdcm
00072
00073 #endif //GDCMPIXMAPREADER_H
```

13.383 gdcmPixmapToPixmapFilter.h File Reference

`#include "gdcmBitmapToBitmapFilter.h"`
Include dependency graph for gdcmPixmapToPixmapFilter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PixmapToPixmapFilter
  PixmapToPixmapFilter class.

Namespaces

- namespace gdcm

13.384 gdcmPixmapToPixmapFilter.h

Go to the documentation of this file.

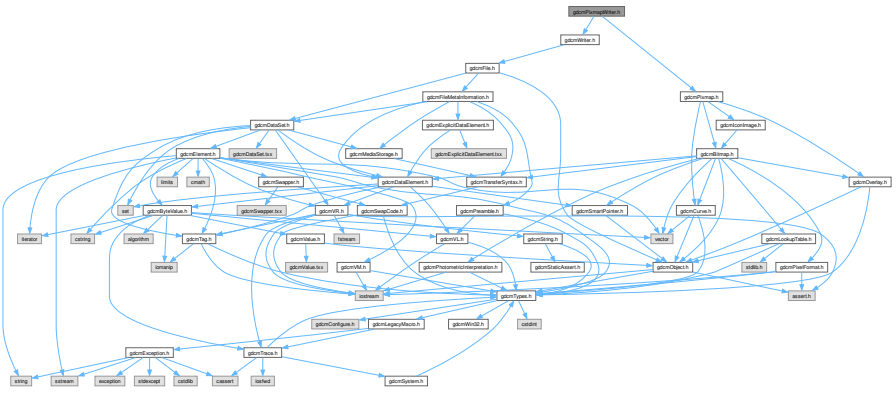
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
```

```
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPIXMAPTOPIXMAPFILTER_H
00015 #define GDCMPIXMAPTOPIXMAPFILTER_H
00016
00017 #include "gdcmBitmapToBitmapFilter.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class Pixmap;
00027 class GDCM_EXPORT PixmapToPixmapFilter : public BitmapToBitmapFilter
00028 {
00029 public:
00030   PixmapToPixmapFilter();
00031   ~PixmapToPixmapFilter() = default;
00032
00033   Pixmap &GetInput();
00034
00036   const Pixmap &GetOutput() const;
00037
00038   // SWIG/Java hack:
00039   const Pixmap &GetOutputAsPixmap() const;
00040 };
00041
00042 } // end namespace gdcm
00043
00044 #endif //GDCMPIXMAPTOPIXMAPFILTER_H
```

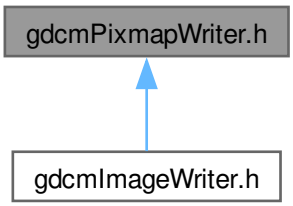
13.385 gdcmPixmapWriter.h File Reference

```
#include "gdcmWriter.h"
#include "gdcmPixmap.h"
```

Include dependency graph for gdcmPixmapWriter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PixmapWriter

  PixmapWriter.

Namespaces

- namespace gdcm

13.386 gdcmPixmapWriter.h

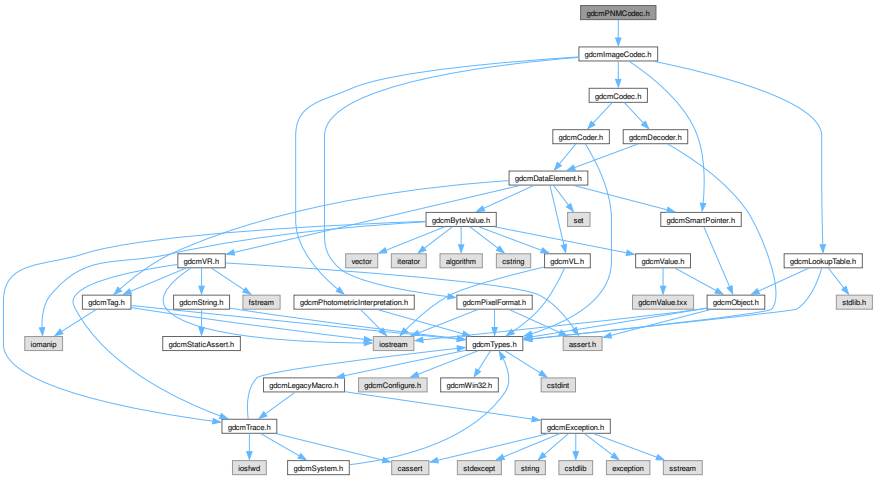
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPIXMAPWRITER_H
00015 #define GDCMPIXMAPWRITER_H
00016
00017 #include "gdcmWriter.h"
00018 #include "gdcmPixmap.h"
00019
00020 namespace gdcm
00021 {
00022
00023 class StreamImageWriter;
00024 class Pixmap;
00036 class GDCM_EXPORT PixmapWriter : public Writer
00037 {
00038 public:
00039   PixmapWriter();
00040   ~PixmapWriter() override;
00041
```

```
00042   const Pixmap& GetPixmap() const { return *PixelData; }
00043   Pixmap& GetPixmap() { return *PixelData; } // FIXME
00044   void SetPixmap(Pixmap const &img);
00045
00049   virtual const Pixmap& GetImage() const { return *PixelData; }
00050   virtual Pixmap& GetImage() { return *PixelData; } // FIXME
00051   virtual void SetImage(Pixmap const &img);
00052
00054   bool Write() override; // Execute()
00055
00056 protected:
00057   void DoIconImage(DataSet & ds, Pixmap const & image);
00058   bool PrepareWrite( MediaStorage const & refms );
00059
00060   SmartPointer<Pixmap> PixelData;
00061 };
00062
00067
00068 } // end namespace gdcm
00069
00070 #endif //GDCMPIXMAPWRITER_H
```

13.387 gdcmPNMCodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmPNMCodec.h:



Classes

- class gdcm::PNMCodec

  Class to do PNM.

Namespaces

- namespace gdcm

13.388 gdcmPNMCodec.h

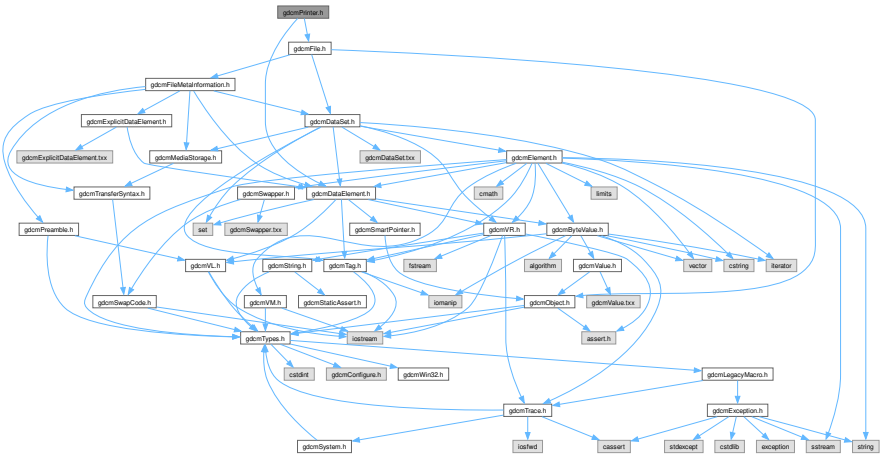
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPNMCODEC_H
00015 #define GDCMPNMCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00029 class GDCM_EXPORT PNMCodec : public ImageCodec
00030 {
00031 public:
00032   PNMCodec();
00033   ~PNMCodec() override;
00034   bool CanDecode(TransferSyntax const &ts) const override;
00035   bool CanCode(TransferSyntax const &ts) const override;
00036
00037   unsigned long GetBufferLength() const { return BufferLength; }
00038   void SetBufferLength(unsigned long l) { BufferLength = l; }
00039
00040   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00041   ImageCodec * Clone() const override;
00042
00043   bool Read(const char *filename, DataElement &out) const;
00044   bool Write(const char *filename, const DataElement &out) const;
00045   //bool Write(const char *filename);
00046 private:
00047   unsigned long BufferLength;
00048 };
00049
00050 } // end namespace gdcm
00051
00052 #endif //GDCMPNMCODEC_H
```

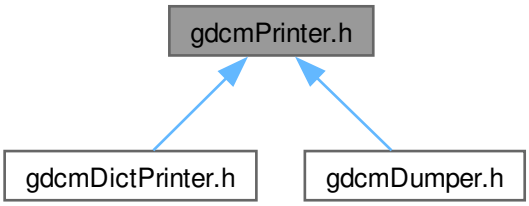
13.389 gdcmPrinter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmPrinter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Printer

  Printer class.

Namespaces

- namespace gdcm

13.390 gdcmPrinter.h

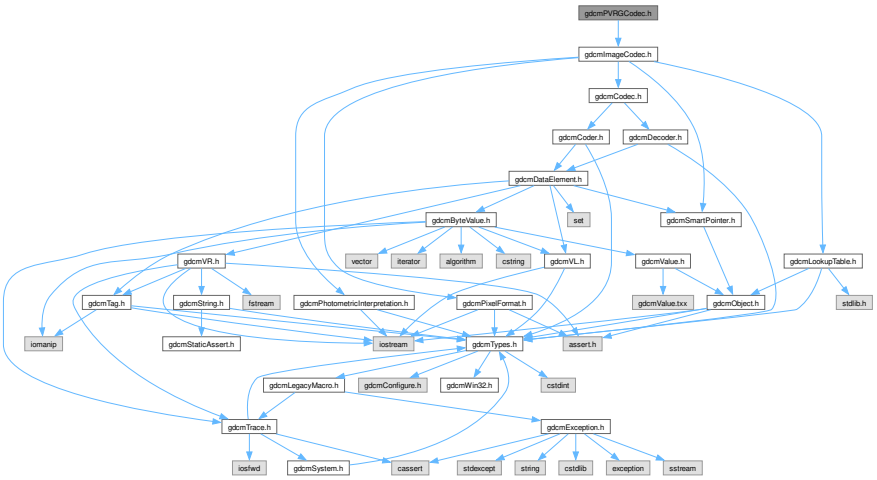
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRINTER_H
00015 #define GDCMPRINTER_H
00016
00017 // TODO Class to implement printing
00018 // Since DICOM does printing ?
00019 // Also I would like to encapsulate the IsCharacterPrintable thing
00020 // (to avoid printing \0 and other weird characters)
00021 // \todo I still need to implement skipping of group (shadow)
00022 // need to implement longer field to read
00023
00024 /*
00025  * Output:
00026  * For ASCII:
00027  * Typically will look like:
00028  * [ORIGINAL\PRIMARY\OTHER]
00029  * If a non printable character is found: RED and INVERSE is used:
00030  * [                .]
00031  *
00032  * when the VR is not found (file or dict), we check if we can print the output:
00033  * on success ASCII mode is used, on failure the output is printed a series of bytes
00034  *
00035  * Special case when the data element is empty:
00036  * INVERSE « (no value)
00037  *
00038  * retired public element are printed in red and underline
00039  * unknown private element are printed in RED followed by 'UNKNOWN'
00040  *
00041  * Correct VR is printed in green just after the found VR
00042  *
00043  * length of data element is printed in bytes, followed by the VM, a green VM is appended
00044  * if this is not compatible
00045  */
00046 #include "gdcmFile.h"
00047 #include "gdcmDataElement.h"
00048
00049 namespace gdcm
00050 {
00051
00052 class DataSet;
00053 class DictEntry;
00054 class Dicts;
00058 // It's a sink there is no output
00059 class GDCM_EXPORT Printer
00060 {
00061 public:
00062   Printer();
00063   ~Printer() = default;
00064
00066   void SetFile(File const &f) { F = &f; }
00067
00069   void SetColor(bool c);
00070
00071   typedef enum {
00072     VERBOSE_STYLE = 0, // GDCM Legacy VERBOSE one
00073     CONDENSED_STYLE, //
00074     // Ok I am missing voc here ...better naming would be nice
00075     XML, //
00076     CXX
00077   } PrintStyles;
00078
00080   void SetStyle(PrintStyles ps) {
00081     PrintStyle = ps;
```

```
00082   }
00084   PrintStyles GetPrintStyle() const {
00085     return PrintStyle;
00086     }
00087
00089   void Print(std::ostream& os);
00090
00092   void PrintDataSet(const DataSet &ds, std::ostream& os, const std::string &s = "");
00093
00094 protected:
00095   VR PrintDataElement(std::ostringstream & os, const Dicts &dicts, const DataSet & ds, const DataElement
      &de, std::ostream &out, std::string const & indent );
00096 void PrintSQ(const SequenceOfItems *sqi, std::ostream & os, std::string const & indent);
00097
00098   PrintStyles PrintStyle;
00099   const File *F;
00100   VL MaxPrintLength;
00101 };
00102
00103 } // end namespace gdcm
00104
00105 #endif //GDCMPRINTER_H
```

13.391 gdcmPVRGCodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmPVRGCodec.h:



Classes

- class gdcm::PVRGCodec
  PVRGCodec.

Namespaces

- namespace gdcm

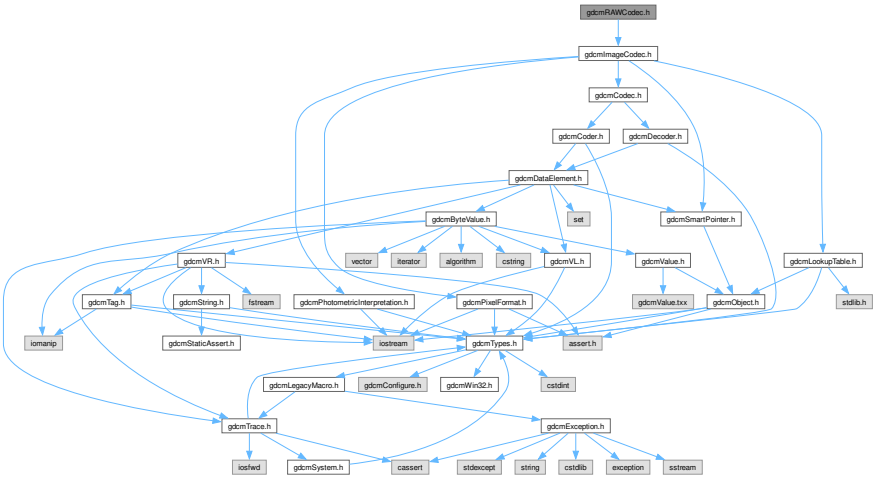
13.392 gdcmPVRGCodec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPVRGCODEC_H
00015 #define GDCMPVRGCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00034 class PVRGCodec : public ImageCodec
00035 {
00036 public:
00037   PVRGCodec();
00038   ~PVRGCodec() override;
00039   bool CanDecode(TransferSyntax const &ts) const override;
00040   bool CanCode(TransferSyntax const &ts) const override;
00041
00042   bool Decode(DataElement const &is, DataElement &os) override;
00043   bool Code(DataElement const &in, DataElement &out) override;
00044   void SetLossyFlag( bool l );
00045
00046   ImageCodec * Clone() const override;
00047 private:
00048 };
00049
00050 } // end namespace gdcm
00051
00052 #endif //GDCMPVRGCODEC_H
```

13.393 gdcmRAWCodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmRAWCodec.h:



Classes

- class gdcm::RAWCodec

  RAWCodec class.

Namespaces

- namespace gdcm

13.394 gdcmRAWCodec.h

Go to the documentation of this file.

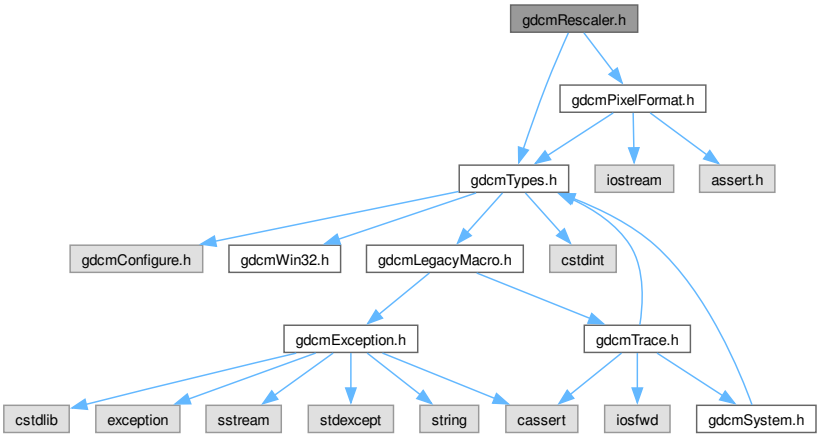
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMRAWCODEC_H
00015 #define GDCMRAWCODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
```

```
00019 namespace gdcm
00020 {
00021
00022 class RAWInternals;
00026 class GDCM_EXPORT RAWCodec : public ImageCodec
00027 {
00028 public:
00029   RAWCodec();
00030   ~RAWCodec() override;
00031   bool CanCode(TransferSyntax const &ts) const override;
00032   bool CanDecode(TransferSyntax const &ts) const override;
00033   bool Decode(DataElement const &is, DataElement &os) override;
00034   bool Code(DataElement const &in, DataElement &out) override;
00035
00036   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00037   ImageCodec * Clone() const override;
00038
00041   bool DecodeBytes(const char* inBytes, size_t inBufferLength,
00042     char* outBytes, size_t inOutBufferLength);
00043
00044 protected:
00045   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00046
00047 private:
00048   RAWInternals *Internals;
00049 };
00050
00051 } // end namespace gdcm
00052
00053 #endif // GDCMRAWCODEC_H
```

13.395 gdcmRescaler.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmPixelFormat.h"
```

Include dependency graph for gdcmRescaler.h:



Classes

- class gdcm::Rescaler

  Rescale class.

Namespaces

- namespace gdcm

13.396 gdcmRescaler.h

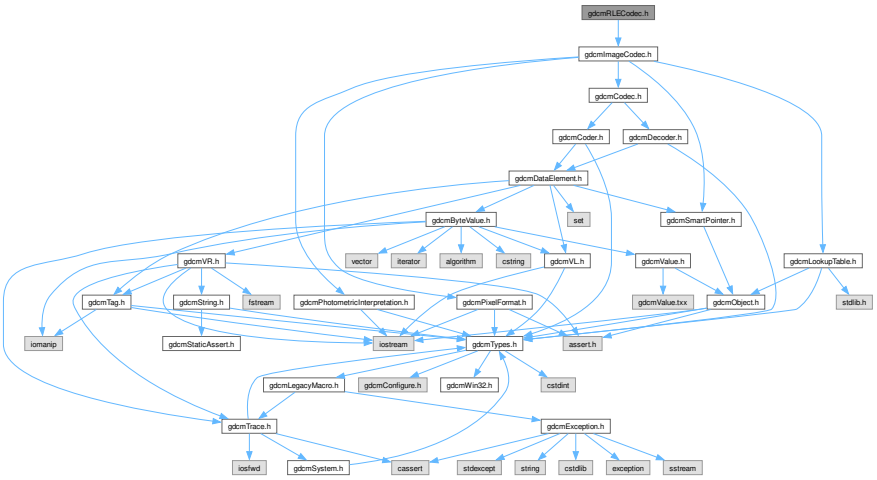
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMRESCALER_H
00015 #define GDCMRESCALER_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmPixelFormat.h"
00019
00020 namespace gdcm
00021 {
00022
00068 class GDCM_EXPORT Rescaler
00069 {
00070 public:
00071   Rescaler():Intercept(0),Slope(1),PF(PixelFormat::UNKNOWN),TargetScalarType(PixelFormat::UNKNOWN),
      ScalarRangeMin(0), ScalarRangeMax(0), UseTargetPixelType(false) {}
00072   ~Rescaler() = default;
00073
00075   bool Rescale(char *out, const char *in, size_t n);
00076
00078   bool InverseRescale(char *out, const char *in, size_t n);
00079
00081   void SetIntercept(double i) { Intercept = i; }
00082   double GetIntercept() const { return Intercept; }
00083
00085   void SetSlope(double s) { Slope = s; }
00086   double GetSlope() const { return Slope; }
00087
00092   void SetTargetPixelType( PixelFormat const & targetst );
00093
00095   void SetUseTargetPixelType(bool b);
00096
00098   void SetPixelFormat(PixelFormat const & pf) { PF = pf; }
00099
00102   PixelFormat::ScalarType ComputeInterceptSlopePixelType();
00103
00106   void SetMinMaxForPixelType(double min, double max);
00107
00110   PixelFormat ComputePixelTypeFromMinMax();
00111
00112 protected:
00113   template <typename TIn>
00114     void RescaleFunctionIntoBestFit(char *out, const TIn *in, size_t n);
00115   template <typename TIn>
00116     void InverseRescaleFunctionIntoBestFit(char *out, const TIn *in, size_t n);
00117
00118 private:
00119   double Intercept; // 0028,1052
00120   double Slope;     // 0028,1053
00121   PixelFormat PF;
00122   PixelFormat::ScalarType TargetScalarType;
00123   double ScalarRangeMin;
00124   double ScalarRangeMax;
00125   bool UseTargetPixelType;
00126 };
```

```
00127
00128 } // end namespace gdcm
00129
00130 #endif //GDCMRESCALER_H
```

13.397 gdcmRLECodec.h File Reference

`#include "gdcmImageCodec.h"`
Include dependency graph for gdcmRLECodec.h:



Classes

- class gdcm::RLECodec

  Class to do RLE.

Namespaces

- namespace gdcm

13.398 gdcmRLECodec.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
```

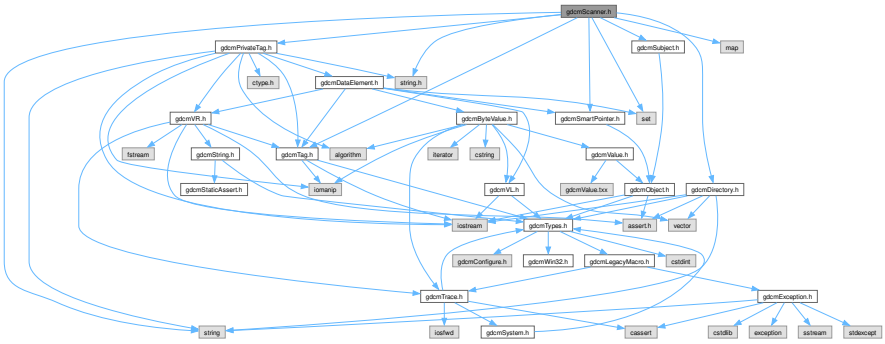
```
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMRLECODEC_H
00015 #define GDCMRLECODEC_H
00016
00017 #include "gdcmImageCodec.h"
00018
00019 namespace gdcm
00020 {
00021
00022 class Fragment;
00023 class RLEInternals;
00036 class GDCM_EXPORT RLECodec : public ImageCodec
00037 {
00038 friend class ImageRegionReader;
00039 public:
00040   RLECodec();
00041   ~RLECodec() override;
00042   bool CanCode(TransferSyntax const &ts) const override;
00043   bool CanDecode(TransferSyntax const &ts) const override;
00044   bool Decode(DataElement const &is, DataElement &os) override;
00045   unsigned long GetBufferLength() const { return BufferLength; }
00046   void SetBufferLength(unsigned long l) { BufferLength = l; }
00047
00048   bool Code(DataElement const &in, DataElement &out) override;
00049   bool GetHeaderInfo(std::istream &is, TransferSyntax &ts) override;
00050   ImageCodec * Clone() const override;
00051
00052 protected:
00053   bool DecodeExtent(
00054     char *buffer,
00055     unsigned int XMin, unsigned int XMax,
00056     unsigned int YMin, unsigned int YMax,
00057     unsigned int ZMin, unsigned int ZMax,
00058     std::istream & is
00059   );
00060
00061   bool DecodeByStreams(std::istream &is, std::ostream &os) override;
00062 public:
00063
00064   void SetLength(unsigned long l)
00065     {
00066     Length = l;
00067     }
00068
00069 protected:
00070   bool StartEncode( std::ostream & ) override;
00071   bool IsRowEncoder() override;
00072   bool IsFrameEncoder() override;
00073   bool AppendRowEncode( std::ostream & out, const char * data, size_t datalen ) override;
00074   bool AppendFrameEncode( std::ostream & out, const char * data, size_t datalen ) override;
00075   bool StopEncode( std::ostream & ) override;
00076
00077 private:
00078   bool DecodeByStreamsCommon(std::istream &is, std::ostream &os);
00079   RLEInternals *Internals;
00080   unsigned long Length;
00081   unsigned long BufferLength;
00082   size_t DecodeFragment(Fragment const & frag, char *buffer, size_t llen);
00083 };
00084
00085 } // end namespace gdcm
00086
00087 #endif //GDCMRLECODEC_H
```

13.399 gdcmScanner.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
```

```
#include "gdcmSmartPointer.h"
#include <map>
#include <set>
#include <string>
#include <string.h>
```

Include dependency graph for gdcmScanner.h:



Classes

- struct gdcm::Scanner::ltstr
- class gdcm::Scanner

  Scanner.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Scanner &s)

13.400 gdcmScanner.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSCANNER_H
```

```
00015 #define GDCMSCANNER_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmSubject.h"
00019 #include "gdcmTag.h"
00020 #include "gdcmPrivateTag.h"
00021 #include "gdcmSmartPointer.h"
00022
00023 #include <map>
00024 #include <set>
00025 #include <string>
00026
00027 #include <string.h> // strcmp
00028
00029 namespace gdcm
00030 {
00031 class StringFilter;
00032
00055 class GDCM_EXPORT Scanner : public Subject
00056 {
00057   friend std::ostream& operator<<(std::ostream &_os, const Scanner &s);
00058 public:
00059   Scanner():Values(),Filenames(),Mappings(),Progress(0.0) {}
00060   ~Scanner() override;
00061
00068   typedef std::map<Tag, const char*> TagToValue;
00069   //typedef std::map<Tag, ConstCharWrapper> TagToValue; //StringMap;
00070   //typedef TagToStringMap TagToValue;
00071   typedef TagToValue::value_type TagToValueValueType;
00072
00074   void AddTag( Tag const & t );
00075   void ClearTags();
00076
00077   // Work in progress do not use:
00078   void AddPrivateTag( PrivateTag const & t );
00079
00081   void AddSkipTag( Tag const & t );
00082   void ClearSkipTags();
00083
00085   bool Scan( Directory::FilenamesType const & filenames );
00086
00087   Directory::FilenamesType const &GetFilenames() const { return Filenames; }
00088
00090   void Print( std::ostream & os ) const override;
00091
00092   void PrintTable( std::ostream & os ) const;
00093
00097   bool IsKey( const char * filename ) const;
00098
00101   Directory::FilenamesType GetKeys() const;
00102
00103   // struct to store all the values found:
00104   typedef std::set< std::string > ValuesType;
00105
00107   ValuesType const & GetValues() const { return Values; }
00108
00110   ValuesType GetValues(Tag const &t) const;
00111
00115   Directory::FilenamesType GetOrderedValues(Tag const &t) const;
00116
00117   /* ltstr is CRITICAL, otherwise pointers value are used to do the key comparison */
00118   struct ltstr
00119     {
00120     bool operator()(const char* s1, const char* s2) const
00121       {
00122       gdcm_assert( s1 && s2 );
00123       return strcmp(s1, s2) < 0;
00124       }
00125     };
00126   typedef std::map<const char *,TagToValue, ltstr> MappingType;
00127   typedef MappingType::const_iterator ConstIterator;
00128   ConstIterator Begin() const { return Mappings.begin(); }
00129   ConstIterator End() const { return Mappings.end(); }
00130
00132   MappingType const & GetMappings() const { return Mappings; }
00133
00135   TagToValue const & GetMapping(const char *filename) const;
00136
00139   const char *GetFilenameFromTagToValue(Tag const &t, const char *valueref) const;
00140
00143   Directory::FilenamesType GetAllFilenamesFromTagToValue(Tag const &t, const char *valueref) const;
```

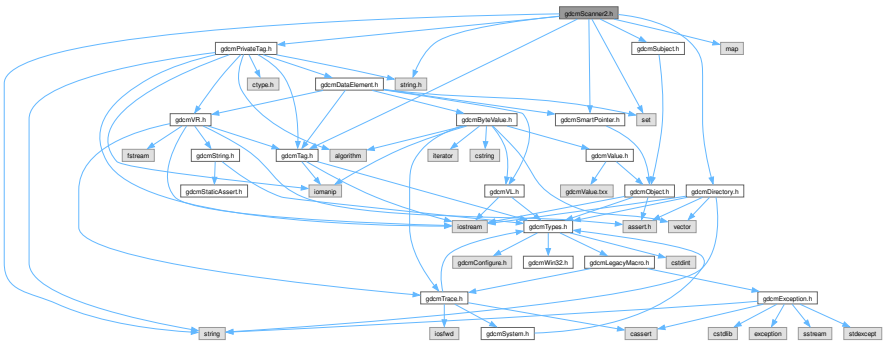
```
00144
00146   // by a call to GetMapping()
00147   TagToValue const & GetMappingFromTagToValue(Tag const &t, const char *value) const;
00148
00154   const char* GetValue(const char *filename, Tag const &t) const;
00155
00157   static SmartPointer<Scanner> New() { return new Scanner; }
00158
00159 protected:
00160   void ProcessPublicTag(StringFilter &sf, const char *filename);
00161 private:
00162   // struct to store all uniq tags in ascending order:
00163   typedef std::set< Tag > TagsType;
00164   typedef std::set< PrivateTag > PrivateTagsType;
00165   std::set< Tag > Tags;
00166   std::set< PrivateTag > PrivateTags;
00167   std::set< Tag > SkipTags;
00168   ValuesType Values;
00169   Directory::FilenamesType Filenames;
00170
00171   // Main struct that will hold all mapping:
00172   MappingType Mappings;
00173
00174   double Progress;
00175 };
00176 //-----------------------------------------------------------------------------
00177 inline std::ostream& operator<<(std::ostream &os, const Scanner &s)
00178 {
00179   s.Print( os );
00180   return os;
00181 }
00182
00183 #if defined(SWIGPYTHON) || defined(SWIGCSHARP) || defined(SWIGJAVA) || defined(SWIGPHP)
00184 /*
00185  * HACK: I need this temp class to be able to manipulate a std::map from python,
00186  * swig does not support wrapping of simple class like std::map...
00187  */
00188 class SWIGTagToValue
00189 {
00190 public:
00191   SWIGTagToValue(Scanner::TagToValue const &t2v):Internal(t2v),it(t2v.begin()) {}
00192   const Scanner::TagToValueValueType& GetCurrent() const { return *it; }
00193   const Tag& GetCurrentTag() const { return it->first; }
00194   const char *GetCurrentValue() const { return it->second; }
00195   void Start() { it = Internal.begin(); }
00196   bool IsAtEnd() const { return it == Internal.end(); }
00197   void Next() { ++it; }
00198 private:
00199   const Scanner::TagToValue& Internal;
00200   Scanner::TagToValue::const_iterator it;
00201 };
00202 #endif /* SWIG */
00203
00208
00209 } // end namespace gdcm
00210
00211 #endif //GDCMSCANNER_H
```

13.401 gdcmScanner2.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmSmartPointer.h"
#include <map>
#include <set>
#include <string>
```

`#include <string.h>`

Include dependency graph for gdcmScanner2.h:



Classes

- struct gdcm::Scanner2::ltstr
- class gdcm::Scanner2

  Scanner2.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Scanner2 &s)

13.402 gdcmScanner2.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSCANNER2_H
00015 #define GDCMSCANNER2_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmSubject.h"
00019 #include "gdcmTag.h"
00020 #include "gdcmPrivateTag.h"
```

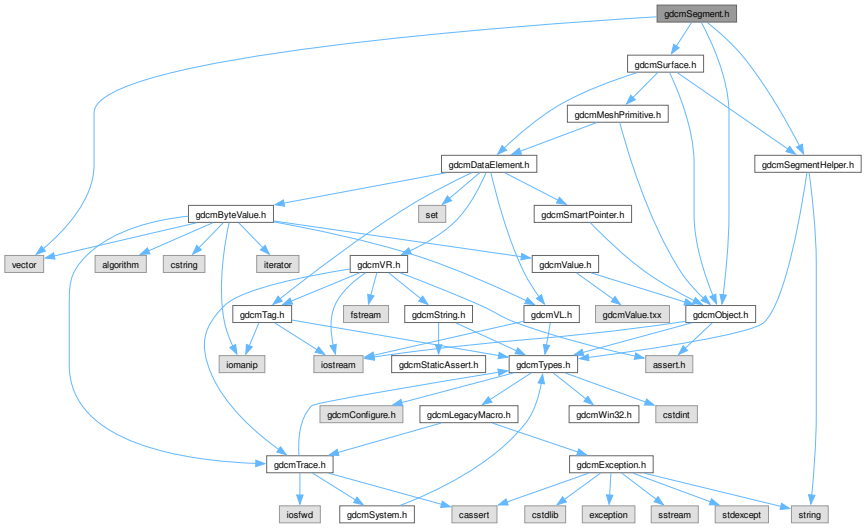
```
00021 #include "gdcmSmartPointer.h"
00022
00023 #include <map>
00024 #include <set>
00025 #include <string>
00026
00027 #include <string.h> // strcmp
00028
00029 namespace gdcm
00030 {
00031 class StringFilter;
00032
00055 class GDCM_EXPORT Scanner2 : public Subject
00056 {
00057   friend std::ostream& operator«(std::ostream &_os, const Scanner2 &s);
00058 public:
00059   Scanner2():Values(),Filenames(),PublicMappings(),PrivateMappings(),Progress(0.0) {}
00060   ~Scanner2() override;
00061
00068   typedef std::map<Tag, const char*> PublicTagToValue;
00069   typedef PublicTagToValue::value_type PublicTagToValueValueType;
00070
00071   typedef std::map<PrivateTag, const char*> PrivateTagToValue;
00072   typedef PrivateTagToValue::value_type PrivateTagToValueValueType;
00073
00075   bool AddPublicTag( Tag const & t );
00076   void ClearPublicTags();
00077
00078   // Work in progress do not use:
00079   bool AddPrivateTag( PrivateTag const & pt );
00080   void ClearPrivateTags();
00081
00083   bool AddSkipTag( Tag const & t );
00084   void ClearSkipTags();
00085
00087   bool Scan( Directory::FilenamesType const & filenames );
00088
00090   Directory::FilenamesType const &GetFilenames() const { return Filenames; }
00091
00093   void Print( std::ostream & os ) const override;
00094
00096   void PrintTable( std::ostream & os, bool header = false ) const;
00097
00101   bool IsKey( const char * filename ) const;
00102
00105   Directory::FilenamesType GetKeys() const;
00106
00107   // struct to store all the values found:
00108   typedef std::set< std::string > ValuesType;
00109
00111   ValuesType const & GetValues() const { return Values; }
00112
00114   ValuesType GetPublicValues(Tag const &t) const;
00115
00117   ValuesType GetPrivateValues(PrivateTag const &pt) const;
00118
00122   Directory::FilenamesType GetPublicOrderedValues(Tag const &t) const;
00123
00124   Directory::FilenamesType GetPrivateOrderedValues(PrivateTag const &pt) const;
00125
00126   /* ltstr is CRITICAL, otherwise pointers value are used to do the key comparison */
00127   struct ltstr
00128     {
00129     bool operator()(const char* s1, const char* s2) const
00130       {
00131       gdcm_assert( s1 && s2 );
00132       return strcmp(s1, s2) < 0;
00133       }
00134     };
00135   typedef std::map<const char *,PublicTagToValue, ltstr> PublicMappingType;
00136   typedef PublicMappingType::const_iterator PublicConstIterator;
00137   PublicConstIterator Begin() const { return PublicMappings.begin(); }
00138   PublicConstIterator End() const { return PublicMappings.end(); }
00139
00140   typedef std::map<const char *,PrivateTagToValue, ltstr> PrivateMappingType;
00141   typedef PrivateMappingType::const_iterator PrivateConstIterator;
00142   PrivateConstIterator PrivateBegin() const { return PrivateMappings.begin(); }
00143   PrivateConstIterator PrivateEnd() const { return PrivateMappings.end(); }
00144
00146   PublicMappingType const & GetPublicMappings() const { return PublicMappings; }
00147   PrivateMappingType const & GetPrivateMappings() const { return PrivateMappings; }
```

```
00148
00150   PublicTagToValue const & GetPublicMapping(const char *filename) const;
00151   PrivateTagToValue const & GetPrivateMapping(const char *filename) const;
00152
00155   const char *GetFilenameFromPublicTagToValue(Tag const &t, const char *valueref) const;
00156   const char *GetFilenameFromPrivateTagToValue(PrivateTag const &pt, const char *valueref) const;
00157
00160   Directory::FilenamesType GetAllFilenamesFromPublicTagToValue(Tag const &t, const char *valueref) const;
00161   Directory::FilenamesType GetAllFilenamesFromPrivateTagToValue(PrivateTag const &pt, const char
      *valueref) const;
00162
00164   // by a call to GetMapping()
00165   PublicTagToValue const & GetMappingFromPublicTagToValue(Tag const &t, const char *value) const;
00166   PrivateTagToValue const & GetMappingFromPrivateTagToValue(PrivateTag const &pt, const char *value)
      const;
00167
00173   const char* GetPublicValue(const char *filename, Tag const &t) const;
00174   const char* GetPrivateValue(const char *filename, PrivateTag const &t) const;
00175
00177   static SmartPointer<Scanner2> New() { return new Scanner2; }
00178
00179 protected:
00180   void ProcessPublicTag(StringFilter &sf, const char *filename);
00181   void ProcessPrivateTag(StringFilter &sf, const char *filename);
00182 private:
00183   // struct to store all uniq tags in ascending order:
00184   typedef std::set< Tag > PublicTagsType;
00185   typedef std::set< PrivateTag > PrivateTagsType;
00186   std::set< Tag > PublicTags; // Public and Private Creator
00187   std::set< PrivateTag > PrivateTags; // Only Private (no Private Creator)
00188   std::set< Tag > SkipTags;
00189   ValuesType Values;
00190   Directory::FilenamesType Filenames;
00191
00192   // Main struct that will hold all public mapping:
00193   PublicMappingType PublicMappings;
00194   // Main struct that will hold all private mapping:
00195   PrivateMappingType PrivateMappings;
00196
00197   double Progress;
00198 };
00199 //-----------------------------------------------------------------------------
00200 inline std::ostream& operator<<(std::ostream &os, const Scanner2 &s)
00201 {
00202   s.Print( os );
00203   return os;
00204 }
00205
00206 } // end namespace gdcm
00207
00208 #endif //GDCMSCANNER2_H
```

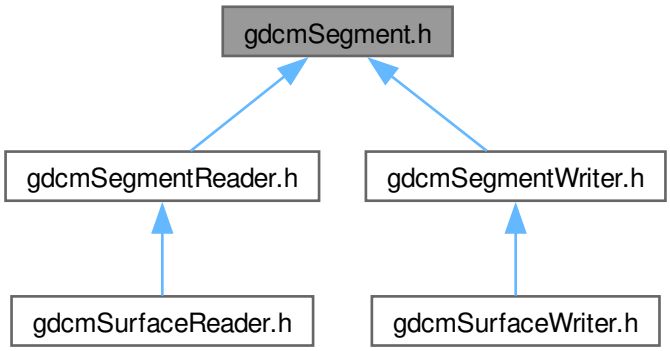
13.403 gdcmSegment.h File Reference

```
#include <vector>
#include <gdcmObject.h>
#include <gdcmSurface.h>
#include "gdcmSegmentHelper.h"
```

Include dependency graph for gdcmSegment.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Segment

  This class defines a segment.

Namespaces

- namespace gdcm

13.404 gdcmSegment.h

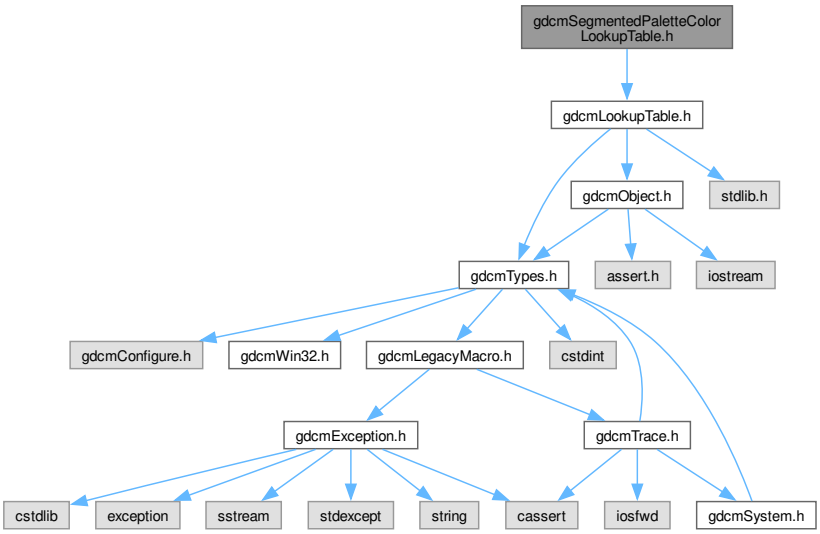
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSEGMENT_H
00015 #define GDCMSEGMENT_H
00016
00017 #include <vector>
00018
00019 #include <gdcmObject.h>
00020 #include <gdcmSurface.h>
00021 #include "gdcmSegmentHelper.h"
00022
00023 namespace gdcm
00024 {
00025
00033 class GDCM_EXPORT Segment : public Object
00034 {
00035 public:
00036
00037   typedef std::vector< SmartPointer< Surface > > SurfaceVector;
00038   typedef std::vector< SegmentHelper::BasicCodedEntry > BasicCodedEntryVector;
00039
00040   typedef enum {
00041     AUTOMATIC = 0,
00042     SEMIAUTOMATIC,
00043     MANUAL,
00044     ALGOType_END
00045   } ALGOType;
00046
00047   static const char * GetALGOTypeString(ALGOType type);
00048   static ALGOType GetALGOType(const char * type);
00049
00050
00051   Segment();
00052
00053   ~Segment() override;
00054
00055   //**        Segment getters/setters     **//
00056   unsigned short GetSegmentNumber() const;
00057   void SetSegmentNumber(const unsigned short num);
00058
00059   const char * GetSegmentLabel() const;
00060   void SetSegmentLabel(const char * label);
00061
00062   const char * GetSegmentDescription() const;
00063   void SetSegmentDescription(const char * description);
00064
00065   SegmentHelper::BasicCodedEntry const & GetAnatomicRegion() const;
00066   SegmentHelper::BasicCodedEntry & GetAnatomicRegion();
00067   void SetAnatomicRegion(SegmentHelper::BasicCodedEntry const & BSE);
00068
00069   BasicCodedEntryVector const & GetAnatomicRegionModifiers() const;
00070   BasicCodedEntryVector & GetAnatomicRegionModifiers();
00071   void SetAnatomicRegionModifiers(BasicCodedEntryVector const & BSEV);
00072
00073   SegmentHelper::BasicCodedEntry const & GetPropertyCategory() const;
00074   SegmentHelper::BasicCodedEntry & GetPropertyCategory();
00075   void SetPropertyCategory(SegmentHelper::BasicCodedEntry const & BSE);
00076
00077   SegmentHelper::BasicCodedEntry const & GetPropertyType() const;
00078   SegmentHelper::BasicCodedEntry & GetPropertyType();
00079   void SetPropertyType(SegmentHelper::BasicCodedEntry const & BSE);
00080
00081   BasicCodedEntryVector const & GetPropertyTypeModifiers() const;
00082   BasicCodedEntryVector & GetPropertyTypeModifiers();
```

```
00083   void SetPropertyTypeModifiers(BasicCodedEntryVector const & BSEV);
00084
00085   ALGOType GetSegmentAlgorithmType() const;
00086   void SetSegmentAlgorithmType(ALGOType type);
00087   void SetSegmentAlgorithmType(const char * typeStr);
00088
00089   const char * GetSegmentAlgorithmName() const;
00090   void SetSegmentAlgorithmName(const char * name);
00091
00092   //**        Surface getters/setters     **//
00093   unsigned long GetSurfaceCount();
00094   void SetSurfaceCount(const unsigned long nb);
00095
00096   SurfaceVector const & GetSurfaces() const;
00097   SurfaceVector & GetSurfaces();
00098
00099   SmartPointer< Surface > GetSurface(const unsigned int idx = 0) const;
00100
00101   void AddSurface(SmartPointer< Surface > surface);
00102
00103 protected :
00104   //**        Segment members     **//
00105   //0062 0004 US 1 Segment Number
00106   unsigned short  SegmentNumber;
00107   //0062 0005 LO 1 Segment Label
00108   std::string     SegmentLabel;
00109   //0062 0006 ST 1 Segment Description
00110   std::string     SegmentDescription;
00111
00112   // General Anatomic Region
00113   SegmentHelper::BasicCodedEntry AnatomicRegion;
00114   // General Anatomic Region Modifier
00115   BasicCodedEntryVector AnatomicRegionModifiers;
00116   // Property Category Code
00117   SegmentHelper::BasicCodedEntry PropertyCategory;
00118   // Property Type Code
00119   SegmentHelper::BasicCodedEntry PropertyType;
00120   // Property Type Modifier Code
00121   BasicCodedEntryVector PropertyTypeModifiers;
00122
00123   //0062 0008 CS 1 Segment Algorithm Type
00124   ALGOType        SegmentAlgorithmType;
00125   //0062 0009 LO 1 Segment Algorithm Name
00126   std::string     SegmentAlgorithmName;
00127
00128   //**        Surface members     **//
00129   //0066 002a UL 1 Surface Count
00130   unsigned long   SurfaceCount;
00131
00132   SurfaceVector   Surfaces;
00133
00134 private :
00135   void ComputeSurfaceCount();
00136 };
00137
00138 }
00139
00140 #endif // GDCMSEGMENT_H
```

13.405 gdcmSegmentedPaletteColorLookupTable.h File Reference

`#include "gdcmLookupTable.h"`
Include dependency graph for gdcmSegmentedPaletteColorLookupTable.h:



Classes

- class gdcm::SegmentedPaletteColorLookupTable
  SegmentedPaletteColorLookupTable class.

Namespaces

- namespace gdcm

13.406 gdcmSegmentedPaletteColorLookupTable.h

Go to the documentation of this file.

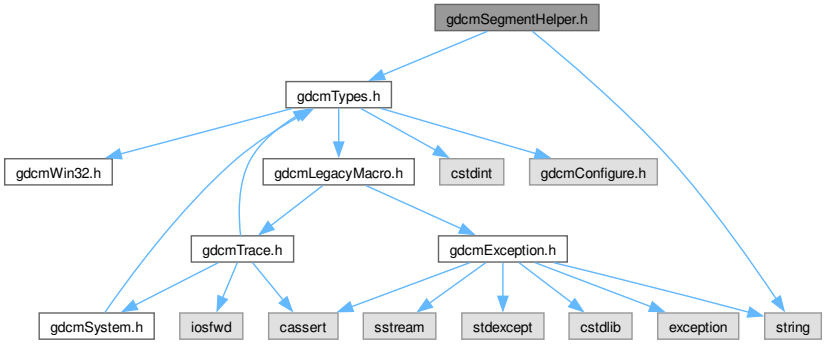
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
```

```
00014
00015 #ifndef GDCMSEGMENTEDPALETTECOLORLOOKUPTABLE_H
00016 #define GDCMSEGMENTEDPALETTECOLORLOOKUPTABLE_H
00017
00018 #include "gdcmLookupTable.h"
00019
00020 namespace gdcm
00021 {
00022
00026 class GDCM_EXPORT SegmentedPaletteColorLookupTable : public LookupTable
00027 {
00028 public:
00029   SegmentedPaletteColorLookupTable();
00030   ~SegmentedPaletteColorLookupTable() override;
00031   void Print(std::ostream &) const override {}
00032
00034   void SetLUT(LookupTableType type, const unsigned char *array,
00035     unsigned int length) override;
00036
00037 };
00038
00039 } // end namespace gdcm
00040
00041 #endif //GDCMSEGMENTEDPALETTECOLORLOOKUPTABLE_H
```

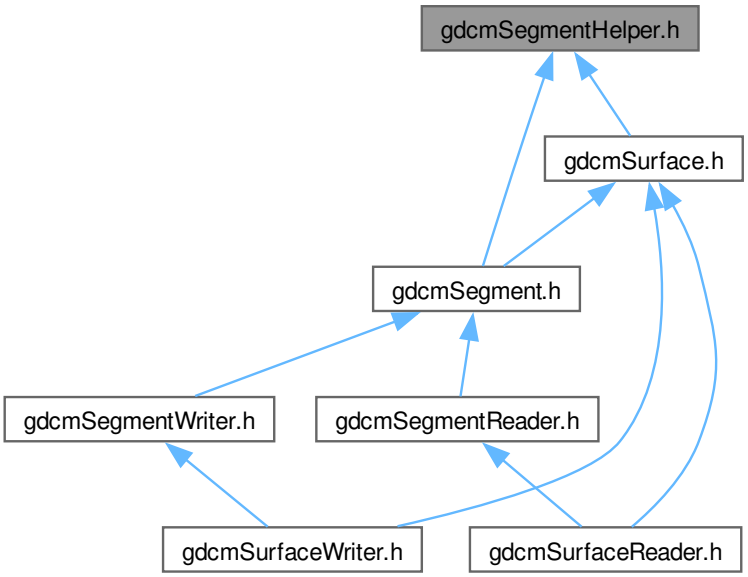
13.407 gdcmSegmentHelper.h File Reference

```
#include "gdcmTypes.h"
#include <string>
```

Include dependency graph for gdcmSegmentHelper.h:



This graph shows which files directly or indirectly include this file:



Classes

- struct gdcm::SegmentHelper::BasicCodedEntry

  This structure defines a basic coded entry with all of its attributes.

Namespaces

- namespace gdcm
- namespace gdcm::SegmentHelper

13.408 gdcmSegmentHelper.h

Go to the documentation of this file.

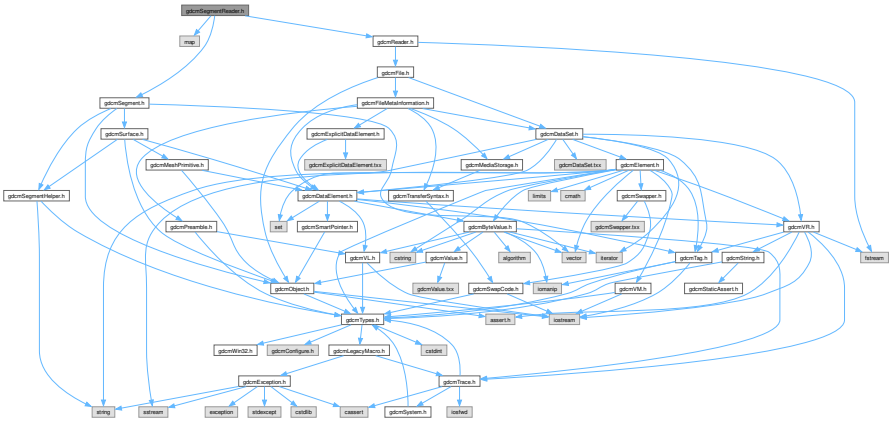
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
```

```
00013 =========================================================================*/
00014 #ifndef GDCMSEGMENTHELPER_H
00015 #define GDCMSEGMENTHELPER_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <string>
00020
00021 namespace gdcm
00022 {
00023
00024 namespace SegmentHelper
00025 {
00026
00032 struct GDCM_EXPORT BasicCodedEntry
00033 {
00037   BasicCodedEntry():
00038     CV(""),
00039     CSD(""),
00040     CSV(""),
00041     CM("")
00042   {}
00043
00047   BasicCodedEntry(const char * a_CV,
00048                   const char * a_CSD,
00049                   const char * a_CM):
00050     CV(a_CV),
00051     CSD(a_CSD),
00052     CSV(""),
00053     CM(a_CM)
00054   {}
00055
00059   BasicCodedEntry(const char * a_CV,
00060                   const char * a_CSD,
00061                   const char * a_CSV,
00062                   const char * a_CM):
00063     CV(a_CV),
00064     CSD(a_CSD),
00065     CSV(a_CSV),
00066     CM(a_CM)
00067   {}
00068
00074   bool IsEmpty(const bool checkOptionalAttributes = false) const;
00075
00076
00077   //**      Members     **//
00078   // 0008 0100 1   Code Value
00079   std::string CV;
00080   // 0008 0102 1   Coding Scheme Designator
00081   std::string CSD;
00082   // 0008 0103 1C  Coding Scheme Version
00083   std::string CSV;
00084   // 0008 0104 1   Code Meaning
00085   std::string CM;
00086 };
00087
00088 } // end of SegmentHelper namespace
00089
00090 } // end of gdcm namespace
00091
00092 #endif // GDCMSEGMENTHELPER_H
```

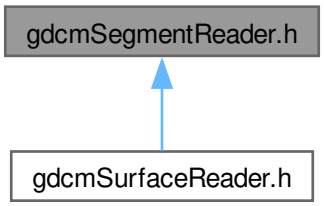
13.409 gdcmSegmentReader.h File Reference

```
#include <map>
#include <gdcmReader.h>
#include <gdcmSegment.h>
```

Include dependency graph for gdcmSegmentReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::SegmentReader

  This class defines a segment reader.

Namespaces

- namespace gdcm

13.410 gdcmSegmentReader.h

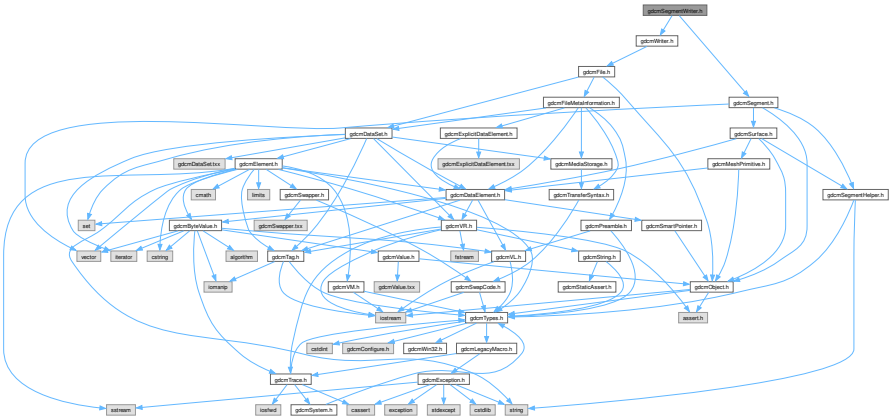
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSEGMENTREADER_H
00015 #define GDCMSEGMENTREADER_H
00016
00017 #include <map>
00018
00019 #include <gdcmReader.h>
00020 #include <gdcmSegment.h>
00021
00022 namespace gdcm
00023 {
00024
00031 class GDCM_EXPORT SegmentReader : public Reader
00032 {
00033 public:
00034   typedef std::vector< SmartPointer< Segment > > SegmentVector;
00035
00036   SegmentReader();
00037
00038   ~SegmentReader() override;
00039
00041   bool Read() override; // Set to protected ?
00042
00043   //**        Segment getters/setters     **//
00044   SegmentVector GetSegments() const;
00045   SegmentVector GetSegments();
00046
00047 //  unsigned int GetNumberOfSegments();
00048
00049 protected:
00050
00051   typedef std::map< unsigned long, SmartPointer< Segment > > SegmentMap;
00052
00053   bool ReadSegments();
00054
00055   bool ReadSegment(const Item & segmentItem, const unsigned int idx);
00056
00057
00058   SegmentMap Segments;  // The key value is item number (in segment sequence)
00059                         // or the surface number (for a surface segmentation).
00060
00061 };
00062
00063 }
00064
00065 #endif // GDCMSEGMENTREADER_H
```

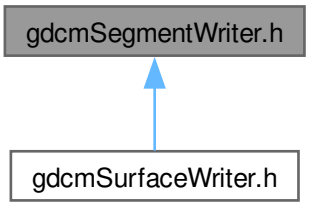
13.411 gdcmSegmentWriter.h File Reference

```
#include <gdcmWriter.h>
#include <gdcmSegment.h>
```

Include dependency graph for gdcmSegmentWriter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::SegmentWriter

  This class defines a segment writer.

Namespaces

- namespace gdcm

13.412 gdcmSegmentWriter.h

Go to the documentation of this file.

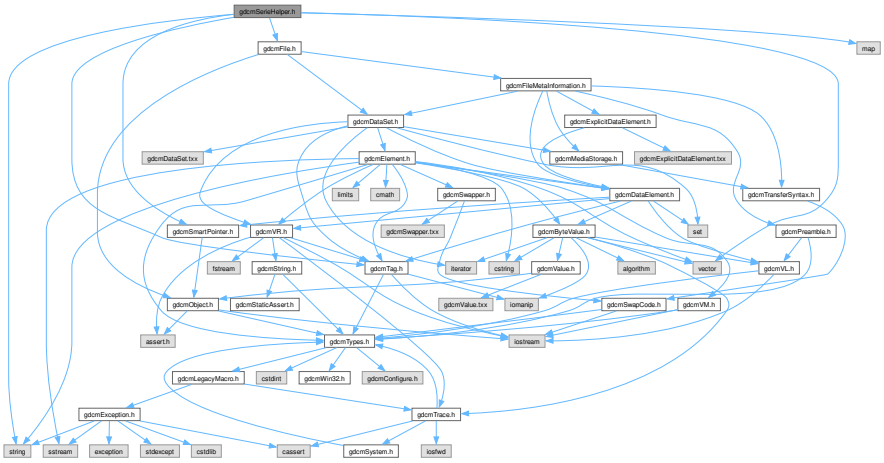
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSEGMENTWRITER_H
00015 #define GDCMSEGMENTWRITER_H
00016
00017 #include <gdcmWriter.h>
00018 #include <gdcmSegment.h>
00019
00020 namespace gdcm
00021 {
00022
00029 class GDCM_EXPORT SegmentWriter : public Writer
00030 {
00031 public:
00032   typedef std::vector< SmartPointer< Segment > > SegmentVector;
00033
00034   SegmentWriter();
00035
00036   ~SegmentWriter() override;
00037
00039   bool Write() override; // Set to protected ?
00040
00041   //**        Segment getters/setters     **//
00042   unsigned int GetNumberOfSegments() const;
00043   void SetNumberOfSegments(const unsigned int size);
00044
00045   const SegmentVector & GetSegments() const;
00046   SegmentVector & GetSegments();
00047   SmartPointer< Segment > GetSegment(const unsigned int idx = 0) const;
00048
00049   void AddSegment(SmartPointer< Segment > segment);
00050
00051   void SetSegments(SegmentVector & segments);
00052
00053 protected:
00054
00055   bool PrepareWrite();
00056
00057
00058   SegmentVector Segments;
00059 };
00060
00061 }
00062
00063 #endif // GDCMSEGMENTWRITER_H
```

13.413 gdcmSerieHelper.h File Reference

```
#include "gdcmTag.h"
#include "gdcmSmartPointer.h"
#include "gdcmFile.h"
#include <vector>
#include <string>
```

```
#include <map>
```

Include dependency graph for gdcmSerieHelper.h:



Classes

- class gdcm::FileWithName

  FileWithName.
- class gdcm::SerieHelper

  SerieHelper DO NOT USE this class, it is only a temporary solution for ITK migration from GDCM 1.x to GDCM 2.x It will disappear soon, you've been warned.

Namespaces

- namespace gdcm

Typedefs

- typedef bool(∗ gdcm::BOOL_FUNCTION_PFILE_PFILE_POINTER) (File ∗, File ∗)
- typedef std::vector< SmartPointer< FileWithName > > gdcm::FileList

Enumerations

- enum gdcm::CompOperators {
  gdcm::GDCM_EQUAL = 0 ,
  gdcm::GDCM_DIFFERENT ,
  gdcm::GDCM_GREATER ,
  gdcm::GDCM_GREATEROREQUAL ,
  gdcm::GDCM_LESS ,
  gdcm::GDCM_LESSOREQUAL }
- enum gdcm::LodModeType {
  gdcm::LD_ALL = 0x00000000 ,
  gdcm::LD_NOSEQ = 0x00000001 ,
  gdcm::LD_NOSHADOW = 0x00000002 ,
  gdcm::LD_NOSHADOWSEQ = 0x00000004 }

13.414 gdcmSerieHelper.h

Go to the documentation of this file.

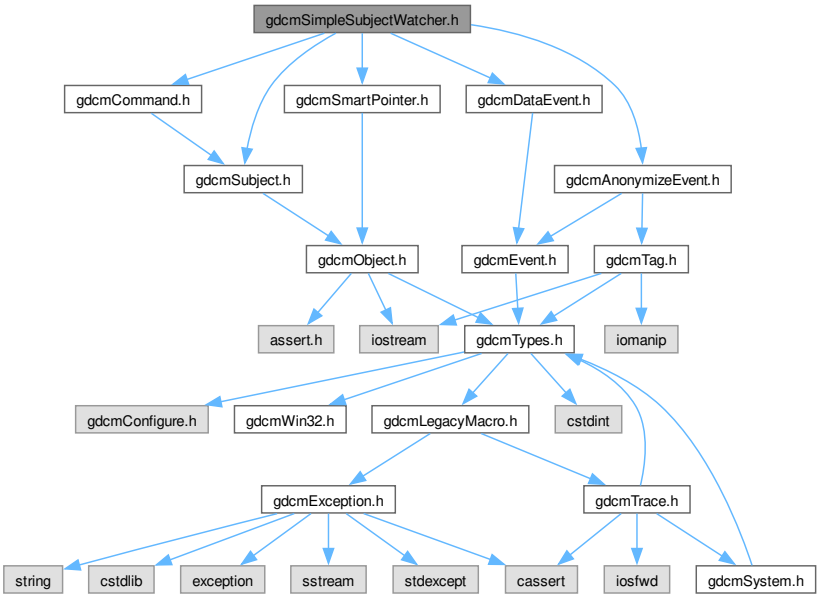
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSERIEHELPER_H
00015 #define GDCMSERIEHELPER_H
00016
00017 #include "gdcmTag.h"
00018 #include "gdcmSmartPointer.h"
00019 #include "gdcmFile.h"
00020 #include <vector>
00021 #include <string>
00022 #include <map>
00023
00024 namespace gdcm
00025 {
00026
00027 enum CompOperators {
00028    GDCM_EQUAL = 0,
00029    GDCM_DIFFERENT,
00030    GDCM_GREATER,
00031    GDCM_GREATEROREQUAL,
00032    GDCM_LESS,
00033    GDCM_LESSOREQUAL
00034 };
00035 enum LodModeType
00036 {
00037    LD_ALL         = 0x00000000,
00038    LD_NOSEQ       = 0x00000001,
00039    LD_NOSHADOW    = 0x00000002,
00040    LD_NOSHADOWSEQ = 0x00000004
00041 };
00042
00043
00050 class GDCM_EXPORT FileWithName : public File
00051 {
00052 public:
00053   FileWithName(File &f):File(f),filename(){}
00054   std::string filename;
00055 };
00056
00057 typedef std::vector< SmartPointer<FileWithName> > FileList;
00058 typedef bool (*BOOL_FUNCTION_PFILE_PFILE_POINTER)(File *, File *);
00059 class Scanner;
00060
00068 class GDCM_EXPORT SerieHelper
00069 {
00070 public:
00071   SerieHelper();
00072   ~SerieHelper();
00073
00074   void Clear();
00075   void SetLoadMode (int ) {}
00076   void SetDirectory(std::string const &dir, bool recursive=false);
00077
00078   void AddRestriction(const std::string & tag);
00079   void SetUseSeriesDetails( bool useSeriesDetails );
00080   void CreateDefaultUniqueSeriesIdentifier();
00081   FileList *GetFirstSingleSerieUIDFileSet();
00082   FileList *GetNextSingleSerieUIDFileSet();
00083   std::string CreateUniqueSeriesIdentifier( File * inFile );
00084   void OrderFileList(FileList *fileSet);
00085   void AddRestriction(uint16_t group, uint16_t elem, std::string const &value, int op);
00086
00087 protected:
00088   bool UserOrdering(FileList *fileSet);
```

```
00089   void AddFileName(std::string const &filename);
00090   bool AddFile(FileWithName &header);
00091   void AddRestriction(const Tag& tag);
00092   bool ImagePositionPatientOrdering(FileList *fileSet);
00093   bool ImageNumberOrdering( FileList *fileList );
00094   bool FileNameOrdering( FileList *fileList );
00095
00096   using Rule = struct RuleStructure{
00097     uint16_t group;
00098     uint16_t elem;
00099     std::string value;
00100     int op;
00101   };
00102   typedef std::vector<Rule> SerieRestrictions;
00103
00104   typedef std::map<std::string, FileList *> SingleSerieUIDFileSetmap;
00105   SingleSerieUIDFileSetmap SingleSerieUIDFileSetHT;
00106   SingleSerieUIDFileSetmap::iterator ItFileSetHt;
00107
00108 private:
00109   SerieRestrictions Restrictions;
00110   SerieRestrictions Refine;
00111
00112   bool UseSeriesDetails;
00113   bool DirectOrder;
00114
00115   BOOL_FUNCTION_PFILE_PFILE_POINTER UserLessThanFunction;
00116 };
00117
00118 // backward compat
00119 } // end namespace gdcm
00120
00121
00122 #endif //GDCMSERIEHELPER_H
```

13.415 gdcmSimpleSubjectWatcher.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmCommand.h"
#include "gdcmSmartPointer.h"
#include "gdcmAnonymizeEvent.h"
#include "gdcmDataEvent.h"
```

Include dependency graph for gdcmSimpleSubjectWatcher.h:



Classes

- class gdcm::SimpleSubjectWatcher

  SimpleSubjectWatcher.

Namespaces

- namespace gdcm

13.416 gdcmSimpleSubjectWatcher.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSIMPLESUBJECTWATCHER_H
00015 #define GDCMSIMPLESUBJECTWATCHER_H
00016
```

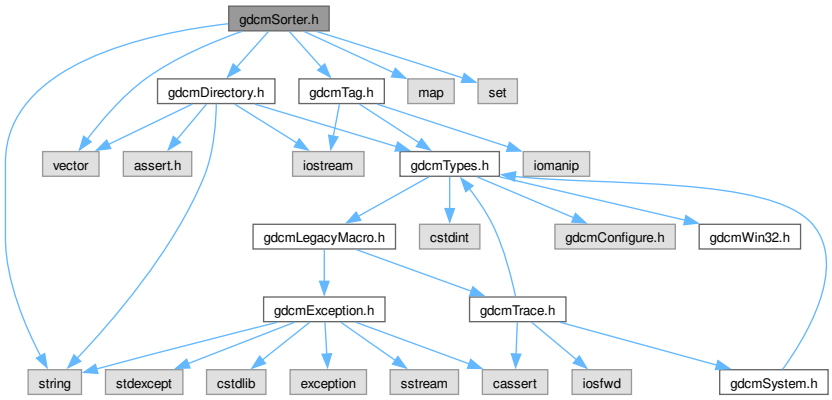
```
00017 #include "gdcmSubject.h"
00018 #include "gdcmCommand.h"
00019 #include "gdcmSmartPointer.h"
00020 #include "gdcmAnonymizeEvent.h"
00021 #include "gdcmDataEvent.h"
00022
00023 namespace gdcm
00024 {
00025 //-----------------------------------------------------------------------------
00026 class Event;
00031 class GDCM_EXPORT SimpleSubjectWatcher
00032 {
00033 public:
00034   SimpleSubjectWatcher(Subject * s, const char *comment = "");
00035   virtual ~SimpleSubjectWatcher();
00036   SimpleSubjectWatcher(const SimpleSubjectWatcher&) = delete;
00037   void operator=(const SimpleSubjectWatcher&) = delete;
00038
00039 protected:
00040   virtual void StartFilter();
00041   virtual void EndFilter();
00042   virtual void ShowProgress(Subject *caller, const Event &evt);
00043   virtual void ShowFileName(Subject *caller, const Event &evt);
00044   virtual void ShowIteration();
00045   virtual void ShowAnonymization(Subject *caller, const Event &evt);
00046   virtual void ShowDataSet(Subject *caller, const Event &evt);
00047   virtual void ShowData(Subject *caller, const Event &evt);
00048   virtual void ShowAbort();
00049
00050 protected:
00051   // Custom API used for internal Testing do not use !
00052   void TestAbortOn();
00053   void TestAbortOff();
00054
00055 private:
00056   SmartPointer<Subject> m_Subject;
00057   std::string m_Comment;
00058
00059   typedef SimpleMemberCommand<SimpleSubjectWatcher> SimpleCommandType;
00060   typedef MemberCommand<SimpleSubjectWatcher> CommandType;
00061
00062   SmartPointer<SimpleCommandType> m_StartFilterCommand;
00063   SmartPointer<SimpleCommandType> m_EndFilterCommand;
00064   SmartPointer<CommandType> m_ProgressFilterCommand;
00065   SmartPointer<CommandType> m_FileNameFilterCommand;
00066   SmartPointer<SimpleCommandType> m_IterationFilterCommand;
00067   SmartPointer<SimpleCommandType> m_AbortFilterCommand;
00068   SmartPointer<CommandType> m_AnonymizeFilterCommand;
00069   SmartPointer<CommandType> m_DataFilterCommand;
00070   SmartPointer<CommandType> m_DataSetFilterCommand;
00071
00072   unsigned long m_StartTag;
00073   unsigned long m_EndTag;
00074   unsigned long m_ProgressTag;
00075   unsigned long m_FileNameTag;
00076   unsigned long m_IterationTag;
00077   unsigned long m_AbortTag;
00078   unsigned long m_AnonymizeTag;
00079   unsigned long m_DataTag;
00080   unsigned long m_DataSetTag;
00081
00082   bool m_TestAbort;
00083
00084 };
00085 } // end namespace gdcm
00086 //-----------------------------------------------------------------------------
00087 #endif //GDCMSIMPLESUBJECTWATCHER_H
```

13.417 gdcmSorter.h File Reference

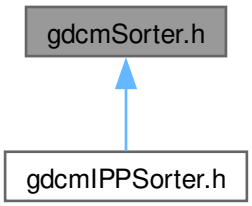
```
#include "gdcmDirectory.h"
#include "gdcmTag.h"
#include <vector>
#include <string>
```

```
#include <map>
#include <set>
```

Include dependency graph for gdcmSorter.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Sorter

  Sorter.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const Sorter &s)

13.418 gdcmSorter.h

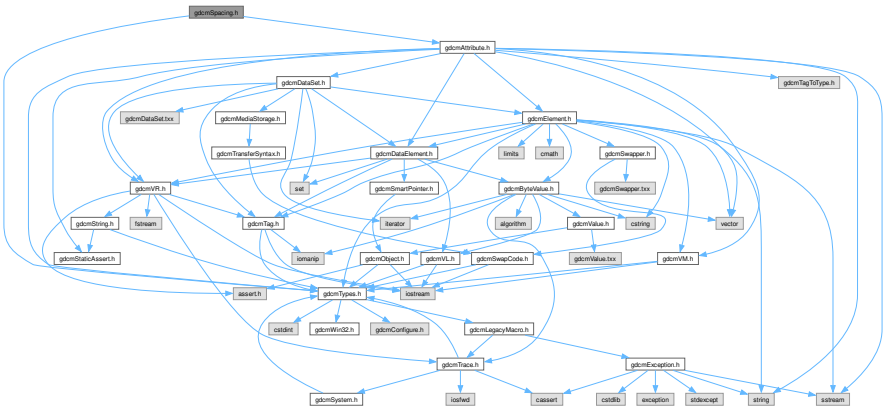
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSORTER_H
00015 #define GDCMSORTER_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmTag.h"
00019
00020 #include <vector>
00021 #include <string>
00022 #include <map>
00023 #include <set>
00024
00025 namespace gdcm
00026 {
00027 class DataSet;
00028
00039 class GDCM_EXPORT Sorter
00040 {
00041   friend std::ostream& operator<<(std::ostream &_os, const Sorter &s);
00042 public:
00043   Sorter();
00044   virtual ~Sorter();
00045
00047   virtual bool Sort(std::vector<std::string> const & filenames);
00048
00051   const std::vector<std::string> &GetFilenames() const { return Filenames; }
00052
00054   void Print(std::ostream &os) const;
00055
00057   bool AddSelect( Tag const &tag, const char *value );
00058
00062   void SetTagsToRead( std::set<Tag> const & tags );
00063
00065   typedef bool (*SortFunction)(DataSet const &, DataSet const &);
00066   void SetSortFunction( SortFunction f );
00067
00068   virtual bool StableSort(std::vector<std::string> const & filenames);
00069
00070 protected:
00071   std::vector<std::string> Filenames;
00072   typedef std::map<Tag,std::string> SelectionMap;
00073   std::map<Tag,std::string> Selection;
00074   SortFunction SortFunc;
00075   std::set<Tag> TagsToRead;
00076 };
00077 //-----------------------------------------------------------------------------
00078 inline std::ostream& operator<<(std::ostream &os, const Sorter &s)
00079 {
00080   s.Print( os );
00081   return os;
00082 }
00083
00084
00085 } // end namespace gdcm
00086
00087 #endif //GDCMSORTER_H
```

13.419 gdcmSpacing.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmAttribute.h"
```

Include dependency graph for gdcmSpacing.h:



Classes

- class gdcm::Spacing

  Class for Spacing.

Namespaces

- namespace gdcm

13.420 gdcmSpacing.h

Go to the documentation of this file.

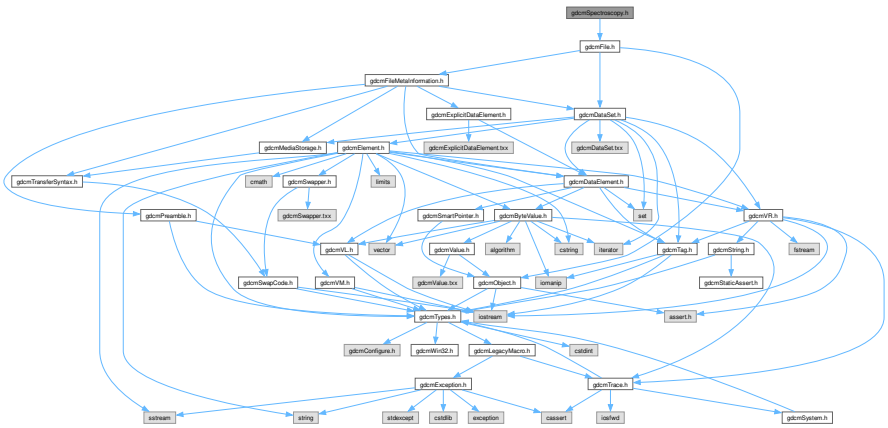
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSPACING_H
00015 #define GDCMSPACING_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmAttribute.h"
00019
00020 namespace gdcm
```

```
00021 {
00056
00085 class GDCM_EXPORT Spacing
00086 {
00087 public :
00088   Spacing();
00089   ~Spacing() = default;
00090
00091   // Here are the list of spacing we support:
00092   // (0018,0088) DS [1.500000]                                    # 8,1 Spacing Between Slices
00093   // (0018,1164) DS [0.5\0.5 ]                                    # 8,2 Imager Pixel Spacing
00094   // (0018,2010) DS [0.664062\0.664062 ]                          # 18,2 Nominal Scanned Pixel
      Spacing
00095   // (0018,7022) DS [0.125\0.125 ]                                # 12,2 Detector Element Spacing
00096   // (0028,0030) DS [0.25\0.25 ]                                  # 10,2 Pixel Spacing
00097   // > (0028,0a02) CS [FIDUCIAL]                                    # 8,1 Pixel Spacing Calibration
      Type
00098   // > (0028,0a04) LO [Used fiducial ]                              # 14,1 Pixel Spacing Calibration
      Description
00099   // (0028,0034) IS [4\3 ]                                        # 4,2 Pixel Aspect Ratio
00100   // (3002,0011) DS [0.8\0.8 ]                                    # 8,2 Image Plane Pixel Spacing
00101
00102   // Here is the list of Spacing we do not support:
00103   // <entry group="0018" element="7041" vr="LT" vm="1" name="Grid Spacing Material"/>
00104   // <entry group="0018" element="9030" vr="FD" vm="1" name="Tag Spacing First Dimension"/>
00105   // <entry group="0018" element="9218" vr="FD" vm="1" name="Tag Spacing Second Dimension"/>
00106   // <entry group="0018" element="9322" vr="FD" vm="2" name="Reconstruction Pixel Spacing"/>
00107   // <entry group="0018" element="9404" vr="FL" vm="2" name="Object Pixel Spacing in Center of Beam"/>
00108   // <entry group="0040" element="08d8" vr="SQ" vm="1" name="Pixel Spacing Sequence"/>
00109   // <entry group="0070" element="0101" vr="DS" vm="2" name="Presentation Pixel Spacing"/>
00110   // <entry group="2010" element="0376" vr="DS" vm="2" name="Printer Pixel Spacing"/>
00111   // <entry group="300a" element="00e9" vr="DS" vm="2" name="Compensator Pixel Spacing"/>
00112
00113   typedef enum {
00114     DETECTOR = 0, // (0018,1164) Imager Pixel Spacing
00115     MAGNIFIED,    // (0018,1114) (IHE Mammo)
00116     CALIBRATED,   // (0028,0030) Pixel Spacing -> (0028,0a04) Pixel Spacing Calibration Description
00117     UNKNOWN
00118   } SpacingType;
00119
00120   static Attribute<0x28,0x34> ComputePixelAspectRatioFromPixelSpacing(const Attribute<0x28,0x30>&
      pixelspacing);
00121 };
00122 } // end namespace gdcm
00123 //-----------------------------------------------------------------------------
00124 #endif //GDCMSPACING_H
```

13.421 gdcmSpectroscopy.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmSpectroscopy.h:



Classes

- class gdcm::Spectroscopy

  Spectroscopy class.

Namespaces

- namespace gdcm

13.422 gdcmSpectroscopy.h

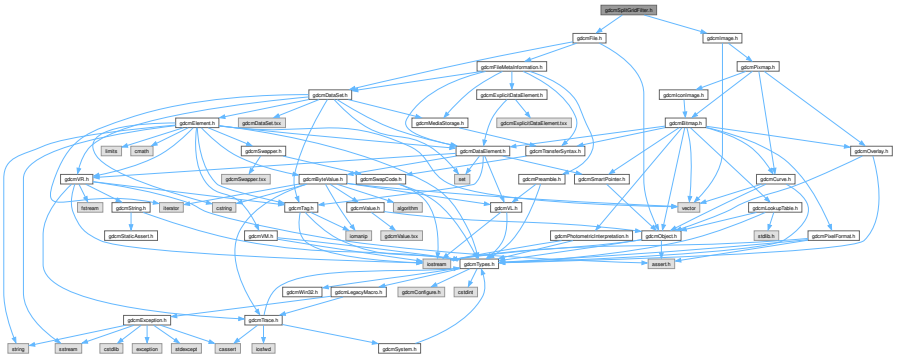
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSPECTROSCOPY_H
00015 #define GDCMSPECTROSCOPY_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00024 class GDCM_EXPORT Spectroscopy
00025 {
00026 public:
00027   Spectroscopy() = default;
00028
00029 private:
00030 };
00031
00032 } // end namespace gdcm
00033
00034 #endif //GDCMSPECTROSCOPY_H
```

13.423 gdcmSplitGridFilter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmImage.h"
```

Include dependency graph for gdcmSplitGridFilter.h:



Classes

- class gdcm::SplitGridFilter

  SplitGridFilter class.

Namespaces

- namespace gdcm

13.424 gdcmSplitGridFilter.h

Go to the documentation of this file.

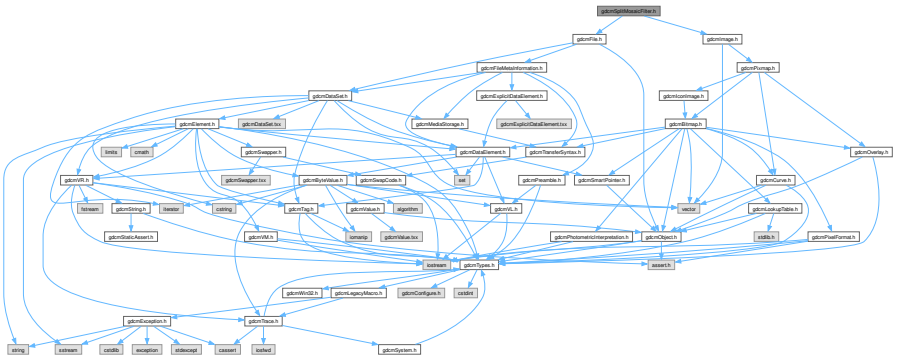
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSPLITGRIDFILTER_H
00015 #define GDCMSPLITGRIDFILTER_H
00016
00017 #include "gdcmFile.h"
00018 #include "gdcmImage.h"
00019
00020 namespace gdcm
00021 {
00022
00033 class GDCM_EXPORT SplitGridFilter
00034 {
00035 public:
00036   SplitGridFilter();
00037   ~SplitGridFilter();
00038
00040   bool Split();
00041
00044   bool ComputeGRIDDimensions(unsigned int dims[3]);
```

```
00045
00047   bool ComputeGRIDSliceNormal( double dims[3], bool & inverted );
00048
00050   bool GetGRIDSlicePosition( unsigned int index, double pos[3]);
00051
00053   bool ComputeGRIDImagePositionPatient( double pos[3],
00054     const double ipp[6],
00055     const double dircos[6],
00056     const double pixelspacing[3],
00057     const unsigned int image_dims[3] ,
00058     const unsigned int mosaic_dims[3], bool inverted );
00059
00060   void SetImage(const Image& image);
00061   const Image &GetImage() const { return *I; }
00062   Image &GetImage() { return *I; }
00063
00064   void SetFile(const File& f) { F = f; }
00065   File &GetFile() { return *F; }
00066   const File &GetFile() const { return *F; }
00067
00069   static bool GetAcquisitionSize(unsigned int size[2], DataSet const & ds);
00070
00072   static unsigned int GetNumberOfImagesInGrid( File const & file );
00073
00074 private:
00075   SmartPointer<File> F;
00076   SmartPointer<Image> I;
00077 };
00078
00079 } // end namespace gdcm
00080
00081 #endif // GDCMSPLITGRIDFILTER_H
```

13.425 gdcmSplitMosaicFilter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmImage.h"
```

Include dependency graph for gdcmSplitMosaicFilter.h:



Classes

- class gdcm::SplitMosaicFilter

  SplitMosaicFilter class.

Namespaces

- namespace gdcm

13.426 gdcmSplitMosaicFilter.h

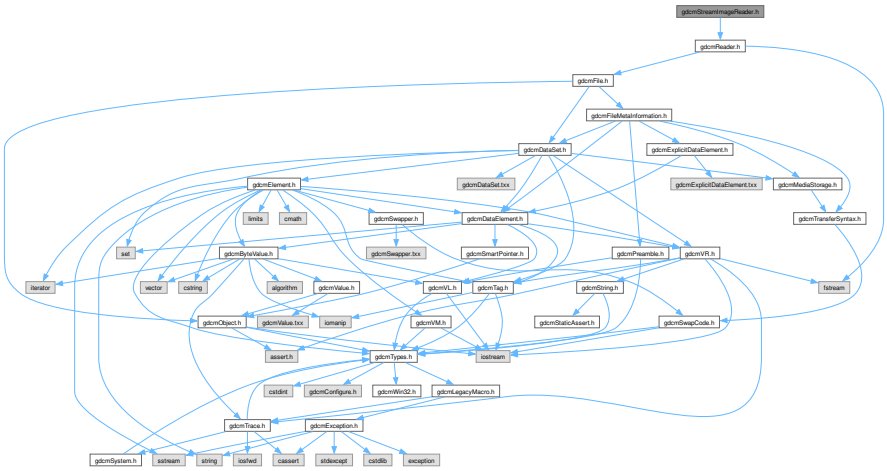
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSPLITMOSAICFILTER_H
00015 #define GDCMSPLITMOSAICFILTER_H
00016
00017 #include "gdcmFile.h"
00018 #include "gdcmImage.h"
00019
00020 namespace gdcm
00021 {
00022
00023 /*
00024  * Everything done in this code is for the sole purpose of writing interoperable
00025  * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
00026  * If you believe anything in this code violates any law or any of your rights,
00027  * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
00028  * find a solution.
00029  */
00043 class GDCM_EXPORT SplitMosaicFilter
00044 {
00045 public:
00046   SplitMosaicFilter();
00047   ~SplitMosaicFilter();
00048
00050   bool Split();
00051
00054   bool ComputeMOSAICDimensions(unsigned int dims[3]);
00055
00057   bool ComputeMOSAICSliceNormal( double dims[3], bool & inverted );
00058
00061   bool ComputeMOSAICSlicePosition( double pos[3], bool inverted );
00062
00064   bool ComputeMOSAICImagePositionPatient( double pos[3],
00065     const double ipp[6],
00066     const double dircos[6],
00067     const double pixelspacing[3],
00068     const unsigned int image_dims[3] ,
00069     const unsigned int mosaic_dims[3], bool inverted );
00070
00071   void SetImage(const Image& image);
00072   const Image &GetImage() const { return *I; }
00073   Image &GetImage() { return *I; }
00074
00075   void SetFile(const File& f) { F = f; }
00076   File &GetFile() { return *F; }
00077   const File &GetFile() const { return *F; }
00078
00080   static bool GetAcquisitionSize(unsigned int size[2], DataSet const & ds);
00081
00083   static unsigned int GetNumberOfImagesInMosaic( File const & file );
00084
00086   static const DataElement& ComputeCSAImageHeaderInfo(const DataSet& ds, bool handleMissingPrivateCreator
      = true);
00087
00089   static const DataElement& ComputeCSASeriesHeaderInfo(const DataSet& ds, bool handleMissingPrivateCreator
      = true);
00090
00091 protected:
00092
00093 private:
00094   SmartPointer<File> F;
00095   SmartPointer<Image> I;
00096 };
00097
```

```
00098 } // end namespace gdcm
00099
00100 #endif //GDCMSPLITMOSAICFILTER_H
```

13.427 gdcmStreamImageReader.h File Reference

`#include "gdcmReader.h"`
Include dependency graph for gdcmStreamImageReader.h:



Classes

- class gdcm::StreamImageReader

  StreamImageReader.

Namespaces

- namespace gdcm

13.428 gdcmStreamImageReader.h

Go to the documentation of this file.

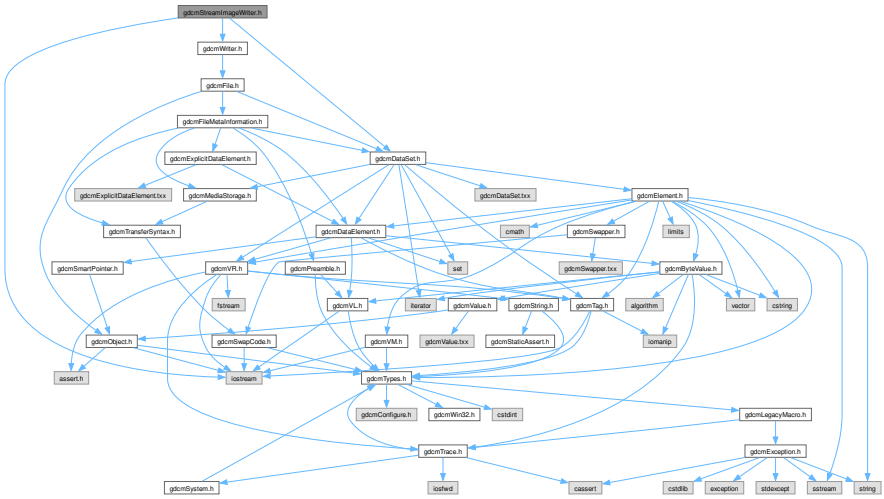
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
```

```
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMSTREAMIMAGEREADER_H
00019 #define GDCMSTREAMIMAGEREADER_H
00020
00021 #include "gdcmReader.h"
00022
00023 namespace gdcm
00024 {
00025
00026 class MediaStorage;
00038 class GDCM_EXPORT StreamImageReader
00039 {
00040
00041 public:
00042   StreamImageReader();
00043   virtual ~StreamImageReader();
00044
00048   void SetFileName(const char* inFileName);
00049   void SetStream(std::istream& inStream);
00050
00051   std::vector<unsigned int> GetDimensionsValueForResolution( unsigned int  );
00052
00060   void DefinePixelExtent(uint16_t inXMin, uint16_t inXMax,
00061     uint16_t inYMin, uint16_t inYMax, uint16_t inZMin = 0, uint16_t inZMax = 1);
00062
00067   uint32_t DefineProperBufferLength() const;
00068
00076   bool Read(char* inReadBuffer, const std::size_t& inBufferLength);
00077
00083   bool CanReadImage() const;
00084
00088   virtual bool ReadImageInformation();
00089
00093   File const & GetFile() const;
00094
00095 protected:
00096 private:
00097   //contains a reader for being able to ReadUpToTag
00098   //however, we don't want the user to be able to call Read
00099   //either directly or via a parent class call, so we hide the reader in here.
00100   Reader mReader;
00101
00102   std::streamoff mFileOffset; //the file offset for getting header information
00103 #if 0
00104   std::streamoff mFileOffset1;
00105 #endif
00106   DataSet mHeaderInformation; //all the non-pixel information
00107
00108   //for thread safety, these should not be stored here, but should be used
00109   //for every read subregion operation.
00110   uint16_t mXMin, mYMin, mXMax, mYMax, mZMin, mZMax;
00111
00116   bool ReadImageSubregionRAW(char* inReadBuffer, const std::size_t& inBufferLength);
00117
00120   bool ReadImageSubregionJpegLS(char* inReadBuffer, const std::size_t& inBufferLength);
00121 };
00122
00123 } // end namespace gdcm
00124
00125 #endif //GDCMSTREAMIMAGEREADER_H
00126
```

13.429 gdcmStreamImageWriter.h File Reference

```
#include "gdcmWriter.h"
#include <iostream>
```

`#include "gdcmDataSet.h"`
Include dependency graph for gdcmStreamImageWriter.h:



Classes

- class gdcm::StreamImageWriter

  StreamImageReader.

Namespaces

- namespace gdcm

13.430 gdcmStreamImageWriter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018
00019 #ifndef GDCMSTREAMIMAGEWRITER_H
00020 #define GDCMSTREAMIMAGEWRITER_H
00021
00022 #include "gdcmWriter.h"
```

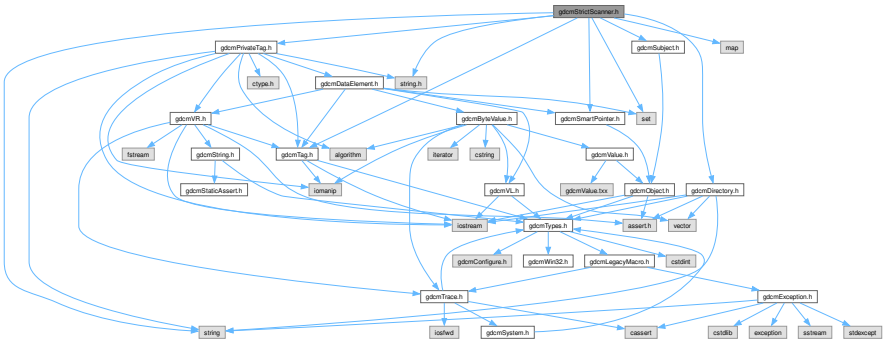
```
00023 #include <iostream>
00024 #include "gdcmDataSet.h"
00025
00026 namespace gdcm
00027 {
00028
00029 class MediaStorage;
00030 class RAWCodec;
00042 class GDCM_EXPORT StreamImageWriter
00043 {
00044
00045 public:
00046   StreamImageWriter();
00047   virtual ~StreamImageWriter();
00048
00049
00053   void SetFileName(const char* inFileName);
00054   void SetStream(std::ostream& inStream);
00055
00064   void DefinePixelExtent(uint16_t inXMin, uint16_t inXMax,
00065     uint16_t inYMin, uint16_t inYMax, uint16_t inZMin = 0, uint16_t inZMax = 1);
00066
00067
00073   uint32_t DefineProperBufferLength();
00074
00082   bool Write(void* inWriteBuffer, const std::size_t& inBufferLength);
00083
00087   virtual bool WriteImageInformation();
00088
00092   bool CanWriteFile() const;
00093
00094
00097   void SetFile(const File& inFile);
00098
00099 protected:
00100
00101   //contains the PrepareWrite function, which will get the given dataset ready
00102   //for writing to disk by manufacturing the header information.
00103   //note that if there is a pixel element in the given dataset, that will be removed
00104   //during the copy, so that the imagewriter can write everything else out
00105   Writer mWriter;
00106
00107   //is the offset necessary if we always append?
00108   //std::streamoff mFileOffset; //the fileoffset for getting header information
00109   SmartPointer<File> mspFile; //all the non-pixel information
00110
00111   //for thread safety, these should not be stored here, but should be used
00112   //for every read subregion operation.
00113   uint16_t mXMin, mYMin, mXMax, mYMax, mZMin, mZMax;
00114
00119   //virtual bool ReadImageSubregionRAW(std::ostream& os);
00120   virtual bool WriteImageSubregionRAW(char* inWriteBuffer, const std::size_t& inBufferLength);
00121
00131   int WriteRawHeader(RAWCodec* inCodec, std::ostream* inStream);
00132
00137   int mElementOffsets;
00138   int mElementOffsets1;
00139
00140 };
00141
00142
00143 } // end namespace gdcm
00144
00145 #endif //GDCMSTREAMIMAGEWRITER_H
```

13.431 gdcmStrictScanner.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include "gdcmPrivateTag.h"
#include "gdcmSmartPointer.h"
#include <map>
```

```
#include <set>
#include <string>
#include <string.h>
```

Include dependency graph for gdcmStrictScanner.h:



Classes

- struct gdcm::StrictScanner::ltstr
- class gdcm::StrictScanner

  StrictScanner.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const StrictScanner &s)

13.432 gdcmStrictScanner.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSTRICTSCANNER_H
00015 #define GDCMSTRICTSCANNER_H
00016
00017 #include "gdcmDirectory.h"
```

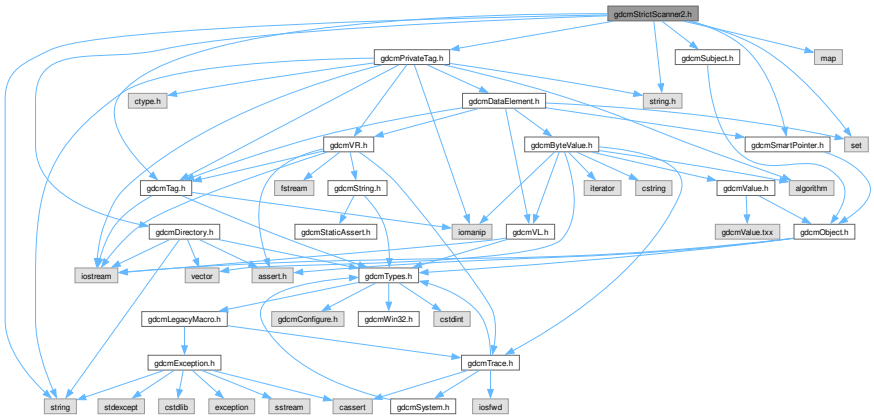
```
00018 #include "gdcmSubject.h"
00019 #include "gdcmTag.h"
00020 #include "gdcmPrivateTag.h"
00021 #include "gdcmSmartPointer.h"
00022
00023 #include <map>
00024 #include <set>
00025 #include <string>
00026
00027 #include <string.h> // strcmp
00028
00029 namespace gdcm
00030 {
00031 class StringFilter;
00032
00055 class GDCM_EXPORT StrictScanner : public Subject
00056 {
00057   friend std::ostream& operator«(std::ostream &_os, const StrictScanner &s);
00058 public:
00059   StrictScanner():Values(),Filenames(),Mappings(),Progress(0.0) {}
00060   ~StrictScanner() override;
00061
00068   typedef std::map<Tag, const char*> TagToValue;
00069   //typedef std::map<Tag, ConstCharWrapper> TagToValue; //StringMap;
00070   //typedef TagToStringMap TagToValue;
00071   typedef TagToValue::value_type TagToValueValueType;
00072
00074   void AddTag( Tag const & t );
00075   void ClearTags();
00076
00077   // Work in progress do not use:
00078   void AddPrivateTag( PrivateTag const & t );
00079
00081   void AddSkipTag( Tag const & t );
00082   void ClearSkipTags();
00083
00085   bool Scan( Directory::FilenamesType const & filenames );
00086
00087   Directory::FilenamesType const &GetFilenames() const { return Filenames; }
00088
00090   void Print( std::ostream & os ) const override;
00091
00092   void PrintTable( std::ostream & os ) const;
00093
00097   bool IsKey( const char * filename ) const;
00098
00101   Directory::FilenamesType GetKeys() const;
00102
00103   // struct to store all the values found:
00104   typedef std::set< std::string > ValuesType;
00105
00107   ValuesType const & GetValues() const { return Values; }
00108
00110   ValuesType GetValues(Tag const &t) const;
00111
00115   Directory::FilenamesType GetOrderedValues(Tag const &t) const;
00116
00117   /* ltstr is CRITICAL, otherwise pointers value are used to do the key comparison */
00118   struct ltstr
00119     {
00120     bool operator()(const char* s1, const char* s2) const
00121       {
00122       gdcm_assert( s1 && s2 );
00123       return strcmp(s1, s2) < 0;
00124       }
00125     };
00126   typedef std::map<const char *,TagToValue, ltstr> MappingType;
00127   typedef MappingType::const_iterator ConstIterator;
00128   ConstIterator Begin() const { return Mappings.begin(); }
00129   ConstIterator End() const { return Mappings.end(); }
00130
00132   MappingType const & GetMappings() const { return Mappings; }
00133
00135   TagToValue const & GetMapping(const char *filename) const;
00136
00139   const char *GetFilenameFromTagToValue(Tag const &t, const char *valueref) const;
00140
00143   Directory::FilenamesType GetAllFilenamesFromTagToValue(Tag const &t, const char *valueref) const;
00144
00146   // by a call to GetMapping()
00147   TagToValue const & GetMappingFromTagToValue(Tag const &t, const char *value) const;
```

```
00148
00154   const char* GetValue(const char *filename, Tag const &t) const;
00155
00157   static SmartPointer<StrictScanner> New() { return new StrictScanner; }
00158
00159 protected:
00160   void ProcessPublicTag(StringFilter &sf, const char *filename);
00161 private:
00162   // struct to store all uniq tags in ascending order:
00163   typedef std::set< Tag > TagsType;
00164   typedef std::set< PrivateTag > PrivateTagsType;
00165   std::set< Tag > Tags;
00166   std::set< PrivateTag > PrivateTags;
00167   std::set< Tag > SkipTags;
00168   ValuesType Values;
00169   Directory::FilenamesType Filenames;
00170
00171   // Main struct that will hold all mapping:
00172   MappingType Mappings;
00173
00174   double Progress;
00175 };
00176 //-----------------------------------------------------------------------------
00177 inline std::ostream& operator<<(std::ostream &os, const StrictScanner &s)
00178 {
00179   s.Print( os );
00180   return os;
00181 }
00182
00183 } // end namespace gdcm
00184
00185 #endif //GDCMSTRICTSCANNER_H
```

13.433 gdcmStrictScanner2.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmPrivateTag.h"
#include "gdcmSmartPointer.h"
#include "gdcmSubject.h"
#include "gdcmTag.h"
#include <map>
#include <set>
#include <string>
#include <string.h>
```

Include dependency graph for gdcmStrictScanner2.h:



Classes

- struct gdcm::StrictScanner2::ltstr
- class gdcm::StrictScanner2

  StrictScanner2.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const StrictScanner2 &s)

13.434 gdcmStrictScanner2.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSTRICTSCANNER2_H
00015 #define GDCMSTRICTSCANNER2_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmPrivateTag.h"
00019 #include "gdcmSmartPointer.h"
00020 #include "gdcmSubject.h"
00021 #include "gdcmTag.h"
00022
00023 #include <map>
00024 #include <set>
00025 #include <string>
00026
00027 #include <string.h>  // strcmp
00028
00029 namespace gdcm {
00030 class StringFilter;
00031
00052 class GDCM_EXPORT StrictScanner2 : public Subject {
00053   friend std::ostream &operator«(std::ostream &_os, const StrictScanner2 &s);
00054
00055  public:
00056   StrictScanner2() : Values(), Filenames(), PublicMappings(), PrivateMappings(), Progress(0.0) {}
00057   ~StrictScanner2() override;
00058
00065   typedef std::map<Tag, const char *> PublicTagToValue;
00066   typedef PublicTagToValue::value_type PublicTagToValueValueType;
00067
00068   typedef std::map<PrivateTag, const char *> PrivateTagToValue;
00069   typedef PrivateTagToValue::value_type PrivateTagToValueValueType;
00070
00072   bool AddPublicTag(Tag const &t);
00073   void ClearPublicTags();
00074
```

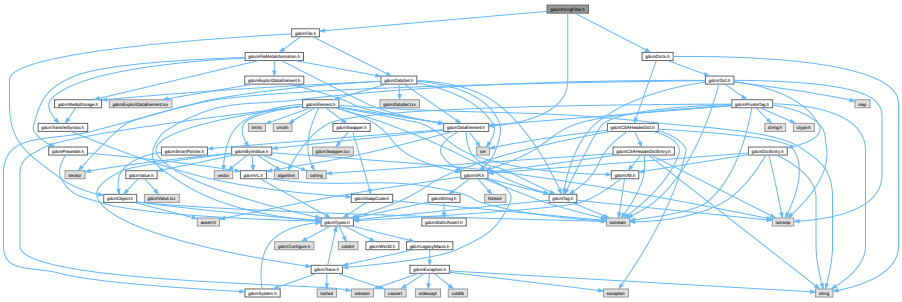
```
00075   // Work in progress do not use:
00076   bool AddPrivateTag(PrivateTag const &pt);
00077   void ClearPrivateTags();
00078
00080   bool AddSkipTag(Tag const &t);
00081   void ClearSkipTags();
00082
00084   bool Scan(Directory::FilenamesType const &filenames);
00085
00087   Directory::FilenamesType const &GetFilenames() const { return Filenames; }
00088
00090   void Print(std::ostream &os) const override;
00091
00093   void PrintTable(std::ostream &os, bool header = false) const;
00094
00098   bool IsKey(const char *filename) const;
00099
00102   Directory::FilenamesType GetKeys() const;
00103
00104   // struct to store all the values found:
00105   typedef std::set<std::string> ValuesType;
00106
00108   ValuesType const &GetValues() const { return Values; }
00109
00111   ValuesType GetPublicValues(Tag const &t) const;
00112
00115   ValuesType GetPrivateValues(PrivateTag const &pt) const;
00116
00120   Directory::FilenamesType GetPublicOrderedValues(Tag const &t) const;
00121
00122   Directory::FilenamesType GetPrivateOrderedValues(PrivateTag const &pt) const;
00123
00124   /* ltstr is CRITICAL, otherwise pointers value are used to do the key
00125    * comparison */
00126   struct ltstr {
00127     bool operator()(const char *s1, const char *s2) const {
00128       gdcm_assert(s1 && s2);
00129       return strcmp(s1, s2) < 0;
00130     }
00131   };
00132   typedef std::map<const char *, PublicTagToValue, ltstr> PublicMappingType;
00133   typedef PublicMappingType::const_iterator PublicConstIterator;
00134   PublicConstIterator Begin() const { return PublicMappings.begin(); }
00135   PublicConstIterator End() const { return PublicMappings.end(); }
00136
00137   typedef std::map<const char *, PrivateTagToValue, ltstr> PrivateMappingType;
00138   typedef PrivateMappingType::const_iterator PrivateConstIterator;
00139   PrivateConstIterator PrivateBegin() const { return PrivateMappings.begin(); }
00140   PrivateConstIterator PrivateEnd() const { return PrivateMappings.end(); }
00141
00144   PublicMappingType const &GetPublicMappings() const { return PublicMappings; }
00145   PrivateMappingType const &GetPrivateMappings() const {
00146     return PrivateMappings;
00147   }
00148
00150   PublicTagToValue const &GetPublicMapping(const char *filename) const;
00151   PrivateTagToValue const &GetPrivateMapping(const char *filename) const;
00152
00155   const char *GetFilenameFromPublicTagToValue(Tag const &t,
00156                                               const char *valueref) const;
00157   const char *GetFilenameFromPrivateTagToValue(PrivateTag const &pt,
00158                                                const char *valueref) const;
00159
00162   Directory::FilenamesType GetAllFilenamesFromPublicTagToValue(
00163       Tag const &t, const char *valueref) const;
00164   Directory::FilenamesType GetAllFilenamesFromPrivateTagToValue(
00165       PrivateTag const &pt, const char *valueref) const;
00166
00169   // by a call to GetMapping()
00170   PublicTagToValue const &GetMappingFromPublicTagToValue(
00171       Tag const &t, const char *value) const;
00172   PrivateTagToValue const &GetMappingFromPrivateTagToValue(
00173       PrivateTag const &pt, const char *value) const;
00174
00180   const char *GetPublicValue(const char *filename, Tag const &t) const;
00181   const char *GetPrivateValue(const char *filename, PrivateTag const &t) const;
00182
00184   static SmartPointer<StrictScanner2> New() { return new StrictScanner2; }
00185
00186 protected:
00187   void ProcessPublicTag(StringFilter &sf, const char *filename);
```

```
00188   void ProcessPrivateTag(StringFilter &sf, const char *filename);
00189
00190  private:
00191   // struct to store all uniq tags in ascending order:
00192   typedef std::set<Tag> PublicTagsType;
00193   typedef std::set<PrivateTag> PrivateTagsType;
00194   std::set<Tag> PublicTags;          // Public and Private Creator
00195   std::set<PrivateTag> PrivateTags;  // Only Private (no Private Creator)
00196   std::set<Tag> SkipTags;
00197   ValuesType Values;
00198   Directory::FilenamesType Filenames;
00199
00200   // Main struct that will hold all public mapping:
00201   PublicMappingType PublicMappings;
00202   // Main struct that will hold all private mapping:
00203   PrivateMappingType PrivateMappings;
00204
00205   double Progress;
00206 };
00207 //-----------------------------------------------------------------------------
00208 inline std::ostream &operator<<(std::ostream &os, const StrictScanner2 &s) {
00209   s.Print(os);
00210   return os;
00211 }
00212
00213 }  // end namespace gdcm
00214
00215 #endif  // GDCMSTRICTSCANNER2_H
```

13.435 gdcmStringFilter.h File Reference

```
#include "gdcmDataElement.h"
#include "gdcmDicts.h"
#include "gdcmFile.h"
```

Include dependency graph for gdcmStringFilter.h:



Classes

- class gdcm::StringFilter

  StringFilter.

Namespaces

- namespace gdcm

13.436 gdcmStringFilter.h

Go to the documentation of this file.

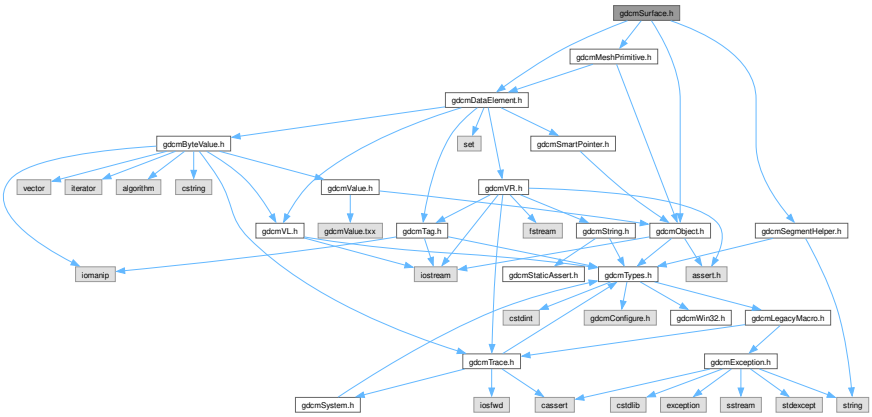
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSTRINGFILTER_H
00015 #define GDCMSTRINGFILTER_H
00016
00017 #include "gdcmDataElement.h"
00018 #include "gdcmDicts.h"
00019 #include "gdcmFile.h"
00020
00021 namespace gdcm
00022 {
00023
00029 class GDCM_EXPORT StringFilter
00030 {
00031 public:
00032   StringFilter();
00033   ~StringFilter();
00034
00036   void UseDictAlways(bool) {}
00037
00039   void SetDicts(const Dicts &dicts);
00040
00044   std::string ToString(const DataElement& de) const;
00045
00047   std::string ToString(const Tag& t) const;
00048
00049   std::string ToString(const PrivateTag& t) const;
00050
00055   std::pair<std::string, std::string> ToStringPair(const DataElement& de) const;
00057   std::pair<std::string, std::string> ToStringPair(const Tag& t) const;
00058
00060   std::string FromString(const Tag&t, const char * value, size_t len);
00061
00063   void SetFile(const File& f) { F = f; }
00064   File &GetFile() { return *F; }
00065   const File &GetFile() const { return *F; }
00066
00070   bool ExecuteQuery(std::string const &query, std::string & value) const;
00071
00072 protected:
00073   std::pair<std::string, std::string> ToStringPair(const Tag& t, DataSet const &ds) const;
00074   bool ExecuteQuery(std::string const &query, DataSet const &ds, std::string & value) const;
00075
00076 private:
00077   std::pair<std::string, std::string> ToStringPairInternal(const DataElement& de, DataSet const &ds)
      const;
00078   SmartPointer<File> F;
00079 };
00080
00081 } // end namespace gdcm
00082
00083 #endif //GDCMSTRINGFILTER_H
```

13.437 gdcmSurface.h File Reference

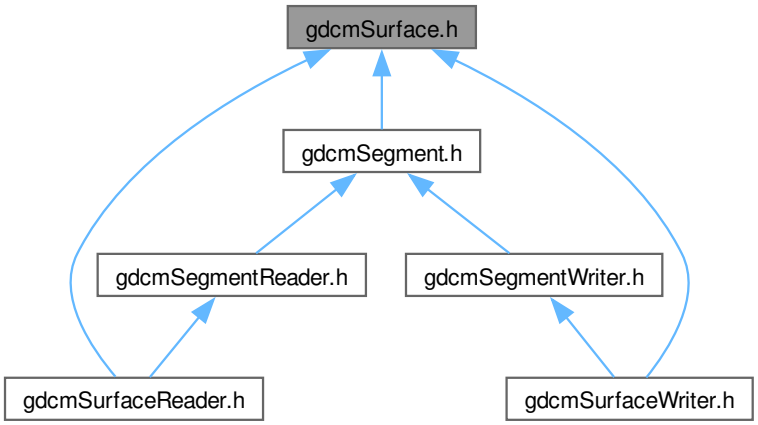
```
#include <gdcmObject.h>
#include <gdcmDataElement.h>
```

```
#include <gdcmMeshPrimitive.h>
#include "gdcmSegmentHelper.h"
```

Include dependency graph for gdcmSurface.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::Surface

  This class defines a SURFACE IE.

Namespaces

- namespace gdcm

13.438 gdcmSurface.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSURFACE_H
00015 #define GDCMSURFACE_H
00016
00017 #include <gdcmObject.h>
00018 #include <gdcmDataElement.h>
00019 #include <gdcmMeshPrimitive.h>
00020 #include "gdcmSegmentHelper.h"  // for BasicCodedEntry
00021
00022 namespace gdcm
00023 {
00024
00031 class GDCM_EXPORT Surface : public Object
00032 {
00033 public:
00034
00035   typedef enum {
00036     NO = 0,
00037     YES,
00038     UNKNOWN,
00039     STATES_END
00040   } STATES;
00041
00042   static const char * GetSTATESString(STATES state);
00043   static STATES GetSTATES(const char * state);
00044
00050   typedef enum {
00051     SURFACE = 0,
00052     WIREFRAME,
00053     POINTS,
00054     VIEWType_END
00055   } VIEWType;
00056
00057   static const char * GetVIEWTypeString(VIEWType type);
00058   static VIEWType GetVIEWType(const char * type);
00059
00060   Surface();
00061
00062   ~Surface() override;
00063
00064   //**    Common getters/setters      **//
00065   unsigned long GetSurfaceNumber() const;
00066   void SetSurfaceNumber(const unsigned long nb);
00067
00068   const char * GetSurfaceComments() const;
00069   void SetSurfaceComments(const char * comment);
00070
00071   bool GetSurfaceProcessing() const;
00072   void SetSurfaceProcessing(bool b);
00073
00074   float GetSurfaceProcessingRatio() const;
00075   void SetSurfaceProcessingRatio(const float ratio);
00076
00077   const char * GetSurfaceProcessingDescription() const;
00078   void SetSurfaceProcessingDescription(const char * description);
00079
00080   SegmentHelper::BasicCodedEntry const & GetProcessingAlgorithm() const;
00081   SegmentHelper::BasicCodedEntry & GetProcessingAlgorithm();
00082   void SetProcessingAlgorithm(SegmentHelper::BasicCodedEntry const & BSE);
00083
00084   unsigned short GetRecommendedDisplayGrayscaleValue() const;
00085   void SetRecommendedDisplayGrayscaleValue(const unsigned short vl);
00086
```

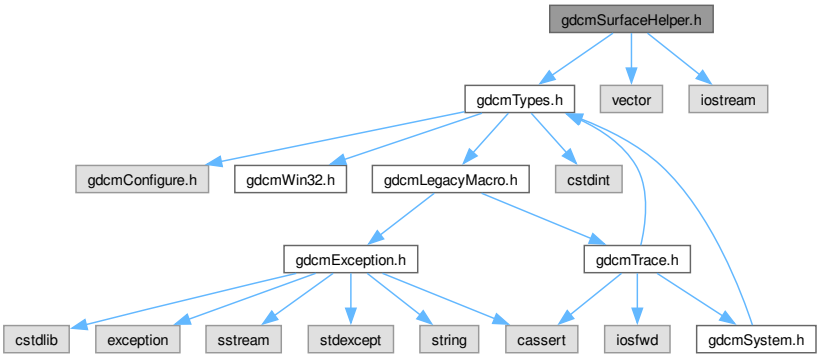
```
00087   const unsigned short * GetRecommendedDisplayCIELabValue() const;
00088   unsigned short GetRecommendedDisplayCIELabValue(const unsigned int idx) const;
00089   void SetRecommendedDisplayCIELabValue(const unsigned short vl[3]);
00090   void SetRecommendedDisplayCIELabValue(const unsigned short vl, const unsigned int idx = 0);
00091   void SetRecommendedDisplayCIELabValue(const std::vector< unsigned short > & vl);
00092
00093   float GetRecommendedPresentationOpacity() const;
00094   void SetRecommendedPresentationOpacity(const float opacity);
00095
00096   VIEWType GetRecommendedPresentationType() const;
00097   void SetRecommendedPresentationType(VIEWType type);
00098
00099   STATES GetFiniteVolume() const;
00100   void SetFiniteVolume(STATES state);
00101
00102   STATES GetManifold() const;
00103   void SetManifold(STATES state);
00104
00105   SegmentHelper::BasicCodedEntry const & GetAlgorithmFamily() const;
00106   SegmentHelper::BasicCodedEntry & GetAlgorithmFamily();
00107   void SetAlgorithmFamily(SegmentHelper::BasicCodedEntry const & BSE);
00108
00109   const char * GetAlgorithmVersion() const;
00110   void SetAlgorithmVersion(const char * str);
00111
00112   const char * GetAlgorithmName() const;
00113   void SetAlgorithmName(const char * str);
00114
00115   //**    Points getters/setters      **//
00116   unsigned long GetNumberOfSurfacePoints() const;
00117   void SetNumberOfSurfacePoints(const unsigned long nb);
00118
00119   const DataElement & GetPointCoordinatesData() const;
00120   DataElement & GetPointCoordinatesData();
00121
00122   void SetPointCoordinatesData(DataElement const & de);
00123
00127   const float * GetPointPositionAccuracy() const;
00128   void SetPointPositionAccuracy(const float * accuracies);
00129
00130   float GetMeanPointDistance() const;
00131   void SetMeanPointDistance(float average);
00132
00133   float GetMaximumPointDistance() const;
00134   void SetMaximumPointDistance(float maximum);
00135
00139   const float * GetPointsBoundingBoxCoordinates() const;
00140   void SetPointsBoundingBoxCoordinates(const float * coordinates);
00141
00145   const float * GetAxisOfRotation() const;
00146   void SetAxisOfRotation(const float * axis);
00147
00151   const float * GetCenterOfRotation() const;
00152   void SetCenterOfRotation(const float * center);
00153
00154   //**    Vectors getters/setters      **//
00155   unsigned long GetNumberOfVectors() const;
00156   void SetNumberOfVectors(const unsigned long nb);
00157
00158   unsigned short GetVectorDimensionality() const;
00159   void SetVectorDimensionality(const unsigned short dim);
00160
00161   const float * GetVectorAccuracy() const;
00162   void SetVectorAccuracy(const float * accuracy);
00163
00164   const DataElement & GetVectorCoordinateData() const;
00165   DataElement & GetVectorCoordinateData();
00166
00167   void SetVectorCoordinateData(DataElement const & de);
00168
00169   //**    Primitive getters/setters      **//
00170   MeshPrimitive const & GetMeshPrimitive() const;
00171   MeshPrimitive & GetMeshPrimitive();
00172
00173   void SetMeshPrimitive(MeshPrimitive const & mp);
00174
00175 private:
00176
00177   //**        Common members      **//
00178
00179   //0066 0003 UL 1 Surface Number
```

```
00180   unsigned long SurfaceNumber;
00181   //0066 0004 LT 1 Surface Comments
00182   std::string   SurfaceComments;
00183
00184   //0066 0009 CS 1 Surface Processing
00185   bool          SurfaceProcessing;
00186   //0066 000a FL 1 Surface Processing Ratio
00187   float         SurfaceProcessingRatio;
00188   //0066 000b LO 1 Surface Processing Description
00189   std::string   SurfaceProcessingDescription;
00190   // Processing Algorithm Code
00191   SegmentHelper::BasicCodedEntry ProcessingAlgorithm;
00192
00193   //0062 000c US 1 Recommended Display Grayscale Value
00194   unsigned short  RecommendedDisplayGrayscaleValue;
00195   //0062 000d US 3 Recommended Display CIELab Value
00196   unsigned short  RecommendedDisplayCIELabValue[3];
00197
00198   // 0066 000c FL 1 Recommended Presentation Opacity
00199   float           RecommendedPresentationOpacity;
00200   // 0066 000d CS 1 Recommended Presentation Type
00201   VIEWType        RecommendedPresentationType;
00202
00203   //0066 000e CS 1 Finite Volume
00204   STATES        FiniteVolume;
00205   //0066 0010 CS 1 Manifold
00206   STATES        Manifold;
00207
00208   // Algorithm Family Code
00209   SegmentHelper::BasicCodedEntry AlgorithmFamily;
00210
00211   //0066 0031 LO 1 Algorithm Version
00212   std::string   AlgorithmVersion;
00213   //0066 0032 LT 1 Algorithm Parameters
00214   //0066 0036 LO 1 Algorithm Name
00215   std::string   AlgorithmName;
00216
00217
00218   //**        Point members      **//
00219
00220   //0066 0015 UL 1 Number of Surface Points
00221   unsigned long NumberOfSurfacePoints;
00222   //0066 0016 OF 1 Point Coordinates Data
00223   DataElement   PointCoordinatesData;
00224   //0066 0017 FL 3 Point Position Accuracy
00225   float *       PointPositionAccuracy;
00226   //0066 0018 FL 1 Mean Point Distance
00227   float         MeanPointDistance;
00228   //0066 0019 FL 1 Maximum Point Distance
00229   float         MaximumPointDistance;
00230   //0066 001a FL 6 Points Bounding Box Coordinates
00231   float *       PointsBoundingBoxCoordinates;
00232   //0066 001b FL 3 Axis of Rotation
00233   float *       AxisOfRotation;
00234   //0066 001c FL 3 Center of Rotation
00235   float *       CenterOfRotation;
00236
00237
00238   //**        Normal members      **//
00239
00240   //0066 001e UL 1 Number of Vectors
00241   unsigned long NumberOfVectors;
00242   //0066 001f US 1 Vector Dimensionality
00243   unsigned short VectorDimensionality;
00244   //0066 0020 FL 1-n Vector Accuracy
00245   float *       VectorAccuracy;
00246   //0066 0021 OF 1 Vector Coordinate Data
00247   DataElement   VectorCoordinateData;
00248
00249
00250   //**        Primitive members      **//
00251   SmartPointer< MeshPrimitive > Primitive;
00252 };
00253
00254 }
00255
00256 #endif // GDCMSURFACE_H
```

13.439 gdcmSurfaceHelper.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
#include <iostream>
```

Include dependency graph for gdcmSurfaceHelper.h:



Classes

- class gdcm::SurfaceHelper

  SurfaceHelper.

Namespaces

- namespace gdcm

13.440 gdcmSurfaceHelper.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2017 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSURFACEHELPER_H
00015 #define GDCMSURFACEHELPER_H
00016
00017 #include "gdcmTypes.h"  // for GDCM_EXPORT
00018
```

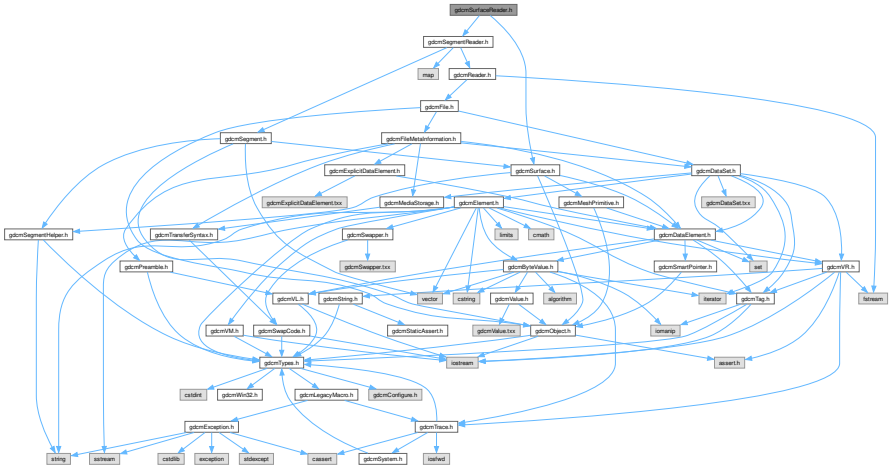
```
00019 #include <vector>
00020 #include <iostream>
00021
00022 namespace gdcm
00023 {
00024
00029 class GDCM_EXPORT SurfaceHelper
00030 {
00031 public:
00032
00033   typedef std::vector< unsigned short > ColorArray;
00034
00046   template <typename T, typename U>
00047   static unsigned short RGBToRecommendedDisplayGrayscale(const std::vector<T> & RGB,
00048                                                          const U rangeMax = 255);
00060   template <typename T, typename U>
00061   static ColorArray RGBToRecommendedDisplayCIELab(const std::vector<T> & RGB,
00062                                                   const U rangeMax = 255);
00074   template <typename T, typename U>
00075   static std::vector<T> RecommendedDisplayCIELabToRGB(const ColorArray & CIELab,
00076                                                       const U rangeMax = 255);
00087   template <typename U>
00088   static std::vector<float> RecommendedDisplayCIELabToRGB(const ColorArray & CIELab,
00089                                                       const U rangeMax = 255);
00090
00091 private:
00092
00093   static std::vector< float > RGBToXYZ(const std::vector<float> & RGB);
00094
00095   static std::vector< float > XYZToRGB(const std::vector<float> & XYZ);
00096
00097   static std::vector< float > XYZToCIELab(const std::vector<float> & XYZ);
00098
00099   static std::vector< float > CIELabToXYZ(const std::vector<float> & CIELab);
00100 };
00101
00102 template <typename T, typename U>
00103 unsigned short SurfaceHelper::RGBToRecommendedDisplayGrayscale(const std::vector<T> & RGB,
00104                                                                const U rangeMax/* = 255*/)
00105 {
00106   gdcm_assert(RGB.size() > 2);
00107
00108   unsigned short Grayscale = 0;
00109
00110   const float inverseRangeMax = 1.0f / (float) rangeMax;
00111
00112   // 0xFFFF "=" 255 "=" white
00113   Grayscale = (unsigned short) ((0.2989 * RGB[0] + 0.5870 * RGB[1] + 0.1140 * RGB[2])
00114                                 * inverseRangeMax // Convert to range 0-1
00115                                 * 0xFFFF);        // Convert to range 0x0000-0xFFFF
00116
00117   return Grayscale;
00118 }
00119
00120 template <typename T, typename U>
00121 SurfaceHelper::ColorArray SurfaceHelper::RGBToRecommendedDisplayCIELab(const std::vector<T> & RGB,
00122                                                                        const U rangeMax/* = 255*/)
00123 {
00124   gdcm_assert(RGB.size() > 2);
00125
00126   ColorArray CIELab(3);
00127   std::vector<float> tmp(3);
00128
00129   // Convert to range 0-1
00130   const float inverseRangeMax = 1.0f / (float) rangeMax;
00131   tmp[0] = (float) (RGB[0] * inverseRangeMax);
00132   tmp[1] = (float) (RGB[1] * inverseRangeMax);
00133   tmp[2] = (float) (RGB[2] * inverseRangeMax);
00134
00135   tmp = SurfaceHelper::XYZToCIELab( SurfaceHelper::RGBToXYZ( tmp ) );
00136
00137   // Convert to range 0x0000-0xFFFF
00138   // 0xFFFF "=" 127, 0x8080 "=" 0, 0x0000 "=" -128
00139   CIELab[0] = (unsigned short) (          0xFFFF           * (tmp[0]*0.01f));
00140   if(tmp[1] >= -128 && tmp[1] <= 0)
00141   {
00142       CIELab[1] = (unsigned short)(((float)(0x8080)/128.0f)*tmp[1] + ((float)0x8080));
00143   }
00144   else if(tmp[1] <= 127 && tmp[1] > 0)
00145   {
00146       CIELab[1] = (unsigned short)(((float)(0xFFFF - 0x8080)/127.0f)*tmp[1] + (float)(0x8080));
```

```
00147   }
00148   if(tmp[2] >= -128 && tmp[2] <= 0)
00149   {
00150       CIELab[2] = (unsigned short)(((float)0x8080/128.0f)*tmp[2] + ((float)0x8080));
00151   }
00152   else if(tmp[2] <= 127 && tmp[2] > 0)
00153   {
00154       CIELab[2] = (unsigned short)(((float)(0xFFFF - 0x8080)/127.0f)*tmp[2] + (float)(0x8080));
00155   }
00156
00157   return CIELab;
00158 }
00159
00160 template <typename T, typename U>
00161 std::vector<T> SurfaceHelper::RecommendedDisplayCIELabToRGB(const ColorArray & CIELab,
00162                                                             const U rangeMax/* = 255*/)
00163 {
00164   gdcm_assert(CIELab.size() > 2);
00165
00166   std::vector<T> RGB(3);
00167   std::vector<float> tmp(3);
00168
00169   // Convert to range 0-1
00170
00171   tmp[0] = 100.0f*CIELab[0] /(float)(0xFFFF);
00172   if(CIELab[1] <= 0x8080)
00173   {
00174       tmp[1] = (float)(((CIELab[1] - 0x8080) * 128.0f)/(float)0x8080);
00175   }
00176   else
00177   {
00178       tmp[1] = (float)((CIELab[1]-0x8080)*127.0f / (float)(0xFFFF - 0x8080));
00179   }
00180   if(CIELab[2] <= 0x8080)
00181   {
00182       tmp[2] = (float)(((CIELab[2] - 0x8080) * 128.0f)/(float)0x8080);
00183   }
00184   else
00185   {
00186       tmp[2] = (float)((CIELab[2]-0x8080)*127.0f / (float)(0XFFFF - 0x8080));
00187   }
00188
00189   tmp = SurfaceHelper::XYZToRGB( SurfaceHelper::CIELabToXYZ( tmp ) );
00190
00191   // Convert to range 0-rangeMax
00192   RGB[0] = (T) (tmp[0] * rangeMax);
00193   RGB[1] = (T) (tmp[1] * rangeMax);
00194   RGB[2] = (T) (tmp[2] * rangeMax);
00195
00196   return RGB;
00197 }
00198
00199 template <typename U>
00200 std::vector<float> SurfaceHelper::RecommendedDisplayCIELabToRGB(const ColorArray & CIELab,
00201                                                                 const U rangeMax/* = 255*/)
00202 {
00203   return RecommendedDisplayCIELabToRGB<float>(CIELab, rangeMax);
00204 }
00205
00206 } // end namespace gdcm
00207
00208 #endif // GDCMSURFACEHELPER_H
```

13.441 gdcmSurfaceReader.h File Reference

```
#include <gdcmSegmentReader.h>
#include <gdcmSurface.h>
```

Include dependency graph for gdcmSurfaceReader.h:



Classes

- class gdcm::SurfaceReader

  This class defines a SURFACE IE reader.

Namespaces

- namespace gdcm

13.442 gdcmSurfaceReader.h

Go to the documentation of this file.

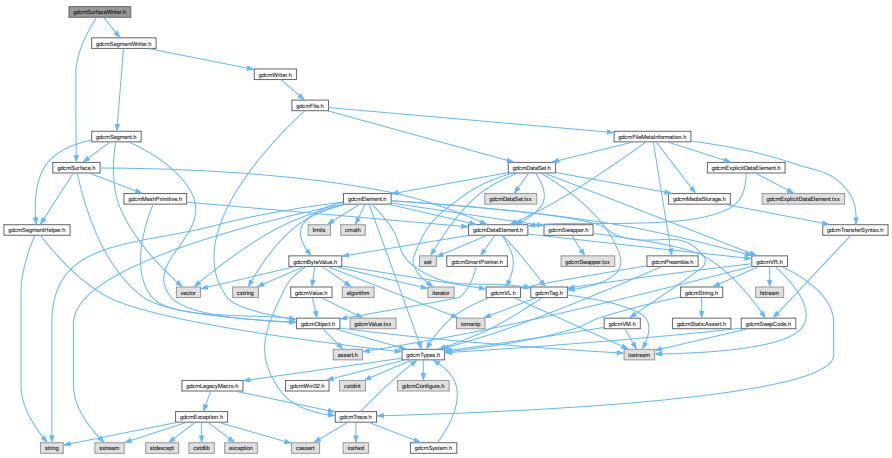
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSURFACEREADER_H
00015 #define GDCMSURFACEREADER_H
00016
00017 #include <gdcmSegmentReader.h>
00018 #include <gdcmSurface.h>
00019
00020 namespace gdcm
00021 {
00022
00029 class GDCM_EXPORT SurfaceReader : public SegmentReader
00030 {
00031 public:
```

```
00032     SurfaceReader();
00033
00034     ~SurfaceReader() override;
00035
00037     bool Read() override;
00038
00039     unsigned long GetNumberOfSurfaces() const;
00040
00041   protected:
00042
00043     bool ReadSurfaces();
00044
00045     bool ReadSurface(const Item & surfaceItem, const unsigned long idx);
00046
00047     bool ReadPointMacro(SmartPointer< Surface > surface, const DataSet & surfaceDS);
00048 };
00049
00050 }
00051
00052 #endif // GDCMSURFACEREADER_H
```

13.443 gdcmSurfaceWriter.h File Reference

```
#include <gdcmSegmentWriter.h>
#include <gdcmSurface.h>
```

Include dependency graph for gdcmSurfaceWriter.h:



Classes

- class gdcm::SurfaceWriter

  This class defines a SURFACE IE writer.

Namespaces

- namespace gdcm

13.444 gdcmSurfaceWriter.h

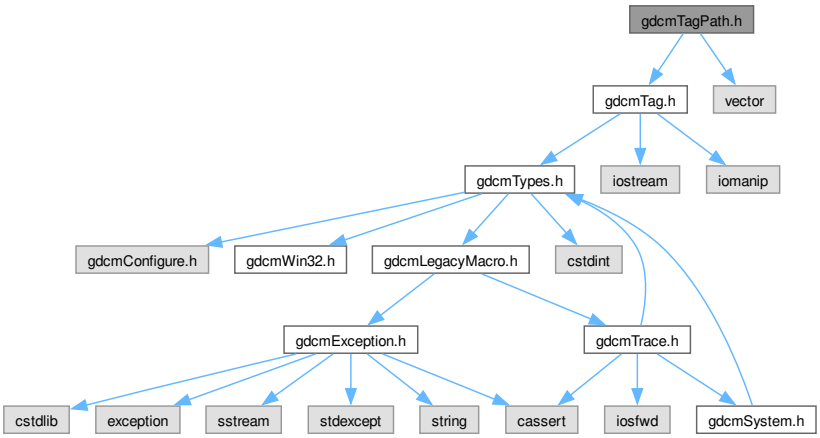
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSURFACEWRITER_H
00015 #define GDCMSURFACEWRITER_H
00016
00017 #include <gdcmSegmentWriter.h>
00018 #include <gdcmSurface.h>
00019
00020 namespace gdcm
00021 {
00022
00029 class GDCM_EXPORT SurfaceWriter : public SegmentWriter
00030 {
00031 public:
00032     SurfaceWriter();
00033
00034     ~SurfaceWriter() override;
00035
00036 //    const Surface & GetSurface() const { return *SurfaceData; }
00037 //    Surface & GetSurface() { return *SurfaceData; }
00038 //    void SetSurface(Surface const & segment);
00039
00041     bool Write() override; // Execute()
00042
00043     unsigned long GetNumberOfSurfaces();
00044     void SetNumberOfSurfaces(const unsigned long nb);
00045
00046 protected:
00047
00048     bool PrepareWrite();
00049
00050     void ComputeNumberOfSurfaces();
00051
00052     bool PrepareWritePointMacro(SmartPointer< Surface > surface,
00053                                 DataSet & surfaceDS,
00054                                 const TransferSyntax & ts);
00055
00056     //0066 0001 UL 1 Number of Surfaces
00057     unsigned long NumberOfSurfaces;
00058 };
00059
00060 }
00061
00062 #endif // GDCMSURFACEWRITER_H
```

13.445 gdcmTagPath.h File Reference

```
#include "gdcmTag.h"
#include <vector>
```

Include dependency graph for gdcmTagPath.h:



Classes

- class gdcm::TagPath

  class to handle a path of tag.

Namespaces

- namespace gdcm

13.446 gdcmTagPath.h

Go to the documentation of this file.

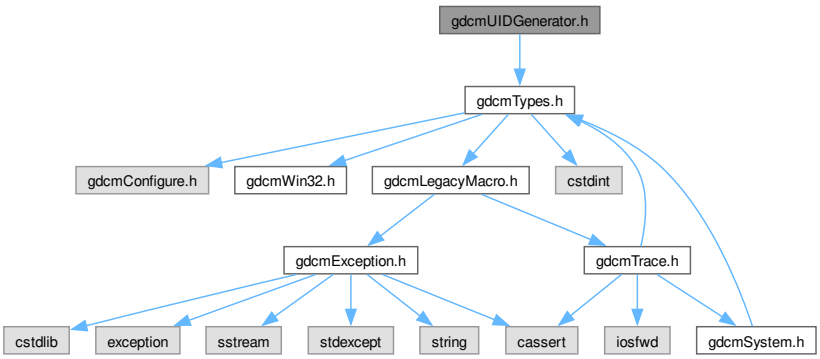
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTAGPATH_H
00015 #define GDCMTAGPATH_H
00016
00017 #include "gdcmTag.h"
00018
00019 #include <vector>
00020
00021 namespace gdcm
00022 {
00023
```

```
00030 class GDCM_EXPORT TagPath
00031 {
00032 public:
00033   TagPath();
00034   ~TagPath();
00035   void Print(std::ostream &) const;
00036
00041   bool ConstructFromString(const char *path);
00042
00044   static bool IsValid(const char *path);
00045
00047   bool ConstructFromTagList(Tag const *l, unsigned int n);
00048
00049   bool Push(Tag const & t);
00050   bool Push(unsigned int itemnum);
00051
00052 private:
00053   std::vector<Tag> Path;
00054 };
00055
00056 } // end namespace gdcm
00057
00058 #endif //GDCMTAGPATH_H
```

13.447 gdcmUIDGenerator.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmUIDGenerator.h:



Classes

- class gdcm::UIDGenerator

  Class for generating unique UID.

Namespaces

- namespace gdcm

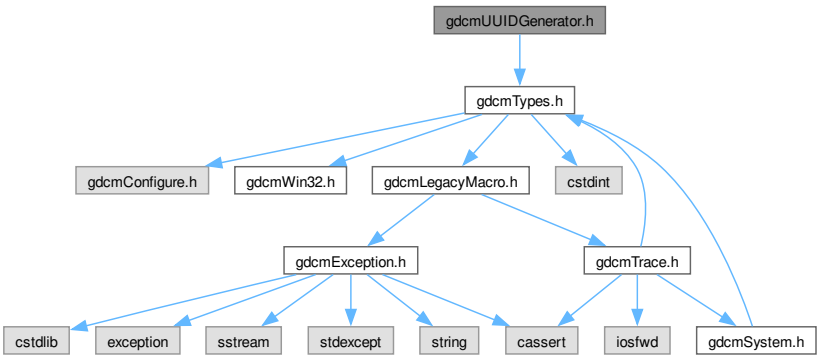
13.448 gdcmUIDGenerator.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUIDGENERATOR_H
00015 #define GDCMUIDGENERATOR_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00027 class GDCM_EXPORT UIDGenerator
00028 {
00029 public:
00031   UIDGenerator():Unique() {}
00032
00033   // Function to override the GDCM root with a user one:
00034   // WARNING: This need to be a valid root, otherwise call will fail
00035   // Implementation note. According to DICOM standard PS 3.5, Section 9 :
00036   // Unique Identifiers (UIDs), we have:
00037   /*
00038   ...
00039   The <org root> portion of the UID uniquely identifies an organization, (i.e., manufacturer, research
00040   organization, NEMA, etc.), and is composed of a number of numeric components as defined by ISO 8824.
00041   The <suffix> portion of the UID is also composed of a number of numeric components, and shall be
00042   unique within the scope of the <org root>. This implies that the organization identified in the <org
      root> is
00043   responsible for guaranteeing <suffix> uniqueness by providing registration policies. These policies
      shall
00044   guarantee <suffix> uniqueness for all UID's created by that organization. Unlike the <org root>, which
      may
00045   be common for UID's in an organization, the <suffix> shall take different unique values between
      different
00046   UID's that identify different objects.
00047   ...
00048    */
00054   static void SetRoot(const char * root);
00055   static const char *GetRoot();
00056
00063   const char* Generate();
00064
00067   static bool IsValid(const char *uid);
00068
00070   static const char *GetGDCMUID(); // who would want that in the public API ??
00071
00072 protected:
00073   static bool GenerateUUID(unsigned char *uuid_data);
00074
00075 private:
00076   static const char GDCM_UID[];
00077   static std::string Root;
00078   static std::string EncodedHardwareAddress;
00079   std::string Unique; // Buffer
00080 };
00081
00082
00083 } // end namespace gdcm
00084
00085 #endif //GDCMUIDGENERATOR_H
```

13.449 gdcmUUIDGenerator.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmUUIDGenerator.h:



Classes

- class gdcm::UUIDGenerator

  Class for generating unique UUID.

Namespaces

- namespace gdcm

13.450 gdcmUUIDGenerator.h

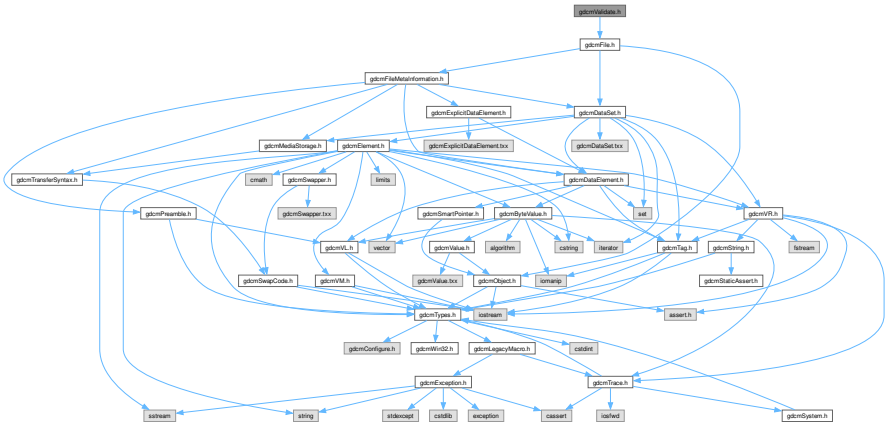
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUUIDGENERATOR_H
00015 #define GDCMUUIDGENERATOR_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
```

```
00026 class GDCM_EXPORT UUIDGenerator
00027 {
00028 public:
00031   const char* Generate();
00032
00034   static bool IsValid(const char *uid);
00035
00036 private:
00037   std::string Unique; // Buffer
00038 };
00039
00040 } // end namespace gdcm
00041
00042 #endif //GDCMUUIDGENERATOR_H
```

13.451 gdcmValidate.h File Reference

`#include "gdcmFile.h"`
Include dependency graph for gdcmValidate.h:



Classes

- class gdcm::Validate

  Validate class.

Namespaces

- namespace gdcm

13.452 gdcmValidate.h

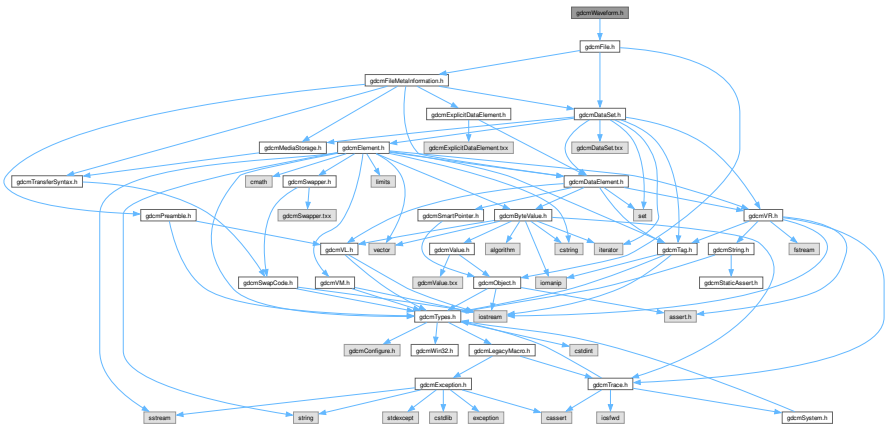
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMVALIDATE_H
00015 #define GDCMVALIDATE_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00021
00025 class GDCM_EXPORT Validate
00026 {
00027 public:
00028   Validate();
00029   ~Validate();
00030
00031   void SetFile(File const &f) { F = &f; }
00032   const File& GetValidatedFile() { return V; }
00033
00034   void Validation();
00035
00036 protected:
00037   const File *F;
00038   File V; // Validated file
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMVALIDATE_H
```

13.453 gdcmWaveform.h File Reference

`#include "gdcmFile.h"`

Include dependency graph for gdcmWaveform.h:



Classes

- class gdcm::Waveform

  Waveform class.

Namespaces

- namespace gdcm

13.454 gdcmWaveform.h

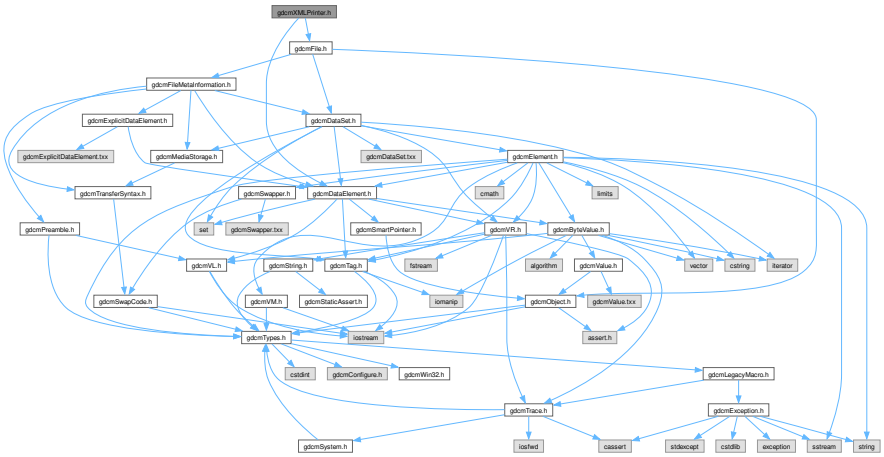
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMWAVEFORM_H
00015 #define GDCMWAVEFORM_H
00016
00017 #include "gdcmFile.h"
00018
00019 namespace gdcm
00020 {
00024 class GDCM_EXPORT Waveform
00025 {
00026 public:
00027   Waveform() = default;
00028
00029 private:
00030 };
00031
00032 } // end namespace gdcm
00033
00034 #endif //GDCMWAVEFORM_H
```

13.455 gdcmXMLPrinter.h File Reference

```
#include "gdcmFile.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmXMLPrinter.h:



Classes

- class gdcm::XMLPrinter

Namespaces

- namespace gdcm

13.456 gdcmXMLPrinter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMXMLPRINTER_H
00015 #define GDCMXMLPRINTER_H
00016
00017 /*
00018
00019 The Normative version of the XML Schema for the Native DICOM Model follows:
00020
00021
00022
00023 start = element NativeDicomModel { DicomDataSet }
00024
00025 # A DICOM Data Set is as defined in PS3.5. It does not appear
00026 # as an XML Element, since it does not appear in the binary encoded
00027 # DICOM objects. It exists here merely as a documentation aid.
```

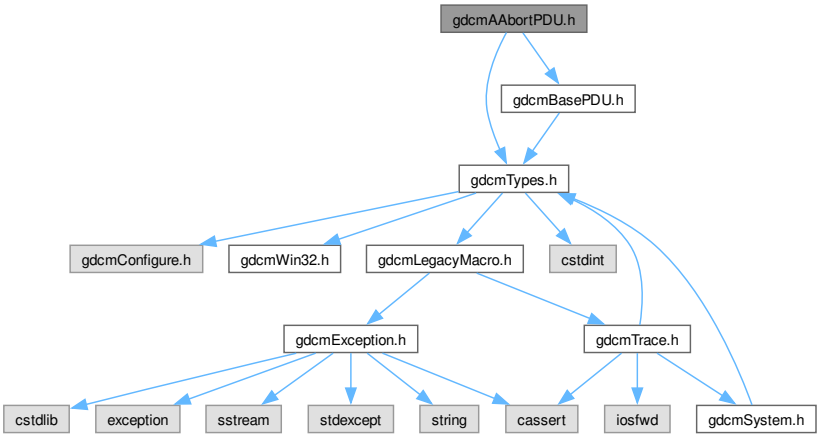
```
00028
00029 DicomDataSet = DicomAttribute*
00030 DicomAttribute = element DicomAttribute {
00031 Tag, VR, Keyword?, PrivateCreator?,
00032 ( BulkData | Value+ | Item+ | PersonName+ )?
00033 }
00034
00035 BulkData = element BulkData{ UUID }
00036 Value = element Value { Number, xsd:string }
00037 Item = element Item { Number, DicomDataSet }
00038 PersonName = element PersonName {
00039 Number,
00040 element SingleByte { NameComponents }?,
00041 element Ideographic { NameComponents }?,
00042 element Phonetic
00043 { NameComponents }?
00044 }
00045
00046 NameComponents =
00047 element FamilyName {xsd:string}?,
00048 element GivenName {xsd:string}?,
00049 element MiddleName {xsd:string}?,
00050 element NamePrefix {xsd:string}?,
00051 element NameSuffix {xsd:string}?
00052
00053 # keyword is the attribute tag from PS3.6
00054 # (derived from the DICOM Attribute's name)
00055 Keyword = attribute keyword { xsd:token }
00056 # canonical XML definition of Hex, with lowercase letters disallowed
00057 Tag = attribute tag { xsd:string{ minLength="8" maxLength="8" pattern="[0-9A-F]{8}" } }
00058 VR = attribute vr { "AE" | "AS" | "AT"| "CS" | "DA" | "DS" | "DT" | "FL" | "FD"
00059 | "IS" | "LO" | "LT" | "OB" | "OF" | "OW" | "PN" | "SH" | "SL"
00060 | "SQ" | "SS" | "ST" | "TM" | "UI" | "UL" | "UN" | "US" | "UT" }
00061 PrivateCreator = attribute privateCreator{ xsd:string }
00062 UUID = attribute uuid { xsd:string }
00063 Number = attribute number { xsd:positiveInteger }
00064
00065
00066 */
00067
00068 #include "gdcmFile.h"
00069 #include "gdcmDataElement.h"
00070
00071 namespace gdcm
00072 {
00073
00074 class DataSet;
00075 class DictEntry;
00076 class Dicts;
00077
00078 class GDCM_EXPORT XMLPrinter
00079 {
00080 public:
00081   XMLPrinter();
00082   virtual ~XMLPrinter();
00083
00084   // Set file
00085   void SetFile(File const &f) { F = &f; }
00086
00087
00088
00089   typedef enum {
00090
00091     OnlyUUID = 0 ,
00092     LOADBULKDATA = 1
00093
00094   } PrintStyles;
00095
00096   // Set PrintStyle value
00097   void SetStyle(PrintStyles ps)
00098   {
00099     PrintStyle = ps;
00100   }
00101
00102   // Get PrintStyle value
00103   PrintStyles GetPrintStyle() const
00104   {
00105     return PrintStyle;
00106   }
00107
00108   // Print
```

```
00109   void Print(std::ostream& os);
00110
00111   // Print an individual dataset
00112   void PrintDataSet(const DataSet &ds, const TransferSyntax & ts, std::ostream& os);
00113
00114   //void PrintUID(std::ostream &os);
00115
00119   virtual void HandleBulkData(const char *uuid, const TransferSyntax &ts,
00120     const char *bulkdata, size_t bulklen);
00121
00122 protected:
00123
00124   VR PrintDataElement(std::ostream &os, const Dicts &dicts, const DataSet & ds, const DataElement &de,
      const TransferSyntax & ts);
00125
00126   void PrintSQ(const SequenceOfItems *sqi, const TransferSyntax & ts, std::ostream &os);
00127
00128   PrintStyles PrintStyle;
00129
00130   const File *F;
00131
00132 };
00133
00134 } // end namespace gdcm
00135
00136 #endif //GDCMXMLPRINTER_H
```

13.457 gdcmAAbortPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAAbortPDU.h:



Classes

- class gdcm::network::AAbortPDU

  AAbortPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.458 gdcmAAbortPDU.h

Go to the documentation of this file.

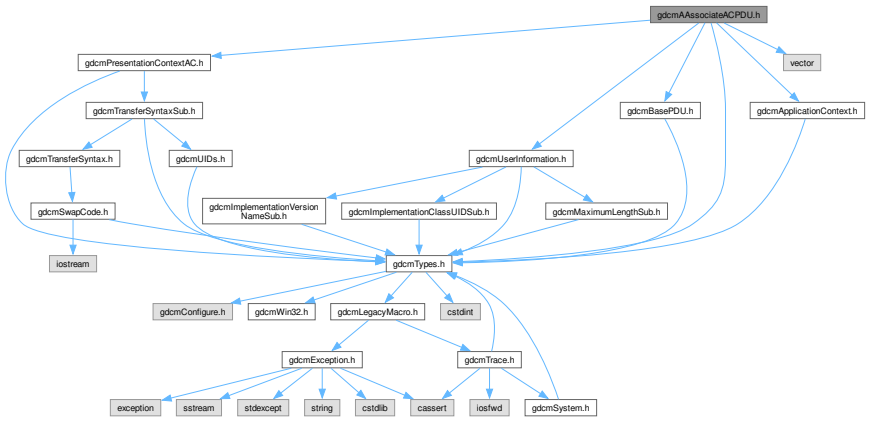
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAABORTPDU_H
00015 #define GDCMAABORTPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmBasePDU.h"
00019
00020 namespace gdcm
00021 {
00022
00023 namespace network
00024 {
00025
00030 class GDCM_EXPORT AAbortPDU : public BasePDU
00031 {
00032 public:
00033   AAbortPDU();
00034   std::istream &Read(std::istream &is) override;
00035   const std::ostream &Write(std::ostream &os) const override;
00036
00038   size_t Size() const override;
00039   void Print(std::ostream &os) const override;
00040
00041   bool IsLastFragment() const override { return true; }
00042
00043   void SetSource(const uint8_t s);
00044   void SetReason(const uint8_t r);
00045
00046 private:
00047   static const uint8_t ItemType; // PDUType ?
00048   static const uint8_t Reserved2;
00049   uint32_t ItemLength; // PDU Length
00050   static const uint8_t Reserved7;
00051   static const uint8_t Reserved8;
00052   uint8_t Source;
00053   uint8_t Reason; // diag
00054 };
00055
00056 } // end namespace network
00057
00058 } // end namespace gdcm
00059
00060 #endif //GDCMAABORTPDU_H
```

13.459 gdcmAAssociateACPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmApplicationContext.h"
```

```
#include "gdcmPresentationContextAC.h"
#include "gdcmUserInformation.h"
#include "gdcmBasePDU.h"
#include <vector>
```

Include dependency graph for gdcmAAssociateACPDU.h:



Classes

- class gdcm::network::AAssociateACPDU

  AAssociateACPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.460 gdcmAAssociateACPDU.h

Go to the documentation of this file.

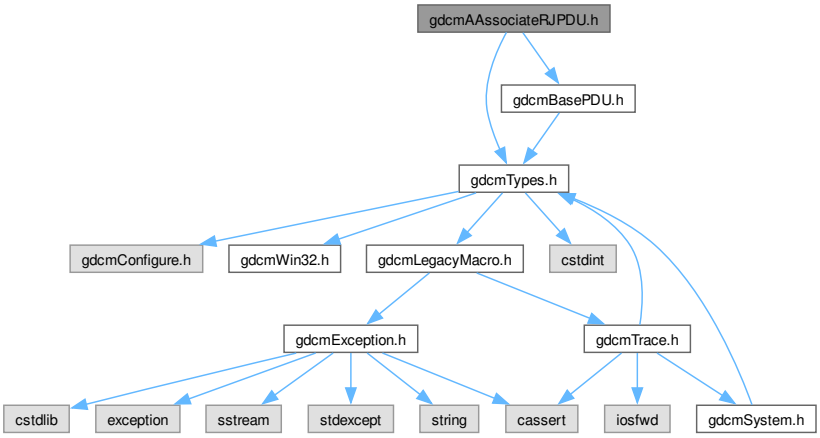
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAASSOCIATEACPDU_H
00015 #define GDCMAASSOCIATEACPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmApplicationContext.h"
00019 #include "gdcmPresentationContextAC.h"
```

```
00020 #include "gdcmUserInformation.h"
00021 #include "gdcmBasePDU.h"
00022
00023 #include <vector>
00024
00025 namespace gdcm
00026 {
00027
00028 namespace network
00029 {
00030 class AAssociateRQPDU;
00031
00037 class AAssociateACPDU : public BasePDU
00038 {
00039 public:
00040   AAssociateACPDU();
00041   std::istream &Read(std::istream &is) override;
00042   const std::ostream &Write(std::ostream &os) const override;
00043
00044   void AddPresentationContextAC( PresentationContextAC const &pcac );
00045
00046   typedef std::vector<PresentationContextAC>::size_type SizeType;
00047   const PresentationContextAC &GetPresentationContextAC( SizeType i ) {
00048     gdcm_assert( !PresContextAC.empty() && i < PresContextAC.size() );
00049     return PresContextAC[i];
00050   }
00051   SizeType GetNumberOfPresentationContextAC() const {
00052     return PresContextAC.size();
00053   }
00054   const UserInformation &GetUserInformation() const { return UserInfo; }
00055
00056   SizeType Size() const override;
00057
00058   void Print(std::ostream &os) const override;
00059   bool IsLastFragment() const override { return true; }
00060
00061   void InitFromRQ( AAssociateRQPDU const & rqpdu );
00062 protected:
00063   friend class AAssociateRQPDU;
00064   void SetCalledAETitle(const char calledaetitle[16]);
00065   void SetCallingAETitle(const char callingaetitle[16]);
00066
00067 private:
00068   void InitSimple( AAssociateRQPDU const & rqpdu );
00069
00070 private:
00071   static const uint8_t ItemType; // PDUType ?
00072   static const uint8_t Reserved2;
00073   uint32_t PDULength; // len of
00074   static const uint16_t ProtocolVersion;
00075   static const uint16_t Reserved9_10;
00076
00077   // This reserved field shall be sent with a value identical to the value
00078   // received in the same field of the A-ASSOCIATE-RQ PDU, but its value
00079   // shall not be tested when received.
00080   char Reserved11_26[16];
00081   // This reserved field shall be sent with a value identical to the value
00082   // received in the same field of the A-ASSOCIATE-RQ PDU, but its value
00083   // shall not be tested when received.
00084   char Reserved27_42[16];
00085   // This reserved field shall be sent with a value identical to the value
00086   // received in the same field of the A-ASSOCIATE-RQ PDU, but its value
00087   // shall not be tested when received.
00088   char Reserved43_74[32];
00089   /*
00090   75-xxx Variable items This variable field shall contain the following items: one Application
00091   Context Item, one or more Presentation Context Item(s) and one User
00092   Information Item. For a complete description of these items see Sections
00093   7.1.1.2, 7.1.1.14, and 7.1.1.6.
00094    */
00095   ApplicationContext AppContext;
00096   std::vector<PresentationContextAC>  PresContextAC;
00097   UserInformation UserInfo;
00098 };
00099
00100 } // end namespace network
00101
00102 } // end namespace gdcm
00103
00104 #endif //GDCMAASSOCIATEACPDU_H
```

13.461 gdcmAAssociateRJPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAAssociateRJPDU.h:



Classes

- class gdcm::network::AAssociateRJPDU
  AAssociateRJPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.462 gdcmAAssociateRJPDU.h

Go to the documentation of this file.

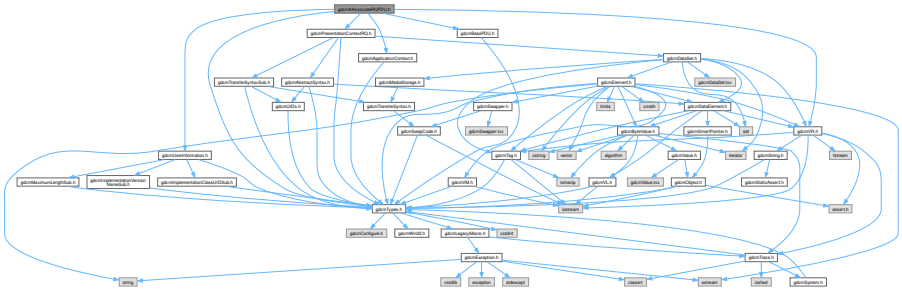
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAASSOCIATERJPDU_H
```

```
00015 #define GDCMAASSOCIATERJPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmBasePDU.h"
00019
00020 namespace gdcm
00021 {
00022
00023 namespace network
00024 {
00025
00031 class AAssociateRJPDU : public BasePDU
00032 {
00033 public:
00034   AAssociateRJPDU();
00035   std::istream &Read(std::istream &is) override;
00036   const std::ostream &Write(std::ostream &os) const override;
00037   void Print(std::ostream &os) const override;
00038   size_t Size() const override;
00039   bool IsLastFragment() const override { return true; }
00040 private:
00041   static const uint8_t ItemType; // PDUType ?
00042   static const uint8_t Reserved2;
00043   uint32_t ItemLength; // PDU Length ?
00044   static const uint8_t Reserved8;
00045   uint8_t Result;
00046   uint8_t Source;
00047   uint8_t Reason; // diag ?
00048 };
00049
00050 } // end namespace network
00051
00052 } // end namespace gdcm
00053
00054 #endif //GDCMAASSOCIATERJPDU_H
```

13.463 gdcmAAssociateRQPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmVR.h"
#include "gdcmApplicationContext.h"
#include "gdcmPresentationContextRQ.h"
#include "gdcmUserInformation.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAAssociateRQPDU.h:



Classes

- class gdcm::network::AAssociateRQPDU

  AAssociateRQPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.464 gdcmAAssociateRQPDU.h

Go to the documentation of this file.

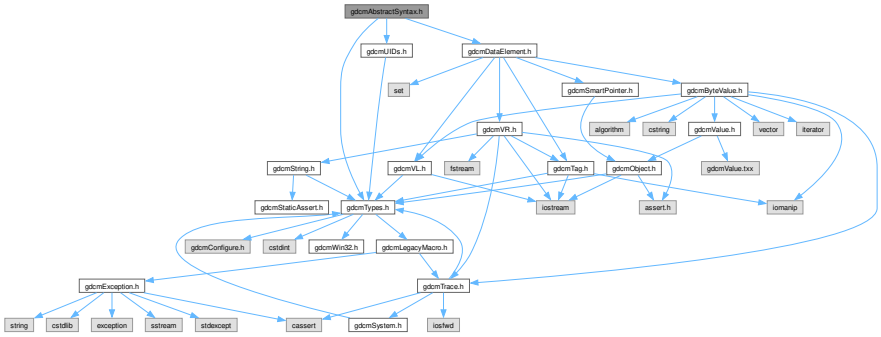
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAASSOCIATERQPDU_H
00015 #define GDCMAASSOCIATERQPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmVR.h" // AEComp
00019 #include "gdcmApplicationContext.h"
00020 #include "gdcmPresentationContextRQ.h"
00021 #include "gdcmUserInformation.h"
00022 #include "gdcmBasePDU.h"
00023
00024 namespace gdcm
00025 {
00026
00027 namespace network
00028 {
00029
00030 class AAssociateACPDU;
00035 class AAssociateRQPDU : public BasePDU
00036 {
00037 public:
00038   AAssociateRQPDU();
00039   std::istream &Read(std::istream &is) override;
00040   const std::ostream &Write(std::ostream &os) const override;
00041   size_t Size() const override;
00042   void AddPresentationContext( PresentationContextRQ const &pc );
00043
00045   void SetCalledAETitle(const char calledaetitle[16]);
00046   std::string GetCalledAETitle() const { return std::string(CalledAETitle,16); }
00047
00049   void SetCallingAETitle(const char callingaetitle[16]);
00050   std::string GetCallingAETitle() const { return std::string(CallingAETitle,16); }
00051
00053   static bool IsAETitleValid(const char title[16]);
00054
00057   //void InitFromRQ( AAssociateACPDU & acpdu );
00058
00059   void Print(std::ostream &os) const override;
00060
00061   AAssociateRQPDU(const AAssociateRQPDU &pdu):BasePDU(pdu)
00062     {
00063     gdcm_assert( 0 );
00064     }
00065   //this function fails to compile on windows.
00066 //  AAssociateRQPDU &operator=(const AAssociateRQPDU &_val)
00067 //    {
00068 //    gdcm_assert( 0 );
00069 //    }
00070
00071   typedef std::vector<PresentationContextRQ>::size_type SizeType;
00072   SizeType GetNumberOfPresentationContext() const {
00073     return PresContext.size();
00074   }
```

```
00075   PresentationContextRQ const &GetPresentationContext(SizeType i) const {
00076     gdcm_assert( !PresContext.empty() && i < PresContext.size() );
00077     return PresContext[i];
00078   }
00079   typedef std::vector<PresentationContextRQ> PresentationContextArrayType;
00080   PresentationContextArrayType const &GetPresentationContexts() { return PresContext; }
00081
00082   const PresentationContextRQ *GetPresentationContextByID(uint8_t i) const;
00083   const PresentationContextRQ *GetPresentationContextByAbstractSyntax(AbstractSyntax const & absyn )
      const;
00084   bool IsLastFragment() const override { return true; }
00085
00086   const UserInformation & GetUserInformation() const { return UserInfo; }
00087   void SetUserInformation( UserInformation const & ui );
00088
00089 protected:
00090   friend class AAssociateACPDU;
00091   std::string GetReserved43_74() const;
00092
00093 private:
00094   // 1 PDU-type 01H
00095   static const uint8_t ItemType; // PDUType ?
00096   // 2 Reserved This reserved field shall be sent with a value 00H but not tested to this value when
      received.
00097   static const uint8_t Reserved2;
00098   /* 3-6 PDU-length This PDU-length shall be the number of bytes from the first byte of the
00099      following field to the last byte of the variable field. It shall be encoded as
00100     an unsigned binary number
00101    */
00102   uint32_t ItemLength; // PDU Length
00103   /*
00104   7-8 Protocol-version This two byte field shall use one bit to identify each version of the
00105   DICOM UL protocol supported by the calling end-system. This is
00106   Version 1 and shall be identified with bit 0 set. A receiver of this PDU
00107   implementing only this version of the DICOM UL protocol shall only test
00108   that bit 0 is set.
00109    */
00110   static const uint16_t ProtocolVersion;
00111   /*
00112   9-10 Reserved This reserved field shall be sent with a value 0000H but not tested to
00113   this value when received.
00114    */
00115   static const uint16_t Reserved9_10;
00116   /*
00117   11-26 Called-AE-title Destination DICOM Application Name. It shall be encoded as 16
00118   characters as defined by the ISO 646:1990-Basic G0 Set with leading
00119   and trailing spaces (20H) being non-significant. The value made of 16
00120   spaces (20H) meaning "no Application Name specified" shall not be
00121   used. For a complete description of the use of this field, see Section
00122   7.1.1.4.
00123    */
00124   char CalledAETitle[16];
00125   /*
00126   27-42 Calling-AE-title Source DICOM Application Name. It shall be encoded as 16
00127   characters as defined by the ISO 646:1990-Basic G0 Set with leading
00128   and trailing spaces (20H) being non-significant. The value made of 16
00129   spaces (20H) meaning "no Application Name specified" shall not be
00130   used. For a complete description of the use of this field, see Section
00131   7.1.1.3.
00132    */
00133   char CallingAETitle[16];
00134   /*
00135   43-74 Reserved This reserved field shall be sent with a value 00H for all bytes but not
00136   tested to this value when received
00137    */
00138   char Reserved43_74[32]; // { 0 }
00139   /*
00140   75-xxx Variable items This variable field shall contain the following items: one Application
00141   Context Item, one or more Presentation Context Items and one User
00142   Information Item. For a complete description of the use of these items
00143   see Sections 7.1.1.2, 7.1.1.13, and 7.1.1.6.
00144    */
00145   ApplicationContext AppContext;
00146   std::vector<PresentationContextRQ> PresContext;
00147   UserInformation UserInfo;
00148 };
00149
00150 } // end namespace network
00151 } // end namespace gdcm
00152
00153 #endif //GDCMAASSOCIATERQPDU_H
```

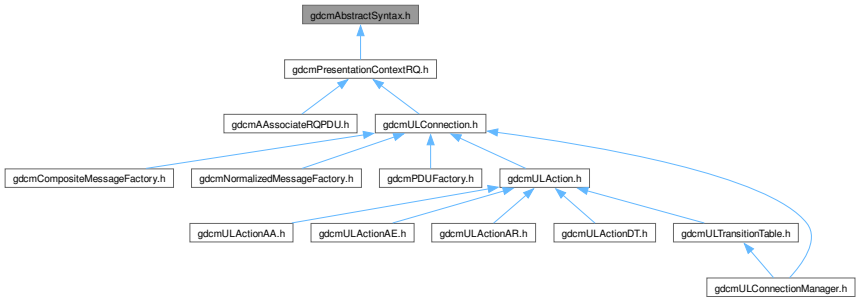
13.465 gdcmAbstractSyntax.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmUIDs.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmAbstractSyntax.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::AbstractSyntax

  AbstractSyntax.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.466 gdcmAbstractSyntax.h

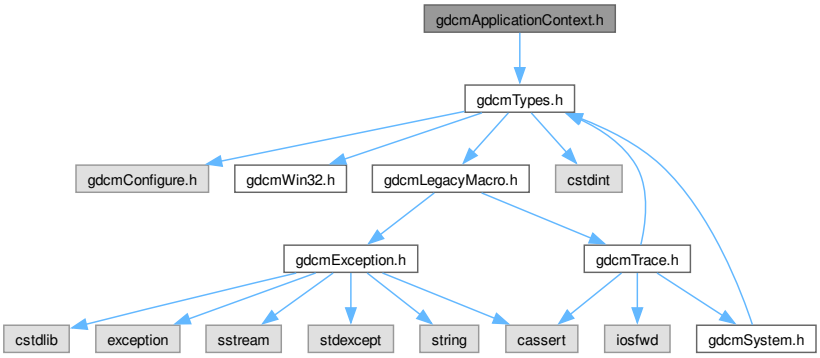
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMABSTRACTSYNTAX_H
00015 #define GDCMABSTRACTSYNTAX_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmUIDs.h"
00019 #include "gdcmDataElement.h"
00020
00021 namespace gdcm
00022 {
00023
00024 namespace network
00025 {
00026
00032 class AbstractSyntax
00033 {
00034 public:
00035   AbstractSyntax();
00036   std::istream &Read(std::istream &is);
00037   const std::ostream &Write(std::ostream &os) const;
00038
00039   void SetName( const char *name ) { UpdateName( name ); }
00040   const char *GetName() const { return Name.c_str(); }
00041
00042   // accept a UIDs::TSType also...
00043   void SetNameFromUID( UIDs::TSName tsname );
00044   //now that the PresentationContext messes around with UIDs and returns a string
00045   //use that string as well.
00046   //void SetNameFromUIDString( const std::string& inUIDName );
00047
00048   size_t Size() const;
00049
00050   void Print(std::ostream &os) const;
00051
00052   bool operator==(const AbstractSyntax & as) const
00053     {
00054     return Name == as.Name;
00055     }
00056
00057   DataElement GetAsDataElement() const;
00058
00059 private:
00060   void UpdateName( const char *name );
00061   static const uint8_t ItemType;
00062   static const uint8_t Reserved2;
00063   uint16_t ItemLength; // len of
00064   std::string /*AbstractSyntax*/ Name; // UID
00065 };
00066
00067 } // end namespace network
00068 } // end namespace gdcm
00069
00070 #endif //GDCMABSTRACTSYNTAX_H
```

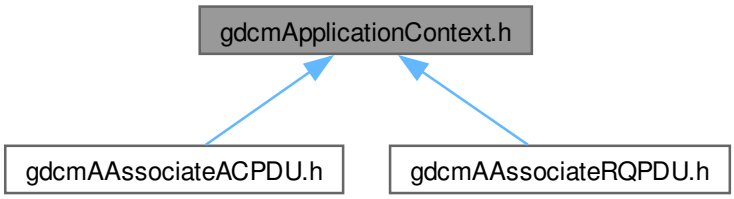
13.467 gdcmApplicationContext.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmApplicationContext.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ApplicationContext

  ApplicationContext.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.468 gdcmApplicationContext.h

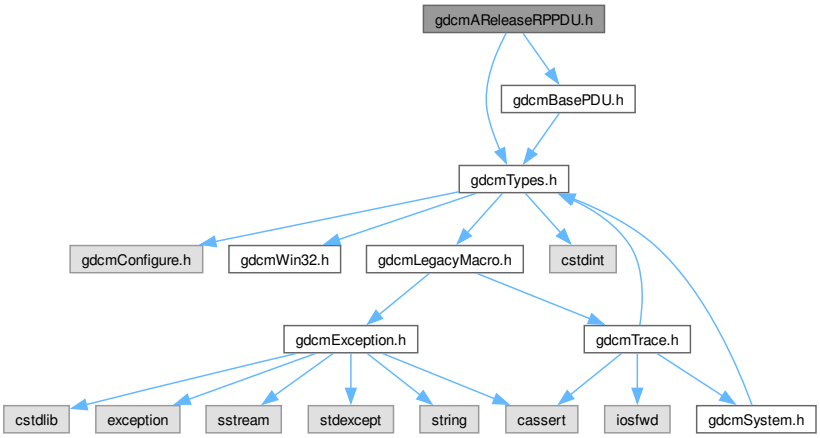
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMAPPLICATIONCONTEXT_H
00015 #define GDCMAPPLICATIONCONTEXT_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00032 class ApplicationContext
00033 {
00034 public:
00035   ApplicationContext();
00036   std::istream &Read(std::istream &is);
00037   const std::ostream &Write(std::ostream &os) const;
00038
00039   void SetName( const char *name ) { UpdateName( name ); }
00040   const char *GetName() const { return Name.c_str(); }
00041   size_t Size() const;
00042
00043   //static const uint8_t GetItemType() { return ItemType; }
00044   void Print(std::ostream &os) const;
00045
00046 private:
00047   void UpdateName( const char *name );
00048   static const uint8_t ItemType;
00049   static const uint8_t Reserved2;
00050   uint16_t ItemLength; // len of application context name
00051   std::string /*ApplicationContext*/ Name; // UID
00052 };
00053
00054 } // end namespace network
00055
00056 } // end namespace gdcm
00057
00058 #endif //GDCMAPPLICATIONCONTEXT_H
```

13.469 gdcmAReleaseRPPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAReleaseRPPDU.h:



Classes

- class gdcm::network::AReleaseRPPDU
  AReleaseRPPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.470 gdcmAReleaseRPPDU.h

Go to the documentation of this file.

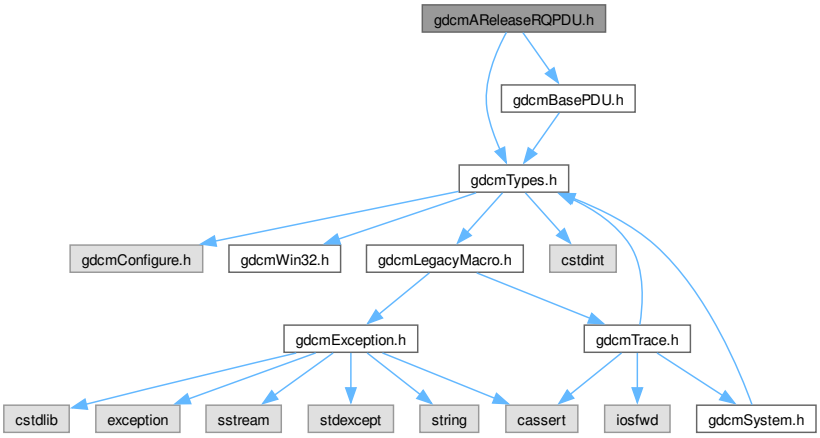
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMARELEASERPPDU_H
00015 #define GDCMARELEASERPPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmBasePDU.h"
00019
00020 namespace gdcm
00021 {
00022
```

```
00023 namespace network
00024 {
00025
00031 class AReleaseRPPDU : public BasePDU
00032 {
00033 public:
00034   AReleaseRPPDU();
00035   std::istream &Read(std::istream &is) override;
00036   const std::ostream &Write(std::ostream &os) const override;
00037   size_t Size() const override;
00038   void Print(std::ostream &os) const override;
00039   bool IsLastFragment() const override { return true; }
00040 private:
00041   static const uint8_t ItemType; // PDUType ?
00042   static const uint8_t Reserved2;
00043   uint32_t ItemLength; // PDU Length
00044   static const uint32_t Reserved7_10;
00045 };
00046
00047 } // end namespace network
00048
00049 } // end namespace gdcm
00050
00051 #endif //GDCMARELEASERPPDU_H
```

13.471 gdcmAReleaseRQPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmBasePDU.h"
```

Include dependency graph for gdcmAReleaseRQPDU.h:



Classes

- class gdcm::network::AReleaseRQPDU

  AReleaseRQPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

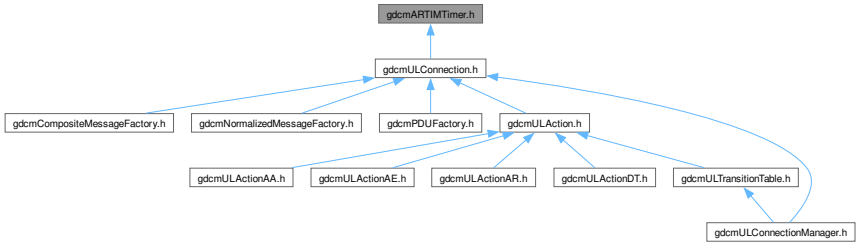
13.472 gdcmAReleaseRQPDU.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMARELEASERQPDU_H
00015 #define GDCMARELEASERQPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmBasePDU.h"
00019
00020 namespace gdcm
00021 {
00022
00023 namespace network
00024 {
00025
00031 class AReleaseRQPDU : public BasePDU
00032 {
00033 public:
00034   AReleaseRQPDU();
00035   std::istream &Read(std::istream &is) override;
00036   const std::ostream &Write(std::ostream &os) const override;
00037   size_t Size() const override;
00038   void Print(std::ostream &os) const override;
00039   bool IsLastFragment() const override { return true; }
00040 private:
00041   static const uint8_t ItemType; // PDUType ?
00042   static const uint8_t Reserved2;
00043   uint32_t ItemLength; // PDU Length
00044   static const uint32_t Reserved7_10;
00045 };
00046
00047 } // end namespace network
00048
00049 } // end namespace gdcm
00050
00051 #endif //GDCMARELEASERQPDU_H
```

13.473 gdcmARTIMTimer.h File Reference

This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ARTIMTimer

  ARTIMTimer.

Namespaces

- namespace gdcm
- namespace gdcm::network

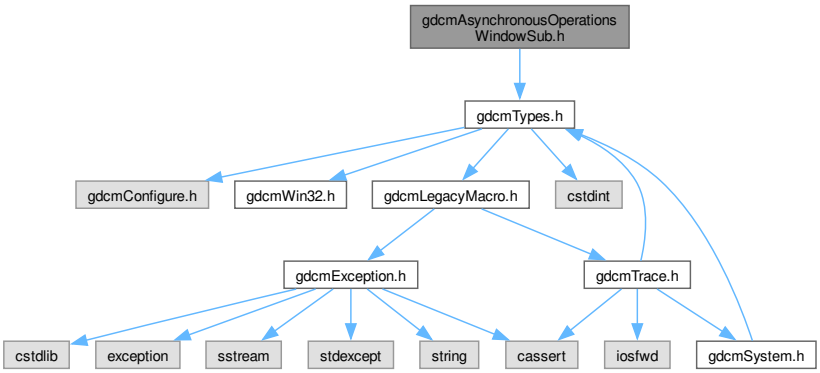
13.474 gdcmARTIMTimer.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMARTIMTIMER_H
00019 #define GDCMARTIMTIMER_H
00020
00021 namespace gdcm {
00022   namespace network{
00038 class ARTIMTimer
00039 {
00040     private:
00041       double mStartTime; //ms timing should be good enough, but there are also
00042       //high-resolution timing options.  Those return doubles.  For now,
00043       //go with integer timing solutions based on milliseconds (DWORD on windows),
00044       //but leave as doubles to ease transitions to other timing methods.
00045
00046       double mTimeOut;
00047       //once GetCurrentTime() -mStartTime > mTimeout, GetHasExpired returns true.
00048
00049       double GetCurrentTime() const;//a platform-specific implementation of getting the
00050       //current time.
00051
00052     public:
00053       ARTIMTimer(); //initiates the start and timeout at -1;
00054       void Start(); //'start' the timer by getting the current wall time
00055       void Stop();//'stop' the timer by resetting the 'start' to -1;
00056       void SetTimeout(double inTimeout);
00057       double GetTimeout() const;
00058
00059       double GetElapsedTime() const;
00060
00061       bool GetHasExpired() const;
00062
00063     };
00064   }
00065 }
00066
00067 #endif //GDCMARTIMTIMER_H
```

13.475 gdcmAsynchronousOperationsWindowSub.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmAsynchronousOperationsWindowSub.h:



Classes

- class gdcm::network::AsynchronousOperationsWindowSub
  AsynchronousOperationsWindowSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.476 gdcmAsynchronousOperationsWindowSub.h

Go to the documentation of this file.

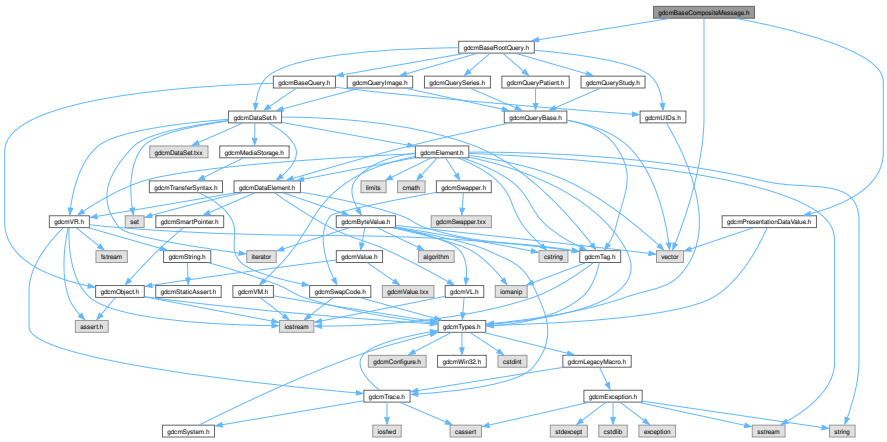
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMASYNCHRONOUSOPERATIONSWINDOWSUB_H
00015 #define GDCMASYNCHRONOUSOPERATIONSWINDOWSUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
```

```
00020 {
00021
00022 namespace network
00023 {
00024
00032 class AsynchronousOperationsWindowSub
00033 {
00034 public:
00035   AsynchronousOperationsWindowSub();
00036   std::istream &Read(std::istream &is);
00037   const std::ostream &Write(std::ostream &os) const;
00038
00039   size_t Size() const;
00040   void Print(std::ostream &os) const;
00041
00042 private:
00043   static const uint8_t ItemType;
00044   static const uint8_t Reserved2;
00045   uint16_t ItemLength;
00046   uint16_t MaximumNumberOperationsInvoked;
00047   uint16_t MaximumNumberOperationsPerformed;
00048 };
00049
00050 } // end namespace network
00051
00052 } // end namespace gdcm
00053
00054 #endif // GDCMASYNCHRONOUSOPERATIONSWINDOWSUB_H
```

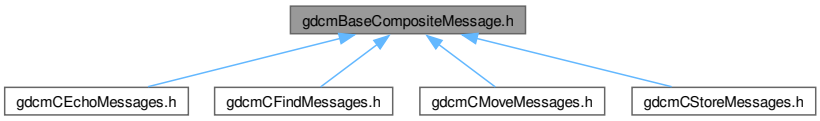
13.477 gdcmBaseCompositeMessage.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmBaseRootQuery.h"
#include <vector>
```

Include dependency graph for gdcmBaseCompositeMessage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::BaseCompositeMessage

  BaseCompositeMessage.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.478 gdcmBaseCompositeMessage.h

Go to the documentation of this file.

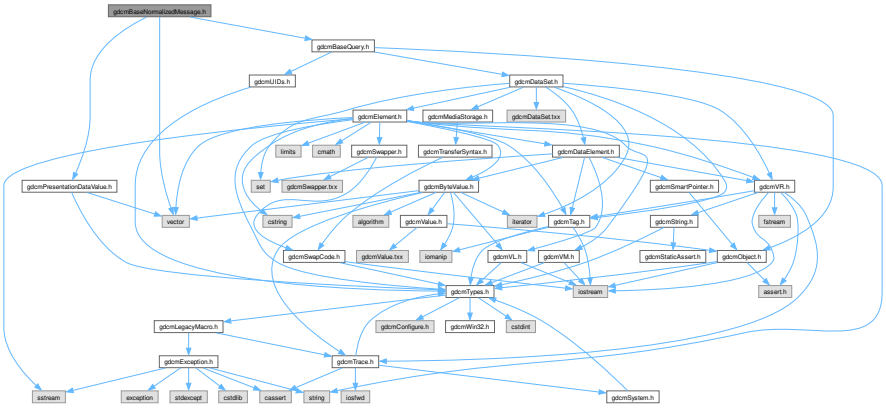
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMBASECOMPOSITEMESSSAGE_H
00019 #define GDCMBASECOMPOSITEMESSSAGE_H
00020
00021 #include "gdcmPresentationDataValue.h"
00022 #include "gdcmBaseRootQuery.h"
00023
00024 #include <vector>
00025
00026 namespace gdcm
00027 {
00028   namespace network
00029     {
00030 class ULConnection;
00052 class BaseCompositeMessage
00053 {
00054     public:
00055       virtual ~BaseCompositeMessage() = default;
00056       //construct the appropriate pdv and dataset for this message
00057       //for instance, setting tag 0x0,0x100 to the appropriate value
00058       //the pdv, as described in Annex E of 3.8-2009, is the first byte
```

```
00059       //of the message (the MessageHeader), and then the subsequent dataset
00060       //that describes the operation.
00061       virtual std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00062         const BaseRootQuery * inRootQuery) = 0;
00063     };
00064   }
00065 }
00066 #endif //BASECOMPOSITEMESSSAGE_H
```

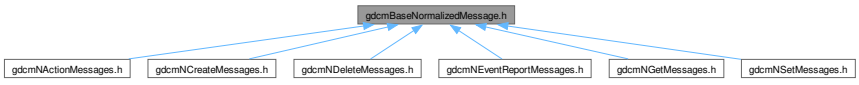
13.479 gdcmBaseNormalizedMessage.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmBaseQuery.h"
#include <vector>
```

Include dependency graph for gdcmBaseNormalizedMessage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::BaseNormalizedMessage

  BaseNormalizedMessage.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.480 gdcmBaseNormalizedMessage.h

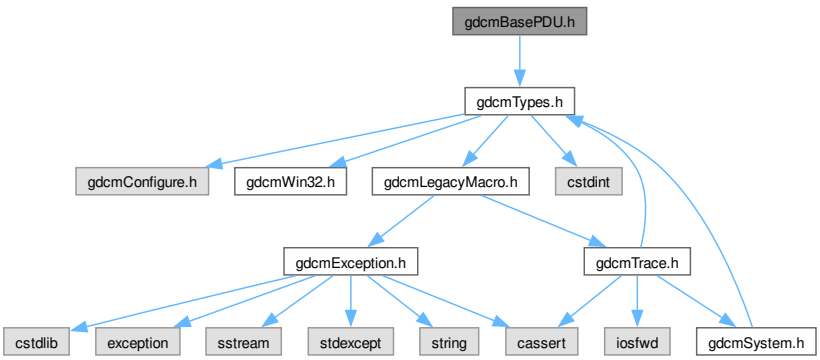
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMBASENORMALIZEDMESSSAGE_H
00015 #define GDCMBASENORMALIZEDMESSSAGE_H
00016
00017 #include "gdcmPresentationDataValue.h"
00018 #include "gdcmBaseQuery.h"
00019
00020 #include <vector>
00021
00022 namespace gdcm
00023 {
00024   namespace network
00025     {
00026 class ULConnection;
00049 class BaseNormalizedMessage
00050 {
00051     public:
00052       virtual ~BaseNormalizedMessage() = default;
00053       //construct the appropriate pdv and dataset for this message
00054       //for instance, setting tag 0x0,0x100 to the appropriate value
00055       //the pdv, as described in Annex E of 3.8-2009, is the first byte
00056       //of the message (the MessageHeader), and then the subsequent dataset
00057       //that describes the operation.
00058       virtual std::vector<PresentationDataValue> ConstructPDV(  const ULConnection &inConnection,
00059                                 const BaseQuery * inQuery) = 0;
00060     };
00061   }
00062 }
00063 #endif //GDCMBASENORMALIZEDMESSSAGE_H
```

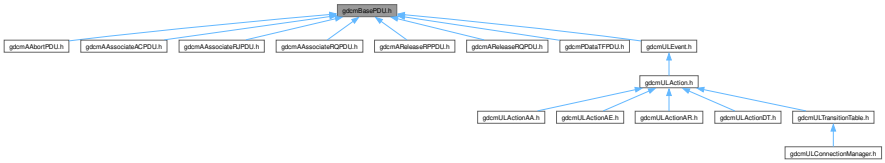
13.481 gdcmBasePDU.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmBasePDU.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::BasePDU

  BasePDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.482 gdcmBasePDU.h

Go to the documentation of this file.

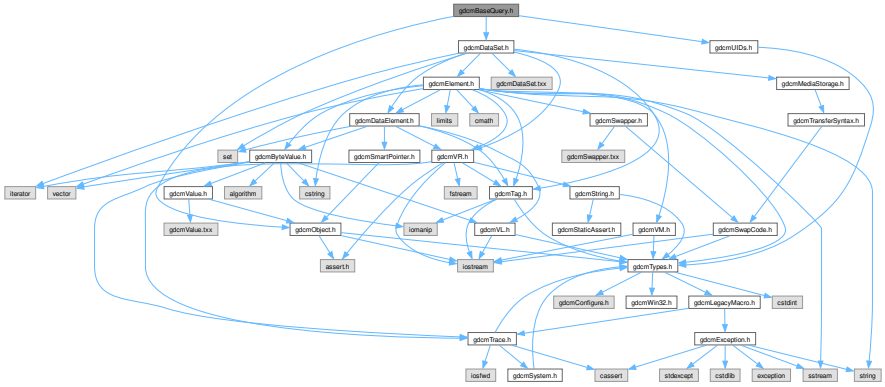
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMBASEPDU_H
00019 #define GDCMBASEPDU_H
00020
00021 #include "gdcmTypes.h"
00022
00023 namespace gdcm
00024 {
00025 namespace network
00026 {
00027
00050 class BasePDU
00051 {
00052 public:
00053   virtual ~BasePDU() = default;
00054
00055   virtual std::istream &Read(std::istream &is) = 0;
00056   virtual const std::ostream &Write(std::ostream &os) const = 0;
00057
00058   virtual size_t Size() const = 0;
00059   virtual void Print(std::ostream &os) const = 0;
00060
```

```
00061   virtual bool IsLastFragment() const = 0;
00062 };
00063
00064 } // end namespace network
00065 } // end namespace gdcm
00066
00067 #endif // GDCMBASEPDU_H
```

13.483 gdcmBaseQuery.h File Reference

```
#include "gdcmDataSet.h"
#include "gdcmUIDs.h"
#include "gdcmObject.h"
```

Include dependency graph for gdcmBaseQuery.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::BaseQuery

  BaseQuery.

Namespaces

- namespace gdcm

Enumerations

- enum gdcm::ENQueryType {
  gdcm::eCreateMMPS = 0 ,
  gdcm::eSetMMPS }

13.484 gdcmBaseQuery.h

Go to the documentation of this file.

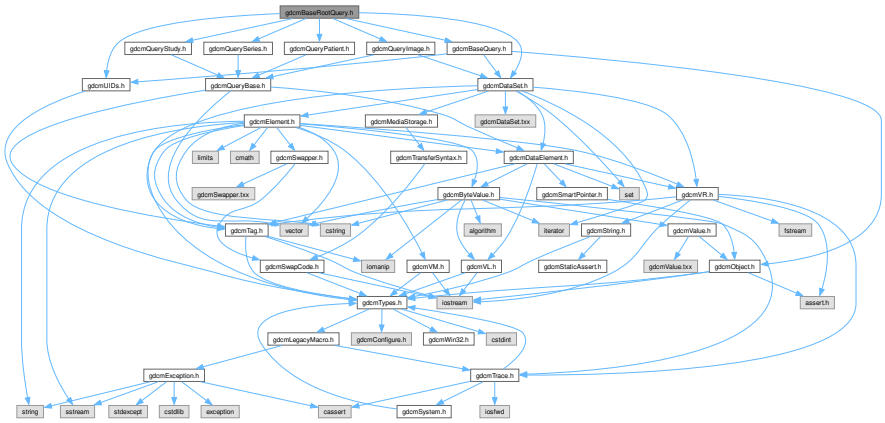
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMBASEQUERY_H
00019 #define GDCMBASEQUERY_H
00020
00021 #include "gdcmDataSet.h"
00022 #include "gdcmUIDs.h"
00023 #include "gdcmObject.h"
00024
00025 namespace gdcm
00026 {
00027   class QueryFactory;
00028   class DictEntry;
00029
00030   enum ENQueryType
00031     {
00032     eCreateMMPS = 0,
00033     eSetMMPS
00034     };
00041 class GDCM_EXPORT BaseQuery : public Object
00042 {
00043   //these four classes contain the required, unique, and optional tags from the standard.
00044   //used both to list the tags as well as to validate a dataset, if ever we were to do so.
00045 protected:
00046
00047   DataSet mDataSet;
00048   friend class QueryFactory;
00049   BaseQuery();
00050
00051   std::string mSopInstanceUID;
00052
00053   void SetSearchParameter(const Tag& inTag, const DictEntry& inDictEntry, const std::string& inValue);
00054
00055   bool ValidDataSet( const DataSet & dataSetToValid, const DataSet & dataSetReference  ) const ;
00056 public:
00057   ~BaseQuery() override;
00058
00059   void SetSearchParameter(const Tag& inTag, const std::string& inValue);
00060   void SetSearchParameter(const std::string& inKeyword, const std::string& inValue);
00061
00062   const std::ostream &WriteHelpFile(std::ostream &os);
00063
00064   //this function allows writing of the query to disk for storing for future use
00065   //virtual in case it needs to be overridden
00066   //returns false if the operation failed
00067   bool WriteQuery(const std::string& inFileName);
00068
00070   DataSet const & GetQueryDataSet() const;
```

```
00071   DataSet & GetQueryDataSet();
00072   void AddQueryDataSet(const DataSet & ds);
00073
00074   virtual bool ValidateQuery( bool inStrict = true ) const = 0;
00075
00076   virtual UIDs::TSName GetAbstractSyntaxUID() const = 0;
00077   std::string GetSOPInstanceUID() const { return mSopInstanceUID ; }
00078   void SetSOPInstanceUID( const std::string & iSopInstanceUID ) { mSopInstanceUID = iSopInstanceUID ; }
00079
00080
00081
00082   void Print(std::ostream &os) const override;
00083 };
00084
00085 } // end namespace gdcm
00086
00087 #endif //GDCMBASEROOTQUERY_H
```

13.485 gdcmBaseRootQuery.h File Reference

```
#include "gdcmDataSet.h"
#include "gdcmUIDs.h"
#include "gdcmBaseQuery.h"
#include "gdcmQueryPatient.h"
#include "gdcmQueryStudy.h"
#include "gdcmQuerySeries.h"
#include "gdcmQueryImage.h"
```

Include dependency graph for gdcmBaseRootQuery.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::BaseRootQuery
  BaseRootQuery.

Namespaces

- namespace gdcm

Enumerations

- enum gdcm::EQueryLevel {
  gdcm::ePatient = 0 ,
  gdcm::eStudy = 1 ,
  gdcm::eSeries = 2 ,
  gdcm::eImage = 3 }
- enum gdcm::EQueryType {
  gdcm::eFind = 0 ,
  gdcm::eMove ,
  gdcm::eWLMFind }

13.486 gdcmBaseRootQuery.h

Go to the documentation of this file.

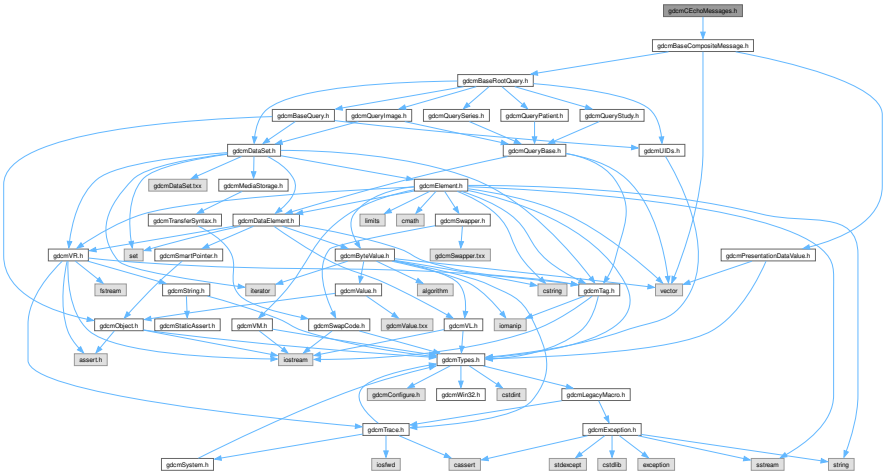
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMBASEROOTQUERY_H
00019 #define GDCMBASEROOTQUERY_H
00020
00021 #include "gdcmDataSet.h"
00022 #include "gdcmUIDs.h"
00023 #include "gdcmBaseQuery.h"
00024 #include "gdcmQueryPatient.h"
00025 #include "gdcmQueryStudy.h"
00026 #include "gdcmQuerySeries.h"
00027 #include "gdcmQueryImage.h"
00028
00029 namespace gdcm
00030 {
00031   class QueryFactory;
00032   class DictEntry;
00033
00034   enum EQueryLevel
00035     {
00036     // -1 is reserved do not use
00037     ePatient = 0,
00038     eStudy   = 1,
00039     eSeries  = 2,
00040     eImage   = 3
00041     };
00042   enum EQueryType
00043     {
00044     eFind= 0,
00045     eMove,
00046     eWLMFind
00047     };
```

```
00048
00066 class GDCM_EXPORT BaseRootQuery : public BaseQuery
00067 {
00068   //these four classes contain the required, unique, and optional tags from the standard.
00069   //used both to list the tags as well as to validate a dataset, if ever we were to do so.
00070 protected:
00071   QueryPatient mPatient;
00072   QueryStudy mStudy;
00073   QuerySeries mSeries;
00074   QueryImage mImage;
00075
00076   friend class QueryFactory;
00077   BaseRootQuery();
00078
00079   ERootType mRootType; //set in construction, and it's something else in the study root type
00080   std::string mHelpDescription; //used when generating the help output
00081
00082 public:
00083   ~BaseRootQuery() override = default;
00084
00088   virtual std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) = 0;
00089
00093   virtual void InitializeDataSet(const EQueryLevel& inQueryLevel) = 0;
00094
00108   bool ValidateQuery( bool inStrict = true ) const override = 0;
00109
00110   static const char *GetQueryLevelString( EQueryLevel ql );
00111   static int GetQueryLevelFromString( const char * str );
00112
00113   static QueryBase * Construct(ERootType inRootType, EQueryLevel qlevel);
00114   EQueryLevel GetQueryLevelFromQueryRoot( ERootType roottype );
00115 };
00116
00117 } // end namespace gdcm
00118
00119 #endif //GDCMBASEROOTQUERY_H
```

13.487 gdcmCEchoMessages.h File Reference

`#include "gdcmBaseCompositeMessage.h"`

Include dependency graph for gdcmCEchoMessages.h:



Classes

- class gdcm::network::CEchoRQ

CEchoRQ.

- class gdcm::network::CEchoRSP

  CEchoRSP this file defines the messages for the cecho action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.488 gdcmCEchoMessages.h

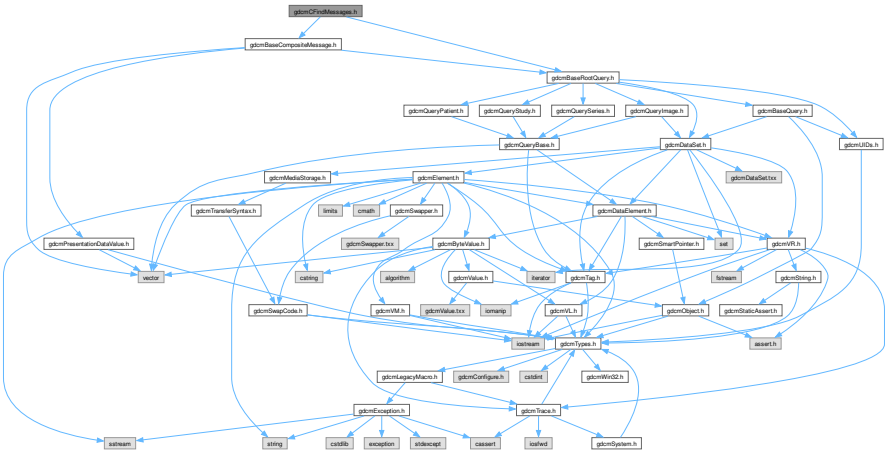
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMCECHOMESSAGES_H
00019 #define GDCMCECHOMESSAGES_H
00020
00021 #include "gdcmBaseCompositeMessage.h"
00022
00023 namespace gdcm{
00024   namespace network{
00025
00026 class ULConnection;
00027
00032 class CEchoRQ : public BaseCompositeMessage {
00033     public:
00034       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00035         const BaseRootQuery* inRootQuery) override;
00036     };
00037
00042     class CEchoRSP : public BaseCompositeMessage {
00043     public:
00044       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00045     };
00046   }
00047 }
00048 #endif // GDCMCECHOMESSAGES_H
```

13.489 gdcmCFindMessages.h File Reference

```
#include "gdcmBaseCompositeMessage.h"
#include "gdcmBaseRootQuery.h"
```

Include dependency graph for gdcmCFindMessages.h:



Classes

- class gdcm::network::CFindCancelRQ

  CFindCancelRQ this file defines the messages for the cfind action.
- class gdcm::network::CFindRQ

  CFindRQ.
- class gdcm::network::CFindRSP

  CFindRSP this file defines the messages for the cfind action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.490 gdcmCFindMessages.h

Go to the documentation of this file.

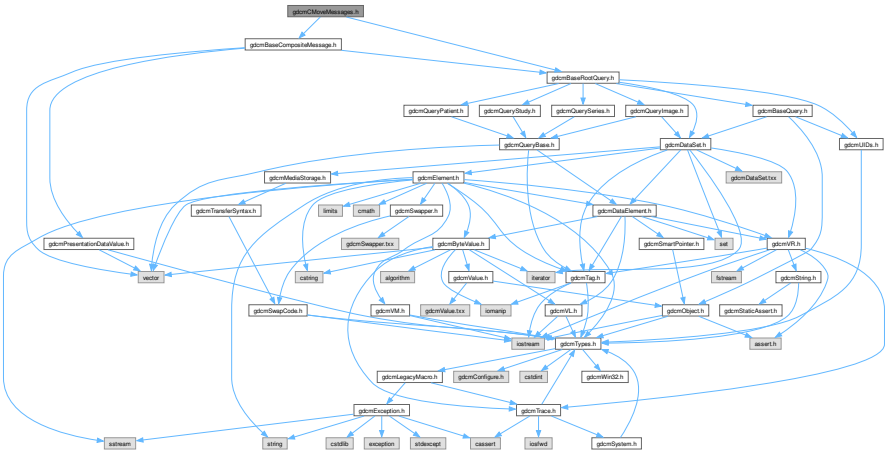
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
```

```
00018 #ifndef GDCMCFINDMESSAGES_H
00019 #define GDCMCFINDMESSAGES_H
00020
00021 #include "gdcmBaseCompositeMessage.h"
00022 #include "gdcmBaseRootQuery.h"
00023
00024 namespace gdcm
00025 {
00026 namespace network
00027 {
00028
00033 class CFindRQ : public BaseCompositeMessage
00034 {
00035 public:
00036   std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00037     const BaseRootQuery* inRootQuery) override;
00038 };
00039
00044 class CFindRSP : public BaseCompositeMessage {
00045 public:
00046   std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00047 };
00048
00053   class CFindCancelRQ : public BaseCompositeMessage {
00054   public:
00055     std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00056   };
00057 }
00058 }
00059 #endif
```

13.491 gdcmCMoveMessages.h File Reference

```
#include "gdcmBaseCompositeMessage.h"
#include "gdcmBaseRootQuery.h"
```

Include dependency graph for gdcmCMoveMessages.h:



Classes

- class gdcm::network::CMoveCancelRq
- class gdcm::network::CMoveRQ

  CMoveRQ.
- class gdcm::network::CMoveRSP

  CMoveRSP this file defines the messages for the cmove action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.492 gdcmCMoveMessages.h

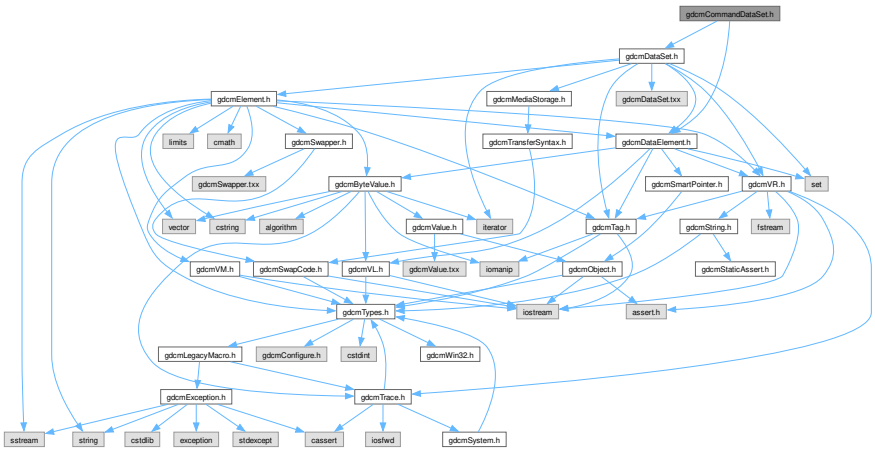
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMCMOVEMESSAGES_H
00019 #define GDCMCMOVEMESSAGES_H
00020
00021 #include "gdcmBaseCompositeMessage.h"
00022 #include "gdcmBaseRootQuery.h"
00023
00024 namespace gdcm{
00025   namespace network{
00026   class ULConnection;
00031 class CMoveRQ : public BaseCompositeMessage {
00032       //this class will fulfill the inheritance,
00033       //but additional information is needed by cmovd
00034       //namely, the root type or the calling AE-TITLE
00035       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00036     public:
00037       std::vector<PresentationDataValue> ConstructPDV(
00038         const ULConnection &inConnection,
00039         const BaseRootQuery* inRootQuery) override;
00040     };
00041
00046 class CMoveRSP : public BaseCompositeMessage {
00047     public:
00048       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00049     };
00050
00051     class CMoveCancelRq : public BaseCompositeMessage {
00052     public:
00053       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00054     };
00055   }
00056 }
00057 #endif
```

13.493 gdcmCommandDataSet.h File Reference

```
#include "gdcmDataSet.h"
#include "gdcmDataElement.h"
```

Include dependency graph for gdcmCommandDataSet.h:



Classes

- class gdcm::CommandDataSet

  Class to represent a Command DataSet.

Namespaces

- namespace gdcm

Functions

- std::ostream & gdcm::operator<< (std::ostream &os, const CommandDataSet &val)

13.494 gdcmCommandDataSet.h

Go to the documentation of this file.

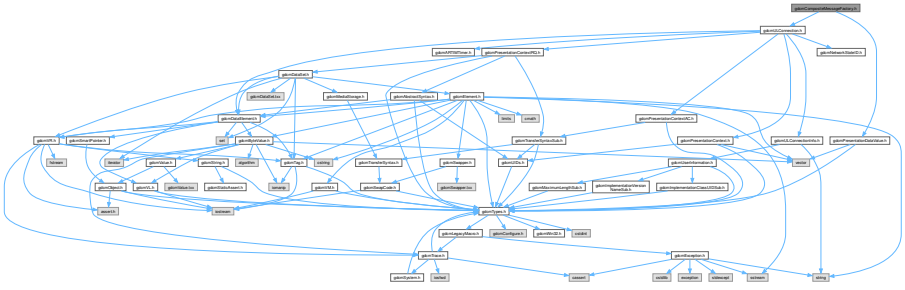
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCOMMANDDATASET_H
00015 #define GDCMCOMMANDDATASET_H
00016
00017 #include "gdcmDataSet.h"
```

```
00018 #include "gdcmDataElement.h"
00019
00020 namespace gdcm
00021 {
00027 class GDCM_EXPORT CommandDataSet : public DataSet
00028 {
00029 public:
00030   CommandDataSet() = default;
00031  ~CommandDataSet() = default;
00032
00033   friend std::ostream &operator«(std::ostream &_os, const CommandDataSet &_val);
00034
00035   // FIXME: no virtual function means: duplicate code...
00036   void Insert(const DataElement& de) {
00037     if( de.GetTag().GetGroup() == 0x0000 )
00038       {
00039       InsertDataElement( de );
00040       }
00041     else
00042       {
00043       gdcmErrorMacro( "Cannot add element with group != 0x0000 in the command dataset : " « de );
00044       }
00045   }
00046   void Replace(const DataElement& de) {
00047     Remove(de.GetTag());
00048     Insert(de);
00049   }
00050
00052   std::istream &Read(std::istream &is);
00053
00055   std::ostream &Write(std::ostream &os) const;
00056
00057 protected:
00058 };
00059 //-----------------------------------------------------------------------------
00060 inline std::ostream& operator«(std::ostream &os, const CommandDataSet &val)
00061 {
00062   val.Print( os );
00063   return os;
00064 }
00065
00066 } // end namespace gdcm
00067
00068 #endif //GDCMFILEMETAINFORMATION_H
```

13.495 gdcmCompositeMessageFactory.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmULConnection.h"
```

Include dependency graph for gdcmCompositeMessageFactory.h:



Classes

- class gdcm::network::CompositeMessageFactory

  CompositeMessageFactory.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.496 gdcmCompositeMessageFactory.h

Go to the documentation of this file.

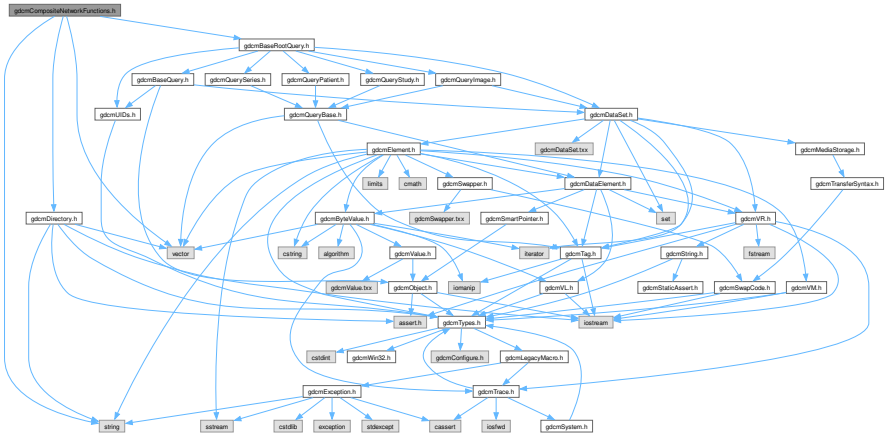
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMCOMPOSITEMESSAGEFACTORY_H
00019 #define GDCMCOMPOSITEMESSAGEFACTORY_H
00020
00021 #include "gdcmPresentationDataValue.h"
00022 #include "gdcmULConnection.h"
00023
00024 namespace gdcm {
00025   class BaseRootQuery;
00026   class File;
00027   namespace network {
00028     class BasePDU;
00037 class CompositeMessageFactory
00038 {
00039     public:
00040       //the echo request only needs a properly constructed PDV.
00041       //find, move, etc, may need something more robust, but since those are
00042       //easily placed into the appropriate pdatapdu in the pdufactory,
00043       //this approach without a base class (but done internally) is useful.
00044       static std::vector<PresentationDataValue> ConstructCEchoRQ(const ULConnection& inConnection);
00045
00046       static std::vector<PresentationDataValue> ConstructCStoreRQ(const ULConnection& inConnection,const
      File &file, bool writeDataSet = true );
00047       static std::vector<PresentationDataValue> ConstructCStoreRSP(const DataSet *inDataSet, const
      BasePDU* inPC);
00048
00049       static  std::vector<PresentationDataValue> ConstructCFindRQ(const ULConnection& inConnection, const
      BaseRootQuery* inRootQuery);
00050
00051       static  std::vector<PresentationDataValue> ConstructCMoveRQ(const ULConnection& inConnection, const
      BaseRootQuery* inRootQuery);
00052
00053
00054     };
00055   }
00056 }
00057
00058 #endif // GDCMCOMPOSITEMESSAGEFACTORY_H
```

13.497 gdcmCompositeNetworkFunctions.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmBaseRootQuery.h"
```

```
#include <vector>
#include <string>
```

Include dependency graph for gdcmCompositeNetworkFunctions.h:



Classes

- class gdcm::CompositeNetworkFunctions

  Composite Network Functions.

Namespaces

- namespace gdcm

13.498 gdcmCompositeNetworkFunctions.h

Go to the documentation of this file.

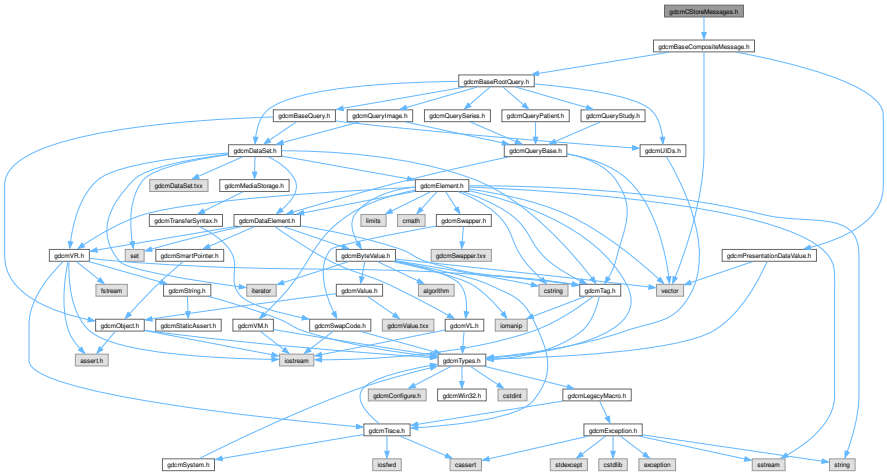
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMCOMPOSITENETWORKFUNCTIONS_H
00019 #define GDCMCOMPOSITENETWORKFUNCTIONS_H
00020
00021 #include "gdcmDirectory.h"
00022 #include "gdcmBaseRootQuery.h" // EQueryLevel / EQueryType
00023
```

```
00024 #include <vector>
00025 #include <string>
00026
00027 namespace gdcm
00028 {
00048 class GDCM_EXPORT CompositeNetworkFunctions
00049 {
00050 public:
00057   static bool CEcho( const char *remote, uint16_t portno, const char *aetitle = nullptr,
00058     const char *call = nullptr );
00059
00060   typedef std::pair<Tag, std::string> KeyValuePairType;
00061   typedef std::vector< KeyValuePairType  > KeyValuePairArrayType;
00062
00069   static BaseRootQuery* ConstructQuery(ERootType inRootType, EQueryLevel inQueryLevel,
00070     const DataSet& queryds, EQueryType queryType = eFind );
00071
00073   static BaseRootQuery* ConstructQuery(ERootType inRootType, EQueryLevel inQueryLevel,
00074     const KeyValuePairArrayType& keys, EQueryType queryType = eFind );
00075
00091   static bool CMove( const char *remote, uint16_t portno, const BaseRootQuery* query,
00092     uint16_t portscp, const char *aetitle = nullptr,
00093     const char *call = nullptr, const char *outputdir = nullptr);
00094
00104   static bool CFind( const char *remote, uint16_t portno,
00105     const BaseRootQuery* query,
00106     std::vector<DataSet> &retDataSets,
00107     const char *aetitle = nullptr,
00108     const char *call = nullptr );
00109
00117   static bool CStore( const char *remote, uint16_t portno,
00118     const Directory::FilenamesType & filenames,
00119     const char *aetitle = nullptr, const char *call = nullptr);
00120 };
00121
00122 } // end namespace gdcm
00123
00124 #endif // GDCMCOMPOSITENETWORKFUNCTIONS_H
```

13.499 gdcmCStoreMessages.h File Reference

`#include "gdcmBaseCompositeMessage.h"`

Include dependency graph for gdcmCStoreMessages.h:



Classes

- class gdcm::network::CStoreRQ

  CStoreRQ.
- class gdcm::network::CStoreRSP

  CStoreRSP this file defines the messages for the cecho action.

Namespaces

- namespace gdcm
- namespace gdcm::network

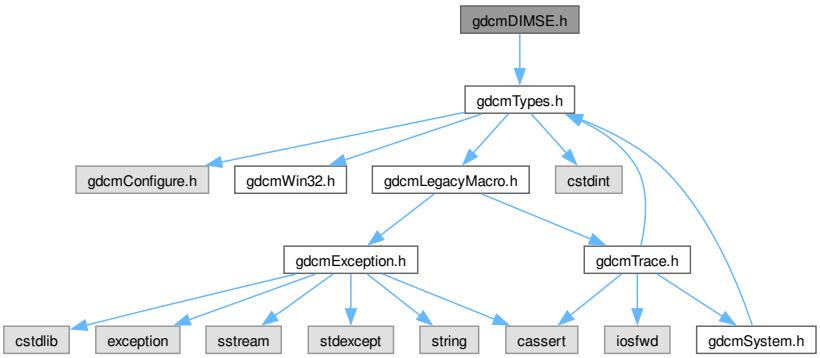
13.500 gdcmCStoreMessages.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMCSTOREMESSAGES_H
00019 #define GDCMCSTOREMESSAGES_H
00020
00021 #include "gdcmBaseCompositeMessage.h"
00022
00023 namespace gdcm{
00024 class File;
00025   namespace network{
00026     class BasePDU;
00031 class CStoreRQ : public BaseCompositeMessage {
00032       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection, const
      BaseRootQuery* inRootQuery) override;//to fulfill the virtual contract
00033     public:
00034       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00035         const File& file,  bool writeDataSet = true );
00036     };
00037
00042     class CStoreRSP : public BaseCompositeMessage {
00043       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection, const
      BaseRootQuery* inRootQuery) override;//to fulfill the virtual contract
00044     public:
00045       std::vector<PresentationDataValue> ConstructPDV(const DataSet* inDataSet, const BasePDU* inPC);
00046     };
00047   }
00048 }
00049 #endif // GDCMCSTOREMESSAGES_H
```

13.501 gdcmDIMSE.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmDIMSE.h:



Classes

- class gdcm::network::CEchoRQ

  CEchoRQ.
- class gdcm::network::CEchoRSP

  CEchoRSP this file defines the messages for the cecho action.
- class gdcm::network::CFind
- class gdcm::network::DIMSE

  DIMSE.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.502 gdcmDIMSE.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
```

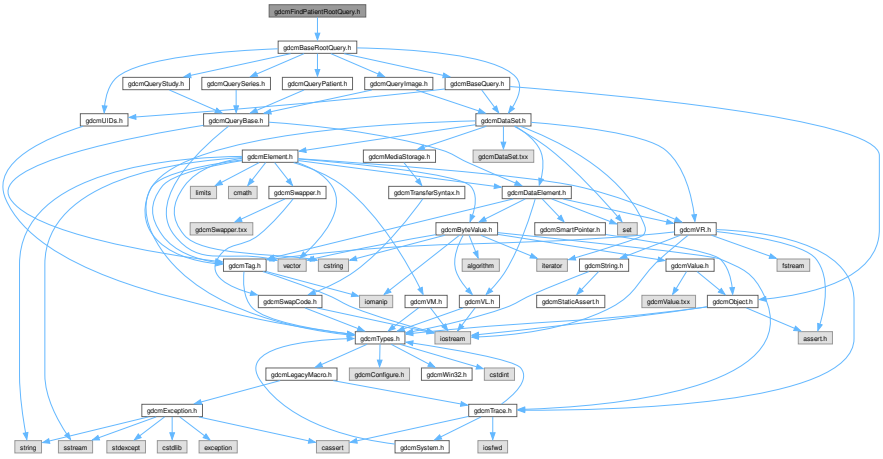
```
00012
00013 ============================================================================*/
00014 #ifndef GDCMDIMSE_H
00015 #define GDCMDIMSE_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00033 class DIMSE {
00034 public:
00035   typedef enum {
00036 C_STORE_RQ         = 0x0001,
00037 C_STORE_RSP        = 0x8001,
00038 C_GET_RQ           = 0x0010,
00039 C_GET_RSP          = 0x8010,
00040 C_FIND_RQ          = 0x0020,
00041 C_FIND_RSP         = 0x8020,
00042 C_MOVE_RQ          = 0x0021,
00043 C_MOVE_RSP         = 0x8021,
00044 C_ECHO_RQ          = 0x0030,
00045 C_ECHO_RSP         = 0x8030,
00046 N_EVENT_REPORT_RQ  = 0x0100,
00047 N_EVENT_REPORT_RSP = 0x8100,
00048 N_GET_RQ           = 0x0110,
00049 N_GET_RSP          = 0x8110,
00050 N_SET_RQ           = 0x0120,
00051 N_SET_RSP          = 0x8120,
00052 N_ACTION_RQ        = 0x0130,
00053 N_ACTION_RSP       = 0x8130,
00054 N_CREATE_RQ        = 0x0140,
00055 N_CREATE_RSP       = 0x8140,
00056 N_DELETE_RQ        = 0x0150,
00057 N_DELETE_RSP       = 0x8150,
00058 C_CANCEL_RQ        = 0x0FFF
00059   } CommandTypes;
00060 };
00061
00062 /*
00063 9.1.5.1 C-ECHO parameters
00064 Table 9.1-5
00065 C-ECHO PARAMETERS
00066 */
00067 class CEchoRQ
00068 {
00069 public:
00070   uint16_t          MessageID;                          /* M */
00071   UIComp            AffectedSOPClassUID;                /* M */
00072 };
00073
00074 class CEchoRSP
00075 {
00076 public:
00077 /*
00078 Message ID M U
00079 Message ID Being Responded To M
00080 Affected SOP Class UID M U(=)
00081 Status M
00082 */
00083 };
00084
00089 class CFind
00090 {
00091 /*
00092 Failure Refused: Out of Resources A700 (0000,0902)
00093 Identifier does not match SOP Class A900 (0000,0901)
00094 (0000,0902)
00095 Unable to process Cxxx (0000,0901)
00096 (0000,0902)
00097 Cancel Matching terminated due to Cancel
00098 request
00099 FE00 None
00100 Success Matching is complete - No final Identifier
00101 is supplied.
00102 0000 None
00103 Pending Matches are continuing - Current Match
00104 is supplied and any Optional Keys were
```

```
00105 supported in the same manner as
00106 Required Keys.
00107 FF00 Identifier
00108 Matches are continuing - Warning that
00109 one or more Optional Keys were not
00110 supported for existence and/or matching
00111 for this Identifier.
00112 FF01 Identifier
00113 */
00114 };
00115
00116
00117 } // end namespace network
00118
00119 } // end namespace gdcm
00120
00121 #endif //GDCMDIMSE_H
```

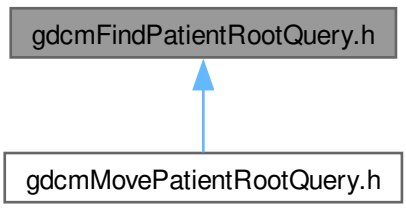
13.503 gdcmFindPatientRootQuery.h File Reference

`#include "gdcmBaseRootQuery.h"`

Include dependency graph for gdcmFindPatientRootQuery.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::FindPatientRootQuery

  PatientRootQuery.

Namespaces

- namespace gdcm

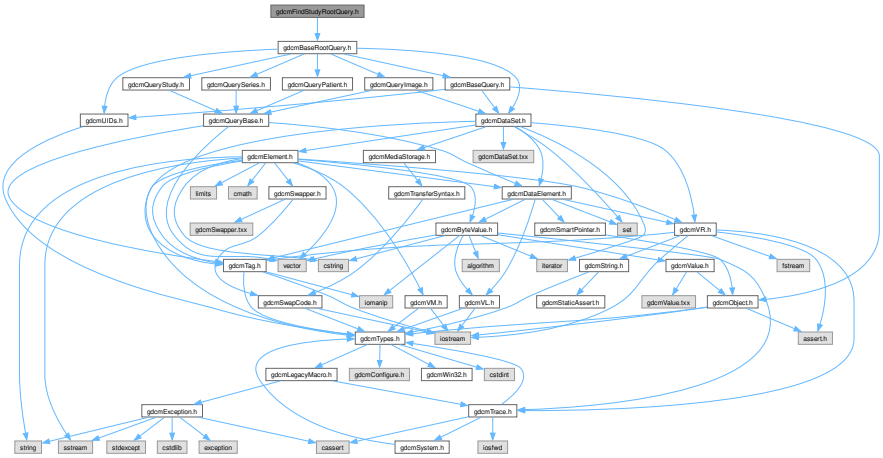
13.504 gdcmFindPatientRootQuery.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFINDPATIENTROOTQUERY_H
00015 #define GDCMFINDPATIENTROOTQUERY_H
00016
00017 #include "gdcmBaseRootQuery.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT FindPatientRootQuery : public BaseRootQuery
00026 {
00027   friend class QueryFactory;
00028 public:
00029   FindPatientRootQuery();
00030
00031   void InitializeDataSet(const EQueryLevel& inQueryLevel) override;
00032
00033   std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;
00034   bool ValidateQuery(bool inStrict = true) const override;
00035
00036   UIDs::TSName GetAbstractSyntaxUID() const override;
00037 };
00038
00039 } // end namespace gdcm
00040
00041 #endif // GDCMFINDPATIENTROOTQUERY_H
```

13.505 gdcmFindStudyRootQuery.h File Reference

`#include "gdcmBaseRootQuery.h"`
Include dependency graph for gdcmFindStudyRootQuery.h:



Classes

- class gdcm::FindStudyRootQuery
  FindStudyRootQuery.

Namespaces

- namespace gdcm

13.506 gdcmFindStudyRootQuery.h

Go to the documentation of this file.

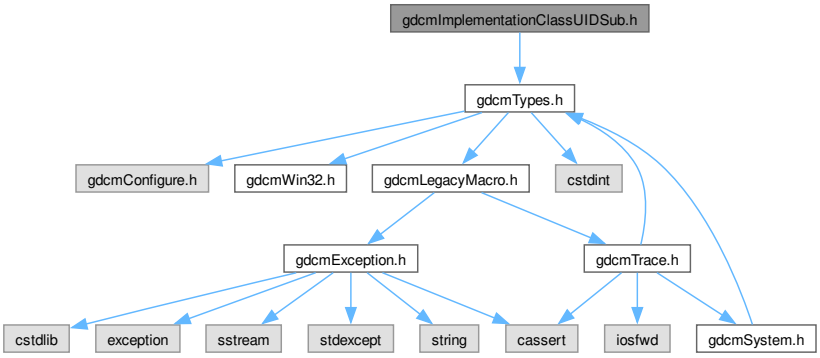
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMFINDSTUDYROOTQUERY_H
00015 #define GDCMFINDSTUDYROOTQUERY_H
00016
00017 #include "gdcmBaseRootQuery.h"
00018
00019 namespace gdcm
00020 {
```

```
00025 class GDCM_EXPORT FindStudyRootQuery : public BaseRootQuery
00026 {
00027   friend class QueryFactory;
00028 public:
00029   FindStudyRootQuery();
00030
00031   void InitializeDataSet(const EQueryLevel& inQueryLevel) override;
00032
00033   std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;
00034
00038   bool ValidateQuery(bool inStrict = true) const override;
00039
00040   UIDs::TSName GetAbstractSyntaxUID() const override;
00041 };
00042
00043 } // end namespace gdcm
00044
00045 #endif // GDCMFINDSTUDYROOTQUERY_H
```

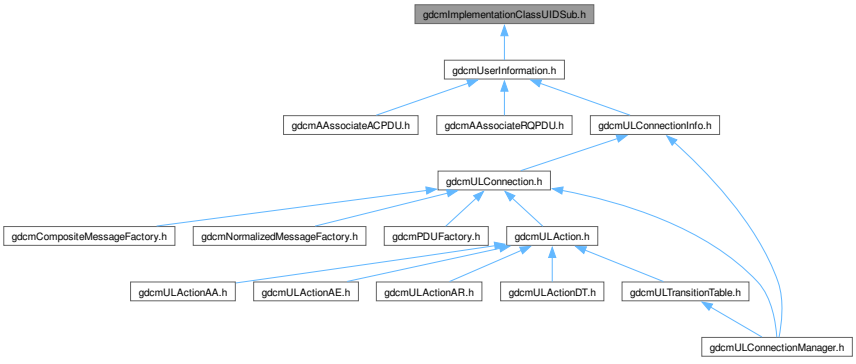
13.507 gdcmImplementationClassUIDSub.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmImplementationClassUIDSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ImplementationClassUIDSub

  ImplementationClassUIDSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

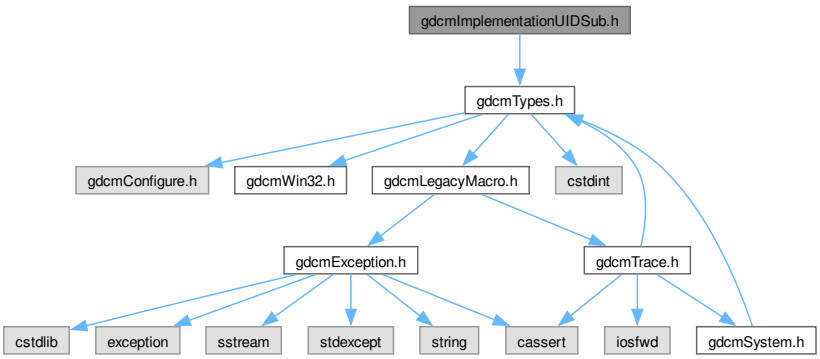
13.508 gdcmImplementationClassUIDSub.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMPLEMENTATIONCLASSUIDSUB_H
00015 #define GDCMIMPLEMENTATIONCLASSUIDSUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00031 class ImplementationClassUIDSub
00032 {
00033 public:
00034   ImplementationClassUIDSub();
00035   std::istream &Read(std::istream &is);
00036   const std::ostream &Write(std::ostream &os) const;
00037
00038   size_t Size() const;
00039
00040   void Print(std::ostream &os) const;
00041
00042 private:
00043   static const uint8_t ItemType;
00044   static const uint8_t Reserved2;
00045   uint16_t ItemLength;
00046   std::string ImplementationClassUID;
00047 };
00048
00049 } // end namespace network
00050
00051 } // end namespace gdcm
00052
00053 #endif //GDCMMAXIMUMLENGTHSUB_H
```

13.509 gdcmImplementationUIDSub.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmImplementationUIDSub.h:



Classes

- class gdcm::network::ImplementationUIDSub

  ImplementationUIDSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.510 gdcmImplementationUIDSub.h

Go to the documentation of this file.

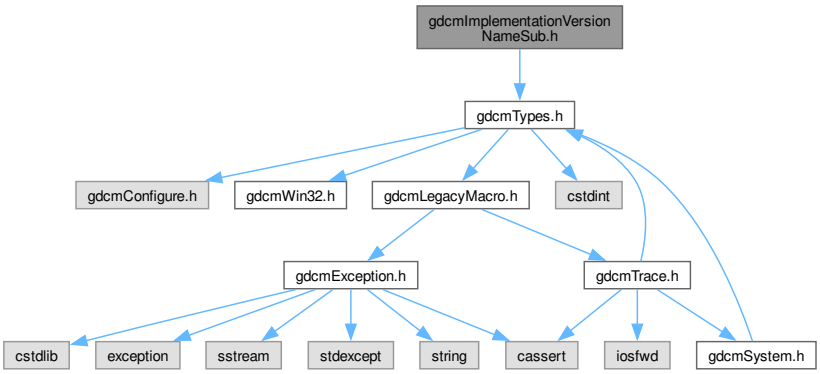
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMPLEMENTATIONUIDSUB_H
00015 #define GDCMIMPLEMENTATIONUIDSUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
```

```
00021
00022 namespace network
00023 {
00024
00030 class GDCM_EXPORT ImplementationUIDSub
00031 {
00032 public:
00033   ImplementationUIDSub();
00034   const std::ostream &Write(std::ostream &os) const;
00035 private:
00036   static const uint8_t ItemType;
00037   static const uint8_t Reserved2;
00038   uint16_t ItemLength;
00039   std::string ImplementationClassUID;
00040 };
00041
00042 } // end namespace network
00043
00044 } // end namespace gdcm
00045
00046 #endif //GDCMMAXIMUMLENGTHSUB_H
```

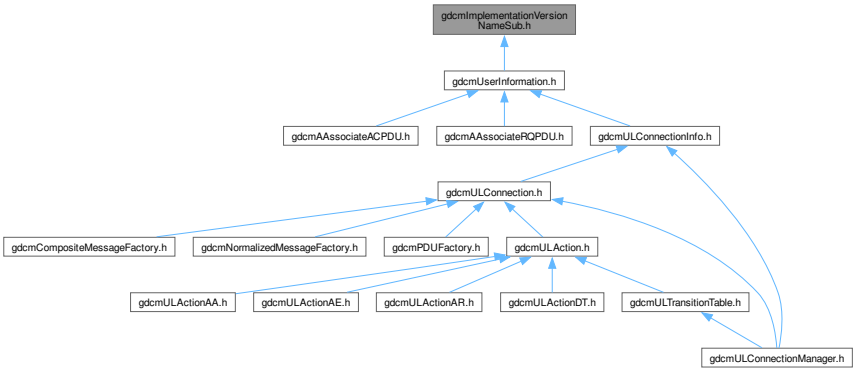
13.511 gdcmImplementationVersionNameSub.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmImplementationVersionNameSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ImplementationVersionNameSub

  ImplementationVersionNameSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.512 gdcmImplementationVersionNameSub.h

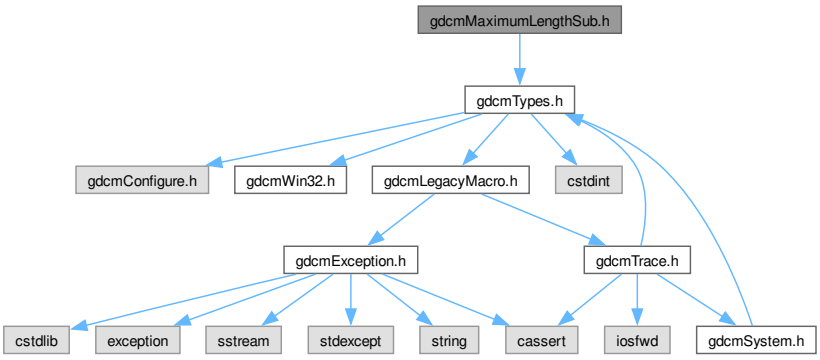
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMIMPLEMENTATIONVERSIONNAMESUB_H
00015 #define GDCMIMPLEMENTATIONVERSIONNAMESUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00030 class ImplementationVersionNameSub
00031 {
```

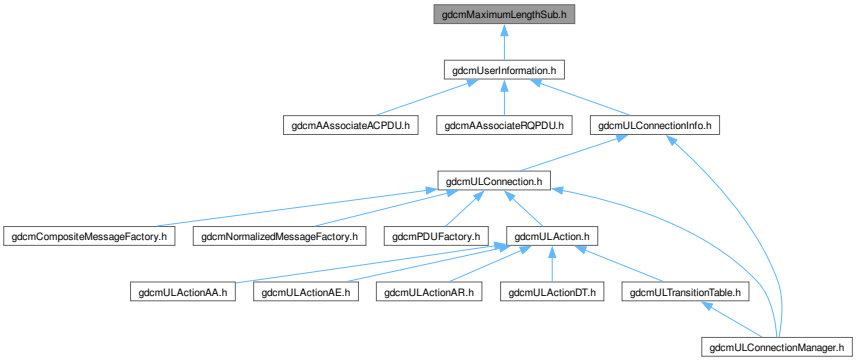
```
00032 public:
00033   ImplementationVersionNameSub();
00034   std::istream &Read(std::istream &is);
00035   const std::ostream &Write(std::ostream &os) const;
00036
00037   size_t Size() const;
00038   void Print(std::ostream &os) const;
00039
00040 private:
00041   static const uint8_t ItemType;
00042   static const uint8_t Reserved2;
00043   uint16_t ItemLength;
00044   std::string ImplementationVersionName;
00045 };
00046
00047 } // end namespace network
00048
00049 } // end namespace gdcm
00050
00051 #endif //GDCMMAXIMUMLENGTHSUB_H
```

13.513 gdcmMaximumLengthSub.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmMaximumLengthSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::MaximumLengthSub

  MaximumLengthSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

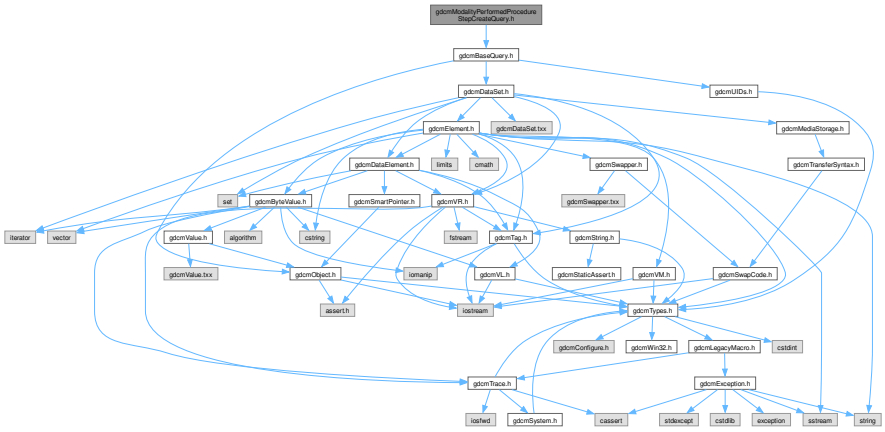
13.514 gdcmMaximumLengthSub.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMAXIMUMLENGTHSUB_H
00015 #define GDCMMAXIMUMLENGTHSUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00036 class MaximumLengthSub
00037 {
00038 public:
00039   MaximumLengthSub();
00040   std::istream &Read(std::istream &is);
00041   const std::ostream &Write(std::ostream &os) const;
00042
00043   size_t Size() const;
00044
00045   uint32_t GetMaximumLength() const { return MaximumLength; }
00046   void SetMaximumLength(uint32_t maximumlength);
00047
00048   void Print(std::ostream &os) const;
00049
00050 private:
00051   static const uint8_t ItemType;
00052   static const uint8_t Reserved2;
00053   uint16_t ItemLength;
00054   uint32_t MaximumLength;
00055 };
00056
00057 } // end namespace network
00058
00059 } // end namespace gdcm
00060
00061 #endif //GDCMMAXIMUMLENGTHSUB_H
```

13.515 gdcmModalityPerformedProcedureStepCreateQuery.h File Reference

`#include "gdcmBaseQuery.h"`
Include dependency graph for gdcmModalityPerformedProcedureStepCreateQuery.h:



Classes

- class gdcm::ModalityPerformedProcedureStepCreateQuery

  ModalityPerformedProcedureStepCreateQuery.

Namespaces

- namespace gdcm

13.516 gdcmModalityPerformedProcedureStepCreateQuery.h

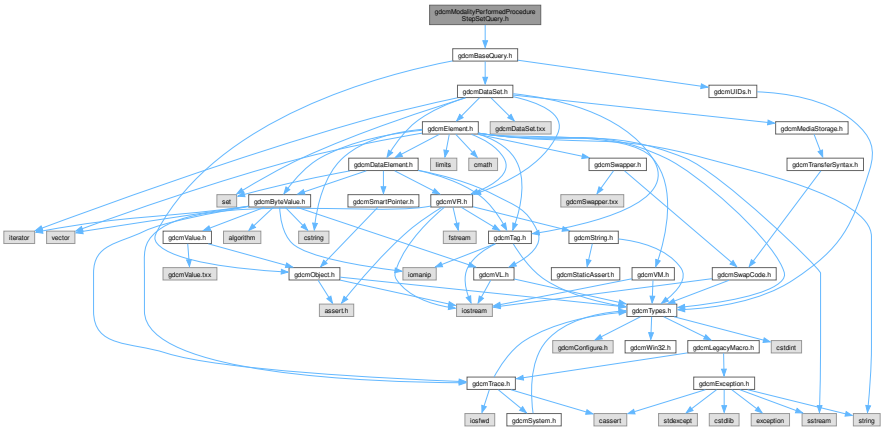
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMODALITYPERFORMEDPROCEDURESTEPCREATEQUERY_H
00015 #define GDCMMODALITYPERFORMEDPROCEDURESTEPCREATEQUERY_H
00016
00017 #include "gdcmBaseQuery.h"
00018
00019 namespace gdcm
```

```
00020 {
00025 class GDCM_EXPORT ModalityPerformedProcedureStepCreateQuery : public BaseQuery{
00026   friend class QueryFactory;
00027 public:
00028   ModalityPerformedProcedureStepCreateQuery( const std::string & iSopInstanceUID );
00029
00030   gdcm::DataSet GetRequiredDataSet() const;
00031   bool ValidateQuery(bool inStrict = true) const override;
00032   UIDs::TSName GetAbstractSyntaxUID() const override;
00033 };
00034
00035 } // end namespace gdcm
00036
00037 #endif // GDCMMODALITYPERFORMEDPROCEDURESTEPCREATEQUERY_H
```

13.517 gdcmModalityPerformedProcedureStepSetQuery.h File Reference

`#include "gdcmBaseQuery.h"`
Include dependency graph for gdcmModalityPerformedProcedureStepSetQuery.h:



Classes

- class gdcm::ModalityPerformedProcedureStepSetQuery
  ModalityPerformedProcedureStepSetQuery.

Namespaces

- namespace gdcm

13.518 gdcmModalityPerformedProcedureStepSetQuery.h

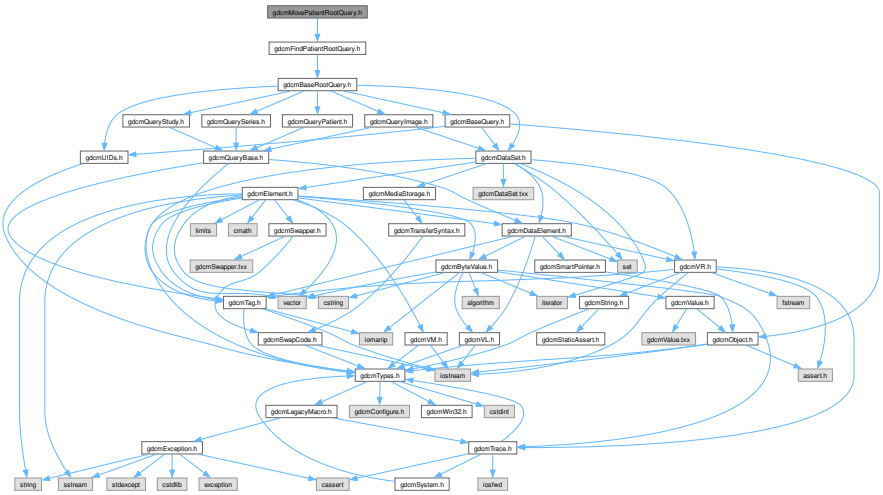
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMODALITYPERFORMEDPROCEDURESTEPSETQUERY_H
00015 #define GDCMMODALITYPERFORMEDPROCEDURESTEPSETQUERY_H
00016
00017 #include "gdcmBaseQuery.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT ModalityPerformedProcedureStepSetQuery : public BaseQuery{
00026   friend class QueryFactory;
00027 public:
00028   ModalityPerformedProcedureStepSetQuery( const std::string & iSopInstanceUID );
00029
00030   gdcm::DataSet GetRequiredDataSet() const;
00031   bool ValidateQuery(bool inStrict = true) const override;
00032   UIDs::TSName GetAbstractSyntaxUID() const override;
00033 };
00034
00035 } // end namespace gdcm
00036
00037 #endif // GDCMMODALITYPERFORMEDPROCEDURESTEPSETQUERY_H
```

13.519 gdcmMovePatientRootQuery.h File Reference

`#include "gdcmFindPatientRootQuery.h"`

Include dependency graph for gdcmMovePatientRootQuery.h:



Classes

- class gdcm::MovePatientRootQuery

  MovePatientRootQuery.

Namespaces

- namespace gdcm

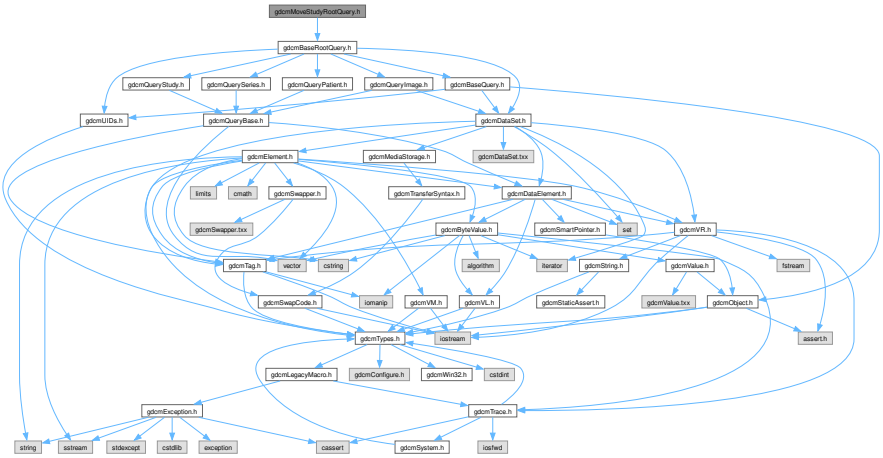
13.520 gdcmMovePatientRootQuery.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMOVEPATIENTROOTQUERY_H
00015 #define GDCMMOVEPATIENTROOTQUERY_H
00016
00017 #include "gdcmFindPatientRootQuery.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT MovePatientRootQuery : public BaseRootQuery
00026 {
00027   friend class QueryFactory;
00028 public:
00029   MovePatientRootQuery();
00030
00031   void InitializeDataSet(const EQueryLevel& inQueryLevel) override;
00032
00033   std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;
00034
00035   bool ValidateQuery(bool inStrict = true) const override;
00036
00037   UIDs::TSName GetAbstractSyntaxUID() const override;
00038 };
00039
00040 } // end namespace gdcm
00041
00042 #endif // GDCMMOVEPATIENTROOTQUERY_H
```

13.521 gdcmMoveStudyRootQuery.h File Reference

`#include "gdcmBaseRootQuery.h"`
Include dependency graph for gdcmMoveStudyRootQuery.h:



Classes

- class gdcm::MoveStudyRootQuery

  MoveStudyRootQuery.

Namespaces

- namespace gdcm

13.522 gdcmMoveStudyRootQuery.h

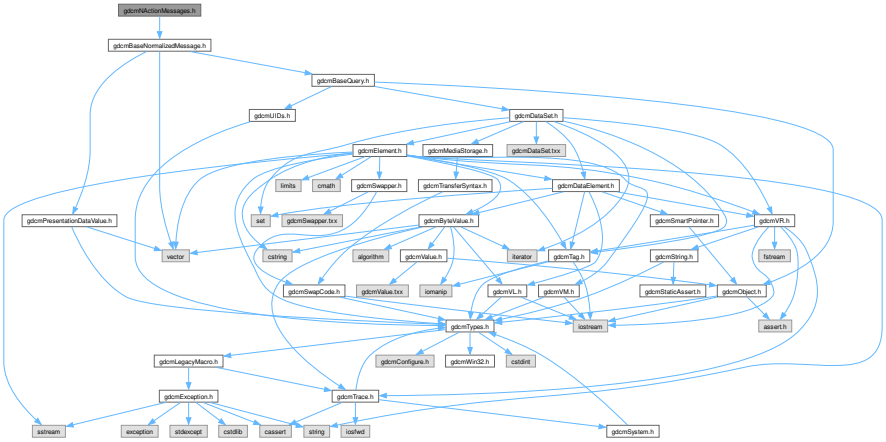
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMMOVESTUDYROOTQUERY_H
00015 #define GDCMMOVESTUDYROOTQUERY_H
00016
00017 #include "gdcmBaseRootQuery.h"
00018
00019 namespace gdcm
00020 {
```

```
00025 class GDCM_EXPORT MoveStudyRootQuery : public BaseRootQuery
00026 {
00027   friend class QueryFactory;
00028 public:
00029   MoveStudyRootQuery();
00030
00031   void InitializeDataSet(const EQueryLevel& inQueryLevel) override;
00032
00033   std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;
00034
00035   bool ValidateQuery(bool inStrict = true) const override;
00036
00037   UIDs::TSName GetAbstractSyntaxUID() const override;
00038 };
00039
00040 } // end namespace gdcm
00041
00042 #endif // GDCMMOVESTUDYROOTQUERY_H
```

13.523 gdcmNActionMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`
Include dependency graph for gdcmNActionMessages.h:



Classes

- class gdcm::network::NActionRQ

  NActionRQ.
- class gdcm::network::NActionRSP

  NActionRSP this file defines the messages for the NAction action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.524 gdcmNActionMessages.h

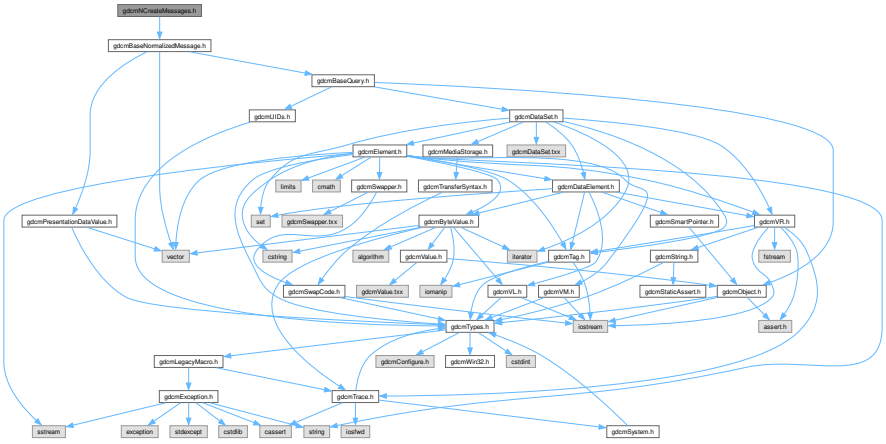
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNACTIONMESSAGES_H
00015 #define GDCMCNACTIONMESSAGES_H
00016
00017 #include "gdcmBaseNormalizedMessage.h"
00018
00019 namespace gdcm{
00020   namespace network{
00021
00022 class ULConnection;
00023
00028 class NActionRQ : public BaseNormalizedMessage {
00029     public:
00030       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00031         const BaseQuery* inQuery) override;
00032     };
00033
00038     class NActionRSP : public BaseNormalizedMessage {
00039     public:
00040       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00041     };
00042   }
00043 }
00044 #endif // GDCMCNACTIONMESSAGES_H
```

13.525 gdcmNCreateMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`

Include dependency graph for gdcmNCreateMessages.h:



Classes

- class gdcm::network::NCreateRQ

  NCreateRQ.
- class gdcm::network::NCreateRSP

  NCreateRSP this file defines the messages for the ncreate action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.526 gdcmNCreateMessages.h

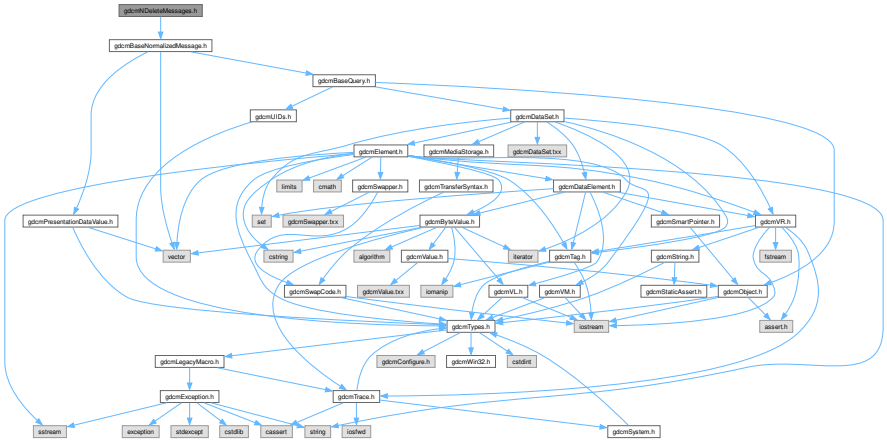
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNCREATEMESSAGES_H
00015 #define GDCMCNCREATEMESSAGES_H
00016
00017 #include "gdcmBaseNormalizedMessage.h"
00018
00019 namespace gdcm{
00020   namespace network{
00021
00022 class ULConnection;
00023
00028 class NCreateRQ : public BaseNormalizedMessage {
00029     public:
00030       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00031         const BaseQuery* inQuery) override;
00032     };
00033
00038     class NCreateRSP : public BaseNormalizedMessage {
00039     public:
00040       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00041     };
00042   }
00043 }
00044 #endif // GDCMCNCREATEMESSAGES_H
```

13.527 gdcmNDeleteMessages.h File Reference

```
#include "gdcmBaseNormalizedMessage.h"
```

Include dependency graph for gdcmNDeleteMessages.h:



Classes

- class gdcm::network::NDeleteRQ

  NDeleteRQ.
- class gdcm::network::NDeleteRSP

  NDeleteRSP this file defines the messages for the ndelete action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.528 gdcmNDeleteMessages.h

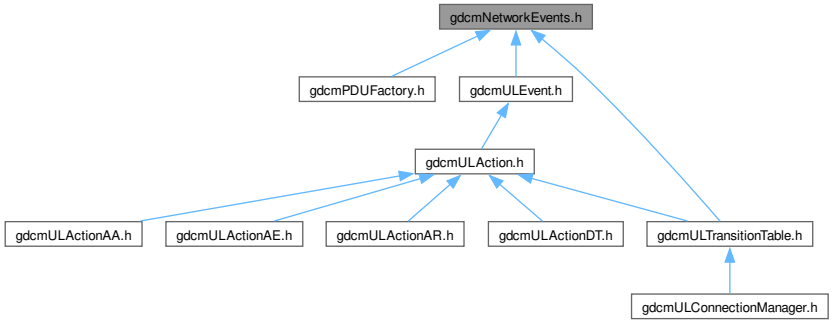
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNDELETEMESSAGES_H
00015 #define GDCMCNDELETEMESSAGES_H
```

```
00016
00017 #include "gdcmBaseNormalizedMessage.h"
00018
00019 namespace gdcm{
00020   namespace network{
00021
00022 class ULConnection;
00023
00028 class NDeleteRQ : public BaseNormalizedMessage {
00029     public:
00030       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00031         const BaseQuery* inQuery) override;
00032     };
00033
00038     class NDeleteRSP : public BaseNormalizedMessage {
00039     public:
00040       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00041     };
00042   }
00043 }
00044 #endif // GDCMCNDELETEMESSAGES_H
```

13.529 gdcmNetworkEvents.h File Reference

This graph shows which files directly or indirectly include this file:



Namespaces

- namespace gdcm
- namespace gdcm::network

Enumerations

- enum gdcm::network::EEventID {
  gdcm::network::eAASSOCIATERequestLocalUser = 0 ,
  gdcm::network::eTransportConnConfirmLocal ,
  gdcm::network::eASSOCIATE_ACPDUreceived ,
  gdcm::network::eASSOCIATE_RJPDUreceived ,
  gdcm::network::eTransportConnIndicLocal ,
  gdcm::network::eAASSOCIATE_RQPDUreceived ,

gdcm::network::eAASSOCIATEresponseAccept ,
gdcm::network::eAASSOCIATEresponseReject ,
gdcm::network::ePDATArequest ,
gdcm::network::ePDATATFPDU ,
gdcm::network::eARELEASERequest ,
gdcm::network::eARELEASE_RQPDUReceivedOpen ,
gdcm::network::eARELEASE_RPPDUReceived ,
gdcm::network::eARELEASEResponse ,
gdcm::network::eAABORTRequest ,
gdcm::network::eAABORTPDUReceivedOpen ,
gdcm::network::eTransportConnectionClosed ,
gdcm::network::eARTIMTimerExpired ,
gdcm::network::eUnrecognizedPDUReceived ,
gdcm::network::eEventDoesNotExist }

Variables

- const int gdcm::network::cMaxEventID = eEventDoesNotExist

13.530 gdcmNetworkEvents.h

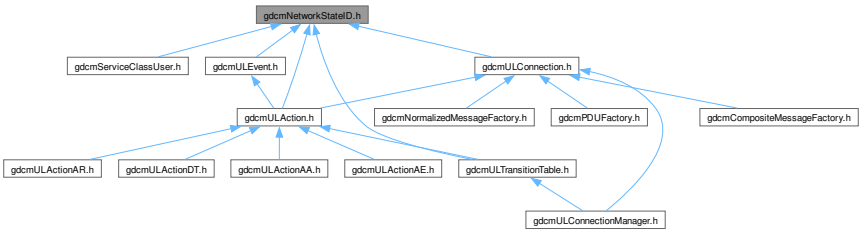
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 /*
00019 The NetworkEvents enumeration defines the inputs into the state of the network connection.
00020
00021 These inputs can come either from user input or input from other things on the socket,
00022 ie, responses from the peer or ARTIM timeouts.
00023
00024 Note that this enumeration is not 'power of two', like the states, because you can't have
00025 multiple simultaneous events.  Multiple state outputs in transition tables, however, is possible.
00026
00027 */
00028 #ifndef GDCMNETWORKEVENTS_H
00029 #define GDCMNETWORKEVENTS_H
00030
00031 namespace gdcm {
00032   namespace network{
00033     typedef enum {
00034       eAASSOCIATERequestLocalUser = 0,
00035       eTransportConnConfirmLocal,
00036       eASSOCIATE_ACPDUreceived,
00037       eASSOCIATE_RJPDUreceived,
00038       eTransportConnIndicLocal,
00039       eAASSOCIATE_RQPDUreceived,
00040       eAASSOCIATEresponseAccept,
00041       eAASSOCIATEresponseReject,
00042       ePDATArequest,
```

```
00043       ePDATATFPDU,
00044       eARELEASERequest,
00045       eARELEASE_RQPDUReceivedOpen,
00046       eARELEASE_RPPDUReceived,
00047       eARELEASEResponse,
00048       eAABORTRequest,
00049       eAABORTPDUReceivedOpen,
00050       eTransportConnectionClosed,
00051       eARTIMTimerExpired,
00052       eUnrecognizedPDUReceived,
00053       eEventDoesNotExist
00054     } EEventID;
00055
00056     const int cMaxEventID = eEventDoesNotExist;
00057   }
00058 }
00059
00060 #endif //NETWORKEVENTS_H
```

13.531 gdcmNetworkStateID.h File Reference

This graph shows which files directly or indirectly include this file:



Namespaces

- namespace gdcm
- namespace gdcm::network

Enumerations

- enum gdcm::network::EStateID {
  gdcm::network::eStaDoesNotExist = 0 ,
  gdcm::network::eSta1Idle = 1 ,
  gdcm::network::eSta2Open = 2 ,
  gdcm::network::eSta3WaitLocalAssoc = 4 ,
  gdcm::network::eSta4LocalAssocDone = 8 ,
  gdcm::network::eSta5WaitRemoteAssoc = 16 ,
  gdcm::network::eSta6TransferReady = 32 ,
  gdcm::network::eSta7WaitRelease = 64 ,
  gdcm::network::eSta8WaitLocalRelease = 128 ,
  gdcm::network::eSta9ReleaseCollisionRqLocal = 256 ,
  gdcm::network::eSta10ReleaseCollisionAc = 512 ,
  gdcm::network::eSta11ReleaseCollisionRq = 1024 ,
  gdcm::network::eSta12ReleaseCollisionAcLocal = 2048 ,
  gdcm::network::eSta13AwaitingClose = 4096 }

Functions

- int gdcm::network::GetStateIndex (EStateID inState)

Variables

- const int gdcm::network::cMaxStateID = 13

13.532 gdcmNetworkStateID.h

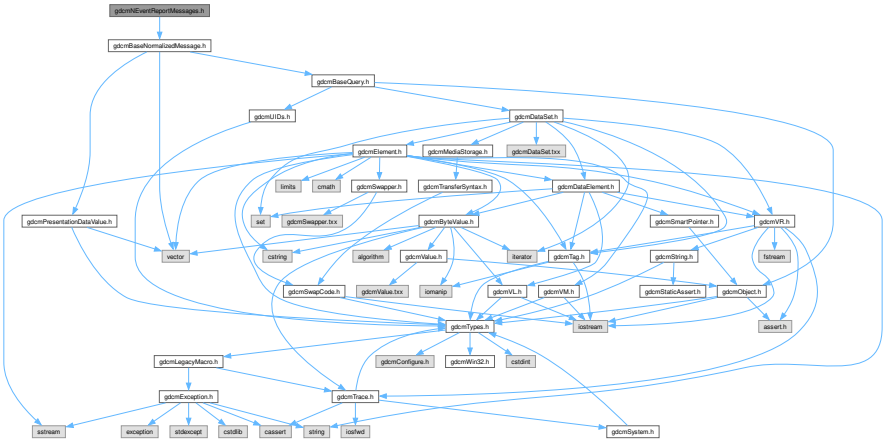
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMNETWORKSTATEID_H
00019 #define GDCMNETWORKSTATEID_H
00020
00021 namespace gdcm {
00022   namespace network {
00023
00032     enum EStateID {
00033       eStaDoesNotExist = 0,
00034       eSta1Idle = 1,
00035       eSta2Open = 2,
00036       eSta3WaitLocalAssoc = 4,
00037       eSta4LocalAssocDone = 8,
00038       eSta5WaitRemoteAssoc = 16,
00039       eSta6TransferReady = 32,
00040       eSta7WaitRelease = 64,
00041       eSta8WaitLocalRelease = 128,
00042       eSta9ReleaseCollisionRqLocal = 256,
00043       eSta10ReleaseCollisionAc = 512,
00044       eSta11ReleaseCollisionRq = 1024,
00045       eSta12ReleaseCollisionAcLocal = 2048,
00046       eSta13AwaitingClose = 4096
00047     };
00048
00049     const int cMaxStateID = 13;
00050
00051     //the transition table is built on state indices
00052     //this function will produce the index from the power-of-two EStateID
00053     inline int GetStateIndex(EStateID inState){
00054       switch (inState){
00055         case eStaDoesNotExist:
00056         default:
00057           return -1;
00058         case eSta1Idle:
00059           return 0;
00060         case eSta2Open:
00061           return 1;
00062         case eSta3WaitLocalAssoc:
00063           return 2;
00064         case eSta4LocalAssocDone:
00065           return 3;
00066         case eSta5WaitRemoteAssoc:
00067           return 4;
```

```
00068         case eSta6TransferReady:
00069           return 5;
00070         case eSta7WaitRelease:
00071           return 6;
00072         case eSta8WaitLocalRelease:
00073           return 7;
00074         case eSta9ReleaseCollisionRqLocal:
00075           return 8;
00076         case eSta10ReleaseCollisionAc:
00077           return 9;
00078         case eSta11ReleaseCollisionRq:
00079           return 10;
00080         case eSta12ReleaseCollisionAcLocal:
00081           return 11;
00082         case eSta13AwaitingClose:
00083           return 12;
00084       }
00085     }
00086   }
00087 }
00088
00089 #endif //GDCMNETWORKSTATEID_H
```

13.533 gdcmNEventReportMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`
Include dependency graph for gdcmNEventReportMessages.h:



Classes

- class gdcm::network::NEventReportRQ

  NEventReportRQ.
- class gdcm::network::NEventReportRSP

  NEventReportRSP this file defines the messages for the neventreport action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.534 gdcmNEventReportMessages.h

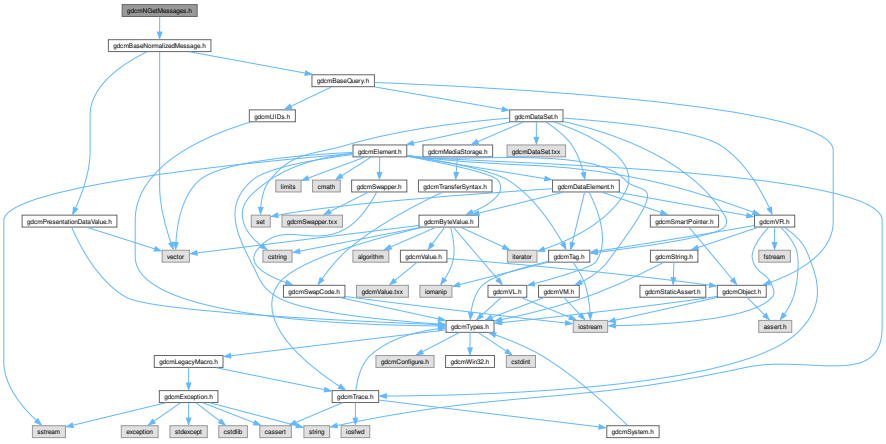
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNEVENTREPORTMESSAGES_H
00015 #define GDCMCNEVENTREPORTMESSAGES_H
00016
00017 #include "gdcmBaseNormalizedMessage.h"
00018
00019 namespace gdcm{
00020   namespace network{
00021
00022 class ULConnection;
00023
00028 class NEventReportRQ : public BaseNormalizedMessage {
00029     public:
00030       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00031         const BaseQuery* inQuery) override;
00032     };
00033
00038     class NEventReportRSP : public BaseNormalizedMessage {
00039     public:
00040       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00041     };
00042   }
00043 }
00044 #endif // GDCMCNEVENTREPORTMESSAGES_H
```

13.535 gdcmNGetMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`

Include dependency graph for gdcmNGetMessages.h:



Classes

- class gdcm::network::NGetRQ

  NGetRQ.
- class gdcm::network::NGetRSP

  NGetRSP this file defines the messages for the nget action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.536 gdcmNGetMessages.h

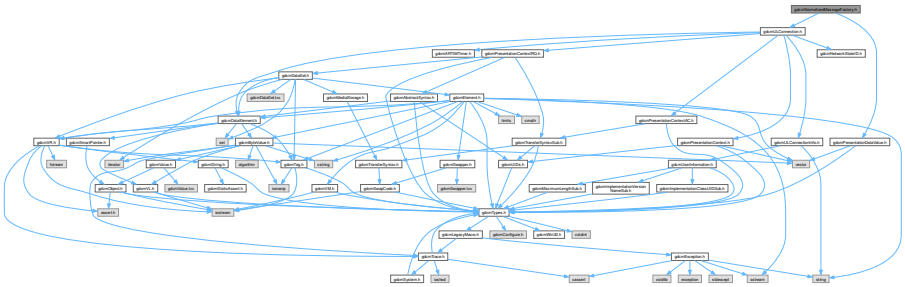
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNGETMESSAGES_H
00015 #define GDCMCNGETMESSAGES_H
00016
00017 #include "gdcmBaseNormalizedMessage.h"
00018
00019 namespace gdcm{
00020   namespace network{
00021
00022 class ULConnection;
00023
00028 class NGetRQ : public BaseNormalizedMessage {
00029     public:
00030       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00031         const BaseQuery* inQuery) override;
00032     };
00033
00038     class NGetRSP : public BaseNormalizedMessage {
00039     public:
00040       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00041     };
00042   }
00043 }
00044 #endif // GDCMCNGETMESSAGES_H
```

13.537 gdcmNormalizedMessageFactory.h File Reference

```
#include "gdcmPresentationDataValue.h"
#include "gdcmULConnection.h"
```

Include dependency graph for gdcmNormalizedMessageFactory.h:



Classes

- class gdcm::network::NormalizedMessageFactory

Namespaces

- namespace gdcm
- namespace gdcm::network

13.538 gdcmNormalizedMessageFactory.h

Go to the documentation of this file.

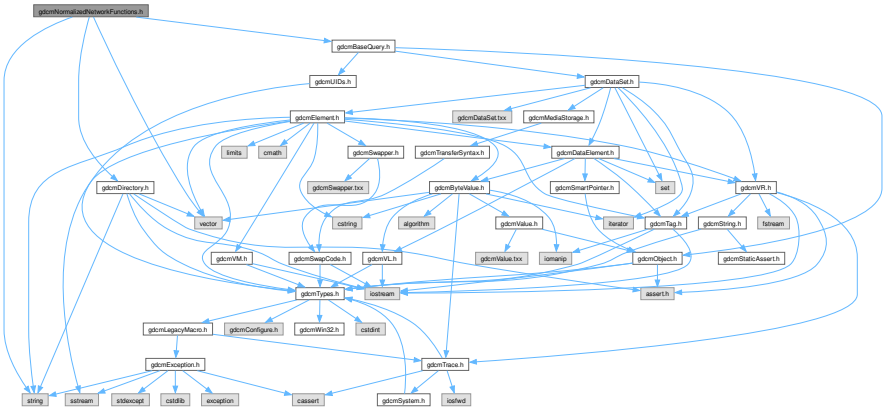
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMNORMALIZEDMESSAGEFACTORY_H
00015 #define GDCMNORMALIZEDMESSAGEFACTORY_H
00016
00017 #include "gdcmPresentationDataValue.h"
00018 #include "gdcmULConnection.h"
00019
00020 namespace gdcm {
00021   class BaseQuery;
00022   class File;
00023   namespace network {
00024     class BasePDU;
00025
00026 class NormalizedMessageFactory
00027 {
00028     public:
00029       static  std::vector<PresentationDataValue> ConstructNEventReport  (const ULConnection& inConnection,
      const BaseQuery* inQuery);
00030       static  std::vector<PresentationDataValue> ConstructNGet      (const ULConnection& inConnection,
      const BaseQuery* inQuery);
00031       static  std::vector<PresentationDataValue> ConstructNSet      (const ULConnection& inConnection,
      const BaseQuery* inQuery);
```

```
00032       static  std::vector<PresentationDataValue> ConstructNAction   (const ULConnection& inConnection,
    const BaseQuery* inQuery);
00033       static  std::vector<PresentationDataValue> ConstructNCreate   (const ULConnection& inConnection,
    const BaseQuery* inQuery);
00034       static  std::vector<PresentationDataValue> ConstructNDelete   (const ULConnection& inConnection,
    const BaseQuery* inQuery);
00035
00036
00037     };
00038   }
00039 }
00040
00041 #endif // GDCMNORMALIZEDMESSAGEFACTORY_H
```

13.539 gdcmNormalizedNetworkFunctions.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmBaseQuery.h"
#include <vector>
#include <string>
```

Include dependency graph for gdcmNormalizedNetworkFunctions.h:



Classes

- class gdcm::NormalizedNetworkFunctions

  Normalized Network Functions.

Namespaces

- namespace gdcm

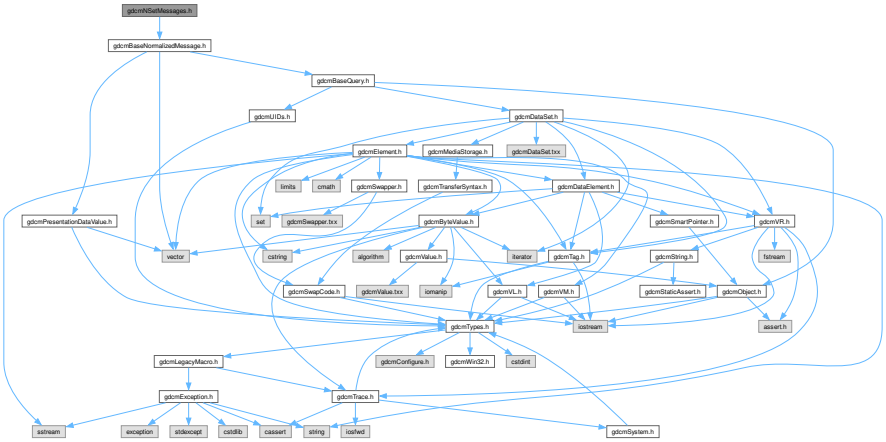
13.540 gdcmNormalizedNetworkFunctions.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMNORMALIZEDNETWORKFUNCTIONS_H
00015 #define GDCMNORMALIZEDNETWORKFUNCTIONS_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmBaseQuery.h" // EQueryLevel / EQueryType
00019
00020 #include <vector>
00021 #include <string>
00022
00023 namespace gdcm
00024 {
00046 class GDCM_EXPORT NormalizedNetworkFunctions
00047 {
00048 public:
00049   static BaseQuery* ConstructQuery( const std::string & sopInstanceUID,
00050                     const DataSet& queryds, ENQueryType queryType = eCreateMMPS );
00051   static bool NEventReport( const char *remote, uint16_t portno,
00052                 const BaseQuery* query, std::vector<DataSet> &retDataSets,
00053                 const char *aetitle, const char *call );
00054   static bool NGet( const char *remote, uint16_t portno,
00055                     const BaseQuery* query, std::vector<DataSet> &retDataSets,
00056                     const char *aetitle, const char *call );
00057   static bool NSet( const char *remote, uint16_t portno,
00058                     const BaseQuery* query, std::vector<DataSet> &retDataSets,
00059                     const char *aetitle, const char *call );
00060   static bool NAction( const char *remote, uint16_t portno,
00061                     const BaseQuery* query, std::vector<DataSet> &retDataSets,
00062                     const char *aetitle, const char *call );
00063   static bool NCreate( const char *remote, uint16_t portno,
00064                     BaseQuery* query, std::vector<DataSet> &retDataSets,
00065                     const char *aetitle, const char *call );
00066   static bool NDelete( const char *remote, uint16_t portno,
00067                     const BaseQuery* query, std::vector<DataSet> &retDataSets,
00068                     const char *aetitle, const char *call );
00069 };
00070
00071 } // end namespace gdcm
00072
00073 #endif // GDCMCOMPOSITENETWORKFUNCTIONS_H
```

13.541 gdcmNSetMessages.h File Reference

`#include "gdcmBaseNormalizedMessage.h"`
Include dependency graph for gdcmNSetMessages.h:



Classes

- class gdcm::network::NSetRQ

  NSetRQ.
- class gdcm::network::NSetRSP

  NSetRSP this file defines the messages for the nset action.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.542 gdcmNSetMessages.h

Go to the documentation of this file.

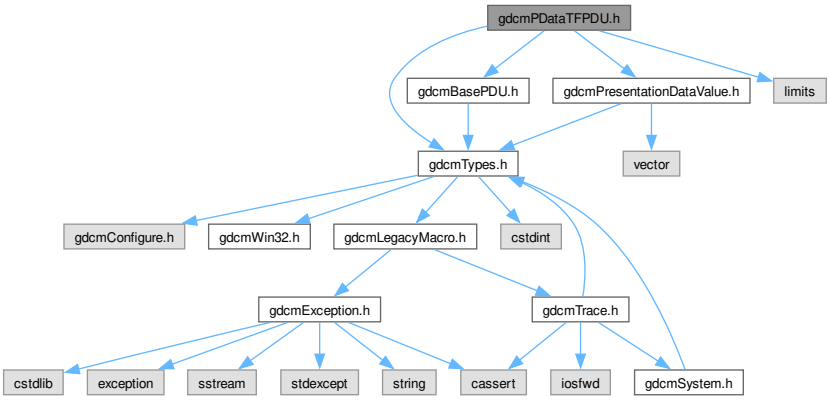
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2014 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMCNSETMESSAGES_H
00015 #define GDCMCNSETMESSAGES_H
```

```
00016
00017 #include "gdcmBaseNormalizedMessage.h"
00018
00019 namespace gdcm{
00020   namespace network{
00021
00022 class ULConnection;
00023
00028 class NSetRQ : public BaseNormalizedMessage {
00029     public:
00030       std::vector<PresentationDataValue> ConstructPDV(const ULConnection &inConnection,
00031         const BaseQuery* inQuery) override;
00032     };
00033
00038     class NSetRSP : public BaseNormalizedMessage {
00039     public:
00040       std::vector<PresentationDataValue> ConstructPDVByDataSet(const DataSet* inDataSet);
00041     };
00042   }
00043 }
00044 #endif // GDCMCNSETMESSAGES_H
```

13.543 gdcmPDataTFPDU.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmPresentationDataValue.h"
#include "gdcmBasePDU.h"
#include <limits>
```

Include dependency graph for gdcmPDataTFPDU.h:



Classes

- class gdcm::network::PDataTFPDU
  PDataTFPDU.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.544 gdcmPDataTFPDU.h

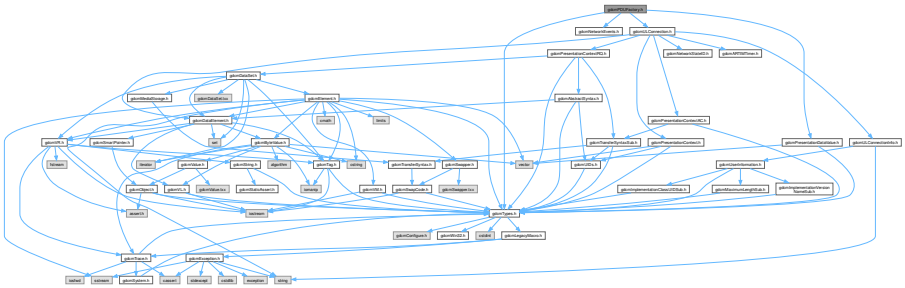
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPDATATFPDU_H
00015 #define GDCMPDATATFPDU_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmPresentationDataValue.h"
00019 #include "gdcmBasePDU.h"
00020 #include <limits>
00021
00022 namespace gdcm
00023 {
00024
00025 namespace network
00026 {
00027
00033 class GDCM_EXPORT PDataTFPDU : public BasePDU
00034 {
00035 public:
00036   PDataTFPDU();
00037   std::istream &Read(std::istream &is) override;
00038   const std::ostream &Write(std::ostream &os) const override;
00039
00041   size_t Size() const override;
00042
00043   void AddPresentationDataValue( PresentationDataValue const &pdv ) {
00044     V.push_back( pdv );
00045     gdcm_assert(Size() < std::numeric_limits<uint32_t>::max());
00046     ItemLength = (uint32_t)Size() - 6;
00047     }
00048
00049   typedef std::vector<PresentationDataValue>::size_type SizeType;
00050   PresentationDataValue const &GetPresentationDataValue(SizeType i) const {
00051     gdcm_assert( !V.empty() && i < V.size() );
00052     return V[i];
00053   }
00054   SizeType GetNumberOfPresentationDataValues() const {
00055     return V.size();
00056     }
00057
00058   void Print(std::ostream &os) const override;
00059   bool IsLastFragment() const override;
00060
00061 protected:
00062   std::istream &ReadInto(std::istream &is, std::ostream &os);
00063 private:
00064   static const uint8_t ItemType; // PDUType ?
00065   static const uint8_t Reserved2;
00066   uint32_t ItemLength; // PDU Length ?
00067   std::vector<PresentationDataValue> V;
00068 };
00069
00070 } // end namespace network
00071
00072 } // end namespace gdcm
00073
00074 #endif //GDCMPDATATFPDU_H
```

13.545 gdcmPDUFactory.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmNetworkEvents.h"
#include "gdcmULConnection.h"
#include "gdcmPresentationDataValue.h"
```

Include dependency graph for gdcmPDUFactory.h:



Classes

- class gdcm::network::PDUFactory

  PDUFactory basically, given an initial byte, construct the.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.546 gdcmPDUFactory.h

Go to the documentation of this file.

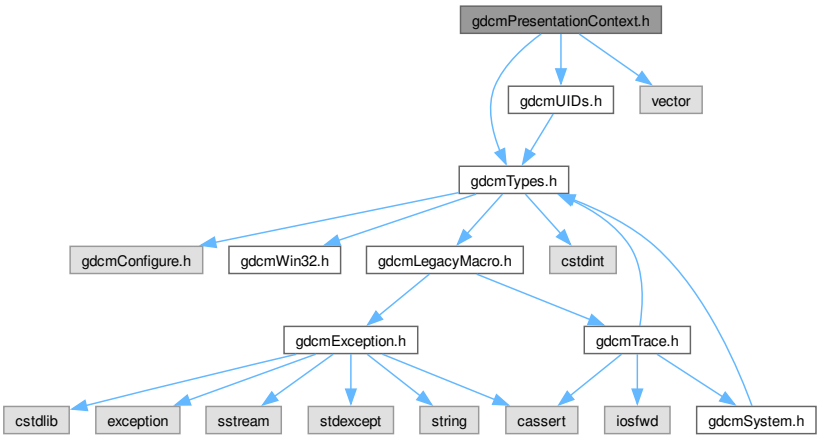
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMPDUFACTORY_H
00019 #define GDCMPDUFACTORY_H
00020
00021 #include "gdcmTypes.h"
00022 #include "gdcmNetworkEvents.h"
```

```
00023 #include "gdcmULConnection.h"
00024 #include "gdcmPresentationDataValue.h"
00025
00026 namespace gdcm{
00027   class BaseRootQuery;
00028   class BaseQuery;
00029   class File;
00030   namespace network{
00031     class BasePDU;
00032
00038   class PDUFactory {
00039       public:
00040       static BasePDU* ConstructPDU(uint8_t itemtype);//eventually needs to be smartpointer'd
00041       static EEventID DetermineEventByPDU(const BasePDU* inPDU);
00042       static BasePDU* ConstructReleasePDU();
00043       static BasePDU* ConstructAbortPDU();
00044
00045       //these are the composite PDU construction methods for the PDataPDUs.
00046       //basically, builds a pdatapdu, and then puts the appropriate information in
00047       //for the appropriate composite service (c-echo, c-find, c-store, c-get, c-move)
00048       //the connection is necessary to construct the stream of PDVs that will
00049       //be then placed into the vector of PDUs
00050       static std::vector<BasePDU*> CreateCEchoPDU(const ULConnection& inConnection);
00051       static std::vector<BasePDU*> CreateCStoreRQPDU(const ULConnection& inConnection, const File &file,
      bool writeDataSet = true );
00052       static std::vector<BasePDU*> CreateCStoreRSPPDU(const DataSet *inDataSet, const BasePDU* inPC);
00053       static std::vector<BasePDU*> CreateCFindPDU(const ULConnection& inConnection, const BaseRootQuery*
      inRootQuery);
00054       static std::vector<BasePDU*> CreateCMovePDU(const ULConnection& inConnection, const BaseRootQuery*
      inRootQuery);
00055
00056     static std::vector<BasePDU*> CreateNEventReportPDU  (const ULConnection& inConnection, const BaseQuery
      *inQuery);
00057     static std::vector<BasePDU*> CreateNGetPDU      (const ULConnection& inConnection, const BaseQuery
      *inQuery);
00058     static std::vector<BasePDU*> CreateNSetPDU      (const ULConnection& inConnection, const BaseQuery
      *inQuery);
00059     static std::vector<BasePDU*> CreateNActionPDU     (const ULConnection& inConnection, const BaseQuery
      *inQuery);
00060     static std::vector<BasePDU*> CreateNCreatePDU     (const ULConnection& inConnection, const BaseQuery
      *inQuery);
00061     static std::vector<BasePDU*> CreateNDeletePDU     (const ULConnection& inConnection, const BaseQuery
      *inQuery);
00062
00063
00064       //given data pdus, produce the presentation data values stored within.
00065       //all operations have these as the payload of the data sending operation
00066       //however, echo does not have a dataset in the pdv.
00067       static std::vector<PresentationDataValue> GetPDVs(const std::vector<BasePDU*> & inDataPDUs);
00068     };
00069   }
00070 }
00071 #endif //GDCMPDUFACTORY_H
```

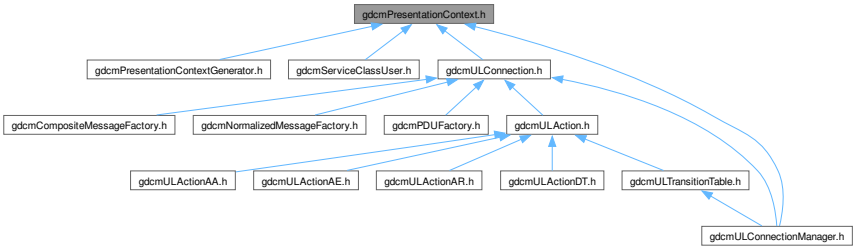
13.547 gdcmPresentationContext.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmUIDs.h"
#include <vector>
```

Include dependency graph for gdcmPresentationContext.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::PresentationContext

  PresentationContext.

Namespaces

- namespace gdcm

13.548 gdcmPresentationContext.h

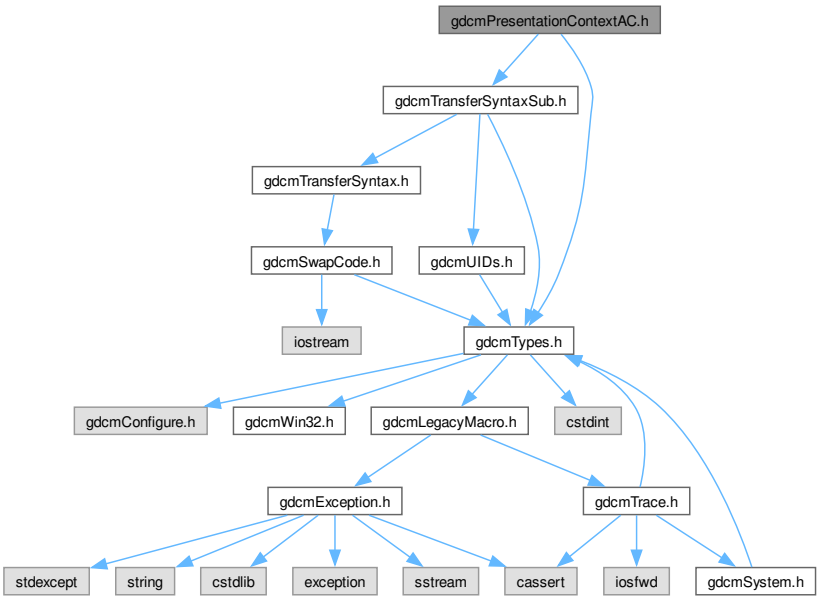
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRESENTATIONCONTEXT_H
00015 #define GDCMPRESENTATIONCONTEXT_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmUIDs.h"
00019
00020 #include <vector>
00021
00022 namespace gdcm
00023 {
00024
00029 class GDCM_EXPORT PresentationContext
00030 {
00031 public:
00032   PresentationContext();
00033
00037   PresentationContext( UIDs::TSName asname,
00038     UIDs::TSName tsname = UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM );
00039
00040   void SetAbstractSyntax( const char *absyn ) { AbstractSyntax = absyn; }
00041   const char *GetAbstractSyntax() const { return AbstractSyntax.c_str(); }
00042
00043   void AddTransferSyntax( const char *tsstr );
00044   typedef std::vector<std::string> TransferSyntaxArrayType;
00045   typedef TransferSyntaxArrayType::size_type SizeType;
00046   const char *GetTransferSyntax(SizeType i) const { return TransferSyntaxes[i].c_str(); }
00047   SizeType GetNumberOfTransferSyntaxes() const { return TransferSyntaxes.size(); }
00048
00049   void SetPresentationContextID( uint8_t id );
00050   uint8_t GetPresentationContextID() const;
00051
00052   void Print(std::ostream &os) const;
00053
00054   bool operator==(const PresentationContext & pc) const
00055     {
00056     gdcm_assert( TransferSyntaxes.size() == 1 ); // TODO
00057     gdcm_assert( pc.TransferSyntaxes.size() == 1 );
00058     return AbstractSyntax == pc.AbstractSyntax && TransferSyntaxes == pc.TransferSyntaxes;
00059     }
00060
00061 protected :
00062   std::string AbstractSyntax;
00063   std::vector<std::string> TransferSyntaxes;
00064   uint8_t /*PresentationContext*/ID;
00065 };
00066
00067 } // end namespace gdcm
00068
00069 #endif //GDCMPRESENTATIONCONTEXT_H
```

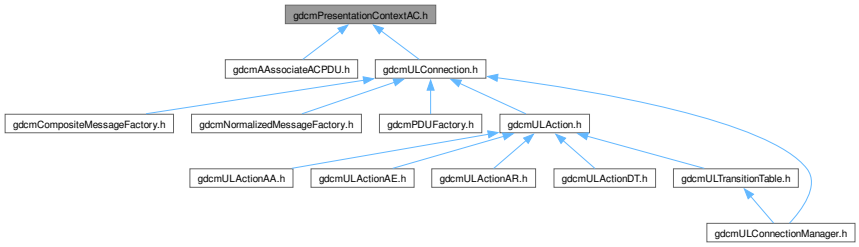
13.549 gdcmPresentationContextAC.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTransferSyntaxSub.h"
```

Include dependency graph for gdcmPresentationContextAC.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::PresentationContextAC

  PresentationContextAC.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.550 gdcmPresentationContextAC.h

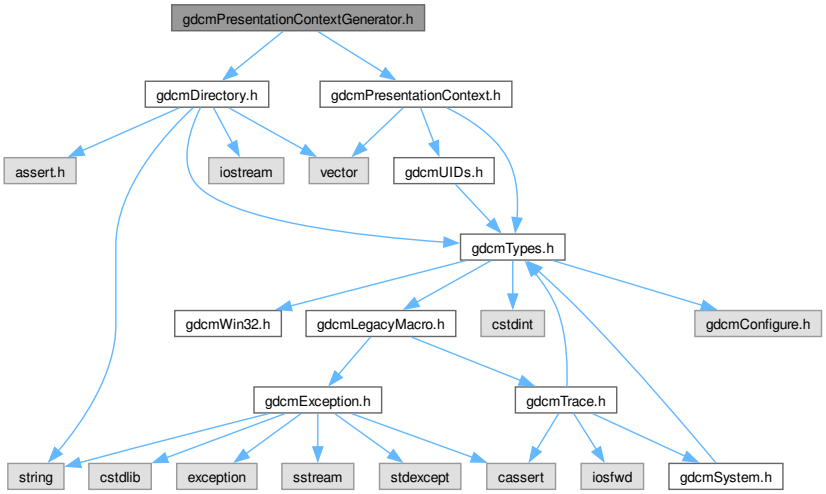
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRESENTATIONCONTEXTAC_H
00015 #define GDCMPRESENTATIONCONTEXTAC_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTransferSyntaxSub.h"
00019
00020 namespace gdcm
00021 {
00022
00023 namespace network
00024 {
00025
00032 class PresentationContextAC
00033 {
00034 public:
00035   PresentationContextAC();
00036   std::istream &Read(std::istream &is);
00037   const std::ostream &Write(std::ostream &os) const;
00038
00039   size_t Size() const;
00040
00041   void SetTransferSyntax( TransferSyntaxSub const &ts );
00042   void SetPresentationContextID( uint8_t id );
00043
00044   void Print(std::ostream &os) const;
00045
00046   uint8_t GetPresentationContextID() const
00047     {
00048     return ID;
00049     }
00050   TransferSyntaxSub const & GetTransferSyntax() const { return SubItems; }
00051
00052   void SetReason( uint8_t r ) { Result = r; }
00053   uint8_t GetReason() const { return Result; }
00054
00055 private:
00056   static const uint8_t ItemType;
00057   static const uint8_t Reserved2;
00058   uint16_t ItemLength; // len of last transfer syntax
00059   uint8_t /*PresentationContext*/ID;
00060   static const uint8_t Reserved6;
00061   uint8_t /*Reason*/Result;
00062   static const uint8_t Reserved8;
00063   TransferSyntaxSub SubItems;
00064 };
00065
00066 } // end namespace network
00067
00068 } // end namespace gdcm
00069
00070 #endif //GDCMPRESENTATIONCONTEXTAC_H
```

13.551 gdcmPresentationContextGenerator.h File Reference

```
#include "gdcmDirectory.h"
#include "gdcmPresentationContext.h"
```

Include dependency graph for gdcmPresentationContextGenerator.h:



Classes

- class gdcm::PresentationContextGenerator

  PresentationContextGenerator.

Namespaces

- namespace gdcm

13.552 gdcmPresentationContextGenerator.h

Go to the documentation of this file.

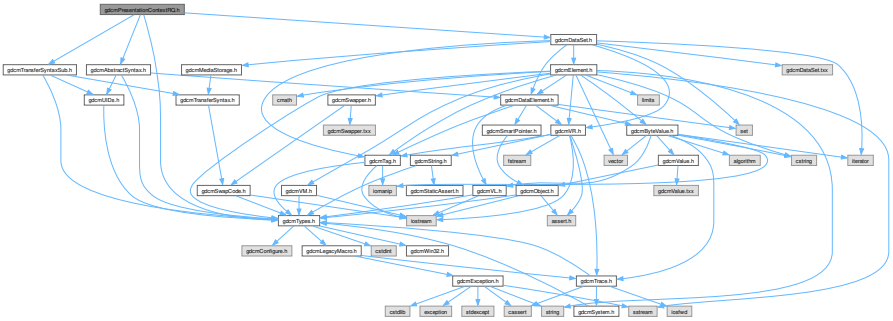
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRESENTATIONCONTEXTGENERATOR_H
00015 #define GDCMPRESENTATIONCONTEXTGENERATOR_H
00016
00017 #include "gdcmDirectory.h"
00018 #include "gdcmPresentationContext.h"
00019
00020 namespace gdcm
00021 {
```

```
00022 class TransferSyntax;
00023 class File;
00024
00053 class GDCM_EXPORT PresentationContextGenerator
00054 {
00055 public:
00056   PresentationContextGenerator();
00057
00058   // Set MergeMode
00059   // Default mode, each pair AbstractSyntax/TransferSyntax are only merged when
00060   // exactly identical
00061   void SetMergeModeToAbstractSyntax();
00062
00063   // Set MergeMode
00064   // Merge is done on a per AbstractSyntax basis. Any new TransferSyntax for a
00065   // given AbstractSyntax is merge to the existing PresentationContext referring
00066   // to that AbstractSyntax
00067   void SetMergeModeToTransferSyntax();
00068
00070   bool GenerateFromUID(UIDs::TSName asname);
00071
00075   bool GenerateFromFilenames(const Directory::FilenamesType &files);
00076
00079   bool AddFromFile(const File &file);
00080
00081   typedef std::vector<PresentationContext> PresentationContextArrayType;
00082   typedef PresentationContextArrayType::size_type SizeType;
00083   PresentationContextArrayType const &GetPresentationContexts() { return PresContext; }
00084
00086   void SetDefaultTransferSyntax( const TransferSyntax &ts );
00087 protected:
00088   bool AddPresentationContext( const char *absyn, const char *ts );
00089   const char *GetDefaultTransferSyntax() const;
00090
00091 private:
00092   std::vector<PresentationContext> PresContext;
00093   static std::string DefaultTransferSyntax;
00094 };
00095
00096 } // end namespace gdcm
00097
00098 #endif //GDCMPRESENTATIONCONTEXTGENERATOR_H
```

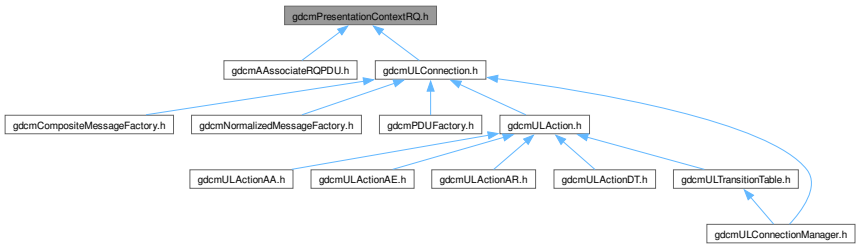
13.553 gdcmPresentationContextRQ.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmAbstractSyntax.h"
#include "gdcmTransferSyntaxSub.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmPresentationContextRQ.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::PresentationContextRQ

  PresentationContextRQ.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.554 gdcmPresentationContextRQ.h

Go to the documentation of this file.

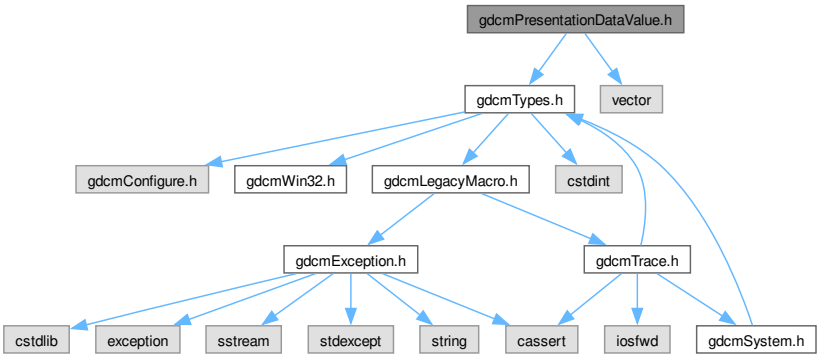
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPRESENTATIONCONTEXTRQ_H
00015 #define GDCMPRESENTATIONCONTEXTRQ_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmAbstractSyntax.h"
00019 #include "gdcmTransferSyntaxSub.h"
00020 #include "gdcmDataSet.h"
00021
00022 namespace gdcm
00023 {
00024 class PresentationContext;
00025 namespace network
00026 {
00027
00034 class GDCM_EXPORT PresentationContextRQ
00035 {
00036 public:
00037   PresentationContextRQ();
00038
```

```
00042   PresentationContextRQ( UIDs::TSName asname, UIDs::TSName tsname =
00043     UIDs::ImplicitVRLittleEndianDefaultTransferSyntaxforDICOM  );
00044
00045   std::istream &Read(std::istream &is);
00046   const std::ostream &Write(std::ostream &os) const;
00047   size_t Size() const;
00048
00049   void SetAbstractSyntax( AbstractSyntax const & absyn );
00050   AbstractSyntax const &GetAbstractSyntax() const { return SubItems; }
00051   AbstractSyntax &GetAbstractSyntax() { return SubItems; }
00052
00053   void AddTransferSyntax( TransferSyntaxSub const &ts );
00054   typedef std::vector<TransferSyntaxSub>::size_type SizeType;
00055   TransferSyntaxSub const & GetTransferSyntax(SizeType i) const { return TransferSyntaxes[i]; }
00056   TransferSyntaxSub & GetTransferSyntax(SizeType i) { return TransferSyntaxes[i]; }
00057   std::vector<TransferSyntaxSub> const & GetTransferSyntaxes() const {return TransferSyntaxes; }
00058   SizeType GetNumberOfTransferSyntaxes() const { return TransferSyntaxes.size(); }
00059
00060   void SetPresentationContextID( uint8_t id );
00061   uint8_t GetPresentationContextID() const;
00062
00063   void Print(std::ostream &os) const;
00064
00065   bool operator==(const PresentationContextRQ & pc) const
00066     {
00067     gdcm_assert( TransferSyntaxes.size() == 1 ); // TODO
00068     gdcm_assert( pc.TransferSyntaxes.size() == 1 );
00069     return SubItems == pc.SubItems && TransferSyntaxes == pc.TransferSyntaxes;
00070     }
00071
00072   PresentationContextRQ(const PresentationContext & pc);
00073
00074 private:
00075   static const uint8_t ItemType;
00076   static const uint8_t Reserved2;
00077   uint16_t ItemLength; // len of last transfer syntax
00078   uint8_t /*PresentationContext*/ID;
00079   static const uint8_t Reserved6;
00080   static const uint8_t Reserved7;
00081   static const uint8_t Reserved8;
00082   /*
00083   This variable field shall contain the following sub-items: one Abstract
00084   Syntax and one or more Transfer Syntax(es). For a complete
00085   description of the use and encoding of these sub-items see Sections
00086   9.3.2.2.1 and 9.3.2.2.2.
00087    */
00088   AbstractSyntax SubItems;
00089   std::vector<TransferSyntaxSub> TransferSyntaxes;
00090 };
00091
00092 } // end namespace network
00093
00094 } // end namespace gdcm
00095
00096 #endif //GDCMPRESENTATIONCONTEXTRQ_H
```

13.555 gdcmPresentationDataValue.h File Reference

```
#include "gdcmTypes.h"
#include <vector>
```

Include dependency graph for gdcmPresentationDataValue.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::network::PresentationDataValue

  PresentationDataValue.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.556 gdcmPresentationDataValue.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
```

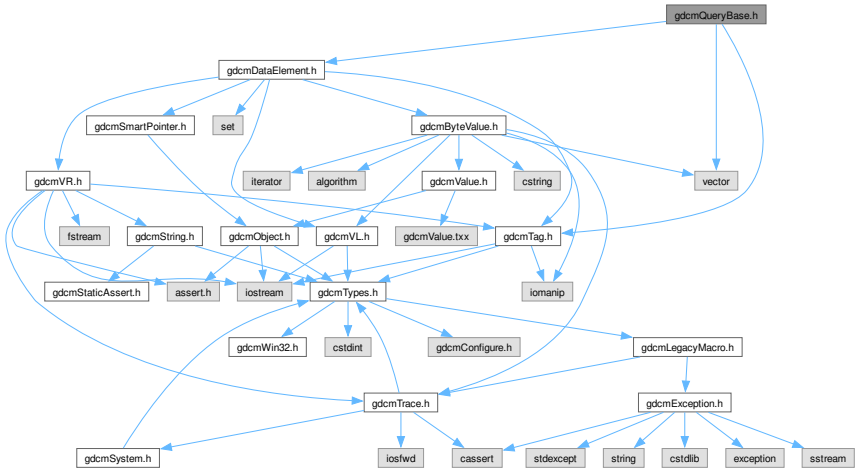
```
00014 #ifndef GDCMPRESENTATIONDATAVALUE_H
00015 #define GDCMPRESENTATIONDATAVALUE_H
00016
00017 #include "gdcmTypes.h"
00018
00019 #include <vector>
00020
00021 namespace gdcm
00022 {
00023 class DataSet;
00024 namespace network
00025 {
00026
00032 class GDCM_EXPORT PresentationDataValue
00033 {
00034 public:
00035   PresentationDataValue();
00036   std::istream &Read(std::istream &is);
00037   std::istream &ReadInto(std::istream &is, std::ostream &os);
00038
00039   const std::ostream &Write(std::ostream &os) const;
00040
00042   size_t Size() const;
00043
00046   void SetDataSet(const DataSet & ds);
00047   void SetBlob(const std::string & partialblob);
00048   const std::string &GetBlob() const;
00049
00050   uint8_t GetPresentationContextID() const { return PresentationContextID; }
00051   void SetPresentationContextID(uint8_t id) {
00052     gdcm_assert( id );
00053     PresentationContextID = id;
00054   }
00055   uint8_t GetMessageHeader() const {
00056     gdcm_assert( MessageHeader <= 0x3 );
00057     return MessageHeader;
00058   }
00059   // E.2 MESSAGE CONTROL HEADER ENCODING
00060   // Only the first two bits are considered
00061   void SetMessageHeader(uint8_t messageheader) {
00062     MessageHeader = messageheader;
00063     gdcm_assert( MessageHeader <= 0x3 );
00064   }
00065   //flip the least significant bit of the message header to 1
00066   //if this is a command, else set it to 0.
00067   void SetCommand(bool inCommand);
00068   void SetLastFragment(bool inLast);//set to true if this is the last PDV of a set
00069
00070   bool GetIsCommand() const;
00071   bool GetIsLastFragment() const;
00072
00073   void Print(std::ostream &os) const;
00074
00075   //NOTE that the PDVs have to be given in the order in which they were received!
00076   //also note that a dataset may be across multiple PDVs
00078   static DataSet ConcatenatePDVBlobs(const std::vector<PresentationDataValue>& inPDVs);
00079
00080   static DataSet ConcatenatePDVBlobsAsExplicit(const std::vector<PresentationDataValue>& inPDVs);
00081
00082 private:
00083   uint32_t ItemLength;
00084   uint8_t PresentationContextID;
00085   uint8_t MessageHeader;
00086   std::string Blob;
00087 };
00088 } // end namespace network
00089
00090 } // end namespace gdcm
00091
00092 #endif //GDCMPRESENTATIONDATAVALUE_H
```

13.557 gdcmQueryBase.h File Reference

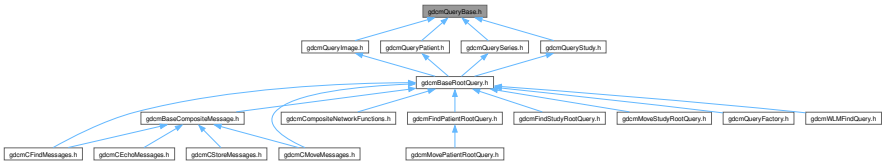
```
#include "gdcmTag.h"
#include "gdcmDataElement.h"
```

```
#include <vector>
```

Include dependency graph for gdcmQueryBase.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::QueryBase

  QueryBase.

Namespaces

- namespace gdcm

Enumerations

- enum gdcm::ERootType {
  gdcm::ePatientRootType ,
  gdcm::eStudyRootType }

13.558 gdcmQueryBase.h

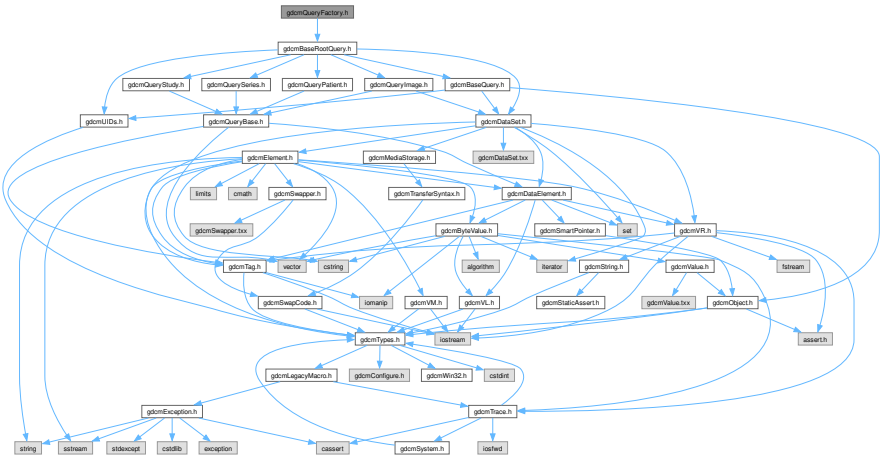
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMQUERYBASE_H
00019 #define GDCMQUERYBASE_H
00020
00021 #include "gdcmTag.h"
00022 #include "gdcmDataElement.h"
00023
00024 #include <vector>
00025
00026 namespace gdcm
00027 {
00028   enum ERootType
00029     {
00030     ePatientRootType,
00031     eStudyRootType
00032     };
00033
00060 class GDCM_EXPORT QueryBase
00061 {
00062   public:
00063     virtual ~QueryBase() = default;
00064
00065     virtual std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const = 0;
00066     virtual std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const = 0;
00067     virtual std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const = 0;
00068     // C.4.1.2.1 Baseline Behavior of SCU
00069     // All C-FIND SCUs shall be capable of generating query requests which
00070     // meet the requirements of the Hierarchical Search.
00071     // The Identifier contained in a C-FIND request shall contain a single
00072     // value in the Unique Key Attribute for each level above the
00073     // Query/Retrieve level. No Required or Optional Keys shall be
00074     // specified which are associated with levels above the Query/Retrieve
00075     // level.
00077     virtual std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const = 0;
00078
00081     std::vector<Tag> GetAllTags(const ERootType& inRootType) const;
00082
00085     std::vector<Tag> GetAllRequiredTags(const ERootType& inRootType) const;
00086
00087     virtual const char * GetName() const = 0;
00088     virtual DataElement GetQueryLevel() const = 0;
00089   };
00090 }
00091
00092 #endif //GDCMQUERYBASE_H
```

13.559 gdcmQueryFactory.h File Reference

```
#include "gdcmBaseRootQuery.h"
```

Include dependency graph for gdcmQueryFactory.h:



Classes

- class gdcm::QueryFactory

  QueryFactory.h.

Namespaces

- namespace gdcm

Enumerations

- enum gdcm::ECharSet {
  gdcm::eLatin1 = 0 ,
  gdcm::eLatin2 ,
  gdcm::eLatin3 ,
  gdcm::eLatin4 ,
  gdcm::eCyrillic ,
  gdcm::eArabic ,
  gdcm::eGreek ,
  gdcm::eHebrew ,
  gdcm::eLatin5 ,
  gdcm::eJapanese ,
  gdcm::eThai ,
  gdcm::eJapaneseKanjiMultibyte ,
  gdcm::eJapaneseSupplementaryKanjiMultibyte ,
  gdcm::eKoreanHangulHanjaMultibyte ,
  gdcm::eUTF8 ,
  gdcm::eGB18030 }

13.560 gdcmQueryFactory.h

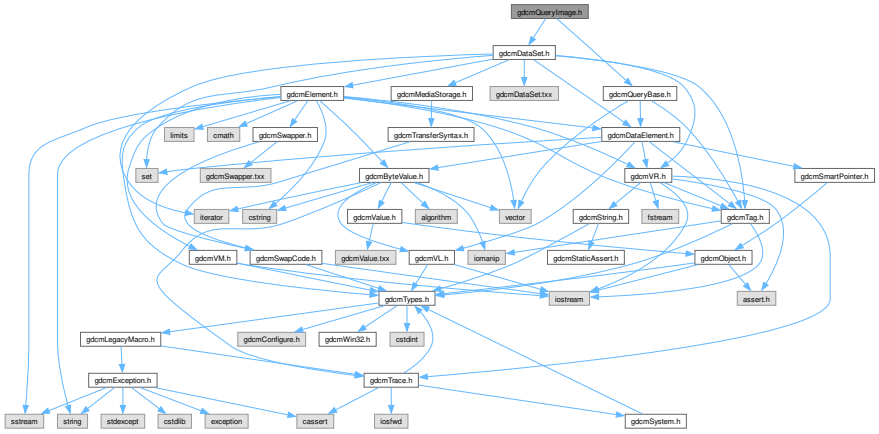
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMQUERYFACTORY_H
00019 #define GDCMQUERYFACTORY_H
00020
00021 #include "gdcmBaseRootQuery.h"
00022
00023 namespace gdcm{
00027   enum ECharSet {
00028     eLatin1 = 0,
00029     eLatin2,
00030     eLatin3,
00031     eLatin4,
00032     eCyrillic,
00033     eArabic,
00034     eGreek,
00035     eHebrew,
00036     eLatin5, // Latin Alphabet No. 5 (Turkish) Extended
00037     eJapanese, // JIS X 0201 (Shift JIS) Extended
00038     eThai, // TIS 620-2533 (Thai) Extended
00039     eJapaneseKanjiMultibyte, // JIS X 0208 (Kanji) Extended
00040     eJapaneseSupplementaryKanjiMultibyte, // JIS X 0212 (Kanji) Extended
00041     eKoreanHangulHanjaMultibyte, // KS X 1001 (Hangul and Hanja) Extended
00042     eUTF8,
00043     eGB18030 // Chinese (Simplified) Extended
00044   };
00045
00057 class GDCM_EXPORT QueryFactory
00058 {
00059 public:
00060
00061   static BaseQuery* ProduceQuery( const std::string & sopInstanceUID, ENQueryType inQueryType );
00067   static BaseRootQuery* ProduceQuery(ERootType inRootType, EQueryType inQueryType,
00068     EQueryLevel inQueryLevel);
00069
00077   static DataElement ProduceCharacterSetDataElement(
00078     const std::vector<ECharSet>& inCharSetType);
00079
00082   static ECharSet GetCharacterFromCurrentLocale();
00083
00085   static void ListCharSets(std::ostream& os);
00086 };
00087
00088 } // end namespace gdcm
00089
00090 #endif // GDCMQUERYFACTORY_H
```

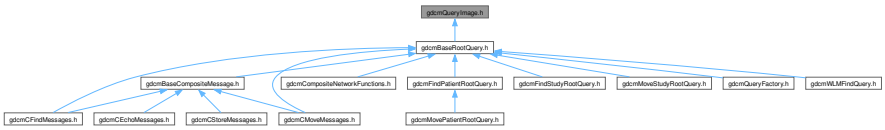
13.561 gdcmQueryImage.h File Reference

```
#include "gdcmQueryBase.h"
#include "gdcmDataSet.h"
```

Include dependency graph for gdcmQueryImage.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::QueryImage
  QueryImage.

Namespaces

- namespace gdcm

13.562 gdcmQueryImage.h

Go to the documentation of this file.

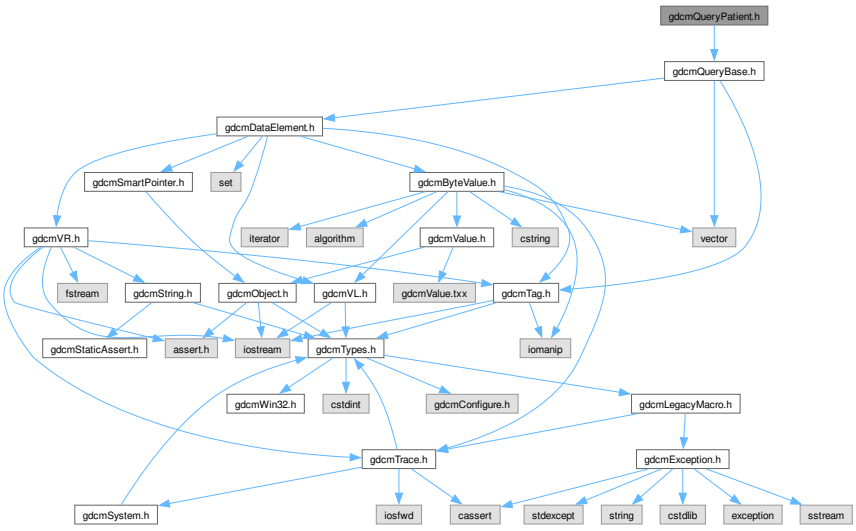
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
```

```
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMQUERYIMAGE_H
00019 #define GDCMQUERYIMAGE_H
00020
00021 #include "gdcmQueryBase.h"
00022 #include "gdcmDataSet.h"
00023
00024 namespace gdcm
00025 {
00030 class GDCM_EXPORT QueryImage : public QueryBase
00031 {
00032 public:
00033   std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const override;
00034   std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const override;
00035   std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const override;
00036   std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const override;
00037
00038   const char * GetName() const override;
00039
00040   DataElement GetQueryLevel() const override;
00041 };
00042
00043 } // end namespace gdcm
00044
00045 #endif // GDCMQUERYIMAGE_H
```

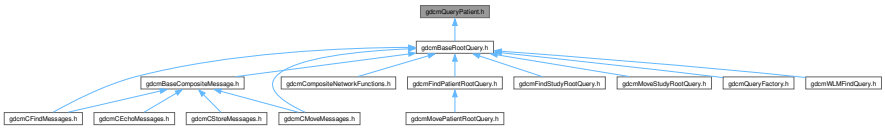
13.563 gdcmQueryPatient.h File Reference

`#include "gdcmQueryBase.h"`

Include dependency graph for gdcmQueryPatient.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::QueryPatient

  QueryPatient.

Namespaces

- namespace gdcm

13.564 gdcmQueryPatient.h

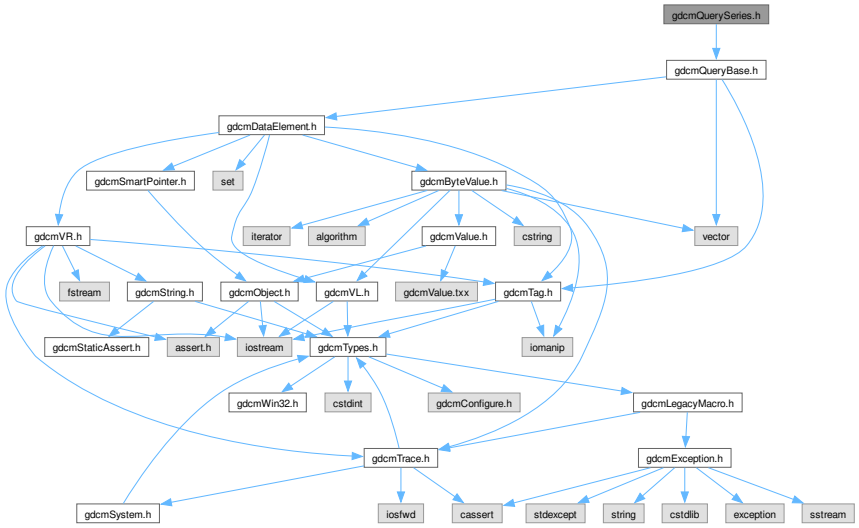
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMQUERYPATIENT_H
00019 #define GDCMQUERYPATIENT_H
00020
00021 #include "gdcmQueryBase.h"
00022
00023 namespace gdcm
00024 {
00029 class GDCM_EXPORT QueryPatient : public QueryBase
00030 {
00031 public:
00032   std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const override;
00033   std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const override;
00034   std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const override;
00035   std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const override;
00036
00037   const char * GetName() const override;
00038   DataElement GetQueryLevel() const override;
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMQUERYPATIENT_H
```

13.565 gdcmQuerySeries.h File Reference

```
#include "gdcmQueryBase.h"
```

Include dependency graph for gdcmQuerySeries.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::QuerySeries

  QuerySeries.

Namespaces

- namespace gdcm

13.566 gdcmQuerySeries.h

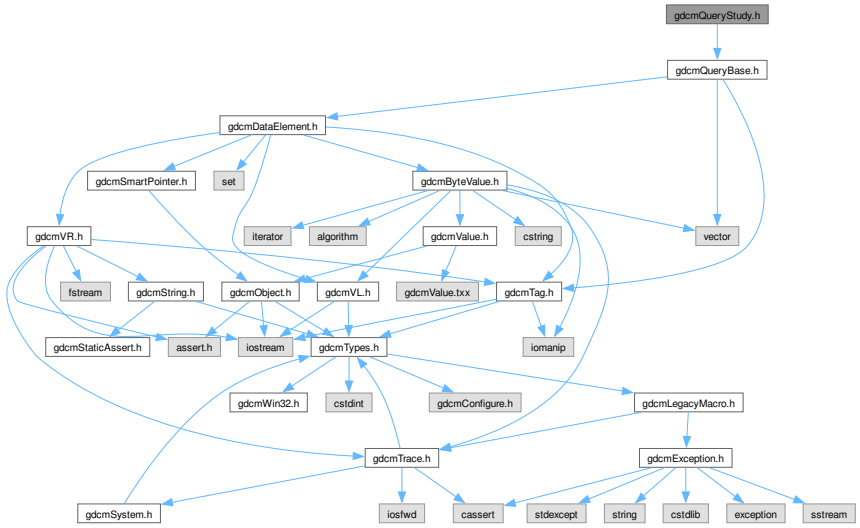
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMQUERYSERIES_H
00019 #define GDCMQUERYSERIES_H
00020
00021 #include "gdcmQueryBase.h"
00022
00023 namespace gdcm
00024 {
00029 class GDCM_EXPORT QuerySeries : public QueryBase
00030 {
00031 public:
00032   std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const override;
00033   std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const override;
00034   std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const override;
00035   std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const override;
00036
00037   const char * GetName() const override;
00038   DataElement GetQueryLevel() const override;
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMQUERYSERIES_H
```

13.567 gdcmQueryStudy.h File Reference

```
#include "gdcmQueryBase.h"
```

Include dependency graph for gdcmQueryStudy.h:



This graph shows which files directly or indirectly include this file:

Classes

- class gdcm::QueryStudy

  QueryStudy.h.

Namespaces

- namespace gdcm

13.568 gdcmQueryStudy.h

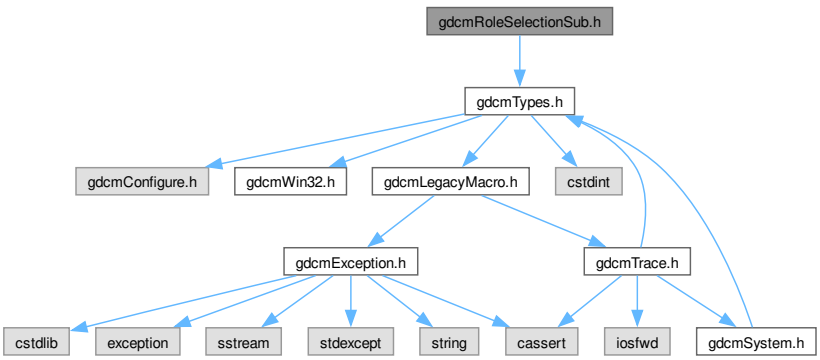
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMQUERYSTUDY_H
00019 #define GDCMQUERYSTUDY_H
00020
00021 #include "gdcmQueryBase.h"
00022
00023 namespace gdcm
00024 {
00029 class GDCM_EXPORT QueryStudy : public QueryBase
00030 {
00031 public:
00032   std::vector<Tag> GetRequiredTags(const ERootType& inRootType) const override;
00033   std::vector<Tag> GetUniqueTags(const ERootType& inRootType) const override;
00034   std::vector<Tag> GetOptionalTags(const ERootType& inRootType) const override;
00035   std::vector<Tag> GetHierachicalSearchTags(const ERootType& inRootType) const override;
00036
00037   const char *GetName() const override;
00038   DataElement GetQueryLevel() const override;
00039 };
00040
00041 } // end namespace gdcm
00042
00043 #endif //GDCMQUERYSTUDY_H
```

13.569 gdcmRoleSelectionSub.h File Reference

`#include "gdcmTypes.h"`

Include dependency graph for gdcmRoleSelectionSub.h:



Classes

- class gdcm::network::RoleSelectionSub

  RoleSelectionSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.570 gdcmRoleSelectionSub.h

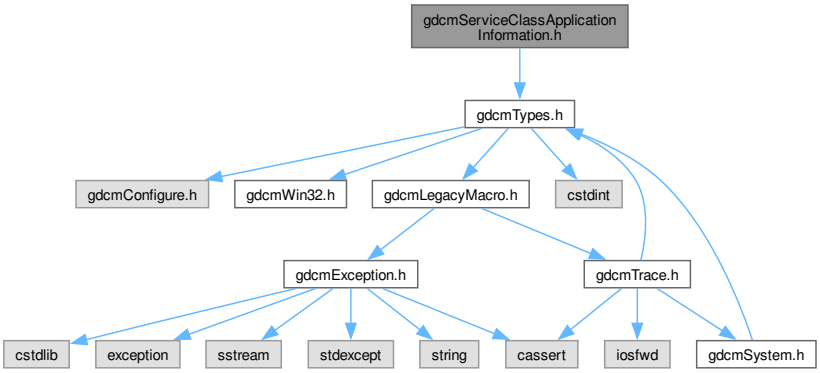
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMROLESELECTIONSUB_H
00015 #define GDCMROLESELECTIONSUB_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00031 class RoleSelectionSub
00032 {
00033 public:
00034   RoleSelectionSub();
00035   std::istream &Read(std::istream &is);
00036   const std::ostream &Write(std::ostream &os) const;
00037
00038   size_t Size() const;
00039   void Print(std::ostream &os) const;
00040
00041   void SetTuple(const char *uid, uint8_t scurole, uint8_t scprole);
00042
00043 private:
00044   static const uint8_t ItemType;
00045   static const uint8_t Reserved2;
00046   uint16_t ItemLength;
00047   uint16_t UIDLength;
00048   std::string /*SOP-class-uid*/ Name; // UID
00049   uint8_t SCURole;
00050   uint8_t SCPRole;
00051 };
00052
00053 } // end namespace network
00054
00055 } // end namespace gdcm
00056
00057 #endif // GDCMROLESELECTIONSUB_H
```

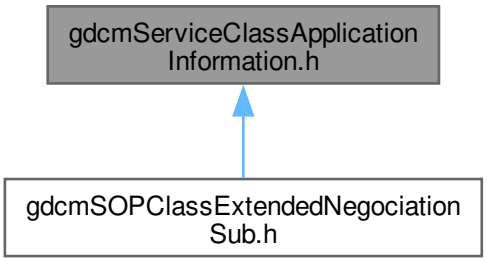
13.571 gdcmServiceClassApplicationInformation.h File Reference

```
#include "gdcmTypes.h"
```

Include dependency graph for gdcmServiceClassApplicationInformation.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ServiceClassApplicationInformation

Namespaces

- namespace gdcm
- namespace gdcm::network

13.572 gdcmServiceClassApplicationInformation.h

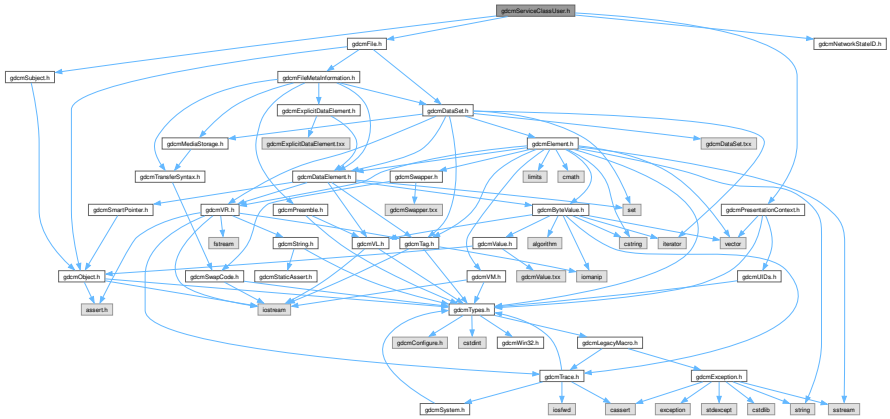
Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSERVICECLASSAPPLICATIONINFORMATION_H
00015 #define GDCMSERVICECLASSAPPLICATIONINFORMATION_H
00016
00017 #include "gdcmTypes.h"
00018
00019 namespace gdcm
00020 {
00021
00022 namespace network
00023 {
00024
00030 class ServiceClassApplicationInformation
00031 {
00032 public:
00033   ServiceClassApplicationInformation();
00034   std::istream &Read(std::istream &is);
00035   const std::ostream &Write(std::ostream &os) const;
00036
00037   size_t Size() const;
00038   void SetTuple(uint8_t levelofsupport, uint8_t levelofdigitalsig,
00039     uint8_t elementcoercion);
00040
00041   void Print(std::ostream &os) const;
00042 private:
00043   uint8_t InternalArray[6];
00044 };
00045
00046 } // end namespace network
00047
00048 } // end namespace gdcm
00049
00050 #endif //GDCMSERVICECLASSAPPLICATIONINFORMATION_H
```

13.573 gdcmServiceClassUser.h File Reference

```
#include "gdcmSubject.h"
#include "gdcmPresentationContext.h"
#include "gdcmFile.h"
#include "gdcmNetworkStateID.h"
```

Include dependency graph for gdcmServiceClassUser.h:



Classes

- class gdcm::ServiceClassUser

  ServiceClassUser.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.574 gdcmServiceClassUser.h

Go to the documentation of this file.

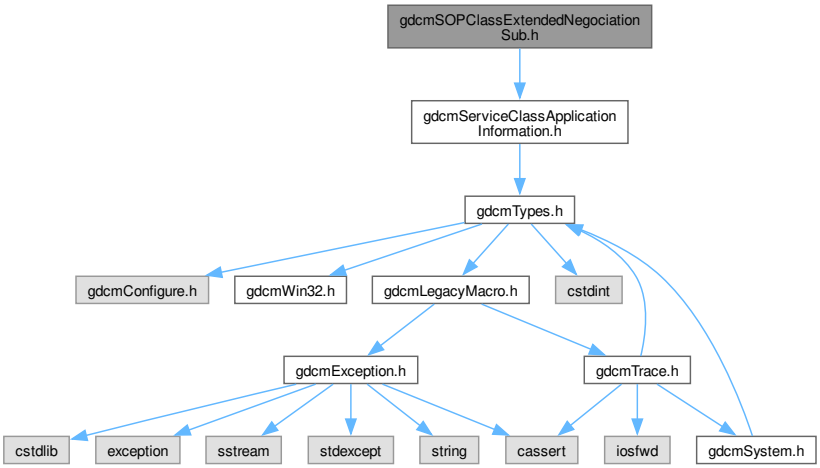
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSERVICECLASSUSER_H
00015 #define GDCMSERVICECLASSUSER_H
00016
00017 #include "gdcmSubject.h"
00018
00019 #include "gdcmPresentationContext.h"
00020 #include "gdcmFile.h"
00021
00022 #include "gdcmNetworkStateID.h" // EStateID
00023
00024 namespace gdcm
00025 {
00026 class ServiceClassUserInternals;
```

```
00027 class BaseRootQuery;
00028 namespace network{
00029 class ULEvent;
00030 class ULConnection;
00031 class ULConnectionCallback;
00032 }
00036 class GDCM_EXPORT ServiceClassUser : public Subject
00037 {
00038 public:
00042   ServiceClassUser();
00043   ~ServiceClassUser() override;
00044   ServiceClassUser(const ServiceClassUser&) = delete;
00045   void operator=(const ServiceClassUser &) = delete;
00046
00048   void SetHostname( const char *hostname );
00049
00051   void SetPort( uint16_t port );
00052
00054   void SetPortSCP( uint16_t portscp );
00055
00057   void SetAETitle(const char *aetitle);
00058   const char *GetAETitle() const;
00059
00061   void SetCalledAETitle(const char *aetitle);
00062   const char *GetCalledAETitle() const;
00063
00065   void SetTimeout(double t);
00066   double GetTimeout() const;
00067
00071   bool InitializeConnection();
00072
00074   void SetPresentationContexts(std::vector<PresentationContext> const & pcs);
00075
00077   bool IsPresentationContextAccepted(const PresentationContext& pc) const;
00078
00080   bool StartAssociation();
00081
00083   bool StopAssociation();
00084
00086   bool SendEcho();
00087
00089   bool SendStore(const char *filename);
00092   bool SendStore(File const &file);
00094   bool SendStore(DataSet const &ds);
00095
00097   bool SendFind(const BaseRootQuery* query, std::vector<DataSet> &retDatasets);
00098
00100   bool SendMove(const BaseRootQuery* query, const char *outputdir);
00102   bool SendMove(const BaseRootQuery* query, std::vector<DataSet> &retDatasets);
00104   bool SendMove(const BaseRootQuery* query, std::vector<File> &retFile);
00105
00107   static SmartPointer<ServiceClassUser> New() { return new ServiceClassUser; }
00108
00109 private:
00110   network::EStateID RunEventLoop(network::ULEvent& inEvent,
00111     network::ULConnection* inWhichConnection,
00112     network::ULConnectionCallback* inCallback, const bool& startWaiting);
00113   network::EStateID RunMoveEventLoop(network::ULEvent& inEvent,
00114     network::ULConnectionCallback* inCallback);
00115
00116 private:
00117   ServiceClassUserInternals *Internals;
00118 };
00119
00120 } // end namespace gdcm
00121
00122 #endif // GDCMSERVICECLASSUSER_H
```

13.575 gdcmSOPClassExtendedNegociationSub.h File Reference

```
#include "gdcmServiceClassApplicationInformation.h"
```

Include dependency graph for gdcmSOPClassExtendedNegociationSub.h:



Classes

- class gdcm::network::SOPClassExtendedNegociationSub

  SOPClassExtendedNegociationSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.576 gdcmSOPClassExtendedNegociationSub.h

Go to the documentation of this file.

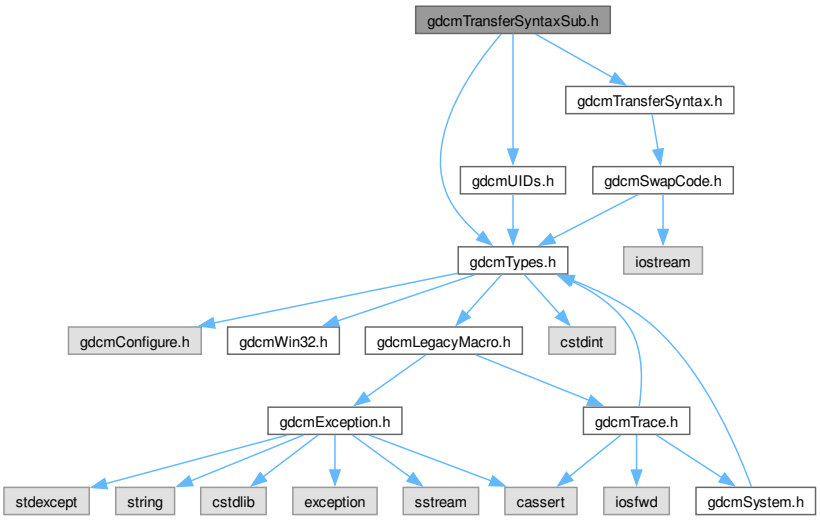
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMSOPCLASSEXTENDEDNEGOCIATIONSUB_H
```

```
00015 #define GDCMSOPCLASSEXTENDEDNEGOCIATIONSUB_H
00016
00017 #include "gdcmServiceClassApplicationInformation.h"
00018
00019 namespace gdcm
00020 {
00021 namespace network
00022 {
00023
00031 class SOPClassExtendedNegociationSub
00032 {
00033 public:
00034   SOPClassExtendedNegociationSub();
00035   std::istream &Read(std::istream &is);
00036   const std::ostream &Write(std::ostream &os) const;
00037
00038   size_t Size() const;
00039   void Print(std::ostream &os) const;
00040
00041   void SetTuple(const char *uid, uint8_t levelofsupport = 3,
00042     uint8_t levelofdigitalsig = 0,
00043     uint8_t elementcoercion = 2);
00044
00045 private:
00046   static const uint8_t ItemType;
00047   static const uint8_t Reserved2;
00048   uint16_t ItemLength;
00049   uint16_t UIDLength;
00050   std::string /*SOP-class-uid*/ Name; // UID
00051   ServiceClassApplicationInformation SCAI;
00052 };
00053
00054 } // end namespace network
00055
00056 } // end namespace gdcm
00057
00058 #endif // GDCMSOPCLASSEXTENDEDNEGOCIATIONSUB_H
```

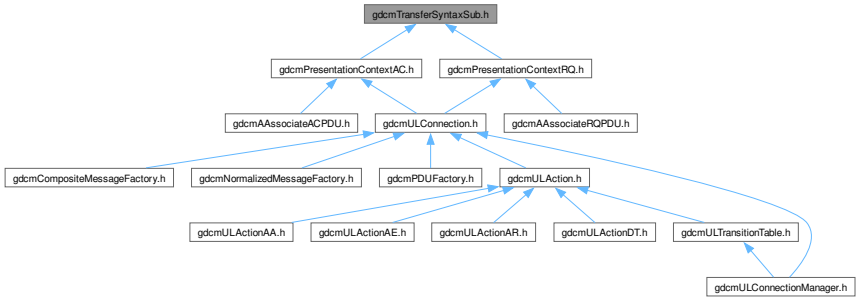
13.577 gdcmTransferSyntaxSub.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDs.h"
```

Include dependency graph for gdcmTransferSyntaxSub.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::TransferSyntaxSub
  TransferSyntaxSub.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.578 gdcmTransferSyntaxSub.h

Go to the documentation of this file.

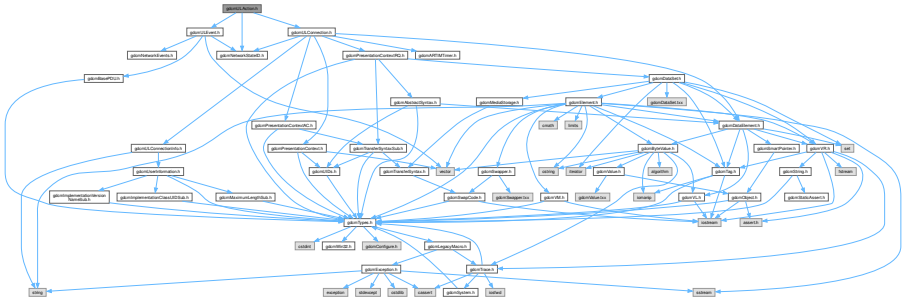
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMTRANSFERSYNTAXSUB_H
00015 #define GDCMTRANSFERSYNTAXSUB_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmTransferSyntax.h"
00019 #include "gdcmUIDs.h"
00020
00021 namespace gdcm
00022 {
00023
00024 namespace network
00025 {
00026
00037 class TransferSyntaxSub
00038 {
00039 public:
00040   TransferSyntaxSub();
00041   void SetName( const char *name );
00042   const char *GetName() const { return Name.c_str(); }
00043
00044   // accept a UIDs::TSType also...
00045   void SetNameFromUID( UIDs::TSName tsname );
00046
00047   std::istream &Read(std::istream &is);
00048   const std::ostream &Write(std::ostream &os) const;
00049   size_t Size() const;
00050   void Print(std::ostream &os) const;
00051
00052   bool operator==(const TransferSyntaxSub & ts) const
00053     {
00054     return Name == ts.Name;
00055     }
00056
00057 private:
00058   void UpdateName( const char *name );
00059   static const uint8_t ItemType;
00060   static const uint8_t Reserved2;
00061   uint16_t ItemLength; // len of
00062   std::string /*TransferSyntaxSub*/ Name; // UID
00063 };
00064
00065 } // end namespace network
00066
00067 } // end namespace gdcm
00068
00069 #endif //GDCMTRANSFERSYNTAXSUB_H
```

13.579 gdcmULAction.h File Reference

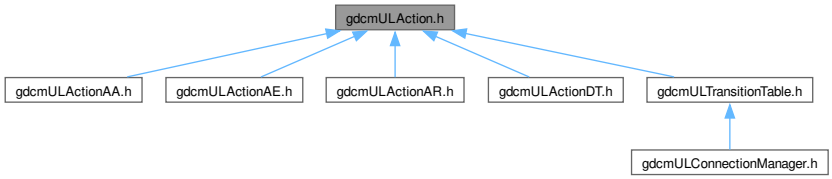
```
#include "gdcmNetworkStateID.h"
#include "gdcmULEvent.h"
```

```
#include "gdcmULConnection.h"
```

Include dependency graph for gdcmULAction.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULAction

  ULAction.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.580 gdcmULAction.h

Go to the documentation of this file.

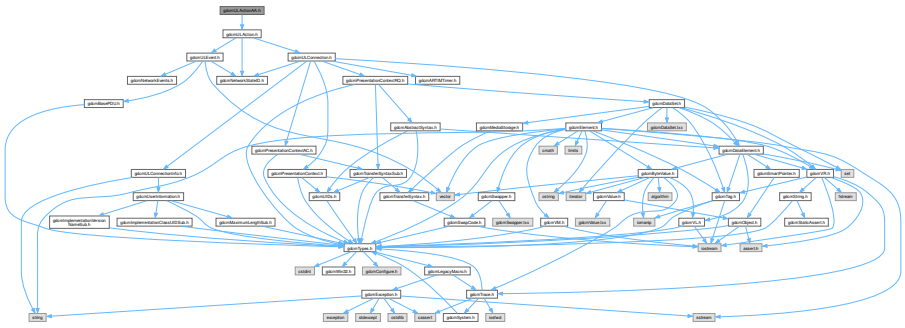
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
```

```
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULACTION_H
00019 #define GDCMULACTION_H
00020
00021 #include "gdcmNetworkStateID.h"
00022 #include "gdcmULEvent.h"
00023 #include "gdcmULConnection.h"
00024
00025 namespace gdcm {
00026 class Subject;
00027   namespace network {
00028
00062 class ULAction {
00063
00064     protected:
00065
00066
00067     public:
00068       ULAction() = default;
00069       //make sure destructors are virtual to avoid memory leaks
00070       virtual ~ULAction() = default;
00071       //cannot copy a ULAction
00072       ULAction(const ULAction& inAction) = delete;
00073       void operator=(const ULAction&) = delete;
00074
00075       virtual EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00076         bool& outWaitingForEvent, EEventID& outRaisedEvent) = 0;
00077     };
00078   }
00079 }
00080
00081 #endif // GDCMULACTION_H
```

13.581 gdcmULActionAA.h File Reference

`#include "gdcmULAction.h"`

Include dependency graph for gdcmULActionAA.h:



Classes

- class gdcm::network::ULActionAA1
- class gdcm::network::ULActionAA2
- class gdcm::network::ULActionAA3

- class gdcm::network::ULActionAA4
- class gdcm::network::ULActionAA5
- class gdcm::network::ULActionAA6
- class gdcm::network::ULActionAA7
- class gdcm::network::ULActionAA8

Namespaces

- namespace gdcm
- namespace gdcm::network

13.582 gdcmULActionAA.h

Go to the documentation of this file.

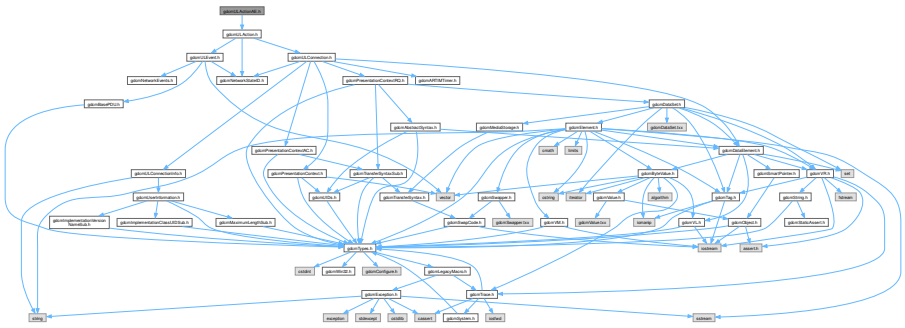
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULACTIONAA_H
00019 #define GDCMULACTIONAA_H
00020
00021 #include "gdcmULAction.h"
00022
00030
00031 namespace gdcm {
00032   namespace network {
00033
00034     //Send A-ABORT PDU (service-user source) and start (or restart if already started) ARTIM timer
00035     //Next State: eSta13AwaitingClose
00036     class ULActionAA1 : public ULAction {
00037     public:
00038       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00039         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00040     };
00041
00042     //Stop ARTIM timer if running.  Close transport connection.
00043     //Next State: eSta1Idle
00044     class ULActionAA2 : public ULAction {
00045     public:
00046       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00047         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00048     };
00049
00050     //If (service-user initiated abort)
00051     //- issue A-ABORT indication and close transport connection
00052     //otherwise (service-provider initiated abort):
00053     //- issue A-P-ABORT indication and close transport connection
00054     //Next State: eSta1Idle
00055     class ULActionAA3 : public ULAction {
00056     public:
00057       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00058         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00059     };
00060
00061     //Issue A-P-ABORT indication primitive
```

```
00062     //Next State: eSta1Idle
00063     class ULActionAA4 : public ULAction {
00064     public:
00065       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00066         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00067     };
00068
00069     //Stop ARTIM timer
00070     //Next State: eSta1Idle
00071     class ULActionAA5 : public ULAction {
00072     public:
00073       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00074         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00075     };
00076
00077     //Ignore PDU
00078     //Next State: eSta13AwaitingClose
00079     class ULActionAA6 : public ULAction {
00080     public:
00081       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00082         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00083     };
00084
00085     //Send A-ABORT PDU
00086     //Next State: eSta13AwaitingClose
00087     class ULActionAA7 : public ULAction {
00088     public:
00089       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00090         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00091     };
00092
00093     //Send A-ABORT PDU (service-provider source), issue an A-P-ABORT indication, and start ARTIM timer
00094     //Next State: eSta13AwaitingClose
00095     class ULActionAA8 : public ULAction {
00096     public:
00097       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00098         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00099     };
00100   }
00101 }
00102
00103 #endif // GDCMULACTIONAA_H
```

13.583 gdcmULActionAE.h File Reference

`#include "gdcmULAction.h"`

Include dependency graph for gdcmULActionAE.h:



Classes

- class gdcm::network::ULActionAE1

- class gdcm::network::ULActionAE2
- class gdcm::network::ULActionAE3
- class gdcm::network::ULActionAE4
- class gdcm::network::ULActionAE5
- class gdcm::network::ULActionAE6
- class gdcm::network::ULActionAE7
- class gdcm::network::ULActionAE8

Namespaces

- namespace gdcm
- namespace gdcm::network

13.584 gdcmULActionAE.h

Go to the documentation of this file.

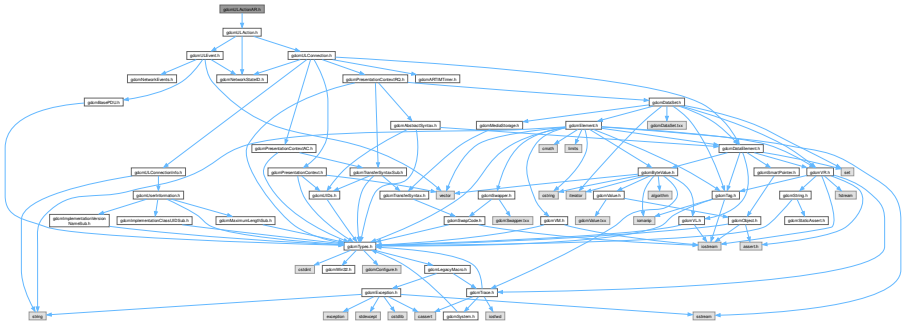
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULACTIONAE_H
00019 #define GDCMULACTIONAE_H
00020
00021 #include "gdcmULAction.h"
00022
00031
00032 namespace gdcm {
00033   namespace network {
00034
00035     //Issue TRANSPORT CONNECT request primitive to local transport service.
00036     class ULActionAE1 : public ULAction {
00037     public:
00038       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00039         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00040     };
00041
00042     //Send A-ASSOCIATE-RQ-PDU
00043     //Next State: eSta5WaitRemoteAssoc
00044     class ULActionAE2 : public ULAction {
00045     public:
00046       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00047         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00048     };
00049
00050     //Issue A-ASSOCIATE confirmation (accept) primitive
00051     //Next State: eSta6TransferReady
00052     class ULActionAE3 : public ULAction {
00053     public:
00054       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00055         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00056     };
00057
00058     //Issue A-ASSOCIATE confirmation (reject) primitive and close transport connection
```

```
00059     //Next State: eSta1Idle
00060     class ULActionAE4 : public ULAction {
00061     public:
00062       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00063         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00064     };
00065
00066     //Issue Transport connection response primitive, start ARTIM timer
00067     //Next State: eSta2Open
00068     class ULActionAE5 : public ULAction {
00069     public:
00070       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00071         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00072     };
00073
00074     //Stop ARTIM timer and if A-ASSOCIATE-RQ acceptable by service-provider:
00075     //- issue A-ASSOCIATE indication primitive
00076     //Next state: eSta3WaitLocalAssoc
00077     //otherwise:
00078     //- issue A-ASSOCIATE-RJ-PDU and start ARTIM timer
00079     //Next state: eSta13AwaitingClose
00080     class ULActionAE6 : public ULAction {
00081     public:
00082       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00083         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00084     };
00085
00086     //Send A-ASSOCIATE-AC PDU
00087     //Next State: eSta6TransferReady
00088     class ULActionAE7 : public ULAction {
00089     public:
00090       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00091         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00092     };
00093
00094     //Send A-ASSOCIATE-RJ PDU and start ARTIM timer
00095     //Next State: eSta13AwaitingClose
00096     class ULActionAE8 : public ULAction {
00097     public:
00098       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00099         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00100     };
00101   }
00102 }
00103 #endif // GDCMULACTIONAE_H
```

13.585 gdcmULActionAR.h File Reference

`#include "gdcmULAction.h"`

Include dependency graph for gdcmULActionAR.h:



Classes

- class gdcm::network::ULActionAR1

- class gdcm::network::ULActionAR10
- class gdcm::network::ULActionAR2
- class gdcm::network::ULActionAR3
- class gdcm::network::ULActionAR4
- class gdcm::network::ULActionAR5
- class gdcm::network::ULActionAR6
- class gdcm::network::ULActionAR7
- class gdcm::network::ULActionAR8
- class gdcm::network::ULActionAR9

Namespaces

- namespace gdcm
- namespace gdcm::network

13.586 gdcmULActionAR.h

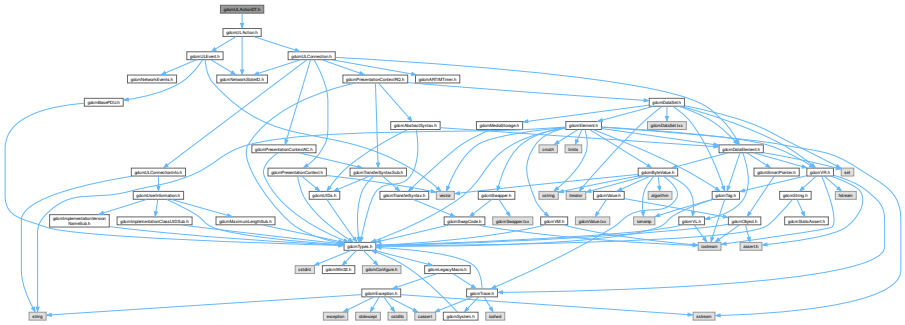
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULACTIONAR_H
00019 #define GDCMULACTIONAR_H
00020
00021 #include "gdcmULAction.h"
00022
00030
00031 namespace gdcm {
00032   namespace network {
00033
00034     //Send A-RELEASE-RQ-PDU
00035     //Next State: eSta7WaitRelease
00036     class ULActionAR1 : public ULAction {
00037     public:
00038       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00039         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00040     };
00041
00042     //Issue A-RELEASE indication primitive
00043     //Next State: eSta8WaitLocalRelease
00044     class ULActionAR2 : public ULAction {
00045     public:
00046       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00047         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00048     };
00049
00050     //Issue A-RELEASE confirmation primitive, and close transport connection
00051     //Next State: eSta1Idle
00052     class ULActionAR3 : public ULAction {
00053     public:
00054       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
```

```
00055         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00056     };
00057
00058     //Issue A-RELEASE-RP PDU and start ARTIM timer
00059     //Next State: eSta13AwaitingClose
00060     class ULActionAR4 : public ULAction {
00061     public:
00062       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00063         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00064     };
00065
00066     //Stop ARTIM timer
00067     //Next State: eSta1Idle
00068     class ULActionAR5 : public ULAction {
00069     public:
00070       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00071         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00072     };
00073
00074     //Issue P-Data indication
00075     //Next State: eSta7WaitRelease
00076     class ULActionAR6 : public ULAction {
00077     public:
00078       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00079         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00080     };
00081
00082     //Issue P-DATA-TF PDU
00083     //Next State: eSta8WaitLocalRelease
00084     class ULActionAR7 : public ULAction {
00085     public:
00086       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00087         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00088     };
00089
00090     //Issue A-RELEASE indication (release collision):
00091     //- If association-requestor, next state is eSta9ReleaseCollisionRqLocal
00092     //- if not, next state is eSta10ReleaseCollisionAc
00093     class ULActionAR8 : public ULAction {
00094     public:
00095       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00096         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00097     };
00098
00099     //Send A-RELEASE-RP PDU
00100     //Next State: eSta11ReleaseCollisionRq
00101     class ULActionAR9 : public ULAction {
00102     public:
00103       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00104         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00105     };
00106
00107     //Issue A-RELEASE confirmation primitive
00108     //Next State: eSta12ReleaseCollisionAcLocal
00109     class ULActionAR10 : public ULAction {
00110     public:
00111       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00112         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00113     };
00114   }
00115 }
00116 #endif // GDCMULACTIONAR_H
```

13.587 gdcmULActionDT.h File Reference

`#include "gdcmULAction.h"`
Include dependency graph for gdcmULActionDT.h:



Classes

- class gdcm::network::ULActionDT1
- class gdcm::network::ULActionDT2

Namespaces

- namespace gdcm
- namespace gdcm::network

13.588 gdcmULActionDT.h

Go to the documentation of this file.

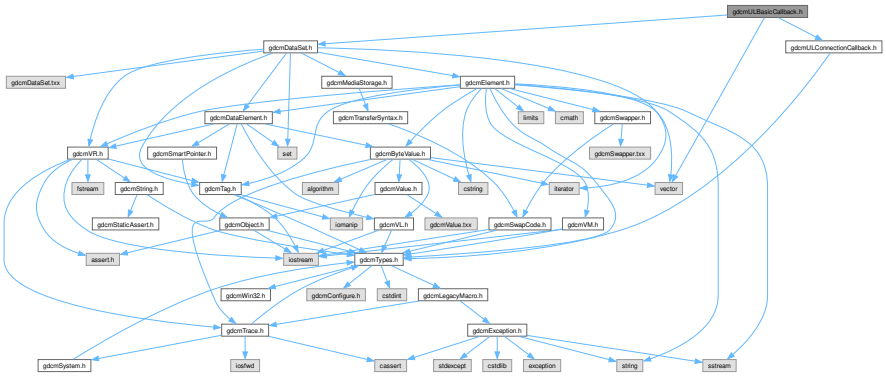
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULACTIONDT_H
00019 #define GDCMULACTIONDT_H
00020
00021 #include "gdcmULAction.h"
00022
00030
00031 namespace gdcm {
00032   namespace network {
```

```
00033
00034     //Send P-DATA-TF PDU
00035     //Next state: eSta6TransferReady
00036     class ULActionDT1 : public ULAction {
00037     public:
00038       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00039         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00040     };
00041
00042     //Send P-DATA indication primitive
00043     //Next state: eSta6TransferReady
00044     class ULActionDT2 : public ULAction {
00045     public:
00046       EStateID PerformAction(Subject *s, ULEvent& inEvent, ULConnection& inConnection,
00047         bool& outWaitingForEvent, EEventID& outRaisedEvent) override;
00048     };
00049   }
00050 }
00051 #endif // GDCMULACTIONDT_H
```

13.589 gdcmULBasicCallback.h File Reference

```
#include "gdcmULConnectionCallback.h"
#include "gdcmDataSet.h"
#include <vector>
```

Include dependency graph for gdcmULBasicCallback.h:



Classes

- class gdcm::network::ULBasicCallback

  ULBasicCallback.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.590 gdcmULBasicCallback.h

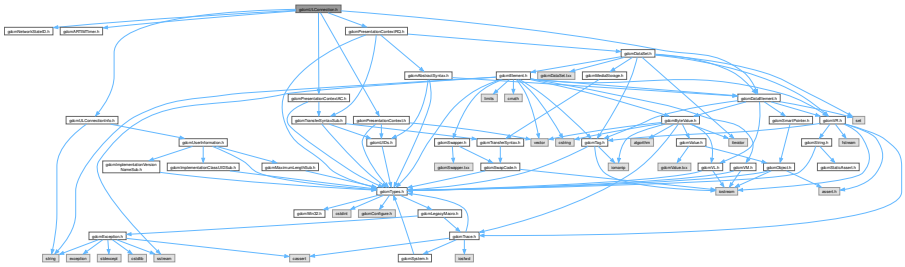
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULCONNECTIONBASICCALLBACK_H
00019 #define GDCMULCONNECTIONBASICCALLBACK_H
00020
00021 #include "gdcmULConnectionCallback.h"
00022 #include "gdcmDataSet.h"
00023 #include <vector>
00024
00025 namespace gdcm
00026 {
00027   namespace network
00028     {
00038     class GDCM_EXPORT ULBasicCallback : public ULConnectionCallback
00039     {
00040     std::vector<DataSet> mDataSets;
00041     std::vector<DataSet> mResponses;
00042   public:
00043     ULBasicCallback() = default;
00044     ~ULBasicCallback() override = default; //empty, for later inheritance
00045
00046     void HandleDataSet(const DataSet& inDataSet) override;
00047     void HandleResponse(const DataSet& inDataSet) override;
00048
00049     std::vector<DataSet> const & GetDataSets() const;
00050     std::vector<DataSet> const & GetResponses() const;
00051     };
00052     } // end namespace network
00053 } // end namespace gdcm
00054
00055 #endif // GDCMULCONNECTIONBASICCALLBACK_H
```

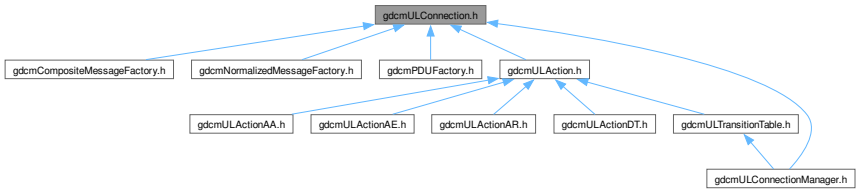
13.591 gdcmULConnection.h File Reference

```
#include "gdcmNetworkStateID.h"
#include "gdcmARTIMTimer.h"
#include "gdcmULConnectionInfo.h"
#include "gdcmPresentationContextRQ.h"
#include "gdcmDataElement.h"
#include "gdcmPresentationContextAC.h"
#include "gdcmPresentationContext.h"
```

Include dependency graph for gdcmULConnection.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULConnection

  ULConnection.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.592 gdcmULConnection.h

Go to the documentation of this file.

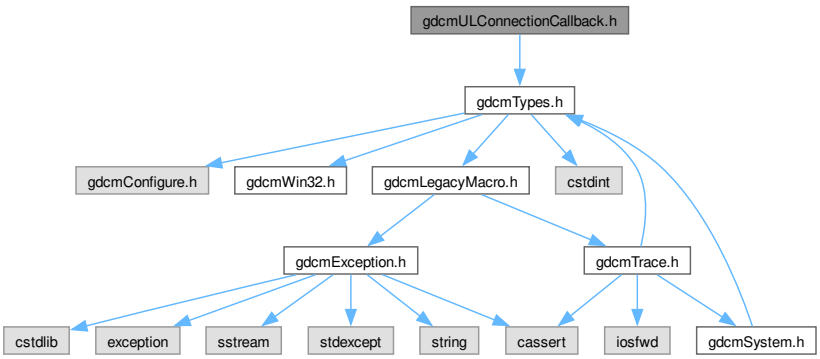
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
```

```
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULCONNECTION_H
00019 #define GDCMULCONNECTION_H
00020
00021 #include "gdcmNetworkStateID.h"
00022 #include "gdcmARTIMTimer.h"
00023 #include "gdcmULConnectionInfo.h"
00024 #include "gdcmPresentationContextRQ.h"
00025 #include "gdcmDataElement.h"
00026 #include "gdcmPresentationContextAC.h"
00027 #include "gdcmPresentationContext.h"
00028
00029 class iosockinet;
00030 class echo;
00031 namespace gdcm{
00032   namespace network{
00033
00057 class GDCM_EXPORT ULConnection
00058 {
00059       ULConnectionInfo mInfo;
00060       //this is a dirty dirty hack
00061       //but to establish an outgoing connection (scu), we need the echo service
00062       //to establish incoming, we just need a port and localhost, so an iosockinet works while an
00063       //echo would fail (probably because one already exists)
00064       echo* mEcho;
00065       iosockinet* mSocket;//of the three protocols offered by socket++-- echo, smtp, and ftp--
00066       //echo most closely matches what the DICOM standard describes as a network connection
00067       ARTIMTimer mTimer;
00068
00069       EStateID mCurrentState;
00070
00071       std::vector<PresentationContextRQ> mPresentationContexts;
00072       //this is our list of presentation contexts of what we can send
00073       uint32_t mMaxPDUSize;
00074
00075       std::vector<PresentationContextAC> mAcceptedPresentationContexts;//these come back from the server
00076       //and tell us what can be sent over this connection
00077
00078       TransferSyntaxSub cstorets;
00079
00080       friend class ULActionAE6;
00081       void SetCStoreTransferSyntax( TransferSyntaxSub const & ts );
00082       friend class ULConnectionManager;
00083       TransferSyntaxSub const & GetCStoreTransferSyntax( ) const;
00084     public:
00085
00086       ULConnection(const ULConnectionInfo& inUserInformation);
00087       //destructors are virtual to prevent memory leaks by inherited classes
00088       virtual ~ULConnection();
00089
00090       EStateID GetState() const;
00091       void SetState(const EStateID& inState);//must be able to update state...
00092
00093       //echo* GetProtocol();
00094       std::iostream* GetProtocol();
00095       void StopProtocol();
00096
00097       ARTIMTimer& GetTimer();
00098
00099       const ULConnectionInfo &GetConnectionInfo() const;
00100
00101       //when the connection is first associated, the connection is told
00102       //the max packet/PDU size and the way in which to present data
00103       //(presentation contexts, etc). Store that here.
00104       void SetMaxPDUSize(uint32_t inSize);
00105       uint32_t GetMaxPDUSize() const;
00106
00107       const PresentationContextAC *GetPresentationContextACByID(uint8_t id) const;
00108       const PresentationContextRQ *GetPresentationContextRQByID(uint8_t id) const;
00109
00111       uint8_t GetPresentationContextIDFromPresentationContext(PresentationContextRQ const & pc) const;
00112
00113       std::vector<PresentationContextRQ> const & GetPresentationContexts() const;
00114       void SetPresentationContexts(const std::vector<PresentationContextRQ>& inContexts);
00115
00116       void SetPresentationContexts(const std::vector<PresentationContext>& inContexts);
00117
00118       //given a particular data element, presumably the SOP class,
00119       //find the presentation context for that SOP
```

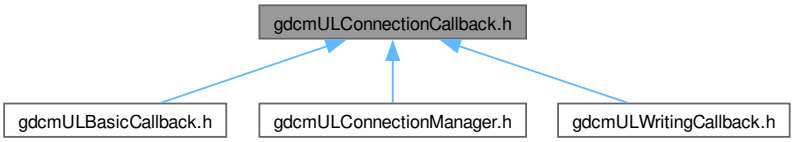
```
00120       //NOT YET IMPLEMENTED
00121       PresentationContextRQ FindContext(const DataElement& de) const;
00122
00123       std::vector<PresentationContextAC> const & GetAcceptedPresentationContexts() const;
00124       std::vector<PresentationContextAC> & GetAcceptedPresentationContexts();
00125       void AddAcceptedPresentationContext(const PresentationContextAC& inPC);
00126
00128       bool InitializeConnection();
00129
00131       bool InitializeIncomingConnection();
00132
00133       ULConnection(const ULConnection&) = delete;
00134       void operator=(const ULConnection&) = delete;
00135     };
00136   }
00137 }
00138
00139 #endif // ULCONNECTION_H
```

13.593 gdcmULConnectionCallback.h File Reference

`#include "gdcmTypes.h"`
Include dependency graph for gdcmULConnectionCallback.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULConnectionCallback

Namespaces

- namespace gdcm
- namespace gdcm::network

13.594 gdcmULConnectionCallback.h

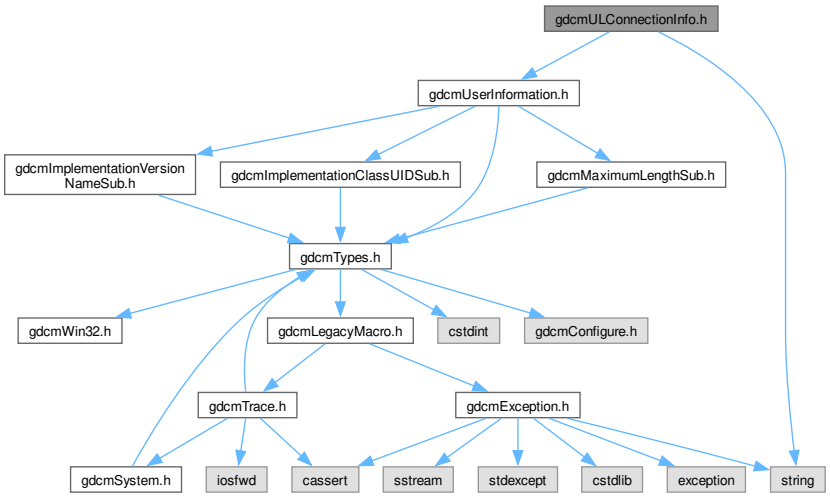
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULCONNECTIONCALLBACK_H
00019 #define GDCMULCONNECTIONCALLBACK_H
00020
00021 #include "gdcmTypes.h" //to be able to export the class
00022
00023 namespace gdcm
00024 {
00025   class DataSet;
00026   namespace network
00027   {
00039     class GDCM_EXPORT ULConnectionCallback {
00040       bool mHandledDataSet;
00041     protected:
00042       bool mImplicit;
00043       //inherited callbacks MUST call this function for the cmove loop to work properly
00044       void DataSetHandled() { mHandledDataSet = true; }
00045     public:
00046       ULConnectionCallback():mHandledDataSet(false),mImplicit(true){}
00047       virtual ~ULConnectionCallback() = default; //placeholder for inherited objects
00048       virtual void HandleDataSet(const DataSet& inDataSet) = 0;
00049       virtual void HandleResponse(const DataSet& inDataSet) = 0;
00050
00051       bool DataSetHandles() const { return mHandledDataSet; }
00052       void ResetHandledDataSet() { mHandledDataSet = false; }
00053
00054       void SetImplicitFlag( const bool imp ) { mImplicit = imp; }
00055     };
00056   }
00057 }
00058 #endif //GDCMULCONNECTIONCALLBACK_H
```

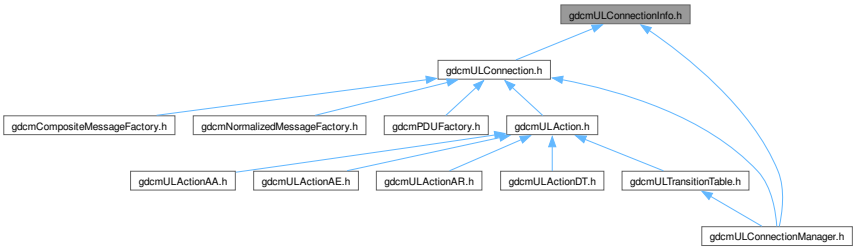
13.595 gdcmULConnectionInfo.h File Reference

```
#include "gdcmUserInformation.h"
#include <string>
```

Include dependency graph for gdcmULConnectionInfo.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULConnectionInfo

  ULConnectionInfo.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.596 gdcmULConnectionInfo.h

Go to the documentation of this file.

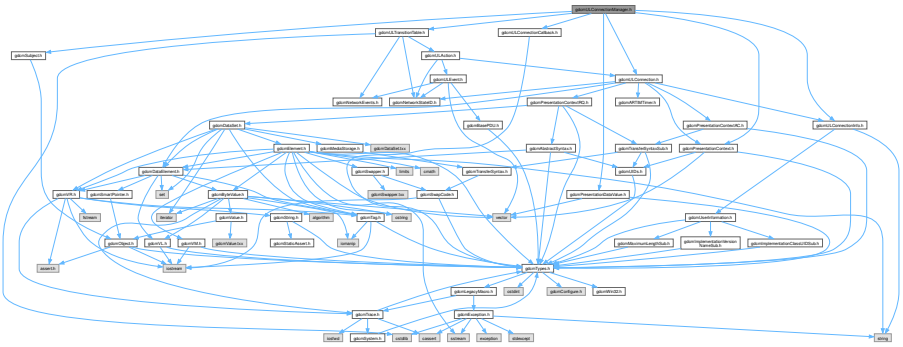
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULCONNECTIONINFO_H
00019 #define GDCMULCONNECTIONINFO_H
00020
00021 #include "gdcmUserInformation.h"
00022 #include <string>
00023
00024 namespace gdcm{
00025   namespace network {
00038 class ULConnectionInfo {
00039       UserInformation mUserInformation;
00040
00041       std::string mCalledAETitle;
00042       std::string mCallingAETitle;
00043
00044       unsigned long mCalledIPAddress;
00045       int mCalledIPPort;
00046       std::string mCalledComputerName; //either the IP or the name has to be filled in
00047
00048       unsigned long mMaxPDULength;
00049     public:
00050       ULConnectionInfo();
00051
00052       //it is possible to misinitialize this object, so
00053       //have it return false if something breaks (ie, given AEs are bigger than 16 characters,
00054       //no name or IP address).
00055       bool Initialize(UserInformation const &inUserInformation,
00056         const char *inCalledAETitle, const char *inCallingAETitle,
00057         unsigned long inCalledIPAddress, int inCalledIPPort,
00058         std::string inCalledComputerName);
00059
00060       //UserInformation GetUserInformation() const;
00061       const char* GetCalledAETitle() const;
00062       const char* GetCallingAETitle() const;
00063
00064       unsigned long GetCalledIPAddress() const;
00065       int GetCalledIPPort() const;
00066       std::string GetCalledComputerName() const;
00067
00068       //CStore needs to know the max pdu length, so the value gets initialized
00069       //when a cstore connection is established (but not for the others).
00070       void SetMaxPDULength(unsigned long inMaxPDULength);
00071       unsigned long GetMaxPDULength() const;
00072     };
00073   }
00074 }
00075
00076 #endif //GDCMULCONNECTIONINFO_H
```

13.597 gdcmULConnectionManager.h File Reference

```
#include "gdcmULTransitionTable.h"
#include "gdcmULConnection.h"
```

```
#include "gdcmULConnectionInfo.h"
#include "gdcmPresentationDataValue.h"
#include "gdcmULConnectionCallback.h"
#include "gdcmSubject.h"
#include "gdcmPresentationContext.h"
```

Include dependency graph for gdcmULConnectionManager.h:



Classes

- class gdcm::network::ULConnectionManager

  ULConnectionManager.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.598 gdcmULConnectionManager.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULCONNECTIONMANAGER_H
00019 #define GDCMULCONNECTIONMANAGER_H
00020
00021 #include "gdcmULTransitionTable.h"
00022 #include "gdcmULConnection.h"
```

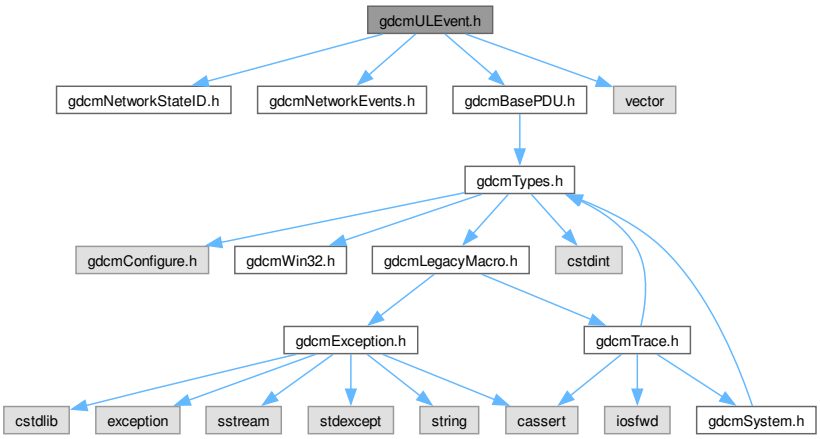
```
00023 #include "gdcmULConnectionInfo.h"
00024 #include "gdcmPresentationDataValue.h"
00025 #include "gdcmULConnectionCallback.h"
00026 #include "gdcmSubject.h"
00027 #include "gdcmPresentationContext.h"
00028
00029 namespace gdcm {
00030   class File;
00031   class BaseRootQuery;
00032   class BaseQuery;
00033
00034   namespace network {
00035
00045   class GDCM_EXPORT ULConnectionManager : public Subject
00046   {
00047     protected:
00048       ULConnection* mConnection;
00049       ULConnection* mSecondaryConnection;
00050       ULTransitionTable mTransitions;
00051
00052       //no copying
00053       ULConnectionManager(const ULConnectionManager& inCM);
00054
00055       //event handler loop.
00056       //will just keep running until the current event is nonexistent.
00057       //at which point, it will return the current state of the connection
00058       //this starts by initiating an action, but can be put into a passive mode
00059       //for a cmove/cstore combination by setting startWaiting to true
00060       EStateID RunEventLoop(ULEvent& inEvent, ULConnection* inWhichConnection,
00061         ULConnectionCallback* inCallback, const bool& startWaiting);
00062
00063       //like the above, but will manage the event loop for a move event (which
00064       //is basically two simultaneous connections interwoven, one inbound and
00065       //the other outbound.  Note, for instance, that cmoversp's can be sent back
00066       //during the other connection's operation.
00067       EStateID RunMoveEventLoop(ULEvent& inEvent, ULConnectionCallback* inCallback);
00068
00069     public:
00070       ULConnectionManager();
00071       ~ULConnectionManager() override;
00072
00073       // NOTE: (MM) The following two functions are difficult to use, therefore marking
00074       // them as internal for now.
00075
00076       // \internal
00084       bool EstablishConnection(const std::string& inAETitle,
00085         const std::string& inConnectAETitle,
00086         const std::string& inComputerName, long inIPAddress,
00087         uint16_t inConnectPort, double inTimeout,
00088         std::vector<PresentationContext> const & pcVector );
00089
00092       bool EstablishConnectionMove(const std::string& inAETitle,
00093         const std::string& inConnectAETitle,
00094         const std::string& inComputerName, long inIPAddress,
00095         uint16_t inConnectPort, double inTimeout,
00096         uint16_t inReturnPort,
00097         std::vector<PresentationContext> const & pcVector);
00098       // \endinternal
00099
00100
00101       //bool ReestablishConnection(const EConnectionType& inConnectionType,
00102       //  const DataSet& inDS);
00103
00104       //allows for a connection to be broken, but waits for an acknowledgement
00105       //of the breaking for a certain amount of time.  Returns true of the
00106       //other side acknowledges the break
00107       bool BreakConnection(const double& inTimeout);
00108
00109       //severs the connection, if it's open, without waiting for any kind of response.
00110       //typically done if the program is going down.
00111       void BreakConnectionNow();
00112
00113       //This function will send a given piece of data
00114       //across the network connection.  It will return true if the
00115       //sending worked, false otherwise.
00116       //note that sending is asynchronous; as such, there's
00117       //also a 'receive' option, but that requires a callback function.
00118       //bool SendData();
00119
00120       //send the Data PDU associated with Echo (ie, a default DataPDU)
00121       //this lets the user confirm that the connection is alive.
```

```
00122       //the user should look to cout to see the response of the echo command
00123       //returns the PresentationDataValue that was returned by the remote
00124       //host.  Note that the PDV can be uninitialized, which would indicate failure.
00125       //Echo does not use a callback for results.
00126       std::vector<PresentationDataValue> SendEcho();
00127
00128       // \internal
00129       // API will change...
00130       std::vector<DataSet> SendStore(const File &file, std::istream * pStream = nullptr, std::streampos
      dataSetOffset = 0  );
00131       std::vector<DataSet> SendFind(const BaseRootQuery* inRootQuery);
00132       std::vector<DataSet> SendMove(const BaseRootQuery* inRootQuery);
00133
00134     std::vector<DataSet> SendNEventReport (const BaseQuery* inQuery);
00135       std::vector<DataSet> SendNGet     (const BaseQuery* inQuery);
00136       std::vector<DataSet> SendNSet     (const BaseQuery* inQuery);
00137       std::vector<DataSet> SendNAction    (const BaseQuery* inQuery);
00138       std::vector<DataSet> SendNCreate    (const BaseQuery* inQuery);
00139       std::vector<DataSet> SendNDelete    (const BaseQuery* inQuery);
00140       // \endinternal
00141
00143       void SendStore(const File & file, ULConnectionCallback* inCallback, std::istream * pStream = nullptr
      , std::streampos dataSetOffset = 0 );
00144       void SendFind(const BaseRootQuery* inRootQuery, ULConnectionCallback* inCallback);
00146       bool SendMove(const BaseRootQuery* inRootQuery, ULConnectionCallback* inCallback);
00147
00148       void SendNEventReport (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
00149       void SendNGet     (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
00150       void SendNSet     (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
00151       void SendNAction    (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
00152       void SendNCreate    (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
00153       void SendNDelete    (const BaseQuery* inQuery, ULConnectionCallback* inCallback);
00154
00155     };
00156   }
00157 }
00158
00159 #endif // GDCMULCONNECTIONMANAGER_H
```

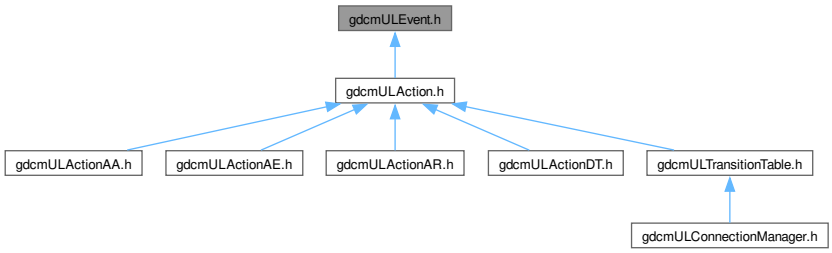
13.599 gdcmULEvent.h File Reference

```
#include "gdcmNetworkStateID.h"
#include "gdcmNetworkEvents.h"
#include "gdcmBasePDU.h"
#include <vector>
```

Include dependency graph for gdcmULEvent.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::ULEvent

  ULEvent.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.600 gdcmULEvent.h

Go to the documentation of this file.

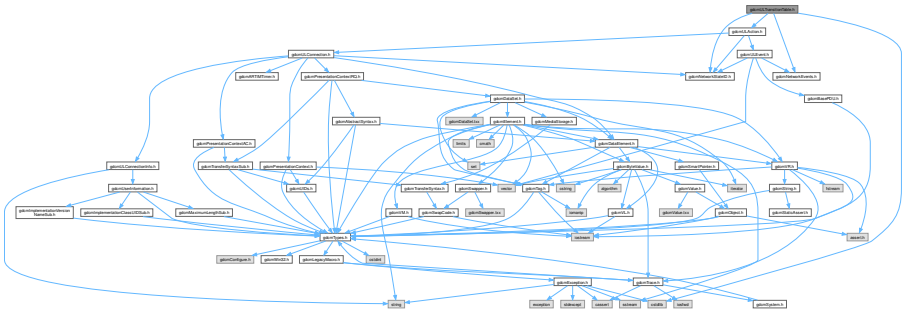
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULEVENT_H
00019 #define GDCMULEVENT_H
00020
00021 #include "gdcmNetworkStateID.h"
00022 #include "gdcmNetworkEvents.h"
00023 #include "gdcmBasePDU.h"
00024 #include <vector>
00025
00026 namespace gdcm {
00027   namespace network {
00028
00037 class ULEvent {
00038       EEventID mEvent;
00039       std::vector<BasePDU*> mBasePDU;
```

```
00040     std::istream * m_pStream ;
00041     std::streampos m_posDataSet ;
00042       void DeletePDUVector(){
00043         std::vector<BasePDU*>::iterator baseItor;
00044         for (baseItor = mBasePDU.begin(); baseItor < mBasePDU.end(); baseItor++){
00045           if (*baseItor != nullptr){
00046             delete *baseItor;
00047             *baseItor = nullptr;
00048           }
00049         }
00050       }
00051
00052     public:
00053       ULEvent(const EEventID& inEventID, std::vector<BasePDU*> inBasePDU, std::istream * iStream =
      nullptr, std::streampos posDataSet = 0 ){
00054         mEvent = inEventID;
00055         mBasePDU = inBasePDU;
00056     m_pStream = iStream ;
00057     m_posDataSet = posDataSet ;
00058       }
00059       ULEvent(const EEventID& inEventID, BasePDU* inBasePDU, std::istream * iStream = nullptr,
      std::streampos posDataSet = 0 ){
00060         mEvent = inEventID;
00061         mBasePDU.push_back(inBasePDU);
00062     m_pStream = iStream ;
00063     m_posDataSet = posDataSet ;
00064       }
00065       ~ULEvent(){
00066         DeletePDUVector();
00067       }
00068
00069       EEventID GetEvent() const { return mEvent; }
00070       std::vector<BasePDU*> const & GetPDUs() const { return mBasePDU; }
00071     std::istream * GetIStream() const { return m_pStream; }
00072     std::streampos GetDataSetPos() const { return m_posDataSet; }
00073
00074       void SetEvent(const EEventID& inEvent) { mEvent = inEvent; }
00075       void SetPDU(std::vector<BasePDU*> const & inPDU) {
00076         DeletePDUVector();
00077         mBasePDU = inPDU;
00078       }
00079     };
00080   }
00081 }
00082
00083 #endif //GDCMULEVENT_H
```

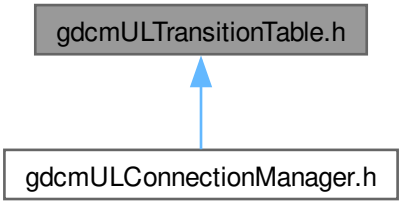
13.601 gdcmULTransitionTable.h File Reference

```
#include "gdcmNetworkStateID.h"
#include "gdcmNetworkEvents.h"
#include "gdcmULAction.h"
#include <cstdlib>
```

Include dependency graph for gdcmULTransitionTable.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::TableRow
- struct gdcm::network::Transition
- class gdcm::network::ULTransitionTable

  ULTransitionTable The transition table of all the ULEvents, new ULActions, and ULStates.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.602 gdcmULTransitionTable.h

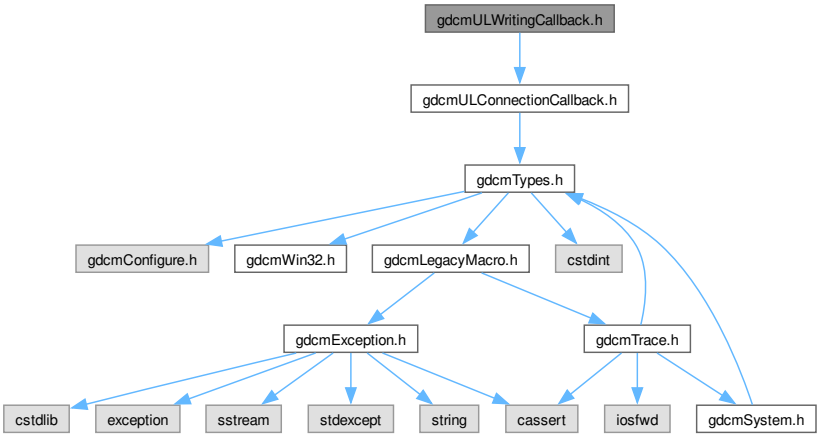
Go to the documentation of this file.

```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULTRANSITIONTABLE_H
00019 #define GDCMULTRANSITIONTABLE_H
00020
00021 #include "gdcmNetworkStateID.h"
00022 #include "gdcmNetworkEvents.h"
00023 #include "gdcmULAction.h"
00024
00025 #include <cstdlib>  // NULL
```

```
00026
00027 namespace gdcm {
00028 class Subject;
00029   namespace network{
00030 class ULConnection;
00031 class ULAction;
00032 class ULEvent;
00033
00034     //The transition dictates the action that should be taken from the start state to the end state
00035     struct Transition {
00036       int mEnd;
00037       ULAction* mAction;
00038       Transition(){
00039         mEnd = eStaDoesNotExist;
00040         mAction = nullptr;
00041       }
00042       ~Transition(){
00043         if (mAction != nullptr){
00044           delete mAction;
00045           mAction = nullptr;
00046         }
00047       }
00048       Transition(int inEndState, ULAction* inAction){
00049         mEnd = inEndState;
00050         mAction = inAction;
00051       }
00052       static Transition* MakeNew(int inEndState, ULAction* inAction){
00053         return new Transition(inEndState, inAction);
00054       }
00055     };
00056
00057     //used to define a row in table 9-10 of 3.8 2009
00058     //the transition table is events, then state,
00059     //then the transition itself (which has the event
00060     //and start state implied by their starting locations)
00061     //don't need to store the event; that's implicitly defined in the Table itself by location
00062     class TableRow{
00063     public:
00064       TableRow() {
00065         for(int stateIndex = 0; stateIndex < cMaxStateID; ++stateIndex)
00066           {
00067           transitions[stateIndex] = nullptr;
00068           }
00069       }
00070       ~TableRow() {
00071         for(int stateIndex = 0; stateIndex < cMaxStateID; ++stateIndex)
00072           {
00073           Transition *t = transitions[stateIndex];
00074           delete t;
00075           }
00076        }
00077       Transition *transitions[cMaxStateID];
00078
00079       //copy constructor for stl additions into the transition table below.
00080     };
00081
00098 class ULTransitionTable
00099 {
00100     private:
00101       TableRow mTable[cMaxEventID];
00102     public:
00103       ULTransitionTable();
00104
00105       void HandleEvent(Subject*s,ULEvent& inEvent, ULConnection& inConnection,
00106         bool& outWaitingForEvent, EEventID& outRaisedEvent) const;
00107
00108       void PrintTable() const; //so that the table can be printed and verified against the DICOM standard
00109     };
00110   }
00111 }
00112 #endif // GDCMULTRANSITIONTABLE_H
```

13.603 gdcmULWritingCallback.h File Reference

`#include "gdcmULConnectionCallback.h"`
Include dependency graph for gdcmULWritingCallback.h:



Classes

- class gdcm::network::ULWritingCallback

Namespaces

- namespace gdcm
- namespace gdcm::network

13.604 gdcmULWritingCallback.h

Go to the documentation of this file.

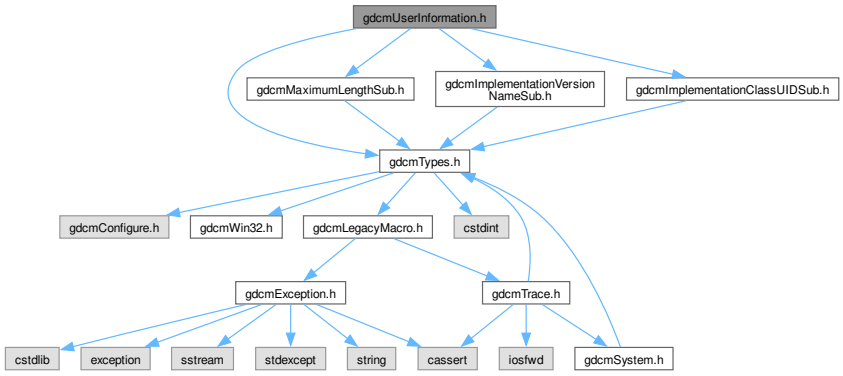
```
00001 /*=========================================================================
00002  *
00003  *  Copyright NumFOCUS
00004  *
00005  *  Licensed under the Apache License, Version 2.0 (the "License");
00006  *  you may not use this file except in compliance with the License.
00007  *  You may obtain a copy of the License at
00008  *
00009  *         http://www.apache.org/licenses/LICENSE-2.0.txt
00010  *
00011  *  Unless required by applicable law or agreed to in writing, software
00012  *  distributed under the License is distributed on an "AS IS" BASIS,
00013  *  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
00014  *  See the License for the specific language governing permissions and
00015  *  limitations under the License.
00016  *
00017  *=========================================================================*/
00018 #ifndef GDCMULCONNECTIONWRITINGCALLBACK_H
```

```
00019 #define GDCMULCONNECTIONWRITINGCALLBACK_H
00020
00021 #include "gdcmULConnectionCallback.h"
00022
00023 namespace gdcm
00024 {
00025 class DataSet;
00026 namespace network
00027 {
00028 /* \brief ULWritingCallback
00029  * \details This is the most basic of callbacks for how the ULConnectionManager handles
00030  * incoming datasets.  DataSets are immediately written to disk as soon as they
00031  * are received.  NOTE that if the incoming connection is faster than the disk
00032  * writing speed, this callback could cause some pileups!
00033  */
00034 class GDCM_EXPORT ULWritingCallback : public ULConnectionCallback
00035 {
00036   std::string mDirectoryName;
00037 public:
00038   ULWritingCallback() = default;
00039   ~ULWritingCallback() override = default; //empty, for later inheritance
00040
00042   void SetDirectory(const std::string& inDirectoryName) { mDirectoryName = inDirectoryName; }
00043
00044   void HandleDataSet(const DataSet& inDataSet) override;
00045   void HandleResponse(const DataSet& inDataSet) override;
00046 };
00047 } // end namespace network
00048 } // end namespace gdcm
00049
00050 #endif //GDCMULCONNECTIONWRITINGCALLBACK_H
```

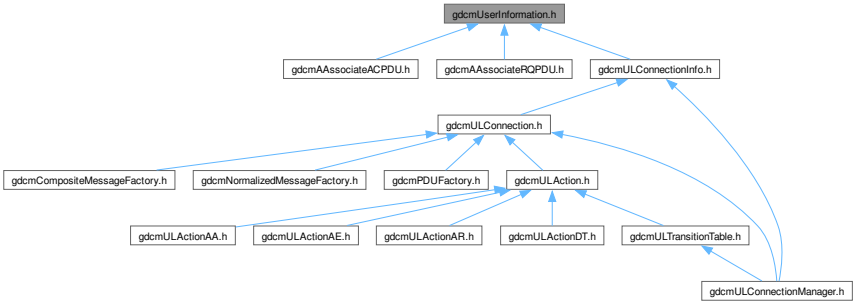
13.605 gdcmUserInformation.h File Reference

```
#include "gdcmTypes.h"
#include "gdcmMaximumLengthSub.h"
#include "gdcmImplementationVersionNameSub.h"
#include "gdcmImplementationClassUIDSub.h"
```

Include dependency graph for gdcmUserInformation.h:



This graph shows which files directly or indirectly include this file:



Classes

- class gdcm::network::UserInformation

  UserInformation.

Namespaces

- namespace gdcm
- namespace gdcm::network

13.606 gdcmUserInformation.h

Go to the documentation of this file.

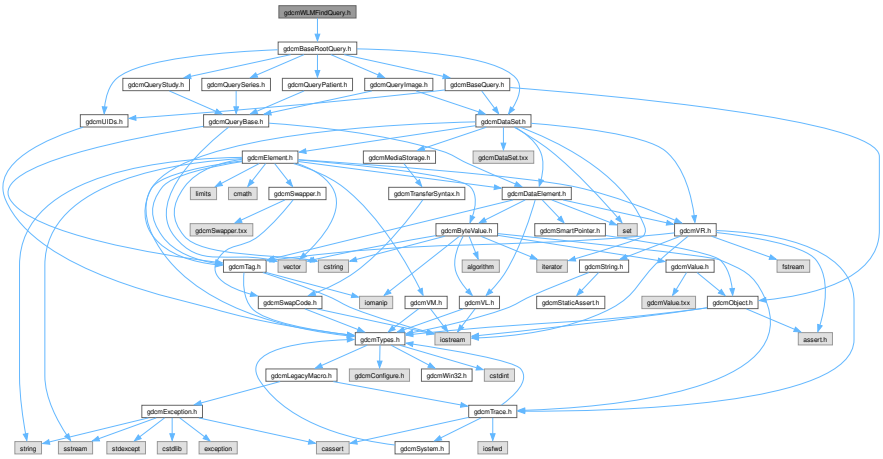
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMUSERINFORMATION_H
00015 #define GDCMUSERINFORMATION_H
00016
00017 #include "gdcmTypes.h"
00018 #include "gdcmMaximumLengthSub.h"
00019 #include "gdcmImplementationVersionNameSub.h"
00020 #include "gdcmImplementationClassUIDSub.h"
00021
00022 namespace gdcm
00023 {
00024
00025 namespace network
00026 {
00027
00028 class AsynchronousOperationsWindowSub;
00029 class RoleSelectionSub;
00030 struct RoleSelectionSubItems;
```

```
00031 class SOPClassExtendedNegociationSub;
00032 struct SOPClassExtendedNegociationSubItems;
00043 class UserInformation
00044 {
00045 public:
00046   UserInformation();
00047   ~UserInformation();
00048   std::istream &Read(std::istream &is);
00049   const std::ostream &Write(std::ostream &os) const;
00050   size_t Size() const;
00051
00052   void Print(std::ostream &os) const;
00053
00054   const MaximumLengthSub &GetMaximumLengthSub() const { return MLS; }
00055   MaximumLengthSub &GetMaximumLengthSub() { return MLS; }
00056
00057   void AddRoleSelectionSub( RoleSelectionSub const & r );
00058   void AddSOPClassExtendedNegociationSub( SOPClassExtendedNegociationSub const & s );
00059
00060 private:
00061   static const uint8_t ItemType;
00062   static const uint8_t Reserved2;
00063   uint16_t ItemLength; // len of
00064   MaximumLengthSub MLS;
00065   ImplementationClassUIDSub ICUID;
00066   AsynchronousOperationsWindowSub *AOWS;
00067   RoleSelectionSubItems *RSSI;
00068   SOPClassExtendedNegociationSubItems *SOPCENSI;
00069   ImplementationVersionNameSub IVNS;
00070
00071 public:
00072   UserInformation(const UserInformation&) = delete;
00073   UserInformation &operator=(const UserInformation&);
00074 };
00075
00076 } // end namespace network
00077
00078 } // end namespace gdcm
00079
00080 #endif //GDCMUSERINFORMATION_H
```

13.607 gdcmWLMFindQuery.h File Reference

`#include "gdcmBaseRootQuery.h"`

Include dependency graph for gdcmWLMFindQuery.h:



Classes

- class gdcm::WLMFindQuery

  PatientRootQuery.

Namespaces

- namespace gdcm

13.608 gdcmWLMFindQuery.h

Go to the documentation of this file.

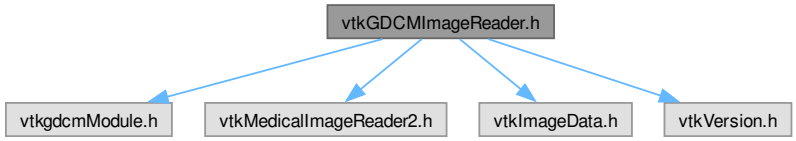
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMWLMFindQuery_H
00015 #define GDCMWLMFindQuery_H
00016
00017 #include "gdcmBaseRootQuery.h"
00018
00019 namespace gdcm
00020 {
00025 class GDCM_EXPORT WLMFindQuery : public BaseRootQuery
00026 {
00027   friend class QueryFactory;
00028 public:
00029   WLMFindQuery();
00030
00031   // no sense here
00032   void InitializeDataSet(const EQueryLevel& inQueryLevel) override;
00033   std::vector<Tag> GetTagListByLevel(const EQueryLevel& inQueryLevel) override;
00034   // validate query has required tag
00035   bool ValidateQuery(bool inStrict = true) const override;
00036
00037   UIDs::TSName GetAbstractSyntaxUID() const override;
00038 protected :
00039   DataSet GetValidDataSet() const;
00040 };
00041
00042 } // end namespace gdcm
00043
00044 #endif // GDCMWLMFindQuery_H
```

13.609 vtkGDCMImageReader.h File Reference

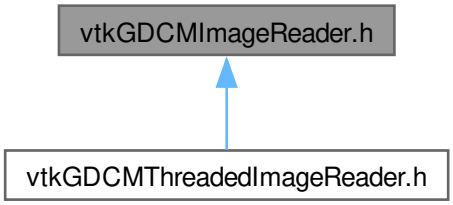
```
#include "vtkgdcmModule.h"
#include "vtkMedicalImageReader2.h"
#include "vtkImageData.h"
```

```
#include "vtkVersion.h"
```

Include dependency graph for vtkGDCMImageReader.h:



This graph shows which files directly or indirectly include this file:



Classes

- class vtkGDCMImageReader

Namespaces

- namespace gdcm

Macros

- #define VTK_CMYK 8
- #define VTK_INVERSE_LUMINANCE 5
- #define VTK_LOOKUP_TABLE 6
- #define VTK_YBR 7

13.609.1 Macro Definition Documentation

13.609.1.1 VTK_CMYK

```
#define VTK_CMYK 8
```

13.609.1.2 VTK_INVERSE_LUMINANCE

```
#define VTK_INVERSE_LUMINANCE 5
```

13.609.1.3 VTK_LOOKUP_TABLE

```
#define VTK_LOOKUP_TABLE 6
```

13.609.1.4 VTK_YBR

```
#define VTK_YBR 7
```

13.610 vtkGDCMImageReader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMImageReader - read DICOM Image files (Pixel Data)
00015 // .SECTION Description
00016 // vtkGDCMImageReader is a source object that reads some DICOM files
00017 // this reader is single threaded.
00018 // .SECTION Implementation note: when FileLowerLeft is set to on the image is not flipped
00019 // upside down as VTK would expect, use this option only if you know what you are doing.
00020 // .SECTION Implementation note: when reading a series of 2D slices, user is
00021 // expected to provide an ordered list of filenames. No sorting will be applied afterward.
00022 // .SECTION Implementation note: Although 99% of the time the Zspacing as read
00023 // from a tag in a 2D DICOM file should be correct, there has been reports that this
00024 // value can be missing, or incorrect, in which case users are advised to override this
00025 // value using the return value from gdcm::IPPSorter::GetZSpacing() and set it via
00026 // vtkImageChangeInformation on the reader itself.
00027 // .SECTION TODO
00028 // This reader does not handle a series of 3D images, only a single 3D (multi frame) or a
00029 // list of 2D files are supported for now.
00030 // .SECTION TODO
00031 // Did not implement SetFilePattern / SetFilePrefix API, move it to protected section for now.
00032 // .SECTION BUG
00033 // Overlay are assumed to have the same extent as image. Right now if overlay origin is not
00034 // 0,0 the overlay will have an offset...
00035 // Only the very first overlay is loaded at the VTK level, for now (even if there are more than one in the
      file)
```

```
00036 // .SECTION DataOrigin
00037 // When the reader is instantiated with FileLowerLeftOn the DataOrigin and Image Position (Patient) are
00038 // identical. But when FileLowerLeft is Off, we have to reorder the Y-line of the image, and thus the
      DataOrigin
00039 // is then translated to the other side of the image.
00040 // .SECTION Spacing
00041 // When reading a 3D volume, the spacing along the Z dimension might be negative (so as to respect
      up-side-down)
00042 // as specified in the Image Orientation (Patient) tag. When Z-spacing is 0, this means the multi-frame
      object
00043 // contains image which do not represent uniform volume.
00044 // .SECTION Warning
00045 // When using vtkGDCMPolyDataReader in conjunction with vtkGDCMImageReader
00046 // it is *required* that FileLowerLeft is set to ON as coordinate system
00047 // would be inconsistent in between the two data structures.
00048 // .SECTION Color Space mapping:
00049 // * VTK_LUMINANCE         <-> MONOCHROME2
00050 // * VTK_LUMINANCE_ALPHA   <-> Not supported
00051 // * VTK_RGB               <-> RGB
00052 // * VTK_RGBA              <-> ARGB (deprecated, DICOM 2008)
00053 // * VTK_INVERSE_LUMINANCE <-> MONOCHROME1
00054 // * VTK_LOOKUP_TABLE      <-> PALETTE COLOR
00055 // * VTK_YBR               <-> YBR_FULL
00056 //
00057 // For detailed information on color space transformation and true lossless transformation see:
00058 // http://gdcm.sourceforge.net/wiki/index.php/Color_Space_Transformations
00059
00060 // .SECTION See Also
00061 // vtkMedicalImageReader2 vtkMedicalImageProperties vtkGDCMPolyDataReader vtkGDCMImageWriter
00062 // vtkDICOMImageReader
00063
00064 #ifndef VTKGDCMIMAGEREADER_H
00065 #define VTKGDCMIMAGEREADER_H
00066
00067 #include "vtkgdcmModule.h"
00068 #include "vtkMedicalImageReader2.h"
00069 #include "vtkImageData.h"
00070 #include "vtkVersion.h"
00071
00072 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00073 #else
00074 class vtkMedicalImageProperties;
00075 #endif
00076 #if (VTK_MAJOR_VERSION > 5) || ( VTK_MAJOR_VERSION == 5 && VTK_MINOR_VERSION > 0 )
00077 #else
00078 class vtkStringArray;
00079 #endif
00080 class vtkPolyData;
00081
00082 // vtkSystemIncludes.h defines:
00083 // #define VTK_LUMINANCE       1
00084 // #define VTK_LUMINANCE_ALPHA 2
00085 // #define VTK_RGB             3
00086 // #define VTK_RGBA            4
00087 #ifndef VTK_INVERSE_LUMINANCE
00088 #define VTK_INVERSE_LUMINANCE 5
00089 #endif
00090 #ifndef VTK_LOOKUP_TABLE
00091 #define VTK_LOOKUP_TABLE 6
00092 #endif
00093 #ifndef VTK_YBR
00094 #define VTK_YBR 7
00095 #endif
00096 #ifndef VTK_CMYK
00097 #define VTK_CMYK 8
00098 #endif
00099
00100 //BTX
00101 namespace gdcm { class ImageReader; }
00102 //ETX
00103 class vtkMatrix4x4;
00104 class VTKGDCM_EXPORT vtkGDCMImageReader : public vtkMedicalImageReader2
00105 {
00106 public:
00107   static vtkGDCMImageReader *New();
00108   vtkTypeMacro(vtkGDCMImageReader,vtkMedicalImageReader2);
00109   virtual void PrintSelf(ostream& os, vtkIndent indent);
00110
00111   // Description: is the given file name a DICOM file containing an image ?
00112   virtual int CanReadFile(const char* fname);
00113
```

```
00114   // Description:
00115   // Valid extensions
00116   virtual const char* GetFileExtensions()
00117     {
00118     // I would like to get rid of ACR/NEMA/IMA so only allow dcm extension for now
00119     return ".dcm .DCM";
00120     }
00121
00122   // Description:
00123   // A descriptive name for this format
00124   virtual const char* GetDescriptiveName()
00125     {
00126     return "DICOM";
00127     }
00128
00129   // Description:
00130   // Get the Image Position (Patient) as stored in the DICOM file
00131   // This is a read-only data member
00132   vtkGetObjectMacro(DirectionCosines, vtkMatrix4x4);
00133
00134 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00135 #else
00136   // Description:
00137   // Get the medical image properties object
00138   vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties);
00139 #endif
00140   virtual void SetMedicalImageProperties(vtkMedicalImageProperties *pd);
00141
00142 #if (VTK_MAJOR_VERSION > 5) || ( VTK_MAJOR_VERSION == 5 && VTK_MINOR_VERSION > 0 )
00143 #else
00144   virtual void SetFileNames(vtkStringArray*);
00145   vtkGetObjectMacro(FileNames, vtkStringArray);
00146 #endif
00147
00148   // Description:
00149   // Specifically request to load the overlay into the gdcm-VTK layer (gdcm always loads them when found).
00150   // If no overlay is found in the image, then the vtkImageData for the overlay will be empty.
00151   vtkGetMacro(LoadOverlays,int);
00152   vtkSetMacro(LoadOverlays,int);
00153   vtkBooleanMacro(LoadOverlays,int);
00154
00155   // Description:
00156   // Set/Get whether or not to load the Icon as vtkImageData (if found in the DICOM file)
00157   vtkGetMacro(LoadIconImage,int);
00158   vtkSetMacro(LoadIconImage,int);
00159   vtkBooleanMacro(LoadIconImage,int);
00160
00161   // Description:
00162   // Set/Get whether or not the image was compressed using a lossy compression algorithm
00163   vtkGetMacro(LossyFlag,int);
00164   vtkSetMacro(LossyFlag,int);
00165   vtkBooleanMacro(LossyFlag,int);
00166
00167   // Description:
00168   // Read only: number of overlays as found in this image (multiple overlays per slice is allowed)
00169   // Only valid when LoadOverlays is true
00170   vtkGetMacro(NumberOfOverlays,int);
00171
00172   // Description:
00173   // Read only: number of icon image (there can only be zero or one icon per file)
00174   // Only valid when LoadIconImage is true
00175   vtkGetMacro(NumberOfIconImages,int);
00176
00177   // Description:
00178   // Get Overlay/IconImage
00179   // Remember to ALWAYS use those methods in your code, as the internal number for the output port
00180   // is not guaranteed to remain the same, as features are added to the reader
00181 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00182 //FIXME: Need to get rid of BTX/ETX if only the Python Wrapper of VTK 4.2 would let me
00183 //BTX
00184   vtkAlgorithmOutput* GetOverlayPort(int index);
00185   vtkAlgorithmOutput* GetIconImagePort();
00186 //ETX
00187 #endif
00188   vtkImageData* GetOverlay(int i);
00189   vtkImageData* GetIconImage();
00190
00191   // Description:
00192   // Load image with its associated Lookup Table
00193   vtkGetMacro(ApplyLookupTable,int);
00194   vtkSetMacro(ApplyLookupTable,int);
```

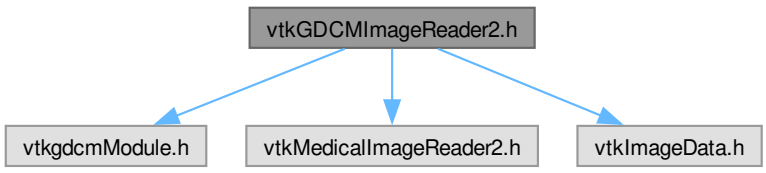
```
00195   vtkBooleanMacro(ApplyLookupTable,int);
00196
00197   // Description:
00198   // Load image as YBR
00199   vtkGetMacro(ApplyYBRToRGB,int)
00200   vtkSetMacro(ApplyYBRToRGB,int)
00201   vtkBooleanMacro(ApplyYBRToRGB,int);
00202
00203   // Description:
00204   // Return VTK_LUMINANCE, VTK_INVERSE_LUMINANCE, VTK_RGB, VTK_RGBA, VTK_LOOKUP_TABLE, VTK_YBR or VTK_CMYK
00205   // or 0 when ImageFormat is not handled.
00206   // Warning: For color image, PlanarConfiguration need to be taken into account.
00207   vtkGetMacro(ImageFormat,int);
00208
00209   // Description:
00210   // Return the Planar Configuration. This simply means that the internal DICOM image was stored
00211   // using a particular planar configuration (most of the time: 0)
00212   // For monochrome image, PlanarConfiguration is always 0
00213   vtkGetMacro(PlanarConfiguration,int);
00214
00215   // Description:
00216   // Return the 'raw' information stored in the DICOM file:
00217   // In case of a series of multiple files, only the first file is considered. The Image Orientation
    (Patient)
00218   // is guaranteed to remain the same, and image Image Position (Patient) in other slice can be computed
00219   // using the ZSpacing (3rd dimension)
00220   // (0020,0032) DS [87.774866\-182.908510\168.629671]       #  32, 3 ImagePositionPatient
00221   // (0020,0037) DS [0.001479\0.999989\-0.004376\-0.002039\-0.004372\-0.999988] #  58, 6
    ImageOrientationPatient
00222   vtkGetVector3Macro(ImagePositionPatient,double);
00223   vtkGetVector6Macro(ImageOrientationPatient,double);
00224
00225   // Description:
00226   // Set/Get the first Curve Data:
00227   vtkGetObjectMacro(Curve,vtkPolyData);
00228   virtual void SetCurve(vtkPolyData *pd);
00229
00230   // Description:
00231   // \DEPRECATED:
00232   // Modality LUT
00233   // Value returned by GetShift/GetScale might be inaccurate since Shift/Scale could be
00234   // varying along the Series read. Therefore user are advices not to use those functions
00235   // anymore
00236   vtkGetMacro(Shift,double);
00237   vtkGetMacro(Scale,double);
00238
00239 protected:
00240   vtkGDCMImageReader();
00241   ~vtkGDCMImageReader();
00242
00243   vtkSetVector6Macro(ImageOrientationPatient,double);
00244
00245 //BTX
00246   void FillMedicalImageInformation(const gdcm::ImageReader &reader);
00247 //ETX
00248   int RequestInformationCompat();
00249   int RequestDataCompat();
00250
00251 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00252   int ProcessRequest(vtkInformation* request,
00253                                 vtkInformationVector** inputVector,
00254                                 vtkInformationVector* outputVector);
00255   int RequestInformation(vtkInformation *request,
00256                          vtkInformationVector **inputVector,
00257                          vtkInformationVector *outputVector);
00258   int RequestData(vtkInformation *request,
00259                   vtkInformationVector **inputVector,
00260                   vtkInformationVector *outputVector);
00261 #else /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
00262   void ExecuteInformation();
00263   void ExecuteData(vtkDataObject *out);
00264 #endif /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
00265
00266 protected:
00267 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00268 #else
00269   // Description:
00270   // Medical Image properties
00271   vtkMedicalImageProperties *MedicalImageProperties;
00272 #endif
00273 #if (VTK_MAJOR_VERSION > 5) || ( VTK_MAJOR_VERSION == 5 && VTK_MINOR_VERSION > 0 )
```

```
00274 #else
00275   vtkStringArray *FileNames;
00276 #endif
00277
00278   vtkMatrix4x4 *DirectionCosines;
00279   int LoadOverlays;
00280   int NumberOfOverlays;
00281   int LoadIconImage;
00282   int NumberOfIconImages;
00283   int IconImageDataExtent[6];
00284   double ImagePositionPatient[3];
00285   double ImageOrientationPatient[6];
00286   vtkPolyData *Curve;
00287
00288   int ImageFormat;
00289   // the following 3, should remain optional
00290   int ApplyInverseVideo;
00291   int ApplyLookupTable;
00292   int ApplyYBRToRGB;
00293   // I think that planar configuration need to always be applied as far as VTK is concerned
00294   int ApplyPlanarConfiguration;
00295   int ApplyShiftScale;
00296
00297   int LoadSingleFile(const char *filename, char *pointer, unsigned long &outlen);
00298
00299   double Shift;
00300   double Scale;
00301   int IconDataScalarType;
00302   int IconNumberOfScalarComponents;
00303   int PlanarConfiguration;
00304   int LossyFlag;
00305   int ForceRescale;
00306
00307 protected:
00308   // TODO / FIXME
00309   void SetFilePrefix(const char *) {}
00310   vtkGetStringMacro(FilePrefix);
00311   void SetFilePattern(const char *) {}
00312   vtkGetStringMacro(FilePattern);
00313
00314 private:
00315   vtkGDCMImageReader(const vtkGDCMImageReader&);  // Not implemented.
00316   void operator=(const vtkGDCMImageReader&);  // Not implemented.
00317 };
00318 #endif
```

13.611 vtkGDCMImageReader2.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkMedicalImageReader2.h"
#include "vtkImageData.h"
```

Include dependency graph for vtkGDCMImageReader2.h:



Classes

- class vtkGDCMImageReader2

Namespaces

- namespace gdcm

Macros

- #define VTK_CMYK 8
- #define VTK_INVERSE_LUMINANCE 5
- #define VTK_LOOKUP_TABLE 6
- #define VTK_YBR 7

13.611.1 Macro Definition Documentation

13.611.1.1 VTK_CMYK

```
#define VTK_CMYK 8
```

13.611.1.2 VTK_INVERSE_LUMINANCE

```
#define VTK_INVERSE_LUMINANCE 5
```

13.611.1.3 VTK_LOOKUP_TABLE

```
#define VTK_LOOKUP_TABLE 6
```

13.611.1.4 VTK_YBR

```
#define VTK_YBR 7
```

13.612 vtkGDCMImageReader2.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMImageReader2 - read DICOM Image files (Pixel Data)
00015 // .SECTION Description
00016 // vtkGDCMImageReader2 is a source object that reads some DICOM files
00017 // this reader is single threaded.
00018 // .SECTION Implementation note: when FileLowerLeft is set to on the image is not flipped
00019 // upside down as VTK would expect, use this option only if you know what you are doing.
00020 // .SECTION Implementation note: when reading a series of 2D slices, user is
00021 // expected to provide an ordered list of filenames. No sorting will be applied afterward.
00022 // .SECTION Implementation note: Although 99% of the time the Zspacing as read
00023 // from a tag in a 2D DICOM file should be correct, there has been reports that this
00024 // value can be missing, or incorrect, in which case users are advised to override this
00025 // value using the return value from gdcm::IPPSorter::GetZSpacing() and set it via
00026 // vtkImageChangeInformation on the reader itself.
00027 // .SECTION TODO
00028 // This reader does not handle a series of 3D images, only a single 3D (multi frame) or a
00029 // list of 2D files are supported for now.
00030 // .SECTION TODO
00031 // Did not implement SetFilePattern / SetFilePrefix API, move it to protected section for now.
00032 // .SECTION BUG
00033 // Overlay are assumed to have the same extent as image. Right now if overlay origin is not
00034 // 0,0 the overlay will have an offset...
00035 // Only the very first overlay is loaded at the VTK level, for now (even if there are more than one in the
      file)
00036 // .SECTION DataOrigin
00037 // When the reader is instantiated with FileLowerLeftOn the DataOrigin and Image Position (Patient) are
00038 // identical. But when FileLowerLeft is Off, we have to reorder the Y-line of the image, and thus the
      DataOrigin
00039 // is then translated to the other side of the image.
00040 // .SECTION Spacing
00041 // When reading a 3D volume, the spacing along the Z dimension might be negative (so as to respect
      up-side-down)
00042 // as specified in the Image Orientation (Patient) tag. When Z-spacing is 0, this means the multi-frame
      object
00043 // contains image which do not represent uniform volume.
00044 // .SECTION Warning
00045 // When using vtkGDCMPolyDataReader in conjunction with vtkGDCMImageReader2
00046 // it is *required* that FileLowerLeft is set to ON as coordinate system
00047 // would be inconsistent in between the two data structures.
00048 // .SECTION Color Space mapping:
00049 // * VTK_LUMINANCE         <-> MONOCHROME2
00050 // * VTK_LUMINANCE_ALPHA   <-> Not supported
00051 // * VTK_RGB               <-> RGB
00052 // * VTK_RGBA              <-> ARGB (deprecated, DICOM 2008)
00053 // * VTK_INVERSE_LUMINANCE <-> MONOCHROME1
00054 // * VTK_LOOKUP_TABLE      <-> PALETTE COLOR
00055 // * VTK_YBR               <-> YBR_FULL
00056 //
00057 // For detailed information on color space transformation and true lossless transformation see:
00058 // http://gdcm.sourceforge.net/wiki/index.php/Color_Space_Transformations
00059
00060 // .SECTION See Also
00061 // vtkMedicalImageReader2 vtkMedicalImageProperties vtkGDCMPolyDataReader vtkGDCMImageWriter
00062 // vtkDICOMImageReader
00063
00064 #ifndef VTKGDCMIMAGEREADER2_H
00065 #define VTKGDCMIMAGEREADER2_H
00066
00067 #include "vtkgdcmModule.h"
00068 #include "vtkMedicalImageReader2.h"
00069 #include "vtkImageData.h"
00070
00071 class vtkPolyData;
```

```
00072
00073 // vtkSystemIncludes.h defines:
00074 // #define VTK_LUMINANCE       1
00075 // #define VTK_LUMINANCE_ALPHA 2
00076 // #define VTK_RGB             3
00077 // #define VTK_RGBA            4
00078 #ifndef VTK_INVERSE_LUMINANCE
00079 #define VTK_INVERSE_LUMINANCE 5
00080 #endif
00081 #ifndef VTK_LOOKUP_TABLE
00082 #define VTK_LOOKUP_TABLE 6
00083 #endif
00084 #ifndef VTK_YBR
00085 #define VTK_YBR 7
00086 #endif
00087 #ifndef VTK_CMYK
00088 #define VTK_CMYK 8
00089 #endif
00090
00091 //BTX
00092 namespace gdcm { class ImageReader; }
00093 //ETX
00094 class vtkMatrix4x4;
00095 class VTKGDCM_EXPORT vtkGDCMImageReader2 : public vtkMedicalImageReader2
00096 {
00097 public:
00098   static vtkGDCMImageReader2 *New();
00099   vtkTypeMacro(vtkGDCMImageReader2,vtkMedicalImageReader2);
00100   virtual void PrintSelf(ostream& os, vtkIndent indent);
00101
00102   // Description: is the given file name a DICOM file containing an image ?
00103   virtual int CanReadFile(const char* fname);
00104
00105   // Description:
00106   // Valid extensions
00107   virtual const char* GetFileExtensions()
00108     {
00109     // I would like to get rid of ACR/NEMA/IMA so only allow dcm extension for now
00110     return ".dcm .DCM";
00111     }
00112
00113   // Description:
00114   // A descriptive name for this format
00115   virtual const char* GetDescriptiveName()
00116     {
00117     return "DICOM";
00118     }
00119
00120   // Description:
00121   // Get the Image Position (Patient) as stored in the DICOM file
00122   // This is a read-only data member
00123   vtkGetObjectMacro(DirectionCosines, vtkMatrix4x4);
00124
00125   virtual void SetMedicalImageProperties(vtkMedicalImageProperties *pd);
00126
00127   // Description:
00128   // Specifically request to load the overlay into the gdcm-VTK layer (gdcm always loads them when found).
00129   // If no overlay is found in the image, then the vtkImageData for the overlay will be empty.
00130   vtkGetMacro(LoadOverlays,int);
00131   vtkSetMacro(LoadOverlays,int);
00132   vtkBooleanMacro(LoadOverlays,int);
00133
00134   // Description:
00135   // Set/Get whether or not to load the Icon as vtkImageData (if found in the DICOM file)
00136   vtkGetMacro(LoadIconImage,int);
00137   vtkSetMacro(LoadIconImage,int);
00138   vtkBooleanMacro(LoadIconImage,int);
00139
00140   // Description:
00141   // Set/Get whether or not the image was compressed using a lossy compression algorithm
00142   vtkGetMacro(LossyFlag,int);
00143   vtkSetMacro(LossyFlag,int);
00144   vtkBooleanMacro(LossyFlag,int);
00145
00146   // Description:
00147   // Read only: number of overlays as found in this image (multiple overlays per slice is allowed)
00148   // Only valid when LoadOverlays is true
00149   vtkGetMacro(NumberOfOverlays,int);
00150
00151   // Description:
00152   // Read only: number of icon image (there can only be zero or one icon per file)
```

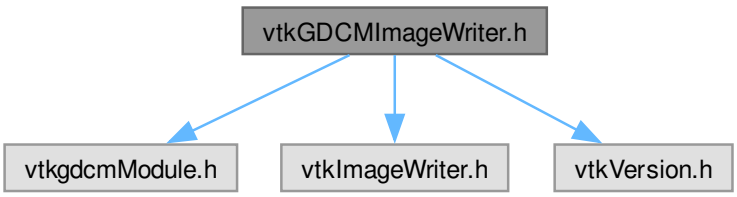
```
00153   // Only valid when LoadIconImage is true
00154   vtkGetMacro(NumberOfIconImages,int);
00155
00156   // Description:
00157   // Get Overlay/IconImage
00158   // Remember to ALWAYS use those methods in your code, as the internal number for the output port
00159   // is not guaranteed to remain the same, as features are added to the reader
00160   vtkAlgorithmOutput* GetOverlayPort(int index);
00161   vtkAlgorithmOutput* GetIconImagePort();
00162   vtkImageData* GetOverlay(int i);
00163   vtkImageData* GetIconImage();
00164
00165   // Description:
00166   // Load image with its associated Lookup Table
00167   vtkGetMacro(ApplyLookupTable,int);
00168   vtkSetMacro(ApplyLookupTable,int);
00169   vtkBooleanMacro(ApplyLookupTable,int);
00170
00171   // Description:
00172   // Load image as YBR
00173   vtkGetMacro(ApplyYBRToRGB,int)
00174   vtkSetMacro(ApplyYBRToRGB,int)
00175   vtkBooleanMacro(ApplyYBRToRGB,int);
00176
00177   // Description:
00178   // Return VTK_LUMINANCE, VTK_INVERSE_LUMINANCE, VTK_RGB, VTK_RGBA, VTK_LOOKUP_TABLE, VTK_YBR or VTK_CMYK
00179   // or 0 when ImageFormat is not handled.
00180   // Warning: For color image, PlanarConfiguration need to be taken into account.
00181   vtkGetMacro(ImageFormat,int);
00182
00183   // Description:
00184   // Return the Planar Configuration. This simply means that the internal DICOM image was stored
00185   // using a particular planar configuration (most of the time: 0)
00186   // For monochrome image, PlanarConfiguration is always 0
00187   vtkGetMacro(PlanarConfiguration,int);
00188
00189   // Description:
00190   // Return the 'raw' information stored in the DICOM file:
00191   // In case of a series of multiple files, only the first file is considered. The Image Orientation
      (Patient)
00192   // is guaranteed to remain the same, and image Image Position (Patient) in other slice can be computed
00193   // using the ZSpacing (3rd dimension)
00194   // (0020,0032) DS [87.774866\-182.908510\168.629671]       #  32, 3 ImagePositionPatient
00195   // (0020,0037) DS [0.001479\0.999989\-0.004376\-0.002039\-0.004372\-0.999988] #  58, 6
      ImageOrientationPatient
00196   vtkGetVector3Macro(ImagePositionPatient,double);
00197   vtkGetVector6Macro(ImageOrientationPatient,double);
00198
00199   // Description:
00200   // Set/Get the first Curve Data:
00201   vtkGetObjectMacro(Curve,vtkPolyData);
00202   virtual void SetCurve(vtkPolyData *pd);
00203
00204   // Description:
00205   // \DEPRECATED:
00206   // Modality LUT
00207   // Value returned by GetShift/GetScale might be inaccurate since Shift/Scale could be
00208   // varying along the Series read. Therefore user are advices not to use those functions
00209   // anymore
00210   vtkGetMacro(Shift,double);
00211   vtkGetMacro(Scale,double);
00212
00213 protected:
00214   vtkGDCMImageReader2();
00215   ~vtkGDCMImageReader2();
00216
00217   vtkSetVector6Macro(ImageOrientationPatient,double);
00218
00219 //BTX
00220   void FillMedicalImageInformation(const gdcm::ImageReader &reader);
00221 //ETX
00222   int RequestInformationCompat();
00223   int RequestDataCompat();
00224
00225   int ProcessRequest(vtkInformation* request,
00226                                 vtkInformationVector** inputVector,
00227                                 vtkInformationVector* outputVector);
00228   int RequestInformation(vtkInformation *request,
00229                          vtkInformationVector **inputVector,
00230                          vtkInformationVector *outputVector);
00231   int RequestData(vtkInformation *request,
```

```
00232                  vtkInformationVector **inputVector,
00233                  vtkInformationVector *outputVector);
00234
00235 protected:
00236   vtkMatrix4x4 *DirectionCosines;
00237   int LoadOverlays;
00238   int NumberOfOverlays;
00239   int LoadIconImage;
00240   int NumberOfIconImages;
00241   int IconImageDataExtent[6];
00242   double ImagePositionPatient[3];
00243   double ImageOrientationPatient[6];
00244   vtkPolyData *Curve;
00245
00246   int ImageFormat;
00247   // the following 3, should remain optional
00248   int ApplyInverseVideo;
00249   int ApplyLookupTable;
00250   int ApplyYBRToRGB;
00251   // I think that planar configuration need to always be applied as far as VTK is concerned
00252   int ApplyPlanarConfiguration;
00253   int ApplyShiftScale;
00254
00255   int LoadSingleFile(const char *filename, char *pointer, unsigned long &outlen);
00256
00257   double Shift;
00258   double Scale;
00259   int IconDataScalarType;
00260   int IconNumberOfScalarComponents;
00261   int PlanarConfiguration;
00262   int LossyFlag;
00263   int ForceRescale;
00264
00265 protected:
00266   // TODO / FIXME
00267   void SetFilePrefix(const char *) {}
00268   vtkGetStringMacro(FilePrefix);
00269   void SetFilePattern(const char *) {}
00270   vtkGetStringMacro(FilePattern);
00271
00272 private:
00273   vtkGDCMImageReader2(const vtkGDCMImageReader2&);  // Not implemented.
00274   void operator=(const vtkGDCMImageReader2&);  // Not implemented.
00275 };
00276 #endif
```

13.613 vtkGDCMImageWriter.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkImageWriter.h"
#include "vtkVersion.h"
```

Include dependency graph for vtkGDCMImageWriter.h:



Classes

- class vtkGDCMImageWriter

13.614 vtkGDCMImageWriter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMImageWriter - write DICOM files
00015 // .SECTION Description
00016 // vtkGDCMImageWriter is a sink object that write DICOM files
00017 // this writer is single threaded (see vtkGDCMThreadedImageReader2 for multi-thread)
00018 //
00019 // .SECTION Warning: vtkLookupTable from the vtkImageData object taken into account
00020 // only if ImageFormat is set to VTK_LOOKUP_TABLE
00021 //
00022 // .SECTION NOTE We are not using the usual API SetFilePrefix / SetFilePattern,
00023 // but instead a list of filenames: see SetFileNames and class gdcm::FilenameGenerator
00024 //
00025 // .SECTION Warning
00026 // You need to specify the correct ImageFormat (taken from the reader)
00027 // You need to explicitly specify the DirectionCosines (taken from the reader)
00028 // Since VTK 5.4 vtkMedicalImageProperties has its own DirectionCosine (no 's')
00029 // user need to make sure the vtkMatrix4x4 is compatible with the 6-vector DirectionCosine.
00030 //
00031 // .SECTION NOTE Shift/Scale are global to all DICOM frames (=files) written
00032 // as 2D slice, therefore the shift/scale operation might not be optimized for
00033 // all slices. This is not recommended for image with a large dynamic range.
00034 //
00035 // .SECTION See Also
00036 // vtkImageWriter vtkMedicalImageProperties vtkGDCMImageReader
00037
00038 #ifndef VTKGDCMIMAGEWRITER_H
00039 #define VTKGDCMIMAGEWRITER_H
00040
00041 #include "vtkgdcmModule.h"
00042 #include "vtkImageWriter.h"
00043 #include "vtkVersion.h"
00044
00045 class vtkLookupTable;
00046 class vtkMedicalImageProperties;
00047 class vtkMatrix4x4;
00048 class vtkStringArray;
00049 class VTKGDCM_EXPORT vtkGDCMImageWriter : public vtkImageWriter
00050 {
00051 public:
00052   static vtkGDCMImageWriter *New();
00053   vtkTypeMacro(vtkGDCMImageWriter,vtkImageWriter);
00054   virtual void PrintSelf(ostream& os, vtkIndent indent);
00055
00056   // Description:
00057   // Pass in the vtkmedicalimageproperties object for medical information
00058   // to be mapped to DICOM attributes.
00059   vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties);
00060   virtual void SetMedicalImageProperties(vtkMedicalImageProperties*);
00061
00062   // Description:
00063   // Pass in the list of filename to be used to write out the DICOM file(s)
00064   virtual void SetFileNames(vtkStringArray*);
00065   vtkGetObjectMacro(FileNames, vtkStringArray);
00066
```

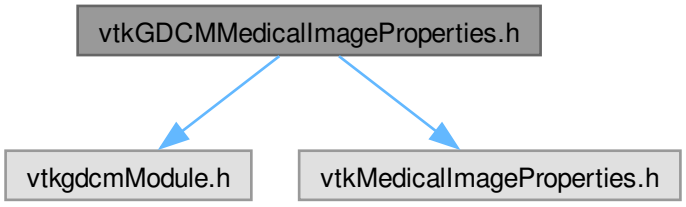
```
00067   // Description:
00068   // Set/Get whether or not the image was compressed using a lossy compression algorithm
00069   vtkGetMacro(LossyFlag,int);
00070   vtkSetMacro(LossyFlag,int);
00071   vtkBooleanMacro(LossyFlag,int);
00072
00073   // I need that...
00074   virtual void Write();
00075
00076   // Description:
00077   // Get the extension for this file format.
00078   virtual const char* GetFileExtensions() {
00079     return ".dcm .DCM"; }
00080
00081   // Description:
00082   // Get the name of this file format.
00083   virtual const char* GetDescriptiveName() {
00084     return "DICOM"; }
00085
00086   // Description:
00087   // You need to manually specify the direction the image is in to write a valid DICOM file
00088   // since vtkImageData do not contains one (eg. MR Image Storage, CT Image Storage...)
00089   virtual void SetDirectionCosines(vtkMatrix4x4 *matrix);
00090   vtkGetObjectMacro(DirectionCosines, vtkMatrix4x4);
00091   virtual void SetDirectionCosinesFromImageOrientationPatient(const double dircos[6]);
00092
00093   // Description:
00094   // Modality LUT
00095   vtkSetMacro(Shift, double);
00096   vtkGetMacro(Shift, double);
00097   vtkSetMacro(Scale, double);
00098   vtkGetMacro(Scale, double);
00099
00100   // Description:
00101   // See vtkGDCMImageReader for list of ImageFormat
00102   vtkGetMacro(ImageFormat,int);
00103   vtkSetMacro(ImageFormat,int);
00104
00105   // Description:
00106   // Set/Get whether the data comes from the file starting in the lower left
00107   // corner or upper left corner.
00108   vtkBooleanMacro(FileLowerLeft, int);
00109   vtkGetMacro(FileLowerLeft, int);
00110   vtkSetMacro(FileLowerLeft, int);
00111
00112   // Description:
00113   // For color image (more than a single comp) you can specify the planar configuration you prefer
00114   vtkSetMacro(PlanarConfiguration,int);
00115   vtkGetMacro(PlanarConfiguration,int);
00116
00117   // Description:
00118   // Set/Get specific StudyUID / SeriesUID
00119   vtkSetStringMacro(StudyUID);
00120   vtkGetStringMacro(StudyUID);
00121   vtkSetStringMacro(SeriesUID);
00122   vtkGetStringMacro(SeriesUID);
00123
00124 //BTX
00125   enum CompressionTypes {
00126     NO_COMPRESSION = 0,   // raw (default)
00127     JPEG_COMPRESSION,     // JPEG
00128     JPEG2000_COMPRESSION, // J2K
00129     JPEGLS_COMPRESSION,   // JPEG-LS
00130     RLE_COMPRESSION       // RLE
00131   };
00132 //ETX
00133   // Set/Get the compression type
00134   vtkSetMacro(CompressionType, int);
00135   vtkGetMacro(CompressionType, int);
00136
00137   //void SetCompressionTypeFromString(const char *);
00138   //const char *GetCompressionTypeAsString();
00139
00140 protected:
00141   vtkGDCMImageWriter();
00142   ~vtkGDCMImageWriter();
00143
00144 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00145   int FillInputPortInformation(int port, vtkInformation *info);
00146   int RequestInformation(
00147     vtkInformation *request,
```

```
00148     vtkInformationVector **inputVector,
00149     vtkInformationVector *outputVector);
00150   int RequestUpdateExtent(
00151     vtkInformation *request,
00152     vtkInformationVector **inputVector,
00153     vtkInformationVector *outputVector);
00154   int RequestData(
00155     vtkInformation *request,
00156     vtkInformationVector **inputVector,
00157     vtkInformationVector *outputVector);
00158 #else
00159   void WriteSlice(vtkImageData *data);
00160 #endif /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
00161   int WriteGDCMData(vtkImageData *data, int timeStep);
00162
00163 protected:
00164   virtual /*const*/ char *GetFileName();
00165
00166 private:
00167   vtkGDCMImageWriter(const vtkGDCMImageWriter&);  // Not implemented.
00168   void operator=(const vtkGDCMImageWriter&);  // Not implemented.
00169
00170   // VTK structs:
00171   //vtkLookupTable *LookupTable;
00172   vtkMedicalImageProperties *MedicalImageProperties;
00173   char *StudyUID;
00174   char *SeriesUID;
00175
00176   int DataUpdateExtent[6];
00177   int ImageFormat;
00178
00179   vtkStringArray *FileNames;
00180   vtkMatrix4x4 *DirectionCosines;
00181
00182   double Shift;
00183   double Scale;
00184   int FileLowerLeft;
00185   int PlanarConfiguration;
00186   int LossyFlag;
00187   int CompressionType;
00188 };
00189
00190 #endif
```

13.615 vtkGDCMMedicalImageProperties.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkMedicalImageProperties.h"
```

Include dependency graph for vtkGDCMMedicalImageProperties.h:



Classes

- class vtkGDCMMedicalImageProperties

Namespaces

- namespace gdcm

13.616 vtkGDCMMedicalImageProperties.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMMedicalImageProperties - some medical image properties.
00015 // .SECTION Description
00016 // vtkGDCMMedicalImageProperties is a helper class that can be used by medical
00017 // image readers and applications to encapsulate medical image/acquisition
00018 // properties. Later on, this should probably be extended to add
00019 // any user-defined property.
00020 // .SECTION See Also
00021 // vtkMedicalImageReader2
00022
00023 #ifndef VTKGDCMMEDICALIMAGEPROPERTIES_H
00024 #define VTKGDCMMEDICALIMAGEPROPERTIES_H
00025
00026 #include "vtkgdcmModule.h"
00027 #include "vtkMedicalImageProperties.h"
00028
00029 class vtkGDCMMedicalImagePropertiesInternals;
00030 //BTX
00031 namespace gdcm { class File; }
00032 //ETX
00033
00034 class VTKGDCM_EXPORT vtkGDCMMedicalImageProperties : public vtkMedicalImageProperties
00035 {
00036 public:
00037   static vtkGDCMMedicalImageProperties *New();
00038   vtkTypeMacro(vtkGDCMMedicalImageProperties,vtkMedicalImageProperties);
00039   void PrintSelf(ostream& os, vtkIndent indent);
00040
00041   // Description:
00042   // Convenience method to reset all fields to an empty string/value
00043   virtual void Clear();
00044
00045 /*
00046   // Description:
00047   // Patient name
00048   // For ex: DICOM (0010,0010) = DOE,JOHN
00049   vtkSetStringMacro(PatientName);
00050   vtkGetStringMacro(PatientName);
00051
00052   // Description:
00053   // Patient ID
00054   // For ex: DICOM (0010,0020) = 1933197
00055   vtkSetStringMacro(PatientID);
00056   vtkGetStringMacro(PatientID);
00057
00058   // Description:
00059   // Patient age
```

```
00060   // Format: nnnD, nnW, nnnM or nnnY (eventually nnD, nnW, nnY)
00061   //         with D (day), M (month), W (week), Y (year)
00062   // For ex: DICOM (0010,1010) = 031Y
00063   vtkSetStringMacro(PatientAge);
00064   vtkGetStringMacro(PatientAge);
00065
00066   // Description:
00067   // Take as input a string in VR=AS (DICOM PS3.5) and extract either
00068   // different fields namely: year month week day
00069   // Return 0 on error, 1 on success
00070   // One can test fields if they are different from -1 upon success
00071   static int GetAgeAsFields(const char *age, int &year, int &month, int &week, int &day);
00072
00073   // For Tcl:
00074   // From C++ use GetPatientAge + GetAgeAsField
00075   // Those function parse a DICOM string, and return the value of the number expressed
00076   // this is either expressed in year, month or days. Thus if a string is expressed in years
00077   // GetPatientAgeDay/GetPatientAgeWeek/GetPatientAgeMonth will return 0
00078   int GetPatientAgeYear();
00079   int GetPatientAgeMonth();
00080   int GetPatientAgeWeek();
00081   int GetPatientAgeDay();
00082
00083   // Description:
00084   // Patient sex
00085   // For ex: DICOM (0010,0040) = M
00086   vtkSetStringMacro(PatientSex);
00087   vtkGetStringMacro(PatientSex);
00088
00089   // Description:
00090   // Patient birth date
00091   // Format: yyyymmdd
00092   // For ex: DICOM (0010,0030) = 19680427
00093   vtkSetStringMacro(PatientBirthDate);
00094   vtkGetStringMacro(PatientBirthDate);
00095
00096   // For Tcl:
00097   // From C++ use GetPatientBirthDate + GetDateAsFields
00098   int GetPatientBirthDateYear();
00099   int GetPatientBirthDateMonth();
00100   int GetPatientBirthDateDay();
00101
00102   // Description:
00103   // Study Date
00104   // Format: yyyymmdd
00105   // For ex: DICOM (0008,0020) = 20030617
00106   vtkSetStringMacro(StudyDate);
00107   vtkGetStringMacro(StudyDate);
00108
00109   // Description:
00110   // Acquisition Date
00111   // Format: yyyymmdd
00112   // For ex: DICOM (0008,0022) = 20030617
00113   vtkSetStringMacro(AcquisitionDate);
00114   vtkGetStringMacro(AcquisitionDate);
00115
00116   // For Tcl:
00117   // From C++ use GetAcquisitionDate + GetDateAsFields
00118   int GetAcquisitionDateYear();
00119   int GetAcquisitionDateMonth();
00120   int GetAcquisitionDateDay();
00121
00122   // Description:
00123   // Study Time
00124   // Format: hhmmss.frac (any trailing component(s) can be omitted)
00125   // For ex: DICOM (0008,0030) = 162552.0705 or 230012, or 0012
00126   vtkSetStringMacro(StudyTime);
00127   vtkGetStringMacro(StudyTime);
00128
00129   // Description:
00130   // Acquisition time
00131   // Format: hhmmss.frac (any trailing component(s) can be omitted)
00132   // For ex: DICOM (0008,0032) = 162552.0705 or 230012, or 0012
00133   vtkSetStringMacro(AcquisitionTime);
00134   vtkGetStringMacro(AcquisitionTime);
00135
00136   // Description:
00137   // Image Date aka Content Date
00138   // Format: yyyymmdd
00139   // For ex: DICOM (0008,0023) = 20030617
00140   vtkSetStringMacro(ImageDate);
```

```
00141   vtkGetStringMacro(ImageDate);
00142
00143   // For Tcl:
00144   // From C++ use GetImageDate + GetDateAsFields
00145   int GetImageDateYear();
00146   int GetImageDateMonth();
00147   int GetImageDateDay();
00148
00149   // Description:
00150   // Take as input a string in ISO 8601 date (YYYY/MM/DD) and extract the
00151   // different fields namely: year month day
00152   // Return 0 on error, 1 on success
00153   static int GetDateAsFields(const char *date, int &year, int &month, int &day);
00154
00155   // Description:
00156   // Take as input a string in ISO 8601 date (YYYY/MM/DD) and construct a
00157   // locale date based on the different fields (see GetDateAsFields to extract
00158   // different fields)
00159   // Return 0 on error, 1 on success
00160   static int GetDateAsLocale(const char *date, char *locale);
00161
00162   // Description:
00163   // Image Time
00164   // Format: hhmmss.frac (any trailing component(s) can be omitted)
00165   // For ex: DICOM (0008,0033) = 162552.0705 or 230012, or 0012
00166   vtkSetStringMacro(ImageTime);
00167   vtkGetStringMacro(ImageTime);
00168
00169   // Description:
00170   // Image number
00171   // For ex: DICOM (0020,0013) = 1
00172   vtkSetStringMacro(ImageNumber);
00173   vtkGetStringMacro(ImageNumber);
00174
00175   // Description:
00176   // Series number
00177   // For ex: DICOM (0020,0011) = 902
00178   vtkSetStringMacro(SeriesNumber);
00179   vtkGetStringMacro(SeriesNumber);
00180
00181   // Description:
00182   // Series Description
00183   // User provided description of the Series
00184   // For ex: DICOM (0008,103e) = SCOUT
00185   vtkSetStringMacro(SeriesDescription);
00186   vtkGetStringMacro(SeriesDescription);
00187
00188   // Description:
00189   // Study ID
00190   // For ex: DICOM (0020,0010) = 37481
00191   vtkSetStringMacro(StudyID);
00192   vtkGetStringMacro(StudyID);
00193
00194   // Description:
00195   // Study description
00196   // For ex: DICOM (0008,1030) = BRAIN/C-SP/FACIAL
00197   vtkSetStringMacro(StudyDescription);
00198   vtkGetStringMacro(StudyDescription);
00199
00200   // Description:
00201   // Modality
00202   // For ex: DICOM (0008,0060)= CT
00203   vtkSetStringMacro(Modality);
00204   vtkGetStringMacro(Modality);
00205
00206   // Description:
00207   // Manufacturer
00208   // For ex: DICOM (0008,0070) = Siemens
00209   vtkSetStringMacro(Manufacturer);
00210   vtkGetStringMacro(Manufacturer);
00211
00212   // Description:
00213   // Manufacturer's Model Name
00214   // For ex: DICOM (0008,1090) = LightSpeed QX/i
00215   vtkSetStringMacro(ManufacturerModelName);
00216   vtkGetStringMacro(ManufacturerModelName);
00217
00218   // Description:
00219   // Station Name
00220   // For ex: DICOM (0008,1010) = LSPD_OC8
00221   vtkSetStringMacro(StationName);
```

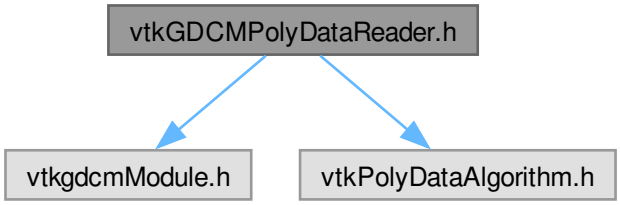
```
00222   vtkGetStringMacro(StationName);
00223
00224   // Description:
00225   // Institution Name
00226   // For ex: DICOM (0008,0080) = FooCity Medical Center
00227   vtkSetStringMacro(InstitutionName);
00228   vtkGetStringMacro(InstitutionName);
00229
00230   // Description:
00231   // Convolution Kernel (or algorithm used to reconstruct the data)
00232   // For ex: DICOM (0018,1210) = Bone
00233   vtkSetStringMacro(ConvolutionKernel);
00234   vtkGetStringMacro(ConvolutionKernel);
00235
00236   // Description:
00237   // Slice Thickness (Nominal reconstructed slice thickness, in mm)
00238   // For ex: DICOM (0018,0050) = 0.273438
00239   vtkSetStringMacro(SliceThickness);
00240   vtkGetStringMacro(SliceThickness);
00241   virtual double GetSliceThicknessAsDouble();
00242
00243   // Description:
00244   // Peak kilo voltage output of the (x-ray) generator used
00245   // For ex: DICOM (0018,0060) = 120
00246   vtkSetStringMacro(KVP);
00247   vtkGetStringMacro(KVP);
00248
00249   // Description:
00250   // Gantry/Detector tilt (Nominal angle of tilt in degrees of the scanning
00251   // gantry.)
00252   // For ex: DICOM (0018,1120) = 15
00253   vtkSetStringMacro(GantryTilt);
00254   vtkGetStringMacro(GantryTilt);
00255   virtual double GetGantryTiltAsDouble();
00256
00257   // Description:
00258   // Echo Time
00259   // (Time in ms between the middle of the excitation pulse and the peak of
00260   // the echo produced)
00261   // For ex: DICOM (0018,0081) = 105
00262   vtkSetStringMacro(EchoTime);
00263   vtkGetStringMacro(EchoTime);
00264
00265   // Description:
00266   // Echo Train Length
00267   // (Number of lines in k-space acquired per excitation per image)
00268   // For ex: DICOM (0018,0091) = 35
00269   vtkSetStringMacro(EchoTrainLength);
00270   vtkGetStringMacro(EchoTrainLength);
00271
00272   // Description:
00273   // Repetition Time
00274   // The period of time in msec between the beginning of a pulse sequence and
00275   // the beginning of the succeeding (essentially identical) pulse sequence.
00276   // For ex: DICOM (0018,0080) = 2040
00277   vtkSetStringMacro(RepetitionTime);
00278   vtkGetStringMacro(RepetitionTime);
00279
00280   // Description:
00281   // Exposure time (time of x-ray exposure in msec)
00282   // For ex: DICOM (0018,1150) = 5
00283   vtkSetStringMacro(ExposureTime);
00284   vtkGetStringMacro(ExposureTime);
00285
00286   // Description:
00287   // X-ray tube current (in mA)
00288   // For ex: DICOM (0018,1151) = 400
00289   vtkSetStringMacro(XRayTubeCurrent);
00290   vtkGetStringMacro(XRayTubeCurrent);
00291
00292   // Description:
00293   // Exposure (The exposure expressed in mAs, for example calculated
00294   // from Exposure Time and X-ray Tube Current)
00295   // For ex: DICOM (0018,1152) = 114
00296   vtkSetStringMacro(Exposure);
00297   vtkGetStringMacro(Exposure);
00298
00299   // Interface to allow insertion of user define values, for instance in DICOM one would want to
00300   // store the Protocol Name (0018,1030), in this case one would do:
00301   // AddUserDefinedValue( "Protocol Name", "T1W/SE/1024" );
00302   void AddUserDefinedValue(const char *name, const char *value);
```

```
00303   // Get a particular user value
00304   const char *GetUserDefinedValue(const char *name);
00305   // Get the number of user defined values
00306   unsigned int GetNumberOfUserDefinedValues();
00307   // Get a name/value by index
00308   const char *GetUserDefinedNameByIndex(unsigned int idx);
00309   const char *GetUserDefinedValueByIndex(unsigned int idx);
00310
00311   // Description:
00312   // Copy the contents of p to this instance.
00313   virtual void DeepCopy(vtkGDCMMedicalImageProperties *p);
00314
00315   // Description:
00316   // Add/Remove/Query the window/level presets that may have been associated
00317   // to a medical image. Window is also known as 'width', level is also known
00318   // as 'center'. The same window/level pair can not be added twice.
00319   // As a convenience, a comment (aka Explanation) can be associated to a preset.
00320   // For ex: DICOM Window Center (0028,1050) = 00045\000470
00321   //         DICOM Window Width  (0028,1051) = 0106\03412
00322   //         DICOM Window Center Width Explanation (0028,1055) = WINDOW1\WINDOW2
00323   virtual void AddWindowLevelPreset(double w, double l);
00324   virtual void RemoveWindowLevelPreset(double w, double l);
00325   virtual void RemoveAllWindowLevelPresets();
00326   virtual int GetNumberOfWindowLevelPresets();
00327   virtual int HasWindowLevelPreset(double w, double l);
00328   virtual int GetNthWindowLevelPreset(int idx, double *w, double *l);
00329   virtual double* GetNthWindowLevelPreset(int idx);
00330   virtual void SetNthWindowLevelPresetComment(int idx, const char *comment);
00331   virtual const char* GetNthWindowLevelPresetComment(int idx);
00332
00333   // Description:
00334   // Mapping from a sliceidx within a volumeidx into a DICOM Instance UID
00335   // Some DICOM reader can populate this structure so that later on from a slice index
00336   // in a vtkImageData volume we can backtrack and find out which 2d slice it was coming from
00337   const char *GetInstanceUIDFromSliceID(int volumeidx, int sliceid);
00338   void SetInstanceUIDFromSliceID(int volumeidx, int sliceid, const char *uid);
00339
00340   // Description:
00341   // Provides the inverse mapping. Returns -1 if a slice for this uid is
00342   // not found.
00343   int GetSliceIDFromInstanceUID(int &volumeidx, const char *uid);
00344
00345 //BTX
00346   typedef enum {
00347     AXIAL = 0,
00348     CORONAL,
00349     SAGITTAL
00350   } OrientationType;
00351 //ETX
00352   int GetOrientationType(int volumeidx);
00353   void SetOrientationType(int volumeidx, int orientation);
00354   static const char *GetStringFromOrientationType(unsigned int type);
00355 */
00356 protected:
00357   vtkGDCMMedicalImageProperties();
00358   ~vtkGDCMMedicalImageProperties();
00359
00360 //BTX
00361   friend class vtkGDCMImageReader;
00362   friend class vtkGDCMImageReader2;
00363   friend class vtkGDCMImageWriter;
00364   void PushBackFile(gdcm::File const &f);
00365   gdcm::File const & GetFile(unsigned int t);
00366 //ETX
00367
00368 private:
00369   vtkGDCMMedicalImagePropertiesInternals *Internals;
00370
00371   vtkGDCMMedicalImageProperties(const vtkGDCMMedicalImageProperties&); // Not implemented.
00372   void operator=(const vtkGDCMMedicalImageProperties&); // Not implemented.
00373 };
00374
00375 #endif
```

13.617 vtkGDCMPolyDataReader.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkPolyDataAlgorithm.h"
```

Include dependency graph for vtkGDCMPolyDataReader.h:



Classes

- class vtkGDCMPolyDataReader

Namespaces

- namespace gdcm

13.618 vtkGDCMPolyDataReader.h

Go to the documentation of this file.

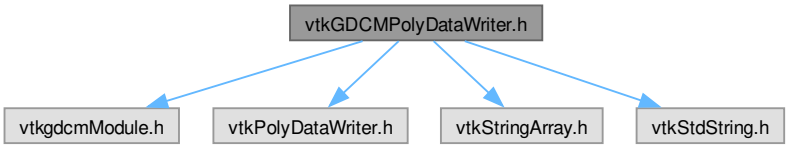
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMPolyDataReader - read DICOM PolyData files (Contour Data...)
00015 // .SECTION Description
00016 // For now only support RTSTRUCT (RT Structure Set Storage)
00017 // .SECTION TODO
00018 // Need to do the same job for DVH Sequence/DVH Data...
00019 // .SECTION Warning
00020 // When using vtkGDCMPolyDataReader in conjunction with vtkGDCMImageReader
00021 // it is *required* that FileLowerLeft is set to ON as coordinate system
00022 // would be inconsistent in between the two data structures.
00023 //
00024 // .SECTION See Also
```

```
00025 // vtkGDCMImageReader vtkGDCMPolyDataWriter vtkRTStructSetProperties
00026
00027
00028 #ifndef VTKGDCMPOLYDATAREADER_H
00029 #define VTKGDCMPOLYDATAREADER_H
00030
00031 #include "vtkgdcmModule.h"
00032 #include "vtkPolyDataAlgorithm.h"
00033
00034 class vtkMedicalImageProperties;
00035 class vtkRTStructSetProperties;
00036 //BTX
00037 namespace gdcm { class Reader; }
00038 //ETX
00039 class VTKGDCM_EXPORT vtkGDCMPolyDataReader : public vtkPolyDataAlgorithm
00040 {
00041 public:
00042   static vtkGDCMPolyDataReader *New();
00043   vtkTypeMacro(vtkGDCMPolyDataReader,vtkPolyDataAlgorithm);
00044   virtual void PrintSelf(ostream& os, vtkIndent indent);
00045
00046   // Description:
00047   // Set/Get the filename of the file to be read
00048   vtkSetStringMacro(FileName);
00049   vtkGetStringMacro(FileName);
00050
00051   // Description:
00052   // Get the medical image properties object
00053   vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties);
00054
00055   vtkGetObjectMacro(RTStructSetProperties, vtkRTStructSetProperties);
00056
00057 protected:
00058   vtkGDCMPolyDataReader();
00059   ~vtkGDCMPolyDataReader();
00060
00061   char *FileName;
00062   vtkMedicalImageProperties *MedicalImageProperties;
00063   vtkRTStructSetProperties *RTStructSetProperties;
00064 //BTX
00065   void FillMedicalImageInformation(const gdcm::Reader &reader);
00066 //ETX
00067
00068   int RequestData(vtkInformation *, vtkInformationVector **, vtkInformationVector *);
00069   int RequestInformation(
00070     vtkInformation *vtkNotUsed(request),
00071     vtkInformationVector **vtkNotUsed(inputVector),
00072     vtkInformationVector *outputVector);
00073 //BTX
00074   int RequestInformation_RTStructureSetStorage(gdcm::Reader const & reader);
00075   int RequestData_RTStructureSetStorage(gdcm::Reader const &reader, vtkInformationVector *outputVector);
00076   int RequestInformation_HemodynamicWaveformStorage(gdcm::Reader const & reader);
00077   int RequestData_HemodynamicWaveformStorage(gdcm::Reader const &reader, vtkInformationVector
      *outputVector);
00078 //ETX
00079
00080 private:
00081   vtkGDCMPolyDataReader(const vtkGDCMPolyDataReader&);  // Not implemented.
00082   void operator=(const vtkGDCMPolyDataReader&);  // Not implemented.
00083 };
00084
00085 #endif
```

13.619 vtkGDCMPolyDataWriter.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkPolyDataWriter.h"
#include "vtkStringArray.h"
#include "vtkStdString.h"
```

Include dependency graph for vtkGDCMPolyDataWriter.h:



Classes

- class vtkGDCMPolyDataWriter

Namespaces

- namespace gdcm

13.620 vtkGDCMPolyDataWriter.h

Go to the documentation of this file.

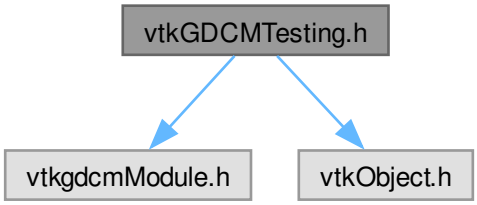
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMPolyDataWriter - writer DICOM PolyData files (Contour Data...)
00015 // .SECTION Description
00016 // For now only support RTSTRUCT (RT Structure Set Storage)
00017 // .SECTION TODO
00018 // Need to do the same job for DVH Sequence/DVH Data...
00019 // .SECTION Warning
00020 //
00021 // .SECTION See Also
00022 // vtkGDCMImageReader vtkGDCMPolyDataReader vtkRTStructSetProperties
00023
00024
00025 #ifndef VTKGDCMPOLYDATAWRITER_H
00026 #define VTKGDCMPOLYDATAWRITER_H
00027
00028 #include "vtkgdcmModule.h"
00029 #include "vtkPolyDataWriter.h"
00030 #include "vtkStringArray.h"
00031 #include "vtkStdString.h"
00032
00033
00034 class vtkMedicalImageProperties;
00035 class vtkRTStructSetProperties;
00036 //BTX
00037 namespace gdcm { class File; }
```

```
00038 //ETX
00039 class VTKGDCM_EXPORT vtkGDCMPolyDataWriter : public vtkPolyDataWriter
00040 {
00041 public:
00042   static vtkGDCMPolyDataWriter *New();
00043   vtkTypeMacro(vtkGDCMPolyDataWriter,vtkPolyDataWriter);
00044   virtual void PrintSelf(ostream& os, vtkIndent indent);
00045
00046   // Description:
00047   // Set/Get the filename of the file to be read
00048 //  vtkSetStringMacro(FileName);
00049 //  vtkGetStringMacro(FileName);
00050
00051   // Description:
00052   // Get the medical image properties object
00053 //  vtkGetObjectMacro(MedicalImageProperties, vtkMedicalImageProperties);
00054   virtual void SetMedicalImageProperties(vtkMedicalImageProperties *pd);
00055
00056   virtual void SetRTStructSetProperties(vtkRTStructSetProperties *pd);
00057
00058
00059   //this function will initialize the contained rtstructset with
00060   //the inputs of the writer and the various extra information
00061   //necessary for writing a complete rtstructset.
00062   //NOTE: inputs must be set BEFORE calling this function!
00063   //NOTE: the number of outputs for the appendpolydata MUST MATCH the ROI vectors!
00064   void InitializeRTStructSet(vtkStdString inDirectory,
00065      vtkStdString inStructLabel, vtkStdString inStructName,
00066      vtkStringArray* inROINames,
00067      vtkStringArray* inROIAlgorithmName,
00068      vtkStringArray* inROIType);
00069
00070   // make parent class public...
00071   void SetNumberOfInputPorts(int n);
00072
00073 protected:
00074   vtkGDCMPolyDataWriter();
00075   ~vtkGDCMPolyDataWriter();
00076
00077   vtkMedicalImageProperties *MedicalImageProperties;
00078   vtkRTStructSetProperties *RTStructSetProperties;
00079
00080   void WriteData();
00081 //BTX
00082   void WriteRTSTRUCTInfo(gdcm::File &file);
00083   void WriteRTSTRUCTData(gdcm::File &file, int num);
00084 //ETX
00085
00086 private:
00087   vtkGDCMPolyDataWriter(const vtkGDCMPolyDataWriter&);  // Not implemented.
00088   void operator=(const vtkGDCMPolyDataWriter&);  // Not implemented.
00089 };
00090
00091 #endif
```

13.621 vtkGDCMTesting.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkObject.h"
```

Include dependency graph for vtkGDCMTesting.h:



Classes

- class vtkGDCMTesting

13.622 vtkGDCMTesting.h

Go to the documentation of this file.

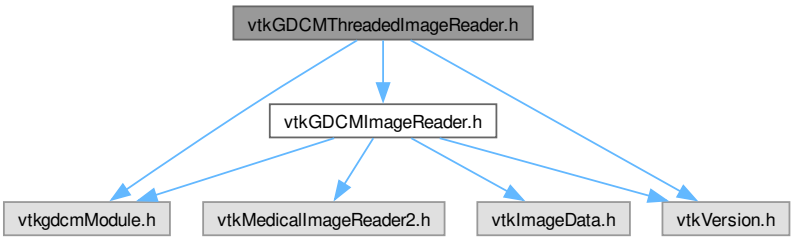
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMTesting - GDCM Testing
00015 // .SECTION Description
00016 // GDCM Testing
00017
00018 // .SECTION See Also
00019 // vtkTesting
00020
00021 #ifndef VTKGDCMTESTING_H
00022 #define VTKGDCMTESTING_H
00023
00024 #include "vtkgdcmModule.h"
00025 #include "vtkObject.h"
00026
00027 class VTKGDCM_EXPORT vtkGDCMTesting : public vtkObject
00028 {
00029 public:
00030   static vtkGDCMTesting *New();
00031   vtkTypeMacro(vtkGDCMTesting,vtkObject);
00032   void PrintSelf(ostream& os, vtkIndent indent);
00033
00034   static const char *GetVTKDataRoot();
00035   static const char *GetGDCMDataRoot();
00036
00037 //BTX
00038   typedef const char* const (*MD5MetaImagesType)[3];
00039   static const char * const * GetMD5MetaImage(unsigned int file);
```

```
00040 //ETX
00041   static unsigned int GetNumberOfMD5MetaImages();
00042
00043   static const char * GetMHDMD5FromFile(const char *filepath);
00044   static const char * GetRAWMD5FromFile(const char *filepath);
00045
00046 protected:
00047   vtkGDCMTesting();
00048   ~vtkGDCMTesting();
00049
00050 private:
00051   vtkGDCMTesting(const vtkGDCMTesting&);  // Not implemented.
00052   void operator=(const vtkGDCMTesting&);  // Not implemented.
00053 };
00054
00055 #endif
```

13.623 vtkGDCMThreadedImageReader.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkGDCMImageReader.h"
#include "vtkVersion.h"
```

Include dependency graph for vtkGDCMThreadedImageReader.h:



Classes

- class vtkGDCMThreadedImageReader

13.624 vtkGDCMThreadedImageReader.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
```

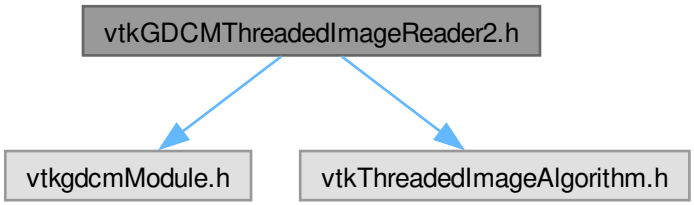
```
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMThreadedImageReader - read DICOM files with multiple threads
00015 // .SECTION Description
00016 // vtkGDCMThreadedImageReader is a source object that reads some DICOM files
00017 // This reader is threaded. Meaning that on a multiple core CPU with N cpu, it will
00018 // read approx N times faster than when reading in a single thread.
00019 //
00020 // .SECTION Warning: Advanced users only. Do not use this class in the general case,
00021 // you have to understand how physically medium works first (sequential reading for
00022 // instance) before playing with this class
00023 //
00024 // .SECTION Implementation note: when FileLowerLeft is set to on the image is not flipped
00025 // upside down as VTK would expect, use this option only if you know what you are doing
00026 //
00027 // .SECTION FIXME: need to implement the other mode where FileLowerLeft is set to OFF
00028 //
00029 // .SECTION FIXME: you need to call SetFileName when reading a volume file (multiple slices DICOM)
00030 // since SetFileNames expect each single file to be single slice (see parent class)
00031 //
00032 // .SECTION BUG: you should really consider using vtkGDCMThreadedImageReader2 instead !
00033 //
00034 // .SECTION See Also
00035 // vtkMedicalImageReader2 vtkMedicalImageProperties vtkGDCMThreadedImageReader2
00036
00037 #ifndef VTKGDCMTHREADEDIMAGEREADER_H
00038 #define VTKGDCMTHREADEDIMAGEREADER_H
00039
00040 #include "vtkgdcmModule.h"
00041 #include "vtkGDCMImageReader.h"
00042 #include "vtkVersion.h"
00043
00044 class VTKGDCM_EXPORT vtkGDCMThreadedImageReader : public vtkGDCMImageReader
00045 {
00046 public:
00047   static vtkGDCMThreadedImageReader *New();
00048   vtkTypeMacro(vtkGDCMThreadedImageReader,vtkGDCMImageReader);
00049   virtual void PrintSelf(ostream& os, vtkIndent indent);
00050
00051   // Description:
00052   // Explicitly set the Rescale Intercept (0028,1052)
00053   vtkSetMacro(Shift,double);
00054
00055   // Description:
00056   // Explicitly get/set the Rescale Slope (0028,1053)
00057   vtkSetMacro(Scale,double);
00058
00059   // Description:
00060   // Determine whether or not reader should use value from Shift/Scale
00061   // Default is 1
00062   vtkSetMacro(UseShiftScale,int);
00063   vtkGetMacro(UseShiftScale,int);
00064   vtkBooleanMacro(UseShiftScale,int);
00065
00066   // Within this class this is allowed to set the Number of Overlays from outside
00067   //vtkSetMacro(NumberOfOverlays,int);
00068
00069 protected:
00070   vtkGDCMThreadedImageReader();
00071   ~vtkGDCMThreadedImageReader();
00072
00073 #if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
00074   int RequestInformation(vtkInformation *request,
00075                          vtkInformationVector **inputVector,
00076                          vtkInformationVector *outputVector);
00077   int RequestData(vtkInformation *request,
00078                   vtkInformationVector **inputVector,
00079                   vtkInformationVector *outputVector);
00080 #else /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
00081   void ExecuteInformation();
00082   void ExecuteData(vtkDataObject *out);
00083 #endif /*(VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )*/
00084
00085   void ReadFiles(unsigned int nfiles, const char *filenames[]);
00086   void RequestDataCompat();
00087
00088 private:
00089   vtkGDCMThreadedImageReader(const vtkGDCMThreadedImageReader&);  // Not implemented.
00090   void operator=(const vtkGDCMThreadedImageReader&);  // Not implemented.
00091
00092   int UseShiftScale;
```

```
00093 };
00094
00095 #endif
```

13.625 vtkGDCMThreadedImageReader2.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkGDCMThreadedImageReader2.h:



Classes

- class vtkGDCMThreadedImageReader2

13.626 vtkGDCMThreadedImageReader2.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkGDCMThreadedImageReader2 - read DICOM files with multiple threads
00015 // .SECTION Description
00016 // vtkGDCMThreadedImageReader2 is a source object that reads some DICOM files
00017 // This reader is threaded. Meaning that on a multiple core CPU with N cpu, it will
00018 // read approx N times faster than when reading in a single thread assuming the IO is
00019 // not a bottleneck operation.
00020 // If looking for a single threaded class see: vtkGDCMImageReader
00021 //
00022 // .SECTION Warning: Advanced users only. Do not use this class in the general case,
00023 // you have to understand how physically medium works first (sequential reading for
00024 // instance) before playing with this class
```

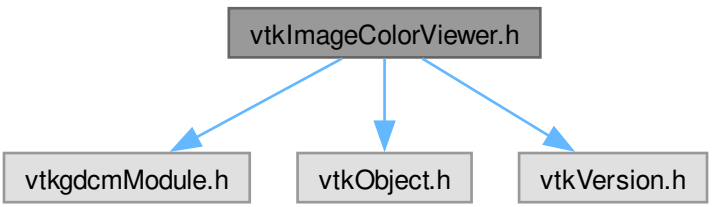
```
00025 //
00026 // .SECTION Implementation note: when FileLowerLeft is set to on the image is not flipped
00027 // upside down as VTK would expect, use this option only if you know what you are doing
00028 //
00029 // .SECTION FIXME: need to implement the other mode where FileLowerLeft is set to OFF
00030 //
00031 // .SECTION FIXME: need to implement reading of series of 3D files
00032 //
00033 // .SECTION Implementation note: this class is meant to supersede vtkGDCMThreadedImageReader
00034 // because it had support for ProgressEvent support even from python layer. There is a
00035 // subtle trick down in the threading mechanism in VTK were the main thread (talking to the
00036 // python interpreter) is also part of the execution process (and the N-1 other thread
00037 // are just there to execute the remaining of ThreadedRequestData), this separation into
00038 // two types of thread is necessary to achieve a working implementation of UpdateProgress
00039
00040 // .SECTION See Also
00041 // vtkMedicalImageReader2 vtkMedicalImageProperties vtkGDCMImageReader
00042
00043 #ifndef VTKGDCMTHREADEDIMAGEREADER2_H
00044 #define VTKGDCMTHREADEDIMAGEREADER2_H
00045
00046 #include "vtkgdcmModule.h"
00047 #include "vtkThreadedImageAlgorithm.h"
00048
00049 class vtkStringArray;
00050 class VTKGDCM_EXPORT vtkGDCMThreadedImageReader2 : public vtkThreadedImageAlgorithm
00051 {
00052 public:
00053   static vtkGDCMThreadedImageReader2 *New();
00054   vtkTypeMacro(vtkGDCMThreadedImageReader2,vtkThreadedImageAlgorithm);
00055   virtual void PrintSelf(ostream& os, vtkIndent indent);
00056
00057   vtkGetMacro(FileLowerLeft,int);
00058   vtkSetMacro(FileLowerLeft,int);
00059   vtkBooleanMacro(FileLowerLeft,int);
00060
00061   vtkGetMacro(NumberOfOverlays,int);
00062
00063   vtkSetMacro(DataScalarType,int);
00064   vtkGetMacro(DataScalarType,int);
00065
00066   vtkSetMacro(NumberOfScalarComponents,int);
00067   vtkGetMacro(NumberOfScalarComponents,int);
00068
00069   vtkGetMacro(LoadOverlays,int);
00070   vtkSetMacro(LoadOverlays,int);
00071   vtkBooleanMacro(LoadOverlays,int);
00072
00073   vtkSetVector6Macro(DataExtent,int);
00074   vtkGetVector6Macro(DataExtent,int);
00075
00076   vtkSetVector3Macro(DataOrigin,double);
00077   vtkGetVector3Macro(DataOrigin,double);
00078
00079   vtkSetVector3Macro(DataSpacing,double);
00080   vtkGetVector3Macro(DataSpacing,double);
00081
00082   //vtkGetStringMacro(FileName);
00083   //vtkSetStringMacro(FileName);
00084   virtual const char *GetFileName(int i = 0);
00085   virtual void SetFileName(const char *filename);
00086
00087   virtual void SetFileNames(vtkStringArray*);
00088   vtkGetObjectMacro(FileNames, vtkStringArray);
00089
00090   int SplitExtent(int splitExt[6], int startExt[6],
00091                   int num, int total);
00092
00093   // Description:
00094   // Explicitly set the Rescale Intercept (0028,1052)
00095   vtkSetMacro(Shift,double);
00096   vtkGetMacro(Shift,double);
00097
00098   // Description:
00099   // Explicitly get/set the Rescale Slope (0028,1053)
00100   vtkSetMacro(Scale,double);
00101   vtkGetMacro(Scale,double);
00102
00103   // Description:
00104   // Determine whether or not reader should use value from Shift/Scale
00105   // Default is 1
```

```
00106   vtkSetMacro(UseShiftScale,int);
00107   vtkGetMacro(UseShiftScale,int);
00108   vtkBooleanMacro(UseShiftScale,int);
00109
00110 protected:
00111   vtkGDCMThreadedImageReader2();
00112   ~vtkGDCMThreadedImageReader2();
00113
00114   int RequestInformation(vtkInformation *request,
00115                          vtkInformationVector **inputVector,
00116                          vtkInformationVector *outputVector);
00117
00118 protected:
00119   void ThreadedRequestData (
00120     vtkInformation * request,
00121     vtkInformationVector** inputVector,
00122     vtkInformationVector * outputVector,
00123     vtkImageData ***inData,
00124     vtkImageData **outData,
00125     int outExt[6], int id);
00126
00127 private:
00128   int FileLowerLeft;
00129   char *FileName;
00130   vtkStringArray *FileNames;
00131   int LoadIconImage;
00132   int DataExtent[6];
00133   int LoadOverlays;
00134   int NumberOfOverlays;
00135   int DataScalarType;
00136
00137   int NumberOfScalarComponents;
00138   double DataSpacing[3];
00139   double DataOrigin[3];
00140   int IconImageDataExtent[6];
00141
00142   double Shift;
00143   double Scale;
00144   int UseShiftScale;
00145
00146 private:
00147   vtkGDCMThreadedImageReader2(const vtkGDCMThreadedImageReader2&);  // Not implemented.
00148   void operator=(const vtkGDCMThreadedImageReader2&);  // Not implemented.
00149 };
00150
00151 #endif
```

13.627 vtkImageColorViewer.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkObject.h"
#include "vtkVersion.h"
```

Include dependency graph for vtkImageColorViewer.h:



Classes

- class vtkImageColorViewer

13.628 vtkImageColorViewer.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkImageColorViewer - Display a 2D image.
00015 // .SECTION Description
00016 // vtkImageColorViewer is a convenience class for displaying a 2D image.  It
00017 // packages up the functionality found in vtkRenderWindow, vtkRenderer,
00018 // vtkImageActor and vtkImageMapToWindowLevelColors into a single easy to use
00019 // class.  This class also creates an image interactor style
00020 // (vtkInteractorStyleImage) that allows zooming and panning of images, and
00021 // supports interactive window/level operations on the image. Note that
00022 // vtkImageColorViewer is simply a wrapper around these classes.
00023 //
00024 // vtkImageColorViewer uses the 3D rendering and texture mapping engine
00025 // to draw an image on a plane.  This allows for rapid rendering,
00026 // zooming, and panning. The image is placed in the 3D scene at a
00027 // depth based on the z-coordinate of the particular image slice. Each
00028 // call to SetSlice() changes the image data (slice) displayed AND
00029 // changes the depth of the displayed slice in the 3D scene. This can
00030 // be controlled by the AutoAdjustCameraClippingRange ivar of the
00031 // InteractorStyle member.
00032 //
00033 // It is possible to mix images and geometry, using the methods:
00034 //
00035 // viewer->SetInput( myImage );
00036 // viewer->GetRenderer()->AddActor( myActor );
00037 //
00038 // This can be used to annotate an image with a PolyData of "edges" or
00039 // or highlight sections of an image or display a 3D isosurface
00040 // with a slice from the volume, etc. Any portions of your geometry
00041 // that are in front of the displayed slice will be visible; any
00042 // portions of your geometry that are behind the displayed slice will
00043 // be obscured. A more general framework (with respect to viewing
00044 // direction) for achieving this effect is provided by the
00045 // vtkImagePlaneWidget .
00046 //
00047 // Note that pressing 'r' will reset the window/level and pressing
00048 // shift+'r' or control+'r' will reset the camera.
00049 //
00050 // .SECTION See Also
00051 // vtkRenderWindow vtkRenderer vtkImageActor vtkImageMapToWindowLevelColors
00052
00053 #ifndef VTKIMAGECOLORVIEWER_H
00054 #define VTKIMAGECOLORVIEWER_H
00055
00056 #include "vtkgdcmModule.h"
00057 #include "vtkObject.h"
00058 #include "vtkVersion.h"
00059
00060 class vtkAlgorithm;
00061 class vtkAlgorithmOutput;
00062 class vtkImageActor;
00063 class vtkImageData;
00064 class vtkImageMapToWindowLevelColors2;
00065 class vtkInformation;
00066 class vtkInteractorStyleImage;
```

```
00067 class vtkRenderWindow;
00068 class vtkRenderer;
00069 class vtkRenderWindowInteractor;
00070 class vtkPolyData;
00071
00072 class VTKGDCM_EXPORT vtkImageColorViewer : public vtkObject
00073 {
00074 public:
00075   static vtkImageColorViewer *New();
00076   vtkTypeMacro(vtkImageColorViewer,vtkObject);
00077   void PrintSelf(ostream& os, vtkIndent indent);
00078
00079   // Description:
00080   // Get the name of rendering window.
00081   virtual const char *GetWindowName();
00082
00083   // Description:
00084   // Render the resulting image.
00085   virtual void Render(void);
00086
00087   // Description:
00088   // Set/Get the input image to the viewer.
00089 #if (VTK_MAJOR_VERSION >= 6)
00090   virtual void SetInputData(vtkImageData *in);
00091 #else
00092   virtual void SetInput(vtkImageData *in);
00093 #endif
00094   virtual vtkImageData *GetInput();
00095   virtual void SetInputConnection(vtkAlgorithmOutput* input);
00096   virtual void AddInputConnection(vtkAlgorithmOutput* input);
00097   virtual void AddInput(vtkImageData * input);
00098   //virtual void AddInput(vtkPolyData * input);
00099
00100   double GetOverlayVisibility();
00101   void SetOverlayVisibility(double vis);
00102
00103   // Description:
00104   // Set/get the slice orientation
00105   //BTX
00106   enum
00107   {
00108     SLICE_ORIENTATION_YZ = 0,
00109     SLICE_ORIENTATION_XZ = 1,
00110     SLICE_ORIENTATION_XY = 2
00111   };
00112   //ETX
00113   vtkGetMacro(SliceOrientation, int);
00114   virtual void SetSliceOrientation(int orientation);
00115   virtual void SetSliceOrientationToXY()
00116     { this->SetSliceOrientation(vtkImageColorViewer::SLICE_ORIENTATION_XY); };
00117   virtual void SetSliceOrientationToYZ()
00118     { this->SetSliceOrientation(vtkImageColorViewer::SLICE_ORIENTATION_YZ); };
00119   virtual void SetSliceOrientationToXZ()
00120     { this->SetSliceOrientation(vtkImageColorViewer::SLICE_ORIENTATION_XZ); };
00121
00122   // Description:
00123   // Set/Get the current slice to display (depending on the orientation
00124   // this can be in X, Y or Z).
00125   vtkGetMacro(Slice, int);
00126   virtual void SetSlice(int s);
00127
00128   // Description:
00129   // Update the display extent manually so that the proper slice for the
00130   // given orientation is displayed. It will also try to set a
00131   // reasonable camera clipping range.
00132   // This method is called automatically when the Input is changed, but
00133   // most of the time the input of this class is likely to remain the same,
00134   // i.e. connected to the output of a filter, or an image reader. When the
00135   // input of this filter or reader itself is changed, an error message might
00136   // be displayed since the current display extent is probably outside
00137   // the new whole extent. Calling this method will ensure that the display
00138   // extent is reset properly.
00139   virtual void UpdateDisplayExtent();
00140
00141   // Description:
00142   // Return the minimum and maximum slice values (depending on the orientation
00143   // this can be in X, Y or Z).
00144   virtual int GetSliceMin();
00145   virtual int GetSliceMax();
00146   virtual void GetSliceRange(int range[2])
00147     { this->GetSliceRange(range[0], range[1]); }
```

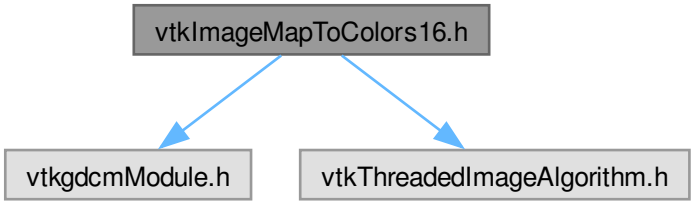
```
00148   virtual void GetSliceRange(int &min, int &max);
00149   virtual int* GetSliceRange();
00150
00151   // Description:
00152   // Set window and level for mapping pixels to colors.
00153   virtual double GetColorWindow();
00154   virtual double GetColorLevel();
00155   virtual void SetColorWindow(double s);
00156   virtual void SetColorLevel(double s);
00157
00158   // Description:
00159   // These are here when using a Tk window.
00160   virtual void SetDisplayId(void *a);
00161   virtual void SetWindowId(void *a);
00162   virtual void SetParentId(void *a);
00163
00164   // Description:
00165   // Set/Get the position in screen coordinates of the rendering window.
00166   virtual int* GetPosition();
00167   virtual void SetPosition(int a,int b);
00168   virtual void SetPosition(int a[2]) { this->SetPosition(a[0],a[1]); }
00169
00170   // Description:
00171   // Set/Get the size of the window in screen coordinates in pixels.
00172   virtual int* GetSize();
00173   virtual void SetSize(int a, int b);
00174   virtual void SetSize(int a[2]) { this->SetSize(a[0],a[1]); }
00175
00176   // Description:
00177   // Get the internal render window, renderer, image actor, and
00178   // image map instances.
00179   vtkGetObjectMacro(RenderWindow,vtkRenderWindow);
00180   vtkGetObjectMacro(Renderer, vtkRenderer);
00181   vtkGetObjectMacro(ImageActor,vtkImageActor);
00182   vtkGetObjectMacro(WindowLevel,vtkImageMapToWindowLevelColors2);
00183   vtkGetObjectMacro(InteractorStyle,vtkInteractorStyleImage);
00184
00185   // Description:
00186   // Set your own renderwindow and renderer
00187   virtual void SetRenderWindow(vtkRenderWindow *arg);
00188   virtual void SetRenderer(vtkRenderer *arg);
00189
00190   // Description:
00191   // Attach an interactor for the internal render window.
00192   virtual void SetupInteractor(vtkRenderWindowInteractor*);
00193
00194   // Description:
00195   // Create a window in memory instead of on the screen. This may not
00196   // be supported for every type of window and on some windows you may
00197   // need to invoke this prior to the first render.
00198   virtual void SetOffScreenRendering(int);
00199   virtual int GetOffScreenRendering();
00200   vtkBooleanMacro(OffScreenRendering,int);
00201
00202 protected:
00203   vtkImageColorViewer();
00204   ~vtkImageColorViewer();
00205
00206   virtual void InstallPipeline();
00207   virtual void UnInstallPipeline();
00208
00209   vtkImageMapToWindowLevelColors2  *WindowLevel;
00210   vtkRenderWindow                 *RenderWindow;
00211   vtkRenderer                     *Renderer;
00212   vtkImageActor                   *ImageActor;
00213   vtkImageActor                   *OverlayImageActor;
00214   vtkRenderWindowInteractor       *Interactor;
00215   vtkInteractorStyleImage         *InteractorStyle;
00216
00217   int SliceOrientation;
00218   int FirstRender;
00219   int Slice;
00220
00221   virtual void UpdateOrientation();
00222
00223 #if (VTK_MAJOR_VERSION >= 6)
00224   vtkAlgorithm* GetInputAlgorithm();
00225   vtkInformation* GetInputInformation();
00226 #endif
00227
00228   friend class vtkImageColorViewerCallback;
```

```
00229
00230 private:
00231   vtkImageColorViewer(const vtkImageColorViewer&);  // Not implemented.
00232   void operator=(const vtkImageColorViewer&);  // Not implemented.
00233 };
00234
00235 #endif
```

13.629 vtkImageMapToColors16.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkImageMapToColors16.h:



Classes

- class vtkImageMapToColors16

13.630 vtkImageMapToColors16.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 /*=========================================================================
00015
00016   Portions of this file are subject to the VTK Toolkit Version 3 copyright.
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkImageMapToColors16.h,v $
00020
```

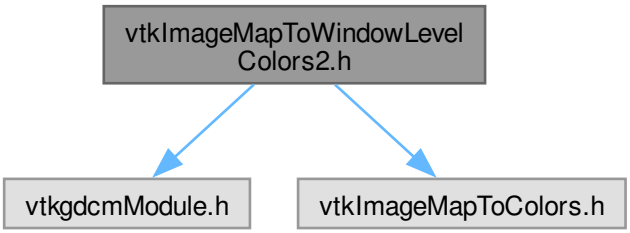
```
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
00023   See Copyright.txt or http://www.kitware.com/Copyright.htm for details.
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 // .NAME vtkImageMapToColors16 - map the input image through a lookup table
00031 // .SECTION Description
00032 // The vtkImageMapToColors16 filter will take an input image of any valid
00033 // scalar type, and map the first component of the image through a
00034 // lookup table.  The result is an image of type VTK_UNSIGNED_CHAR.
00035 // If the lookup table is not set, or is set to NULL, then the input
00036 // data will be passed through if it is already of type VTK_UNSIGNED_CHAR.
00037
00038 // .SECTION See Also
00039 // vtkLookupTable vtkScalarsToColors
00040
00041 #ifndef VTKIMAGEMAPTOCOLORS16_H
00042 #define VTKIMAGEMAPTOCOLORS16_H
00043
00044
00045 #include "vtkgdcmModule.h"
00046 #include "vtkThreadedImageAlgorithm.h"
00047
00048 class vtkScalarsToColors;
00049
00050 class VTKGDCM_EXPORT vtkImageMapToColors16 : public vtkThreadedImageAlgorithm
00051 {
00052 public:
00053   static vtkImageMapToColors16 *New();
00054   vtkTypeMacro(vtkImageMapToColors16,vtkThreadedImageAlgorithm);
00055   void PrintSelf(ostream& os, vtkIndent indent);
00056
00057   // Description:
00058   // Set the lookup table.
00059   virtual void SetLookupTable(vtkScalarsToColors*);
00060   vtkGetObjectMacro(LookupTable,vtkScalarsToColors);
00061
00062   // Description:
00063   // Set the output format, the default is RGBA.
00064   vtkSetMacro(OutputFormat,int);
00065   vtkGetMacro(OutputFormat,int);
00066   void SetOutputFormatToRGBA() { this->OutputFormat = VTK_RGBA; };
00067   void SetOutputFormatToRGB() { this->OutputFormat = VTK_RGB; };
00068   void SetOutputFormatToLuminanceAlpha() { this->OutputFormat = VTK_LUMINANCE_ALPHA; };
00069   void SetOutputFormatToLuminance() { this->OutputFormat = VTK_LUMINANCE; };
00070
00071   // Description:
00072   // Set the component to map for multi-component images (default: 0)
00073   vtkSetMacro(ActiveComponent,int);
00074   vtkGetMacro(ActiveComponent,int);
00075
00076   // Description:
00077   // Use the alpha component of the input when computing the alpha component
00078   // of the output (useful when converting monochrome+alpha data to RGBA)
00079   vtkSetMacro(PassAlphaToOutput,int);
00080   vtkBooleanMacro(PassAlphaToOutput,int);
00081   vtkGetMacro(PassAlphaToOutput,int);
00082
00083   // Description:
00084   // We need to check the modified time of the lookup table too.
00085 #ifdef VTK_HAS_MTIME_TYPE
00086   virtual vtkMTimeType GetMTime();
00087 #else
00088   virtual unsigned long GetMTime();
00089 #endif
00090
00091 protected:
00092   vtkImageMapToColors16();
00093   ~vtkImageMapToColors16();
00094
00095   virtual int RequestInformation (vtkInformation *, vtkInformationVector **, vtkInformationVector *);
00096
00097   void ThreadedRequestData(vtkInformation *request,
00098                            vtkInformationVector **inputVector,
00099                            vtkInformationVector *outputVector,
00100                            vtkImageData ***inData, vtkImageData **outData,
00101                            int extent[6], int id);
```

```
00102
00103   virtual int RequestData(vtkInformation *request,
00104                           vtkInformationVector **inputVector,
00105                           vtkInformationVector *outputVector);
00106
00107   vtkScalarsToColors *LookupTable;
00108   int OutputFormat;
00109
00110   int ActiveComponent;
00111   int PassAlphaToOutput;
00112
00113   int DataWasPassed;
00114 private:
00115   vtkImageMapToColors16(const vtkImageMapToColors16&);  // Not implemented.
00116   void operator=(const vtkImageMapToColors16&);  // Not implemented.
00117 };
00118
00119 #endif
```

13.631 vtkImageMapToWindowLevelColors2.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkImageMapToColors.h"
```

Include dependency graph for vtkImageMapToWindowLevelColors2.h:



Classes

- class vtkImageMapToWindowLevelColors2

13.632 vtkImageMapToWindowLevelColors2.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
```

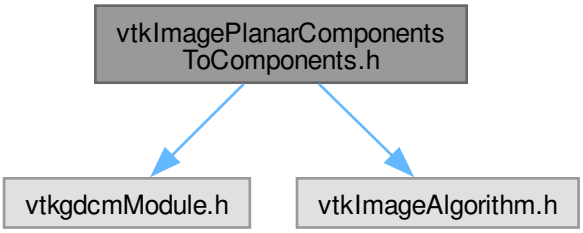
```
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 /*=========================================================================
00015
00016   Portions of this file are subject to the VTK Toolkit Version 3 copyright.
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkImageMapToWindowLevelColors2.h,v $
00020
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
00023   See Copyright.txt or http://www.kitware.com/Copyright.htm for details.
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 // .NAME vtkImageMapToWindowLevelColors2 - map the input image through a lookup table and window / level
     it
00031 // .SECTION Description
00032 // The vtkImageMapToWindowLevelColors2 filter will take an input image of any
00033 // valid scalar type, and map the first component of the image through a
00034 // lookup table.  This resulting color will be modulated with value obtained
00035 // by a window / level operation. The result is an image of type
00036 // VTK_UNSIGNED_CHAR. If the lookup table is not set, or is set to NULL, then
00037 // the input data will be passed through if it is already of type
00038 // UNSIGNED_CHAR.
00039 //
00040 // .SECTION See Also
00041 // vtkLookupTable vtkScalarsToColors
00042
00043 #ifndef VTKIMAGEMAPTOWINDOWLEVELCOLORS2_H
00044 #define VTKIMAGEMAPTOWINDOWLEVELCOLORS2_H
00045
00046 #include "vtkgdcmModule.h"
00047 #include "vtkImageMapToColors.h"
00048
00049 class VTKGDCM_EXPORT vtkImageMapToWindowLevelColors2 : public vtkImageMapToColors
00050 {
00051 public:
00052   static vtkImageMapToWindowLevelColors2 *New();
00053   vtkTypeMacro(vtkImageMapToWindowLevelColors2,vtkImageMapToColors);
00054   void PrintSelf(ostream& os, vtkIndent indent);
00055
00056   // Description:
00057   // Set / Get the Window to use -> modulation will be performed on the
00058   // color based on (S - (L - W/2))/W where S is the scalar value, L is
00059   // the level and W is the window.
00060   vtkSetMacro( Window, double );
00061   vtkGetMacro( Window, double );
00062
00063   // Description:
00064   // Set / Get the Level to use -> modulation will be performed on the
00065   // color based on (S - (L - W/2))/W where S is the scalar value, L is
00066   // the level and W is the window.
00067   vtkSetMacro( Level, double );
00068   vtkGetMacro( Level, double );
00069
00070 protected:
00071   vtkImageMapToWindowLevelColors2();
00072   ~vtkImageMapToWindowLevelColors2();
00073
00074   virtual int RequestInformation (vtkInformation *, vtkInformationVector **, vtkInformationVector *);
00075   void ThreadedRequestData(vtkInformation *request,
00076                            vtkInformationVector **inputVector,
00077                            vtkInformationVector *outputVector,
00078                            vtkImageData ***inData, vtkImageData **outData,
00079                            int extent[6], int id);
00080   virtual int RequestData(vtkInformation *request,
00081                           vtkInformationVector **inputVector,
00082                           vtkInformationVector *outputVector);
00083
00084   double Window;
00085   double Level;
00086
00087 private:
00088   vtkImageMapToWindowLevelColors2(const vtkImageMapToWindowLevelColors2&);  // Not implemented.
```

```
00089   void operator=(const vtkImageMapToWindowLevelColors2&);  // Not implemented.
00090 };
00091
00092 #endif
```

13.633 vtkImagePlanarComponentsToComponents.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkImageAlgorithm.h"
```

Include dependency graph for vtkImagePlanarComponentsToComponents.h:



Classes

- class vtkImagePlanarComponentsToComponents

13.634 vtkImagePlanarComponentsToComponents.h

Go to the documentation of this file.

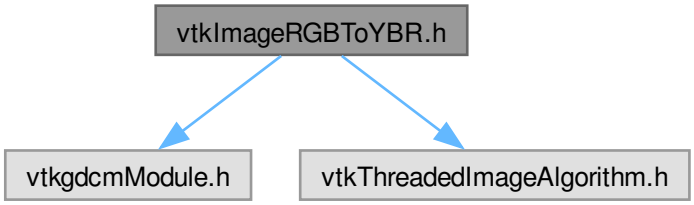
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 /*=========================================================================
00015
00016   Portions of this file are subject to the VTK Toolkit Version 3 copyright.
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkImagePlanarComponentsToComponents.h,v $
00020
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
```

```
00023   See Copyright.txt or http://www.kitware.com/Copyright.htm for details.
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 // .NAME vtkImagePlanarComponentsToComponents - Converts planar comp to pixel comp
00031 // .SECTION Description
00032
00033 // .SECTION See Also
00034 // TODO: Can I make this filter threaded ?
00035 // TODO: How do I handle the VTK-flipping (FileLowerLeft)?
00036
00037 #ifndef VTKIMAGEPLANARCOMPONENTSTOCOMPONENTS_H
00038 #define VTKIMAGEPLANARCOMPONENTSTOCOMPONENTS_H
00039
00040 #include "vtkgdcmModule.h"
00041 #include "vtkImageAlgorithm.h"
00042
00043 // everything is now handled within the vtkGDCMImageReader as Planar Configuration can not
00044 // be externalized (conflict with file lower left)
00045
00046 #error do not use this class
00047
00048 //class VTKGDCM_EXPORT vtkImagePlanarComponentsToComponents : public vtkThreadedImageAlgorithm
00049 class VTKGDCM_EXPORT vtkImagePlanarComponentsToComponents : public vtkImageAlgorithm
00050 {
00051 public:
00052   static vtkImagePlanarComponentsToComponents *New();
00053   //vtkTypeMacro(vtkImagePlanarComponentsToComponents,vtkThreadedImageAlgorithm);
00054   vtkTypeMacro(vtkImagePlanarComponentsToComponents,vtkImageAlgorithm);
00055
00056   void PrintSelf(ostream& os, vtkIndent indent);
00057
00058 protected:
00059   vtkImagePlanarComponentsToComponents();
00060   ~vtkImagePlanarComponentsToComponents() {};
00061
00062 //  void ThreadedExecute (vtkImageData *inData, vtkImageData *outData,
00063 //                        int ext[6], int id);
00064 //  virtual int RequestInformation (vtkInformation *, vtkInformationVector**, vtkInformationVector *);
00065   virtual int RequestData(vtkInformation *, vtkInformationVector **, vtkInformationVector *);
00066
00067 private:
00068   vtkImagePlanarComponentsToComponents(const vtkImagePlanarComponentsToComponents&);  // Not implemented.
00069   void operator=(const vtkImagePlanarComponentsToComponents&);  // Not implemented.
00070 };
00071
00072 #endif
```

13.635 vtkImageRGBToYBR.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkImageRGBToYBR.h:



Classes

- class vtkImageRGBToYBR

13.636 vtkImageRGBToYBR.h

Go to the documentation of this file.

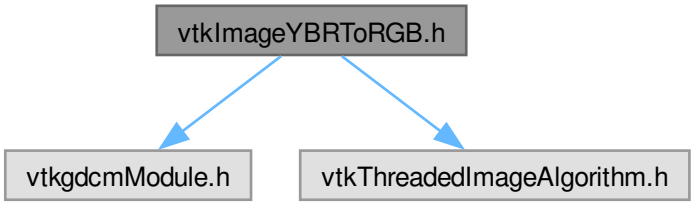
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 /*=========================================================================
00015
00016   Portions of this file are subject to the VTK Toolkit Version 3 copyright.
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkImageRGBToYBR.h,v $
00020
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
00023   See Copyright.txt or http://www.kitware.com/Copyright.htm for details.
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 // .NAME vtkImageRGBToYBR - Converts YBR components to RGB.
00031 // .SECTION Description
00032 // For each pixel with hue, saturation and value components this filter
00033 // outputs the color coded as red, green, blue.  Output type must be the same
00034 // as input type.
00035
00036 // .SECTION See Also
00037 // vtkImageRGBToHSV
00038
00039 #ifndef VTKIMAGERGBTOYBR_H
```

```
00040 #define VTKIMAGERGBTOYBR_H
00041
00042 #include "vtkgdcmModule.h"
00043 #include "vtkThreadedImageAlgorithm.h"
00044
00045 class VTKGDCM_EXPORT vtkImageRGBToYBR : public vtkThreadedImageAlgorithm
00046 {
00047 public:
00048   static vtkImageRGBToYBR *New();
00049   vtkTypeMacro(vtkImageRGBToYBR,vtkThreadedImageAlgorithm);
00050
00051   void PrintSelf(ostream& os, vtkIndent indent);
00052
00053 protected:
00054   vtkImageRGBToYBR();
00055   ~vtkImageRGBToYBR() {};
00056
00057   void ThreadedExecute (vtkImageData *inData, vtkImageData *outData,
00058                         int ext[6], int id);
00059 private:
00060   vtkImageRGBToYBR(const vtkImageRGBToYBR&);  // Not implemented.
00061   void operator=(const vtkImageRGBToYBR&);  // Not implemented.
00062 };
00063
00064 #endif
```

13.637 vtkImageYBRToRGB.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkThreadedImageAlgorithm.h"
```

Include dependency graph for vtkImageYBRToRGB.h:



Classes

- class vtkImageYBRToRGB

13.638 vtkImageYBRToRGB.h

Go to the documentation of this file.

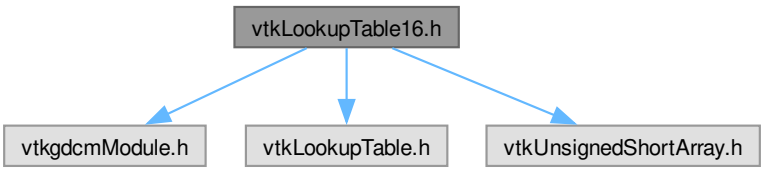
```
00001 /*=========================================================================
00002
```

```
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 /*=========================================================================
00015
00016   Portions of this file are subject to the VTK Toolkit Version 3 copyright.
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkImageYBRToRGB.h,v $
00020
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
00023   See Copyright.txt or http://www.kitware.com/Copyright.htm for details.
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 // .NAME vtkImageYBRToRGB - Converts YBR components to RGB.
00031 // .SECTION Description
00032 // For each pixel with hue, saturation and value components this filter
00033 // outputs the color coded as red, green, blue.  Output type must be the same
00034 // as input type.
00035
00036 // .SECTION See Also
00037 // vtkImageRGBToHSV
00038
00039 #ifndef VTKIMAGEYBRTORGB_H
00040 #define VTKIMAGEYBRTORGB_H
00041
00042 #include "vtkgdcmModule.h"
00043 #include "vtkThreadedImageAlgorithm.h"
00044
00045 class VTKGDCM_EXPORT vtkImageYBRToRGB : public vtkThreadedImageAlgorithm
00046 {
00047 public:
00048   static vtkImageYBRToRGB *New();
00049   vtkTypeMacro(vtkImageYBRToRGB,vtkThreadedImageAlgorithm);
00050
00051   void PrintSelf(ostream& os, vtkIndent indent);
00052
00053 protected:
00054   vtkImageYBRToRGB();
00055   ~vtkImageYBRToRGB() {};
00056
00057   void ThreadedExecute (vtkImageData *inData, vtkImageData *outData,
00058                         int ext[6], int id);
00059 private:
00060   vtkImageYBRToRGB(const vtkImageYBRToRGB&);  // Not implemented.
00061   void operator=(const vtkImageYBRToRGB&);  // Not implemented.
00062 };
00063
00064 #endif
```

13.639 vtkLookupTable16.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkLookupTable.h"
#include "vtkUnsignedShortArray.h"
```

Include dependency graph for vtkLookupTable16.h:



Classes

- class vtkLookupTable16

13.640 vtkLookupTable16.h

Go to the documentation of this file.

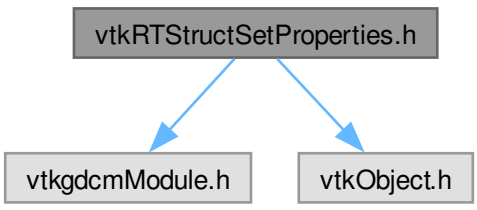
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 /*=========================================================================
00015
00016   Portions of this file are subject to the VTK Toolkit Version 3 copyright.
00017
00018   Program:   Visualization Toolkit
00019   Module:    $RCSfile: vtkLookupTable16.h,v $
00020
00021   Copyright (c) Ken Martin, Will Schroeder, Bill Lorensen
00022   All rights reserved.
00023   See Copyright.txt or http://www.kitware.com/Copyright.htm for details.
00024
00025      This software is distributed WITHOUT ANY WARRANTY; without even
00026      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00027      PURPOSE.  See the above copyright notice for more information.
00028
00029 =========================================================================*/
00030 // .NAME vtkLookupTable16 -
00031 // .SECTION Description
00032 //
00033 // .SECTION Caveats
00034 //
00035 // .SECTION See Also
00036 // vtkLookupTable
00037
00038 #ifndef VTKLOOKUPTABLE16_H
00039 #define VTKLOOKUPTABLE16_H
00040
00041 #include "vtkgdcmModule.h"
00042 #include "vtkLookupTable.h"
00043 #include "vtkUnsignedShortArray.h"
```

```
00044
00045 class VTKGDCM_EXPORT vtkLookupTable16 : public vtkLookupTable
00046 {
00047 public:
00048   static vtkLookupTable16 *New();
00049
00050   vtkTypeMacro(vtkLookupTable16,vtkLookupTable);
00051   void PrintSelf(ostream& os, vtkIndent indent);
00052
00053   void Build();
00054
00055   void SetNumberOfTableValues(vtkIdType number);
00056
00057   unsigned char *WritePointer(const vtkIdType id, const int number);
00058
00059   unsigned short *GetPointer(const vtkIdType id) {
00060     return this->Table16->GetPointer(4*id); };
00061
00062 protected:
00063   vtkLookupTable16(int sze=256, int ext=256);
00064   ~vtkLookupTable16();
00065
00066   vtkUnsignedShortArray *Table16;
00067
00068 void MapScalarsThroughTable2(void *input,
00069                                           unsigned char *output,
00070                                           int inputDataType,
00071                                           int numberOfValues,
00072                                           int inputIncrement,
00073                                           int outputFormat);
00074
00075 private:
00076   vtkLookupTable16(const vtkLookupTable16&);  // Not implemented.
00077   void operator=(const vtkLookupTable16&);  // Not implemented.
00078 };
00079
00080 //----------------------------------------------------------------------------
00081 inline unsigned char *vtkLookupTable16::WritePointer(const vtkIdType id,
00082                                                      const int number)
00083 {
00084   //this->InsertTime.Modified();
00085   return (unsigned char*)this->Table16->WritePointer(4*id,4*number);
00086 }
00087
00088 #endif
```

13.641 vtkRTStructSetProperties.h File Reference

```
#include "vtkgdcmModule.h"
#include "vtkObject.h"
```

Include dependency graph for vtkRTStructSetProperties.h:



Classes

- class vtkRTStructSetProperties

13.642 vtkRTStructSetProperties.h

Go to the documentation of this file.

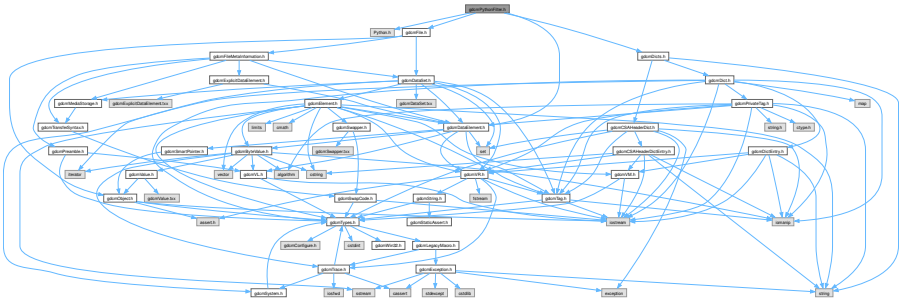
```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 // .NAME vtkRTStructSetProperties - some rtstruct properties.
00015 // .SECTION Description
00016 //
00017 // .SECTION See Also
00018 // vtkGDCMPolyDataReader vtkGDCMPolyDataWriter
00019
00020 #ifndef VTKRTSTRUCTSETPROPERTIES_H
00021 #define VTKRTSTRUCTSETPROPERTIES_H
00022
00023 #include "vtkgdcmModule.h"
00024 #include "vtkObject.h"
00025
00026 class vtkRTStructSetPropertiesInternals;
00027
00028 class VTKGDCM_EXPORT vtkRTStructSetProperties : public vtkObject
00029 {
00030 public:
00031   static vtkRTStructSetProperties *New();
00032   vtkTypeMacro(vtkRTStructSetProperties,vtkObject);
00033   void PrintSelf(ostream& os, vtkIndent indent);
00034
00035   // Description:
00036   // Convenience method to reset all fields to an empty string/value
00037   virtual void Clear();
00038
00039   // Description:
00040   //
00041   vtkSetStringMacro(StructureSetLabel);
00042   vtkGetStringMacro(StructureSetLabel);
00043
00044   vtkSetStringMacro(StructureSetName);
00045   vtkGetStringMacro(StructureSetName);
00046
00047   vtkSetStringMacro(StructureSetDate);
00048   vtkGetStringMacro(StructureSetDate);
00049
00050   vtkSetStringMacro(StructureSetTime);
00051   vtkGetStringMacro(StructureSetTime);
00052
00053   vtkSetStringMacro(SOPInstanceUID);
00054   vtkGetStringMacro(SOPInstanceUID);
00055
00056   vtkSetStringMacro(StudyInstanceUID);
00057   vtkGetStringMacro(StudyInstanceUID);
00058
00059   vtkSetStringMacro(SeriesInstanceUID);
00060   vtkGetStringMacro(SeriesInstanceUID);
00061
00062   vtkSetStringMacro(ReferenceSeriesInstanceUID);
00063   vtkGetStringMacro(ReferenceSeriesInstanceUID);
00064
00065   vtkSetStringMacro(ReferenceFrameOfReferenceUID);
00066   vtkGetStringMacro(ReferenceFrameOfReferenceUID);
```

```
00067
00068   // Description:
00069   // Copy the contents of p to this instance.
00070   virtual void DeepCopy(vtkRTStructSetProperties *p);
00071
00072   void AddContourReferencedFrameOfReference( vtkIdType pdnum, const char *classuid , const char *
    instanceuid );
00073   const char *GetContourReferencedFrameOfReferenceClassUID( vtkIdType pdnum, vtkIdType id );
00074   const char *GetContourReferencedFrameOfReferenceInstanceUID( vtkIdType pdnum, vtkIdType id );
00075   vtkIdType GetNumberOfContourReferencedFrameOfReferences();
00076   vtkIdType GetNumberOfContourReferencedFrameOfReferences(vtkIdType pdnum);
00077
00078   void AddReferencedFrameOfReference( const char *classuid , const char * instanceuid );
00079   const char *GetReferencedFrameOfReferenceClassUID( vtkIdType id );
00080   const char *GetReferencedFrameOfReferenceInstanceUID( vtkIdType id );
00081   vtkIdType GetNumberOfReferencedFrameOfReferences();
00082
00083   void AddStructureSetROI( int roinumber,
00084     const char* reframerefuid,
00085     const char* roiname,
00086     const char* ROIGenerationAlgorithm,
00087     const char* ROIDescription = 0
00088   );
00089   void AddStructureSetROIObservation( int refnumber,
00090     int observationnumber,
00091     const char *rtroiinterpretedtype,
00092     const char *roiinterpreter,
00093     const char *roiobservationlabel = 0
00094   );
00095
00096   vtkIdType GetNumberOfStructureSetROIs();
00097   int GetStructureSetObservationNumber(vtkIdType id);
00098   int GetStructureSetROINumber(vtkIdType id);
00099   const char *GetStructureSetROIRefFrameRefUID(vtkIdType);
00100   const char *GetStructureSetROIName(vtkIdType);
00101   const char *GetStructureSetROIGenerationAlgorithm(vtkIdType);
00102   const char *GetStructureSetROIDescription(vtkIdType id);
00103   const char *GetStructureSetRTROIInterpretedType(vtkIdType id);
00104   const char *GetStructureSetROIObservationLabel(vtkIdType id);
00105
00106 protected:
00107   vtkRTStructSetProperties();
00108   ~vtkRTStructSetProperties();
00109
00110   char *StructureSetLabel;
00111   char *StructureSetName;
00112   char *StructureSetDate;
00113   char *StructureSetTime;
00114
00115   char *SOPInstanceUID;
00116   char *StudyInstanceUID;
00117   char *SeriesInstanceUID;
00118
00119   char *ReferenceSeriesInstanceUID;
00120   char *ReferenceFrameOfReferenceUID;
00121
00122   // Description:
00123   // PIMPL Encapsulation for STL containers
00124   //BTX
00125   vtkRTStructSetPropertiesInternals *Internals;
00126   //ETX
00127
00128 private:
00129   vtkRTStructSetProperties(const vtkRTStructSetProperties&); // Not implemented.
00130   void operator=(const vtkRTStructSetProperties&); // Not implemented.
00131 };
00132
00133 #endif
```

13.643 gdcmPythonFilter.h File Reference

```
#include <Python.h>
#include "gdcmDataElement.h"
#include "gdcmDicts.h"
```

`#include "gdcmFile.h"`
Include dependency graph for gdcmPythonFilter.h:



Classes

- class gdcm::PythonFilter

  PythonFilter PythonFilter is the class that make gdcm2.x looks more like gdcm1 and transform the binary blob contained in a DataElement into a string, typically this is a nice feature to have for wrapped language.

Namespaces

- namespace gdcm

13.644 gdcmPythonFilter.h

Go to the documentation of this file.

```
00001 /*=========================================================================
00002
00003   Program: GDCM (Grassroots DICOM). A DICOM library
00004
00005   Copyright (c) 2006-2011 Mathieu Malaterre
00006   All rights reserved.
00007   See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
00008
00009      This software is distributed WITHOUT ANY WARRANTY; without even
00010      the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
00011      PURPOSE.  See the above copyright notice for more information.
00012
00013 =========================================================================*/
00014 #ifndef GDCMPYTHONFILTER_H
00015 #define GDCMPYTHONFILTER_H
00016
00017 #include <Python.h>
00018
00019 #include "gdcmDataElement.h"
00020 #include "gdcmDicts.h"
00021 #include "gdcmFile.h"
00022
00023 namespace gdcm
00024 {
00025
00031 class GDCM_EXPORT PythonFilter
00032 {
00033 public:
00034   PythonFilter();
00035   ~PythonFilter();
00036
```

```
00037   void UseDictAlways(bool ) {}
00038
00039   // Allow user to pass in there own dicts
00040   void SetDicts(const Dicts &dicts);
00041
00042   // Convert to string the ByteValue contained in a DataElement
00043   PyObject *ToPyObject(const Tag& t) const;
00044
00045   void SetFile(const File& f);
00046   File &GetFile();
00047   const File &GetFile() const;
00048
00049 private:
00050   SmartPointer<File> F;
00051 };
00052
00053 } // end namespace gdcm
00054
00055 #endif //GDCMPYTHONFILTER_H
```

Chapter 14

Examples

14.1 TestByteSwap.cxx

This is a C++ example on how to use gdcm::ByteSwap

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmTypes.h"
#include "gdcmSwapCode.h"
#include "gdcmByteSwap.h"

#include <cstring> // memcpy

int myfunc()
{
  char vl_str[4];
  const char raw[] = "\000\000\000\004";
  memcpy(vl_str, raw, 4);
  uint32_t vl;
  memcpy(&vl, vl_str, 4);
  gdcm::ByteSwap<uint32_t>::SwapRangeFromSwapCodeIntoSystem(&vl, gdcm::SwapCode::BigEndian, 1);
  if( vl != 0x00000004 )
    {
    std::cerr « std::hex « "vl: " « vl « std::endl;
    return 1;
    }

  gdcm::ByteSwap<uint32_t>::SwapFromSwapCodeIntoSystem(vl, gdcm::SwapCode::LittleEndian);
  if( vl != 0x00000004 )
    {
    std::cerr « std::hex « "vl: " « vl « std::endl;
    return 1;
    }

  gdcm::ByteSwap<uint32_t>::SwapFromSwapCodeIntoSystem(vl, gdcm::SwapCode::BigEndian);
  if( vl != 0x4000000 )
    {
    std::cerr « std::hex « "vl: " « vl « std::endl;
    return 1;
    }

  return 0;
```

```
}

int TestByteSwap(int , char *[])
{
  gdcm::SwapCode sc = gdcm::SwapCode::Unknown;
  if ( gdcm::ByteSwap<uint16_t>::SystemIsBigEndian() )
    {
    sc = gdcm::SwapCode::BigEndian;
    }
  else if ( gdcm::ByteSwap<uint16_t>::SystemIsLittleEndian() )
    {
    sc = gdcm::SwapCode::LittleEndian;
    }
  if( sc == gdcm::SwapCode::Unknown )
    {
    std::cerr << "unk" << std::endl;
    return 1;
    }

  //std::cout << "sc: " << sc << std::endl;

  uint16_t t = 0x1234;
  gdcm::ByteSwap<uint16_t>::SwapFromSwapCodeIntoSystem(t, sc);
  if( sc == gdcm::SwapCode::BigEndian )
    {
    if( t != 0x3412 )
      {
      std::cerr << std::hex << "t: " << t << std::endl;
      return 1;
      }
    // ok test pass rest value to old one
    t = 0x1234;
    }
  else if ( sc == gdcm::SwapCode::LittleEndian )
    {
    if( t != 0x1234 )
      {
      std::cerr << std::hex << "t: " << t << std::endl;
      return 1;
      }
    }

  union { char n[2]; uint16_t tn; } u16;
  memcpy(u16.n, &t, 2 );
  gdcm::ByteSwap<uint16_t>::SwapRangeFromSwapCodeIntoSystem(&u16.tn, sc, 1);
  uint16_t tn = u16.tn;
  if( sc == gdcm::SwapCode::BigEndian )
    {
    if( tn != 0x3412 )
      {
      std::cerr << std::hex << "tn: " << tn << std::endl;
      return 1;
      }
    // ok test pass rest value to old one
    t = 0x1234;
    }
  else if ( sc == gdcm::SwapCode::LittleEndian )
    {
    if( tn != 0x1234 )
      {
      std::cerr << std::hex << "tn: " << tn << std::endl;
      return 1;
      }
    }
  gdcm::ByteSwap<uint16_t>::SwapRangeFromSwapCodeIntoSystem(&u16.tn, gdcm::SwapCode::BigEndian, 1);
  tn = u16.tn;
  if( sc == gdcm::SwapCode::LittleEndian )
    {
    if( tn != 0x3412 )
      {
      std::cerr << std::hex << "tn: " << tn << std::endl;
      return 1;
      }
    }
  else if ( sc == gdcm::SwapCode::BigEndian )
    {
    if( tn != 0x1234 )
      {
      std::cerr << std::hex << "tn: " << tn << std::endl;
      return 1;
      }
```

```
    }

  if( myfunc() )
    {
    return 1;
    }

  uint16_t array[] = { 0x1234 };
  gdcm::ByteSwap<uint16_t>::SwapRangeFromSwapCodeIntoSystem(array,
    gdcm::SwapCode::BigEndian,1);
   if ( array[0] != 0x3412 )
     {
     std::cerr « std::hex « "array: " « array[0] « std::endl;
     return 1;
     }

  return 0;
}
```

14.2 PatchFile.cxx

This is a C++ example on how to use gdcm::Attribute

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * The image was a broken file where the Pixel Data element was 8 times too big
 * Apparently multiplying the BitsAllocated to 4 and multiplying the number of
 * frames by 2 would solve the problem
 *
 * This C++ code can be used to patch the header.
 */

#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmWriter.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    return 1;
    }
  const char *f = argv[1];
  const char *out = argv[2];
  gdcm::Reader r;
  r.SetFileName( f );
  if( !r.Read() )
    {
    return 1;
    }

  gdcm::File &file = r.GetFile();
  gdcm::DataSet& ds = file.GetDataSet();
  // (0028,0100) US 16                                       #   2, 1 BitsAllocated
  // (0028,0101) US 16                                       #   2, 1 BitsStored
  // (0028,0102) US 15                                       #   2, 1 HighBit
  //
    {
    gdcm::Attribute<0x28,0x100> at;
    at.SetFromDataElement( ds.GetDataElement( at.GetTag() ) );
    if( at.GetValue() != 8 )
```

```
      {
      return 1;
      }
    at.SetValue( 32 );
    ds.Replace( at.GetAsDataElement() );
    }
    {
    gdcm::Attribute<0x28,0x101> at;
    at.SetFromDataElement( ds.GetDataElement( at.GetTag() ) );
    if( at.GetValue() != 8 )
      {
      return 1;
      }
    at.SetValue( 32 );
    ds.Replace( at.GetAsDataElement() );
    }
    {
    gdcm::Attribute<0x28,0x102> at;
    at.SetFromDataElement( ds.GetDataElement( at.GetTag() ) );
    if( at.GetValue() != 7 )
      {
      return 1;
      }
    at.SetValue( 31 );
    ds.Replace( at.GetAsDataElement() );
    }
  // (0028,0008) IS [56]                                    #   2, 1 NumberOfFrames

    {
    gdcm::Attribute<0x28,0x8> at;
    at.SetFromDataElement( ds.GetDataElement( at.GetTag() ) );
    at.SetValue( at.GetValue() * 2 );
    ds.Replace( at.GetAsDataElement() );
    }

  gdcm::Writer w;
  w.SetFile( file );
  w.SetCheckFileMetaInformation( false );
  w.SetFileName( out );
  if( !w.Write() )
    {
    return 1;
    }

  // Now let's see if we can read it as an image:
  gdcm::ImageReader ir;
  ir.SetFileName( out );
  if(!ir.Read())
    {
    return 1;
    }
  gdcm::Image &image = ir.GetImage();
  unsigned long len = image.GetBufferLength();
  const gdcm::ByteValue *bv = ir.GetFile().GetDataSet().GetDataElement( gdcm::Tag(0x7fe0,0x0010)
      ).GetByteValue();
  if( !bv || len != bv->GetLength() )
    {
    return 1;
    }
  std::cout « bv->GetLength() « " " « len « std::endl;

  std::cout « "Success to rewrite image !" « std::endl;
  image.Print( std::cout );
  return 0;
}
```

14.3 SimplePrint.cs

This is a C# example on how to use gdcm::SWIGDataSet

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
```

```
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
  Convertor convertor = new Convertor();
  int a = convertor.Convert<int>( some_int_blob );
  double b = convertor.Convert<double>( some_double_blob );
*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/SimplePrint.exe gdcmData/012345.002.050.dcm
 */
using System;
using gdcm;

public class SimplePrint
{
  public static void RecurseDataSet(File f, DataSet ds, string indent)
    {
    CSharpDataSet cds = new CSharpDataSet(ds);
    while(!cds.IsAtEnd())
      {
      DataElement de = cds.GetCurrent();
      // Compute VR from the toplevel file, and the currently processed dataset:
      VR vr = DataSetHelper.ComputeVR(f, ds, de.GetTag() );

      if( vr.Compatible( new VR(VR.VRType.SQ) ) )
        {
        uint uvl = (uint)de.GetVL(); // Test cast is ok
        System.Console.WriteLine( indent + de.GetTag().toString() + ":" + uvl ); // why not ?
        //SequenceOfItems sq = de.GetSequenceOfItems();
        // GetValueAsSQ handle more cases than GetSequenceOfItems
        SmartPtrSQ sq = de.GetValueAsSQ();
        uint n = sq.GetNumberOfItems();
        for( uint i = 1; i <= n; i++) // item starts at 1, not 0
          {
          Item item = sq.GetItem( i );
          DataSet nested = item.GetNestedDataSet();
          RecurseDataSet( f, nested, indent + "  " );
          }
        }
      else
        {
        System.Console.WriteLine( indent + de.toString() );
        }
      cds.Next();
      }
    }

  public static int Main(string[] args)
    {
    string filename = args[0];
    Reader reader = new Reader();
    reader.SetFileName( filename );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }
    File f = reader.GetFile();
    DataSet ds = f.GetDataSet();

    RecurseDataSet( f, ds, "" );

    return 0;
    }
}
```

14.4 TestReader.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmFileMetaInformation.h"
#include "gdcmFile.h"
#include "gdcmTesting.h"
#include "gdcmMediaStorage.h"

int TestRead(const char* filename, bool verbose = false)
{
  if( verbose )
    std::cout « "TestRead: " « filename « std::endl;

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if ( !reader.Read() )
    {
    std::cerr « "TestReadError: Failed to read: " « filename « std::endl;
    return 1;
    }

//commenting out the fmi and ds to avoid warnings
  //const gdcm::FileMetaInformation &h = reader.GetFile().GetHeader();
  //std::cout « h « std::endl;

  //const gdcm::DataSet &ds = reader.GetFile().GetDataSet();
  //std::cout « ds « std::endl;

  const char *ref = gdcm::Testing::GetMediaStorageFromFile(filename);
  gdcm::MediaStorage ms;
  ms.SetFromFile( reader.GetFile() );
  if( !ref )
    {
    std::cerr « "TestReadError: Missing MediaStorage: " « filename « std::endl;
    std::cerr « "It should be: " « ms « std::endl;
    return 1;
    }

  if( ms.IsUndefined() && ref && *ref != 0 )
    {
    std::cerr « "TestReadError: MediaStorage: " « filename « std::endl;
    std::cerr « "It should be instead: " « ref « std::endl;
    return 1;
    }

  // Make sure it is the right one:

  if( ref && *ref != 0 && ms != gdcm::MediaStorage::GetMSType(ref) )
    {
    std::cerr « "Error: Found MediaStorage: " « ms « " for " « filename « std::endl;
    std::cerr « "It should be instead: " « ref « std::endl;
    return 1;
    }

  return 0;
}

int TestReader(int argc, char *argv[])
{
  if( argc == 2 )
    {
    const char *filename = argv[1];
    return TestRead(filename, true);
    }

  // else
  gdcm::Trace::DebugOff();
```

```
  gdcm::Trace::WarningOff();
  int r = 0, i = 0;
  const char *filename;
  const char * const *filenames = gdcm::Testing::GetFileNames();
  while( (filename = filenames[i]) )
    {
    r += TestRead( filename );
    ++i;
    }

  return r;
}
```

14.5 TestReader.py

This is a C++ example on how to use gdcm::Reader

```
import os,sys
import gdcm

def TestRead(filename, verbose = False):
  r = gdcm.Reader()
  r.SetFileName( filename )
  success = r.Read()
  #if verbose: print r.GetFile()
  if verbose: print(r.GetFile().GetDataSet())
  return success

if __name__ == "__main__":
  success = 0
  try:
    filename = os.sys.argv[1]
    success += TestRead( filename, True )
  except:
    # loop over all files:
    gdcm.Trace.DebugOff()
    gdcm.Trace.WarningOff()
    t = gdcm.Testing()
    nfiles = t.GetNumberOfFileNames()
    for i in range(0,nfiles):
      filename = t.GetFileName(i)
      success += TestRead( filename )


  # Test succeed ?
  sys.exit(success == 0)
```

14.6 DecompressJPEGFile.cs

This is a C# example on how to use gdcm::SequenceOfFragments

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
```

```
 * $ mono bin/DecompressJPEGFile.exe somejpegfile.jpg
 */
using System;
using gdcm;

public class DecompressJPEGFile
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    System.IO.FileStream infile =
      new System.IO.FileStream(file1, System.IO.FileMode.Open, System.IO.FileAccess.Read);
    uint fsize = gdcm.PosixEmulation.FileSize(file1);

    byte[] jstream  = new byte[fsize];
    infile.Read(jstream, 0 , jstream.Length);

    Trace.DebugOn();
    Image image = new Image();
    image.SetNumberOfDimensions( 2 ); // important for now
    DataElement pixeldata = new DataElement( new gdcm.Tag(0x7fe0,0x0010) );

    // DO NOT set a ByteValue here, JPEG is a particular kind of encapsulated syntax
    // in which can one cannot use a simple byte array for storage. Instead, see
    // gdcm.SequenceOfFragments
    //pixeldata.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length ) );

    // Create a new SequenceOfFragments C++ object, store it as a SmartPointer :
    SmartPtrFrag sq = SequenceOfFragments.New();
    Fragment frag = new Fragment();
    frag.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length) );
    // Single file => single fragment
    sq.AddFragment( frag );
    // Pass by reference:
    pixeldata.SetValue( sq.__ref__() );

    // insert:
    image.SetDataElement( pixeldata );

    // JPEG use YBR to achieve better compression ratio by default (not RGB)
    // FIXME hardcoded:
    PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.YBR_FULL );
    image.SetPhotometricInterpretation( pi );
    // FIXME hardcoded:
    PixelFormat pixeltype = new PixelFormat(3,8,8,7);
    image.SetPixelFormat( pixeltype );

    // FIXME hardcoded:
    image.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEGLosslessProcess14_1 ) );
    image.SetDimension(0, 692);
    image.SetDimension(1, 721);

    // Decompress !
    byte[] decompressedData = new byte[(int)image.GetBufferLength()];
    image.GetBuffer(decompressedData);

    // Write out the decompressed bytes
    System.Console.WriteLine(image.toString());
    using (System.IO.Stream stream =
      System.IO.File.Open(@"/tmp/dd.raw",
        System.IO.FileMode.Create))
      {
      System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
      writer.Write(decompressedData);
      }


    return 0;
    }
}
```

14.7 ManipulateFile.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ManipulateFile.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class ManipulateFile
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    string file2 = args[1];
    Reader reader = new Reader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    Anonymizer ano = new Anonymizer();
    ano.SetFile( reader.GetFile() );
    ano.RemovePrivateTags();
    ano.RemoveGroupLength();
    Tag t = new Tag(0x10,0x10);
    ano.Replace( t, "GDCM^Csharp^Test^Hello^World" );

    UIDGenerator g = new UIDGenerator();
    ano.Replace( new Tag(0x0008,0x0018), g.Generate() );
    ano.Replace( new Tag(0x0020,0x000d), g.Generate() );
    ano.Replace( new Tag(0x0020,0x000e), g.Generate() );
    ano.Replace( new Tag(0x0020,0x0052), g.Generate() );

    Writer writer = new Writer();
    writer.SetFileName( file2 );
    writer.SetFile( ano.GetFile() );
    ret = writer.Write();
    if( !ret )
      {
      return 1;
      }

    return 0;
    }
}
```

14.8 ClinicalTrialIdentificationWorkflow.cs

This is a C# example on how to use Anonymizer

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.
```

```
==========================================================================*/

/*
 * Typical usage on UNIX:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ClinicalTrialIdentificationWorkflow.exe input_dir output_dir
 */
using System;
using gdcm;

public class MyWatcher : SimpleSubjectWatcher
{
  public MyWatcher(Subject s):base(s,"Override String"){}
  protected override void StartFilter() {
    System.Console.WriteLine( "This is my start" );
  }
  protected override void EndFilter(){
    System.Console.WriteLine( "This is my end" );
  }
  protected override void ShowProgress(Subject caller, Event evt){
    ProgressEvent pe = ProgressEvent.Cast(evt);
    System.Console.WriteLine( "This is my progress: " + pe.GetProgress() );
  }
  protected override void ShowIteration(){
    System.Console.WriteLine( "This is my iteration" );
  }
  protected override void ShowAnonymization(Subject caller, Event evt){
/*
 * A couple of explanation are necessary here to understand how SWIG work
 *  http://www.swig.org/Doc1.3/Java.html#adding_downcasts
 *
 *  System.Console.WriteLine( "This is my Anonymization. Type: " + evt.GetEventName() );
 *  System.Type type = evt.GetType();
 *  System.Console.WriteLine( "This is my Anonymization. System.Type: " + type.ToString() );
 *  System.Console.WriteLine( "This is my Anonymization. CheckEvent: " + ae.CheckEvent( evt ) );
 *  System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + ae.GetTag().toString() );
 */
    AnonymizeEvent ae = AnonymizeEvent.Cast(evt);
    if( ae != null )
      {
      Tag t = ae.GetTag();
      System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + t.toString() );
      }
    else
      {
      System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
      }
  }
  protected override void ShowAbort(){
    System.Console.WriteLine( "This is my abort" );
  }
}

public class ClinicalTrialIdentificationWorkflow
{
  public static bool ProcessOneFile( gdcm.Anonymizer ano , string filename, string outfilename )
    {
    Reader reader = new Reader();
    reader.SetFileName( filename );
    bool ret = reader.Read();
    if( !ret )
      {
      return false;
      }
    // Pass in the file:
    ano.SetFile( reader.GetFile() );

    // First step, let's protect all Patient information as per
    // PS 3.15 / E.1 / Basic Application Level Confidentiality Profile
    if( !ano.BasicApplicationLevelConfidentialityProfile() )
      {
      return false;
      }

    // Now let's pass in all Clinical Trial fields
    // PS 3.3 - 2008 / C.7.1.3 Clinical Trial Subject Module
    /*
    Clinical Trial Sponsor Name (0012,0010) 1 The name of the clinical trial sponsor. See C.7.1.3.1.1.
    Clinical Trial Protocol ID (0012,0020) 1 Identifier for the noted protocol. See C.7.1.3.1.2.
    Clinical Trial Protocol Name (0012,0021) 2 The name of the clinical trial protocol. See C.7.1.3.1.3.
    Clinical Trial Site ID (0012,0030) 2 The identifier of the site responsible for submitting clinical trial
```

```
    data. See C.7.1.3.1.4.
  Clinical Trial Site Name (0012,0031) 2 Name of the site responsible for submitting clinical trial data. See
    C.7.1.3.1.5
  Clinical Trial Subject ID (0012,0040) 1C The assigned identifier for the clinical trial subject. See
    C.7.1.3.1.6. Shall be present if Clinical Trial Subject Reading ID (0012,0042) is absent. May be present
    otherwise.
  Clinical Trial Subject Reading ID (0012,0042) 1C Identifies the subject for blinded evaluations. Shall be
    present if Clinical Trial Subject ID (0012,0040) is absent.  May be present otherwise. See C.7.1.3.1.7.
   */
  ano.Replace( new gdcm.Tag(0x0012,0x0010), "MySponsorName");
  ano.Replace( new gdcm.Tag(0x0012,0x0020), "MyProtocolID");
  ano.Replace( new gdcm.Tag(0x0012,0x0021), "MyProtocolName");
  ano.Replace( new gdcm.Tag(0x0012,0x0030), "MySiteId");
  ano.Replace( new gdcm.Tag(0x0012,0x0031), "MySiteName");
  ano.Replace( new gdcm.Tag(0x0012,0x0040), "MySponsorId");
  ano.Replace( new gdcm.Tag(0x0012,0x0050), "MyTPId");
  ano.Replace( new gdcm.Tag(0x0012,0x0051), "MyTPDescription");

  // The following two are not required as they are guaranteed to be filled in by the
  // Basic Application Level Confidentiality Profile. Only override if you understand what
  // you are doing
  //ano.Replace( new gdcm.Tag(0x0012,0x0062), "YES");
  //ano.Replace( new gdcm.Tag(0x0012,0x0063), "My Super Duper Anonymization Overload");

  // We might be generating a subdirectory. Let's make sure the subdir exist:
  gdcm.Filename fn = new gdcm.Filename( outfilename );
  string subdir = fn.GetPath();
  if( !gdcm.PosixEmulation.MakeDirectory( subdir ) )
    {
    return false;
    }

  gdcm.FileMetaInformation fmi = ano.GetFile().GetHeader();
  // The following three lines make sure to regenerate any value:
  fmi.Remove( new gdcm.Tag(0x0002,0x0012) );
  fmi.Remove( new gdcm.Tag(0x0002,0x0013) );
  fmi.Remove( new gdcm.Tag(0x0002,0x0016) );

  Writer writer = new Writer();
  writer.SetFileName( outfilename );
  writer.SetFile( ano.GetFile() );
  ret = writer.Write();
  if( !ret )
    {
    return false;
    }

  return true;
  }

public static int Main(string[] args)
  {
  gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "My ClinicalTrial App" );

  // http://www.oid-info.com/get/1.3.6.1.4.17434
  string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
  gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
  System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.GetRoot() );

  gdcm.Global global = gdcm.Global.GetInstance();
  if( !global.LoadResourcesFiles() )
    {
    System.Console.WriteLine( "Could not LoadResourcesFiles" );
    return 1;
    }

  if( args.Length != 2 )
    {
    System.Console.WriteLine( "Usage:" );
    System.Console.WriteLine( "ClinicalTrialIdentificationWorkflow input_dir output_dir" );
    return 1;
    }
  string dir1 = args[0];
  string dir2 = args[1];

  // Check input is valid:
  if( !gdcm.PosixEmulation.FileIsDirectory(dir1) )
    {
    System.Console.WriteLine( "Input directory: " + dir1 + " does not exist. Sorry" );
    return 1;
    }
```

```
    if( !gdcm.PosixEmulation.FileIsDirectory(dir2) )
      {
      System.Console.WriteLine( "Output directory: " + dir2 + " does not exist. Sorry" );
      return 1;
      }

    // Recursively search all file within this toplevel directory:
    Directory d = new Directory();
    uint nfiles = d.Load( dir1, true );
    if(nfiles == 0) return 1;

    // Let's use the pre-shipped certificate of GDCM.
    string certpath = gdcm.Filename.Join(gdcm.Testing.GetSourceDirectory(),
      "/Testing/Source/Data/certificate.pem" );
    gdcm.CryptoFactory fact = gdcm.CryptoFactory.GetFactoryInstance();
    gdcm.CryptographicMessageSyntax cms = fact.CreateCMSProvider();
    if( !cms.ParseCertificateFile( certpath ) )
      {
      System.Console.WriteLine( "PEM Certificate : " + certpath + " could not be read. Sorry" );
      return 1;
      }

    //Anonymizer ano = new Anonymizer();
    // A reference to an actual C++ instance is required here:
    SmartPtrAno sano = Anonymizer.New();
    Anonymizer ano = sano.__ref__();

    //SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(ano, "Anonymizer");
    MyWatcher watcher = new MyWatcher(ano);

    // Explicitly specify the Cryptographic Message Syntax to use:
    ano.SetCryptographicMessageSyntax( cms );

    // Process all filenames:
    FilenamesType filenames = d.GetFilenames();
    for( uint i = 0; i < nfiles; ++i )
      {
      string filename = filenames[ (int)i ];
      string outfilename = filename.Replace( dir1, dir2 );
      System.Console.WriteLine( "Filename: " + filename );
      System.Console.WriteLine( "Out Filename: " + outfilename );
      if( !ProcessOneFile( ano , filename, outfilename ) )
        {
        System.Console.WriteLine( "Could not process filename: " + filename );
        return 1;
        }
      }

    return 0;
    }
}
```

14.9 GenerateDICOMDIR.cs

This is a C# example on how to use DICOMDIRGenerator

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example to show how to use DICOMDIRGenerator
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
```

```
 * $ mono bin/GenerateDICOMDIR.exe path output_filename
 */
using System;
using gdcm;

public class GenerateDICOMDIR
{
  public static int Main(string[] args)
    {
    string directory = args[0];
    string outfilename = args[1];

    Directory d = new Directory();
    uint nfiles = d.Load( directory, true );
    if(nfiles == 0) return 1;
    //System.Console.WriteLine( "Files:\n" + d.toString() );

    // Implement fast path ?
    // Scanner s = new Scanner();

    string descriptor = "My_Descriptor";
    FilenamesType filenames = d.GetFilenames();

    gdcm.DICOMDIRGenerator gen = new DICOMDIRGenerator();
    gen.SetFilenames( filenames );
    gen.SetDescriptor( descriptor );
    if( !gen.Generate() )
      {
      return 1;
      }

    gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "GenerateDICOMDIR" );
    gdcm.Writer writer = new Writer();
    writer.SetFile( gen.GetFile() );
    writer.SetFileName( outfilename );
    if( !writer.Write() )
      {
      return 1;
      }

    return 0;
    }
}
```

14.10 GenFakeImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmImage.h"
#include "gdcmImageWriter.h"
#include "gdcmFileDerivation.h"
#include "gdcmUIDGenerator.h"
//#include "gdcmImageChangePhotometricInterpretation.h"

/*
 * This example shows two things:
 * 1. How to create an image ex-nihilo
 * 2. How to use the gdcm.FileDerivation filter. This filter is meant to create "DERIVED" image
 * object. FileDerivation has a simple API where you can reference *all* the input image that have been
 * used to generate the image. The API also allows user to specify the purpose of reference (see CID 7202,
 * PS 3.16 - 2008), and the image derivation type (CID 7203, PS 3.16 - 2008).
 */
int main(int, char *[])
{
  // Step 1: Fake Image
```

```
gdcm::SmartPointer<gdcm::Image> im = new gdcm::Image;

char * buffer = new char[ 256 * 256 * 3];
char * p = buffer;
int b = 128;
//int ybr[3];
int ybr2[3];
//int rgb[3];

for(int r = 0; r < 256; ++r)
  for(int g = 0; g < 256; ++g)
    //for(int b = 0; b < 256; ++b)
    {
    //rgb[0] = r;
    //rgb[1] = g;
    //rgb[1] = 128;
    //rgb[2] = b;
    //ybr[0] = r;
    //ybr[1] = g;
    //ybr[1] = 128;
    //ybr[2] = b;

    ybr2[0] = r;
    ybr2[1] = g;
    ybr2[1] = 128;
    ybr2[2] = b;
    //gdcm::ImageChangePhotometricInterpretation::YBR2RGB(rgb, ybr);
    //gdcm::ImageChangePhotometricInterpretation::RGB2YBR(ybr2, rgb);
    *p++ = (char)ybr2[0];
    *p++ = (char)ybr2[1];
    *p++ = (char)ybr2[2];
    }

im->SetNumberOfDimensions( 2 );
im->SetDimension(0, 256 );
im->SetDimension(1, 256 );

im->GetPixelFormat().SetSamplesPerPixel(3);
//im->SetPhotometricInterpretation( gdcm::PhotometricInterpretation::RGB );
im->SetPhotometricInterpretation( gdcm::PhotometricInterpretation::YBR_FULL );

unsigned long l = im->GetBufferLength();
if( l != 256 * 256 * 3 )
  {
  return 1;
  }
gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
pixeldata.SetByteValue( buffer, (uint32_t)l );
delete[] buffer;
im->SetDataElement( pixeldata );

gdcm::UIDGenerator uid; // helper for uid generation

gdcm::SmartPointer<gdcm::File> file = new gdcm::File; // empty file

// Step 2: DERIVED object
gdcm::FileDerivation fd;
// For the purpose of this exercise we will pretend that this image is referencing
// two source image (we need to generate fake UID for that).
const char ReferencedSOPClassUID[] = "1.2.840.10008.5.1.4.1.1.7"; // Secondary Capture
fd.AddReference( ReferencedSOPClassUID, uid.Generate() );
fd.AddReference( ReferencedSOPClassUID, uid.Generate() );

// Again for the purpose of the exercise we will pretend that the image is a
// multiplanar reformat (MPR):
// CID 7202 Source Image Purposes of Reference
// {"DCM",121322,"Source image for image processing operation"},
fd.SetPurposeOfReferenceCodeSequenceCodeValue( 121322 );
// CID 7203 Image Derivation
// { "DCM",113072,"Multiplanar reformatting" },
fd.SetDerivationCodeSequenceCodeValue( 113072 );
fd.SetFile( *file );
// If all Code Value are ok the filter will execute properly
if( !fd.Derive() )
  {
  std::cerr « "Sorry could not derive using input info" « std::endl;
  return 1;
  }

// We pass both :
// 1. the fake generated image
```

```
  // 2. the 'DERIVED' dataset object
  // to the writer.
  gdcm::ImageWriter w;
  w.SetImage( *im );
  w.SetFile( fd.GetFile() );

  // Set the filename:
  w.SetFileName( "ybr2.dcm" );
  if( !w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.11 ReformatFile.cs

This is a C++ example on how to use FileDerivation

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ReformatFile.exe input.dcm output.dcm
 */
using System;
using gdcm;

public class ReformatFile
{
  public static int Main(string[] args)
    {
    gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "My Reformat App" );

    // http://www.oid-info.com/get/1.3.6.1.4.17434
    string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
    gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
    System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.GetRoot() );

    string filename = args[0];
    string outfilename = args[1];

    Reader reader = new Reader();
    reader.SetFileName( filename );
    if( !reader.Read() )
      {
      System.Console.WriteLine( "Could not read: " + filename );
      return 1;
      }

    UIDGenerator uid = new UIDGenerator(); // helper for uid generation
    FileDerivation fd = new FileDerivation();
    // For the purpose of this exercise we will pretend that this image is referencing
    // two source image (we need to generate fake UID for that).
    string ReferencedSOPClassUID = "1.2.840.10008.5.1.4.1.1.7"; // Secondary Capture
    fd.AddReference( ReferencedSOPClassUID, uid.Generate() );
    fd.AddReference( ReferencedSOPClassUID, uid.Generate() );

    // Again for the purpose of the exercise we will pretend that the image is a
```

```
    // multiplanar reformat (MPR):
    // CID 7202 Source Image Purposes of Reference
    // {"DCM",121322,"Source image for image processing operation"},
    fd.SetPurposeOfReferenceCodeSequenceCodeValue( 121322 );
    // CID 7203 Image Derivation
    // { "DCM",113072,"Multiplanar reformatting" },
    fd.SetDerivationCodeSequenceCodeValue( 113072 );
    fd.SetFile( reader.GetFile() );
    // If all Code Value are ok the filter will execute properly
    if( !fd.Derive() )
      {
      return 1;
      }

    gdcm.FileMetaInformation fmi = reader.GetFile().GetHeader();
    // The following three lines make sure to regenerate any value:
    fmi.Remove( new gdcm.Tag(0x0002,0x0012) );
    fmi.Remove( new gdcm.Tag(0x0002,0x0013) );
    fmi.Remove( new gdcm.Tag(0x0002,0x0016) );

    Writer writer = new Writer();
    writer.SetFileName( outfilename );
    writer.SetFile( fd.GetFile() );
    if( !writer.Write() )
      {
      System.Console.WriteLine( "Could not write: " + outfilename );
      return 1;
      }


    return 0;
    }
}
```

14.12 DecompressImage.cs

This is a C# example on how to use Image

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/DecompressImage.exe gdcmData/012345.002.050.dcm decompress.dcm
 */
using System;
using gdcm;

public class DecompressImage
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    string file2 = args[1];
    ImageReader reader = new ImageReader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    // check that one can access a Fragment from C#:
```

```
    var de = reader.GetFile().GetDataSet().GetDataElement(new Tag(0x7fe0, 0x0010));
    var sq = de.GetSequenceOfFragments();
    sq.GetFragment(0);

    Image image = new Image();
    Image ir = reader.GetImage();

    image.SetNumberOfDimensions( ir.GetNumberOfDimensions() );

    //Just for fun:
    //int dircos =  ir.GetDirectionCosines();
    //t = gdcm.Orientation.GetType(dircos);
    //int l = gdcm.Orientation.GetLabel(t);
    //System.Console.WriteLine( "Orientation label:" + l );

    // Set the dimensions,
    // 1. either one at a time
    //image.SetDimension(0, ir.GetDimension(0) );
    //image.SetDimension(1, ir.GetDimension(1) );

    // 2. the array at once
    uint[] dims = {0, 0};
    // Just for fun let's invert the dimensions:
    dims[0] = ir.GetDimension(1);
    dims[1] = ir.GetDimension(0);
    ir.SetDimensions( dims );

    PixelFormat pixeltype = ir.GetPixelFormat();
    image.SetPixelFormat( pixeltype );

    PhotometricInterpretation pi = ir.GetPhotometricInterpretation();
    image.SetPhotometricInterpretation( pi );

    DataElement pixeldata = new DataElement( new Tag(0x7fe0,0x0010) );
    byte[] str1 = new byte[ ir.GetBufferLength()];
    ir.GetBuffer( str1 );
    //System.Console.WriteLine( ir.GetBufferLength() );
    pixeldata.SetByteValue( str1, new VL( (uint)str1.Length ) );
    //image.SetDataElement( pixeldata );
    ir.SetDataElement( pixeldata );


    ImageWriter writer = new ImageWriter();
    writer.SetFileName( file2 );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( ir );
    ret = writer.Write();
    if( !ret )
      {
      return 1;
      }

    return 0;
    }
}
```

14.13 StandardizeFiles.cs

This is a C++ example on how to use ImageChangeTransferSyntax

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
```

```
 * Simple C# example to show how one would 'Standardize' a DICOM File-Set
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/StandardizeFiles.exe input_path output_path
 */
using System;
using gdcm;

public class StandardizeFiles
{
  public static bool ProcessOneFile( string filename, string outfilename )
    {
    PixmapReader reader = new PixmapReader();
    reader.SetFileName( filename );
    if( !reader.Read() )
      {
      System.Console.WriteLine( "Could not read: " + filename );
      return false;
      }

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    change.SetForce( false ); // do we really want to recompress when input is already compressed in same alg ?
    change.SetCompressIconImage( false ); // Keep it simple
    change.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEG2000Lossless ) );
    change.SetInput( reader.GetPixmap() );
    if( !change.Change() )
      {
      System.Console.WriteLine( "Could not change: " + filename );
      return false;
      }

    gdcm.FileMetaInformation fmi = reader.GetFile().GetHeader();
    // The following three lines make sure to regenerate any value:
    fmi.Remove( new gdcm.Tag(0x0002,0x0012) );
    fmi.Remove( new gdcm.Tag(0x0002,0x0013) );
    fmi.Remove( new gdcm.Tag(0x0002,0x0016) );

    PixmapWriter writer = new PixmapWriter();
    writer.SetFileName( outfilename );
    writer.SetFile( reader.GetFile() );
    gdcm.Pixmap pixout = ((PixmapToPixmapFilter)change).GetOutput();

    writer.SetPixmap( pixout );
    if( !writer.Write() )
      {
      System.Console.WriteLine( "Could not write: " + outfilename );
      return false;
      }

    return true;
    }

  public static int Main(string[] args)
    {
    gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "My Standardize App" );

    // http://www.oid-info.com/get/1.3.6.1.4.17434
    string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
    gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
    System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.GetRoot() );

    string dir1 = args[0];
    string dir2 = args[1];

    // Check input is valid:
    if( !gdcm.PosixEmulation.FileIsDirectory(dir1) )
      {
      System.Console.WriteLine( "Input directory: " + dir1 + " does not exist. Sorry" );
      return 1;
      }
    if( !gdcm.PosixEmulation.FileIsDirectory(dir2) )
      {
      System.Console.WriteLine( "Output directory: " + dir2 + " does not exist. Sorry" );
      return 1;
      }

    Directory d = new Directory();
    uint nfiles = d.Load( dir1, true );
```

```
    if(nfiles == 0) return 1;

    // Process all filenames:
    FilenamesType filenames = d.GetFilenames();
    for( uint i = 0; i < nfiles; ++i )
      {
      string filename = filenames[ (int)i ];
      string outfilename = filename.Replace( dir1, dir2 );
      System.Console.WriteLine( "Filename: " + filename );
      System.Console.WriteLine( "Out Filename: " + outfilename );
      if( !ProcessOneFile( filename, outfilename ) )
        {
        System.Console.WriteLine( "Could not process filename: " + filename );
        //return 1;
        }
      }


    return 0;
    }
}
```

14.14 ScanDirectory.cs

This is a C# example on how to use Scanner

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ bin/ScanDirectory.exe /path/to/gdcmData/
 */
using System;
using gdcm;

// We will print each filename being processed
public class MyWatcher : SimpleSubjectWatcher
{
  public MyWatcher(Subject s):base(s,"Override String"){}
  protected override void ShowFileName(Subject caller, Event evt){
    FileNameEvent fne = FileNameEvent.Cast(evt);
    if( fne != null )
      {
      string fn = fne.GetFileName();
      System.Console.WriteLine( "This is my Scanner. Processing FileName: " + fn );
      }
    else
      {
      System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
      }
  }
}

public class ScanDirectory
{
  public static int Main(string[] args)
    {
    string directory = args[0];
    Tag t = new Tag(0x8,0x80);

    Directory d = new Directory();
    uint nfiles = d.Load( directory );
    if(nfiles == 0) return 1;
```

```
    //System.Console.WriteLine( "Files:\n" + d.toString() );

    // Use a StrictScanner, need to use a reference to pass the C++ pointer to
    // MyWatcher implementation
    SmartPtrStrictScan sscan = StrictScanner.New();
    StrictScanner s = sscan.__ref__();
    MyWatcher watcher = new MyWatcher(s);

    s.AddTag( t );
    bool b = s.Scan( d.GetFilenames() );
    if(!b) return 1;

    for(int i = 0; i < (int)nfiles; ++i)
      {
      if( !s.IsKey( d.GetFilenames()[i] ) )
        {
        System.Console.WriteLine( "File is not DICOM or could not be read: " + d.GetFilenames()[i] );
        }
      }

    System.Console.WriteLine( "Scan:\n" + s.toString() );

    System.Console.WriteLine( "success" );
    return 0;
    }
}
```

14.15 BasicAnonymizer.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/BasicAnonymizer.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class MyWatcher : SimpleSubjectWatcher
{
  public MyWatcher(Subject s):base(s,"Override String"){}
  protected override void StartFilter() {
    System.Console.WriteLine( "This is my start" );
  }
  protected override void EndFilter(){
    System.Console.WriteLine( "This is my end" );
  }
  protected override void ShowProgress(Subject caller, Event evt){
    ProgressEvent pe = ProgressEvent.Cast(evt);
    System.Console.WriteLine( "This is my progress: " + pe.GetProgress() );
  }
  protected override void ShowIteration(){
    System.Console.WriteLine( "This is my iteration" );
  }
  protected override void ShowAnonymization(Subject caller, Event evt){
/*
 * A couple of explanation are necessary here to understand how SWIG work
 *  http://www.swig.org/Doc1.3/Java.html#adding_downcasts
 *
 *  System.Console.WriteLine( "This is my Anonymization. Type: " + evt.GetEventName() );
 *  System.Type type = evt.GetType();
 *  System.Console.WriteLine( "This is my Anonymization. System.Type: " + type.ToString() );
 *  System.Console.WriteLine( "This is my Anonymization. CheckEvent: " + ae.CheckEvent( evt ) );
```

```
 *  System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + ae.GetTag().toString() );
 */
    AnonymizeEvent ae = AnonymizeEvent.Cast(evt);
    if( ae != null )
      {
      Tag t = ae.GetTag();
      System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + t.toString() );
      }
    else
      {
      System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
      }
  }
  protected override void ShowAbort(){
    System.Console.WriteLine( "This is my abort" );
  }
}

public class BasicAnonymizer
{
  public static int Main(string[] args)
    {
    gdcm.Global global = gdcm.Global.GetInstance();
    if( !global.LoadResourcesFiles() )
      {
      System.Console.WriteLine( "Could not LoadResourcesFiles" );
      return 1;
      }

    string file1 = args[0];
    string file2 = args[1];
    Reader reader = new Reader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    string certpath = gdcm.Filename.Join(gdcm.Testing.GetSourceDirectory(),
      "/Testing/Source/Data/certificate.pem" );
    gdcm.CryptoFactory fact = gdcm.CryptoFactory.GetFactoryInstance();
    gdcm.CryptographicMessageSyntax cms = fact.CreateCMSProvider();
    if( !cms.ParseCertificateFile( certpath ) )
      {
      return 1;
      }

    //Anonymizer ano = new Anonymizer();
    SmartPtrAno sano = Anonymizer.New();
    Anonymizer ano = sano.__ref__();

    //SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(ano, "Anonymizer");
    MyWatcher watcher = new MyWatcher(ano);

    ano.SetFile( reader.GetFile() );
    ano.SetCryptographicMessageSyntax( cms );
    if( !ano.BasicApplicationLevelConfidentialityProfile() )
      {
      return 1;
      }

    Writer writer = new Writer();
    writer.SetFileName( file2 );
    writer.SetFile( ano.GetFile() );
    ret = writer.Write();
    if( !ret )
      {
      return 1;
      }

    return 0;
    }
}
```

14.16 BasicImageAnonymizer.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 */
using System;
using gdcm;

public class BasicImageAnonymizer
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    // instantiate the reader:
    gdcm.ImageReader reader = new gdcm.ImageReader();
    reader.SetFileName( filename );

    if (!reader.Read()) return 1;

    Image ir = reader.GetImage();

    uint[] dims = {0, 0, 0};
    dims[0] = ir.GetDimension(0);
    dims[1] = ir.GetDimension(1);
    dims[2] = ir.GetDimension(2);
    System.Console.WriteLine( "Dim:" + dims[0] );
    System.Console.WriteLine( "Dim:" + dims[1] );
    System.Console.WriteLine( "Dim:" + dims[2] );

    // buffer to get the pixels
    byte[] buffer = new byte[ ir.GetBufferLength()];
    System.Console.WriteLine( "Dim:" + ir.GetBufferLength() );
    ir.GetBuffer( buffer );

    for (uint z = 0; z < dims[2]; z++)
      {
      for (uint y = 0; y < dims[1] / 2; y++) // only half Y
        {
        for (uint x = 0; x < dims[0] / 2; x++) // only half X
          {
          buffer[ (z * dims[1] + y) * dims[0] + x ] = 0; // works when pixel type == UINT8
          }
        }
      }

    DataElement pixeldata = new DataElement( new Tag(0x7fe0,0x0010) );
    pixeldata.SetByteValue( buffer, new VL( (uint)buffer.Length ) );
    ir.SetDataElement( pixeldata );
    ir.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.ExplicitVRLittleEndian ) );

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    change.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEGLSLossless ) );
    change.SetInput( ir );
    if( !change.Change() )
      {
      System.Console.WriteLine( "Could not change: " + filename );
      return 1;
      }

    ImageWriter writer = new ImageWriter();
    writer.SetFileName( "out.dcm" );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( change.GetOutput() );
    bool ret = writer.Write();
    if( !ret )
      {
```

```
      return 1;
      }


    return 0;
    }
}
```

14.17 Cleaner.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/Cleaner.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class MyWatcher : SimpleSubjectWatcher
{
  public MyWatcher(Subject s):base(s,"Override String"){}
  protected override void StartFilter() {
    System.Console.WriteLine( "This is my start" );
  }
  protected override void EndFilter(){
    System.Console.WriteLine( "This is my end" );
  }
  protected override void ShowProgress(Subject caller, Event evt){
    ProgressEvent pe = ProgressEvent.Cast(evt);
    System.Console.WriteLine( "This is my progress: " + pe.GetProgress() );
  }
  protected override void ShowIteration(){
    System.Console.WriteLine( "This is my iteration" );
  }
  protected override void ShowAnonymization(Subject caller, Event evt){
/*
 * A couple of explanation are necessary here to understand how SWIG work
 *  http://www.swig.org/Doc1.3/Java.html#adding_downcasts
 *
 *  System.Console.WriteLine( "This is my Anonymization. Type: " + evt.GetEventName() );
 *  System.Type type = evt.GetType();
 *  System.Console.WriteLine( "This is my Anonymization. System.Type: " + type.ToString() );
 *  System.Console.WriteLine( "This is my Anonymization. CheckEvent: " + ae.CheckEvent( evt ) );
 *  System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + ae.GetTag().toString() );
 */
    AnonymizeEvent ae = AnonymizeEvent.Cast(evt);
    if( ae != null )
      {
      Tag t = ae.GetTag();
      System.Console.WriteLine( "This is my Anonymization. Processing Tag #" + t.toString() );
      }
    else
      {
      System.Console.WriteLine( "This is my Anonymization. Unhandled Event type: " + evt.GetEventName() );
      }
  }
  protected override void ShowAbort(){
    System.Console.WriteLine( "This is my abort" );
  }
}

public class Cleaner
```

```
{
  public static int Main(string[] args)
    {
    gdcm.Global global = gdcm.Global.GetInstance();
    if( !global.LoadResourcesFiles() )
      {
      System.Console.WriteLine( "Could not LoadResourcesFiles" );
      return 1;
      }

    string file1 = args[0];
    string file2 = args[1];
    Reader reader = new Reader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    SmartPtrCleaner scleaner = gdcm.Cleaner.New();
    gdcm.Cleaner cleaner = scleaner.__ref__();

    //SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(cleaner, "Anonymizer");
    MyWatcher watcher = new MyWatcher(cleaner);

    cleaner.SetFile( reader.GetFile() );
    cleaner.Empty( new gdcm.VR(gdcm.VR.VRType.PN) );
    gdcm.DPath dpath = new gdcm.DPath();
    dpath.ConstructFromString( "/0010,0010" );
    cleaner.Preserve( dpath );
    gdcm.Tag t1 = new gdcm.Tag(0x10, 0x30);
    cleaner.Empty( t1 );
    gdcm.PrivateTag pt0 = new gdcm.PrivateTag( new gdcm.Tag(0x29,0x60), "SIEMENS MEDCOM HEADER2" );
    cleaner.Remove( pt0 );
    gdcm.PrivateTag pt1 = new gdcm.PrivateTag( new gdcm.Tag(0x29,0x10), "SIEMENS CSA HEADER" );
    gdcm.PrivateTag pt2 = new gdcm.PrivateTag( new gdcm.Tag(0x29,0x20), "SIEMENS CSA HEADER" );
    cleaner.Scrub( pt1 );
    cleaner.Scrub( pt2 );
    if( !cleaner.Clean() )
      {
      return 1;
      }

    Writer writer = new Writer();
    writer.SetFileName( file2 );
    writer.SetFile( cleaner.GetFile() );
    ret = writer.Write();
    if( !ret )
      {
      return 1;
      }

    return 0;
    }
}
```

14.18 CompressLossyJPEG.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Perso/gdcm/debug-gcc/bin
 * $ mono bin/CompressLossyJPEG.exe input.dcm output.dcm
```

```
 */

using System;
using gdcm;

public class CompressLossyJPEG
{
  public static int Main(string[] args)
    {
    if( args.Length < 2 )
      {
      System.Console.WriteLine( " input.dcm output.dcm" );
      return 1;
      }
    string filename = args[0];
    string outfilename = args[1];

    ImageReader reader = new ImageReader();
    reader.SetFileName( filename );
    if( !reader.Read() )
      {
      System.Console.WriteLine( "Could not read: " + filename );
      return 1;
      }

    // The output of gdcm::Reader is a gdcm::File
    File file = reader.GetFile();

    // the dataset is the the set of element we are interested in:
    DataSet ds = file.GetDataSet();

    Image image = reader.GetImage();
    //image.Print( cout );

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    TransferSyntax targetts =  new TransferSyntax( TransferSyntax.TSType.JPEGBaselineProcess1 );
    change.SetTransferSyntax( targetts );

    // Setup our JPEGCodec, warning it should be compatible with JPEGBaselineProcess1
    JPEGCodec jpegcodec = new JPEGCodec();
    if( !jpegcodec.CanCode( targetts ) )
      {
      System.Console.WriteLine( "Something went really wrong, JPEGCodec cannot handle JPEGBaselineProcess1" );
      return 1;
      }
    jpegcodec.SetLossless( false );
    jpegcodec.SetQuality( 50 ); // poor quality !
    change.SetUserCodec( jpegcodec ); // specify the codec to use to the ImageChangeTransferSyntax

    change.SetInput( image );
    bool b = change.Change();
    if( !b )
      {
      System.Console.WriteLine( "Could not change the Transfer Syntax" );
      return 1;
      }

    ImageWriter writer = new ImageWriter();
    writer.SetImage( (gdcm.Image)change.GetOutput() );
    writer.SetFile( reader.GetFile() );
    writer.SetFileName( outfilename );
    if( !writer.Write() )
      {
      System.Console.WriteLine( "Could not write: " + outfilename );
      return 1;
      }

    return 0;
    }

}
```

14.19 DecompressImageMultiframe.cs

```
/*=========================================================================
```

```
  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
$ gdcminfo ~/Desktop/angiogram-06.dcm
MediaStorage is 1.2.840.10008.5.1.4.1.1.12.1 [X-Ray Angiographic Image Storage]
TransferSyntax is 1.2.840.10008.1.2.4.50 [JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8
      Bit Image Compression]
NumberOfDimensions: 3
Dimensions: (512,512,355)
Origin: (0,0,0)
Spacing: (1,1,40)
DirectionCosines: (1,0,0,0,1,0)
Rescale Intercept/Slope: (0,1)
SamplesPerPixel    :1
BitsAllocated      :8
BitsStored         :8
HighBit            :7
PixelRepresentation:0
ScalarType found   :UINT8
PhotometricInterpretation: MONOCHROME2
PlanarConfiguration: 0
TransferSyntax: 1.2.840.10008.1.2.4.50
Orientation Label: AXIAL
*/

/*
 * Description:
 *
 * Assume we have a file angiogram-06.dcm as described above.
 * the following program will decompress directly from the extracted jpeg stream.
 *
 * First step extract the jpeg stream (but not the Basic Offset Table):
 *
 * $ gdcmraw -i angiogram-06.dcm -o /tmp/output/chris --split-frags --pattern %d.jpg
 *
 * Check that indeed there are 355 files, while there are 356 fragments in the original DICOM file, since
 * gdcmraw always skip the first fragment (Basic Offset Table).
 *
 * Now from those individual jpeg stream, recreate a fake gdcm.DataElement...
 *
 * Usage:
 *
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono ./bin/DecompressImageMultiframe.exe /tmp/output
 */
using System;
using gdcm;

public class DecompressImageMultiframe
{
  public static int Main(string[] args)
    {
    string directory = args[0];
    gdcm.Directory dir = new gdcm.Directory();
    uint nfiles = dir.Load(directory);
    //System.Console.WriteLine(dir.toString());
    gdcm.FilenamesType filenames = dir.GetFilenames();

    Image image = new Image();
    image.SetNumberOfDimensions( 3 ); // important for now
    DataElement pixeldata = new DataElement( new gdcm.Tag(0x7fe0,0x0010) );

    // Create a new SequenceOfFragments C++ object, store it as a SmartPointer :
    SmartPtrFrag sq = SequenceOfFragments.New();

    // Yeah, the files are not guaranteed to be in order, please adapt...
    for(uint i = 0; i < nfiles; ++i)
      {
      System.Console.WriteLine( filenames[(int)i] );
      string file = filenames[(int)i];
      System.IO.FileStream infile =
```

```
        new System.IO.FileStream(file, System.IO.FileMode.Open, System.IO.FileAccess.Read);
      uint fsize = gdcm.PosixEmulation.FileSize(file);

      byte[] jstream  = new byte[fsize];
      infile.Read(jstream, 0 , jstream.Length);

      Fragment frag = new Fragment();
      frag.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length) );
      sq.AddFragment( frag );
      }

    // Pass by reference:
    pixeldata.SetValue( sq.__ref__() );

    // insert:
    image.SetDataElement( pixeldata );

    // JPEG use YBR to achieve better compression ratio by default (not RGB)
    // FIXME hardcoded:
    PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.MONOCHROME2
      );
    image.SetPhotometricInterpretation( pi );
    // FIXME hardcoded:
    PixelFormat pixeltype = new PixelFormat(1,8,8,7);
    image.SetPixelFormat( pixeltype );

    // FIXME hardcoded:
    image.SetTransferSyntax( new TransferSyntax( TransferSyntax.TSType.JPEGLosslessProcess14_1 ) );
    image.SetDimension(0, 512);
    image.SetDimension(1, 512);
    image.SetDimension(2, 355);

    // Decompress !
    byte[] decompressedData = new byte[(int)image.GetBufferLength()];
    image.GetBuffer(decompressedData);

    // Write out the decompressed bytes
    System.Console.WriteLine(image.toString());
    using (System.IO.Stream stream =
      System.IO.File.Open(@"/tmp/dd.raw",
        System.IO.FileMode.Create))
      {
      System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
      writer.Write(decompressedData);
      }


    return 0;
    }
}
```

14.20 DumpCSA.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ bin/DumpCSA.exe input.dcm
 */
using System;
using gdcm;

public class DumpCSA
{
```

```
  public static int Main(string[] args)
    {
    string filename = args[0];

    gdcm.Reader reader = new gdcm.Reader();
    reader.SetFileName( filename );
    if (!reader.Read()) return 1;

    gdcm.File f = reader.GetFile();
    gdcm.DataSet ds = f.GetDataSet();

    string[] expectedSiemensTags = new string[] { "B_value" , "AcquisitionMatrixText" };
    using (PrivateTag gtag = CSAHeader.GetCSAImageHeaderInfoTag())
    {
        if (ds.FindDataElement(gtag))
        {
            using (DataElement de = ds.GetDataElement(gtag))
            {
                if (de != null && !de.IsEmpty())
                {
                    using (CSAHeader csa = new CSAHeader())
                    {
                        if (csa.LoadFromDataElement(de))
                        {
                            foreach (string str in expectedSiemensTags)
                            {
                                if (csa.FindCSAElementByName(str))
                                {
                                    using (CSAElement elem = csa.GetCSAElementByName(str))
                                    {
                                        if (elem != null)
                                        {
                                            System.Console.WriteLine( elem.toString() );
                                        }
                                    }
                                }
                            }
                        }
                    }
                }
            }
        }
    }


    return 0;
    }
}
```

14.21 ExplicitLittleEndian.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

   This software is distributed WITHOUT ANY WARRANTY; without even
   the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
   PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example to show how one would 'Standardize' a DICOM File-Set
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/StandardizeFiles.exe input_path output_path
 */
using System;
using gdcm;

public class ExplicitLittleEndian
```

```
{
  public static bool ToExplicitLittleEndian(string aSrc, string aDst)
  {
    using (ImageReader reader = new ImageReader())
    {
      bool b = System.IO.File.Exists(aSrc);
      reader.SetFileName(aSrc);
      if (!reader.Read())
      {
        throw new System.Exception(string.Format("Cannot read '{0}'", aSrc));
      }
      using (FileExplicitFilter fef = new FileExplicitFilter())
      {
        fef.SetChangePrivateTags(false);
        fef.SetFile(reader.GetFile());
        if (!fef.Change())
        {
          throw new System.Exception(string.Format("Cannot make explicit '{0}'", aSrc));
        }
        using (var syntax = new TransferSyntax(TransferSyntax.TSType.ExplicitVRLittleEndian))
        {
          using (ImageChangeTransferSyntax tsc = new ImageChangeTransferSyntax())
          {
            tsc.SetTransferSyntax(syntax);
            tsc.SetInput(reader.GetImage());
            tsc.SetForce(true);
            if (!tsc.Change())
            {
              throw new System.Exception(string.Format("Cannot change '{0}'", aSrc));
            }
            using (var writer = new ImageWriter())
            {
              writer.SetFile(fef.GetFile());
              writer.SetImage(tsc.GetOutput());
              writer.SetFileName(aDst);
              if (!writer.Write())
              {
                throw new System.Exception(string.Format("Cannot write to '{0}'", aDst));
              }
            }
          }
        }
      }
    }
    return true;
  }

  public static int Main(string[] args)
  {
  gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "My Standardize App" );

  // http://www.oid-info.com/get/1.3.6.1.4.17434
  string THERALYS_ORG_ROOT = "1.3.6.1.4.17434";
  gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT );
  System.Console.WriteLine( "Root dir is now: " + gdcm.UIDGenerator.GetRoot() );

  string dir1 = args[0];
  string dir2 = args[1];

  // Check input is valid:
  if( !gdcm.PosixEmulation.FileIsDirectory(dir1) )
    {
    System.Console.WriteLine( "Input directory: " + dir1 + " does not exist. Sorry" );
    return 1;
    }
  if( !gdcm.PosixEmulation.FileIsDirectory(dir2) )
    {
    System.Console.WriteLine( "Output directory: " + dir2 + " does not exist. Sorry" );
    return 1;
    }

  Directory d = new Directory();
  uint nfiles = d.Load( dir1, true );
  if(nfiles == 0) return 1;

  // Process all filenames:
  FilenamesType filenames = d.GetFilenames();
  for( uint i = 0; i < nfiles; ++i )
    {
    string filename = filenames[ (int)i ];
    string outfilename = filename.Replace( dir1, dir2 );
```

```
    System.Console.WriteLine( "Filename: " + filename );
    System.Console.WriteLine( "Out Filename: " + outfilename );
    if( !ToExplicitLittleEndian( filename, outfilename ) )
    {
    System.Console.WriteLine( "Could not process filename: " + filename );
    //return 1;
    }
    }


  return 0;
  }
}
```

14.22 ExtractEncapsulatedFile.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This example shows how one from C# context can extract a binary blob
 * and write out as a file.
 * This example is meant for pdf encapsulated file, but can be adapted for other type
 * of binary blob.
 *
 * DICOM file is:
 * ...
 * (0042,0010) ST (no value available)                     #   0, 0 DocumentTitle
 * (0042,0011) OB 25\50\44\46\2d\31\2e\32\20\0d\25\e2\e3\cf\d3\20\0d\31\30\20\30\20... # 40718, 1
     EncapsulatedDocument
 * (0042,0012) LO [application/pdf]                        #  16, 1 MIMETypeOfEncapsulatedDocument
 * ...
 *
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/ExtractEncapsulatedFile.exe some_pdf_encapsulated.dcm
 */
using System;
using gdcm;

public class ExtractEncapsulatedFile
{
  public static int Main(string[] args)
    {
    string file = args[0];
    Reader reader = new Reader();
    reader.SetFileName( file );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    File f = reader.GetFile();
    DataSet ds = f.GetDataSet();
    Tag tencapsulated_stream = new Tag(0x0042,0x0011); // Encapsulated Document
    if( !ds.FindDataElement( tencapsulated_stream ) )
      {
      return 1;
      }
    // else
    DataElement de = ds.GetDataElement( tencapsulated_stream );
    ByteValue bv = de.GetByteValue();
    uint len = bv.GetLength();
    byte[] encapsulated_stream = new byte[len];
```

```
    bv.GetBuffer( encapsulated_stream, len );

    // Write out the decompressed bytes
    //System.Console.WriteLine(image.toString());
    using (System.IO.Stream stream =
      System.IO.File.Open(@"/tmp/dd.pdf",
        System.IO.FileMode.Create))
      {
      System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
      writer.Write( encapsulated_stream );
      }


    return 0;
    }
}
```

14.23 ExtractImageRegion.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This small code shows how to use the gdcm.ImageRegionReader API
 * In this example we are taking each frame by frame and dump them to
 * /tmp/frame.raw.
 *
 * Usage:
 * $ bin/ExtractImageRegion.exe input.dcm
 *
 * Example:
 * $ bin/ExtractImageRegion.exe gdcmData/012345.002.050.dcm
 * $ md5sum /tmp/frame.raw
 * d594a5e2fde12f32b6633ca859b4d4a6  /tmp/frame.raw
 * $ gdcminfo --md5sum gdcmData/012345.002.050.dcm
 * [...]
 * md5sum: d594a5e2fde12f32b6633ca859b4d4a6
 */
using System;
using gdcm;

public class ExtractImageRegion
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    uint file_size = gdcm.PosixEmulation.FileSize(filename);

    // instantiate the reader:
    gdcm.ImageRegionReader reader = new gdcm.ImageRegionReader();
    reader.SetFileName( filename );

    // pull DICOM info:
    if (!reader.ReadInformation()) return 1;

    // store current offset:
    uint cur_pos = reader.GetStreamCurrentPosition();

    uint remaining = file_size - cur_pos;

    Console.WriteLine("Remaining bytes to read (Pixel Data): " + remaining.ToString() );

    // Get file infos
```

```
    gdcm.File f = reader.GetFile();

    // get some info about image
    UIntArrayType dims = ImageHelper.GetDimensionsValue(f);
    PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
    int pixelsize = pf.GetPixelSize();
    PhotometricInterpretation pi = ImageHelper.GetPhotometricInterpretationValue(f);
    Console.WriteLine( pi.toString() );

    // buffer to get the pixels
    byte[] buffer = new byte[ dims[0] * dims[1] * pixelsize ];

    // define a simple box region.
    BoxRegion box = new BoxRegion();
    for (uint z = 0; z < dims[2]; z++)
      {
      // Define that I want the image 0, full size (dimx x dimy pixels)
      // and do that for each z:
      box.SetDomain(0, dims[0] - 1, 0, dims[1] - 1, z, z);
      //System.Console.WriteLine( box.toString() );
      reader.SetRegion( box );

      // reader will try to load the uncompressed image region into buffer.
      // the call returns an error when buffer.Length is too small. For instance
      // one can call:
      // uint buf_len = reader.ComputeBufferLength(); // take into account pixel size
      // to get the exact size of minimum buffer
      if (reader.ReadIntoBuffer(buffer, (uint)buffer.Length))
        {
        using (System.IO.Stream stream =
          System.IO.File.Open(@"/tmp/frame.raw",
            System.IO.FileMode.Create))
          {
          System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
          writer.Write(buffer);
          }
        }
      else
        {
        throw new Exception("can't read pixels error");
        }
      }

    return 0;
    }
}
```

14.24 ExtractImageRegionWithLUT.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This small code shows how to use the gdcm.ImageRegionReader API
 * In this example we are taking each frame by frame and dump them to
 * /tmp/frame.raw.
 * Furthermore we are applying the LUT on this image.
 * Special care should be taken in case the image is not PALETTE COLOR
 *
 * Usage:
 * $ bin/ExtractImageRegionWithLUT.exe input.dcm
 *
 * Example:
 * $ bin/ExtractImageRegionWithLUT.exe gdcmData/rle16loo.dcm
 * $ md5sum /tmp/frame_rgb.raw
```

```
 * 73bf61325fdb6e2830244a2b7b0c4ae2  /tmp/frame_rgb.raw
 * $ gdcmimg --depth 16 --spp 3 --size 600,430 /tmp/frame_rgb.raw rgb.dcm
 * $ gdcmviewer rgb.dcm
 */
using System;
using gdcm;

public class ExtractImageRegion
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    // instantiate the reader:
    gdcm.ImageRegionReader reader = new gdcm.ImageRegionReader();
    reader.SetFileName( filename );

    // pull DICOM info:
    if (!reader.ReadInformation()) return 1;
    // Get file infos
    gdcm.File f = reader.GetFile();

    gdcm.LookupTable lut = reader.GetImage().GetLUT();

    // get some info about image
    UIntArrayType dims = ImageHelper.GetDimensionsValue(f);
    PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
    int pixelsize = pf.GetPixelSize();

    // buffer to get the pixels
    byte[] buffer = new byte[ dims[0] * dims[1] * pixelsize ];

    // output buffer for the RGB decoded image:
    byte[] buffer2 = new byte[ dims[0] * dims[1] * pixelsize * 3 ];

    // define a simple box region.
    BoxRegion box = new BoxRegion();
    for (uint z = 0; z < dims[2]; z++)
      {
      // Define that I want the image 0, full size (dimx x dimy pixels)
      // and do that for each z:
      box.SetDomain(0, dims[0] - 1, 0, dims[1] - 1, z, z);
      //System.Console.WriteLine( box.toString() );
      reader.SetRegion( box );

      // reader will try to load the uncompressed image region into buffer.
      // the call returns an error when buffer.Length is too small. For instance
      // one can call:
      // uint buf_len = reader.ComputeBufferLength(); // take into account pixel size
      // to get the exact size of minimum buffer
      if (reader.ReadIntoBuffer(buffer, (uint)buffer.Length))
        {
        if( !lut.Decode( buffer2, (uint)buffer2.Length, buffer, (uint)buffer.Length ) )
          {
          throw new Exception("can't decode");
          }

        using (System.IO.Stream stream =
          System.IO.File.Open(@"/tmp/frame_rgb.raw",
            System.IO.FileMode.Create))
          {
          System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
          writer.Write(buffer2);
          }
        }
      else
        {
        throw new Exception("can't read pixels error");
        }
      }

    return 0;
    }
}
```

14.25 ExtractOneFrame.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This small code shows how to use the gdcm.StreamImageReader API
 * to read a single (whole) frame at a time
 * The API allow extracting a smaller extent of the frame of course.
 * It will write out the extracted frame in /tmp/frame.raw
 *
 * Usage:
 * $ bin/ExtractOneFrame.exe input.dcm
 */
using System;
using gdcm;

public class ExtractOneFrame
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    gdcm.StreamImageReader reader = new gdcm.StreamImageReader();

    reader.SetFileName( filename );

    if (!reader.ReadImageInformation()) return 1;
    // Get file infos
    gdcm.File f = reader.GetFile();

    // get some info about image
    UIntArrayType extent = ImageHelper.GetDimensionsValue(f);
    //System.Console.WriteLine( extent[0] );
    uint dimx = extent[0];
    //System.Console.WriteLine( extent[1] );
    uint dimy = extent[1];
    //System.Console.WriteLine( extent[2] );
    uint dimz = extent[2];
    PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
    int pixelsize = pf.GetPixelSize();
    //System.Console.WriteLine( pixelsize );

    // buffer to get the pixels
    byte[] buffer = new byte[ dimx * dimy * pixelsize ];

    for (int i = 0; i < dimz; i++)
      {
      // Define that I want the image 0, full size (dimx x dimy pixels)
      reader.DefinePixelExtent(0, (ushort)dimx, 0, (ushort)dimy, (ushort)i, (ushort)(i+1));
      uint buf_len = reader.DefineProperBufferLength(); // take into account pixel size
      //System.Console.WriteLine( buf_len );
      if( buf_len > buffer.Length )
        {
        throw new Exception("buffer is too small for target");
        }

      if (reader.Read(buffer, (uint)buffer.Length))
        {
        using (System.IO.Stream stream =
          System.IO.File.Open(@"/tmp/frame.raw",
            System.IO.FileMode.Create))
          {
          System.IO.BinaryWriter writer = new System.IO.BinaryWriter(stream);
          writer.Write(buffer);
          }
        }
      else
        {
```

```
        throw new Exception("can't read pixels error");
        }
      }

    return 0;
    }
}
```

14.26 FileAnonymize.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example
 *
 * Usage:
 * $ mono bin/FileAnonymize.exe input.dcm output.dcm
 */
using System;
using gdcm;

public class FileAnonymize
{
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];

    gdcm.FileAnonymizer fa = new gdcm.FileAnonymizer();
    fa.SetInputFileName( filename );
    fa.SetOutputFileName( outfilename );

    // Empty Operations
    // It will create elements, since those tags are non-registered public elements (2011):
    fa.Empty( new Tag(0x0008,0x1313) );
    fa.Empty( new Tag(0x0008,0x1317) );
    // Remove Operations
    // The following Tag are actually carefully chosen, since they refer to SQ:
    fa.Remove( new Tag(0x0008,0x2112) );
    fa.Remove( new Tag(0x0008,0x9215) );
    // Replace Operations
    // do not call replace operation on SQ attribute !
    fa.Replace( new Tag(0x0018,0x5100), "MYVALUE " );
    fa.Replace( new Tag(0x0008,0x1160), "MYOTHERVAL" );

    if( !fa.Write() )
      {
      System.Console.WriteLine( "Could not write" );
      return 1;
      }

    return 0;
    }
}
```

14.27 FileChangeTS.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example
 *
 * Shows multiple steps:
 * Steps 1.
 * Create a fake (dummy) DICOM file, with size 512 x 512 x 2 We use a small
 * image to be able to create the volume in memory Of course you can use any
 * existing DICOM instead
 *
 * Step 2.
 * Hack the DICOM file to pretend the number of frames is 1000 (instead of 2)
 * At this point in time this makes the DICOM file invalid (truncated). But the
 * next step will fix this.
 *
 * Step 3.
 * Use C# to create a binary data which will represent our source object for
 * image.
 *
 * Step 4.
 * We use gdcm.FileStreamer to merge the template DICOM file from Step 2, with
 * the binary data from Step 3. We decide to read a scanline at a time, but
 * this can be read with any number of bytes. AppendToDataElement() will always
 * do the proper computation.
 *
 * Step 5.
 * We compress this gigantic file, into [JPEG Lossless, Non-Hierarchical,
 * First-Order Prediction (Process 14 [Selection Value 1])]
 *
 * Usage:
 * $ mono bin/FileChangeTS.exe small.dcm big.dcm raw.data merge.dcm jpeg.dcm
 */
using System;
using System.IO;
using gdcm;

public class FileChangeTS
{
  public static byte[] StrToByteArray(string str)
    {
    System.Text.ASCIIEncoding  encoding=new System.Text.ASCIIEncoding();
    return encoding.GetBytes(str);
    }
  // Create a 256 x 256 Secondary Capture Image Storage
  static private void CreateSmallDICOM(string fileName)
    {
    using( var writer = new gdcm.PixmapWriter() )
      {
      gdcm.Pixmap img = writer.GetImage();
      img.SetNumberOfDimensions( 3 );
      img.SetDimension(0, 512 );
      img.SetDimension(1, 512 );
      img.SetDimension(2, 2 ); // fake a 3d volume
      PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.MONOCHROME2
      );
      img.SetPhotometricInterpretation( pi );
      gdcm.DataElement pixeldata = new gdcm.DataElement( new gdcm.Tag(0x7fe0,0x0010) );
      byte[] buffer = new byte[ 512 * 512 * 2 ];
      pixeldata.SetByteValue( buffer, new gdcm.VL((uint)buffer.Length) );
      img.SetDataElement( pixeldata );

      gdcm.File file = writer.GetFile();
      gdcm.DataSet ds = file.GetDataSet();
      gdcm.DataElement ms = new gdcm.DataElement(new gdcm.Tag(0x0008,0x0016));
      string mediastorage = "1.2.840.10008.5.1.4.1.1.7.2"; // Multi-frame Grayscale Byte Secondary Capture Image
      Storage
      byte[] val = StrToByteArray(mediastorage);
      ms.SetByteValue( val, new gdcm.VL( (uint)val.Length) );
      ds.Insert( ms );

      writer.SetFileName( fileName );
```

```
    writer.Write();
    }
  }
static private void CreateBigDICOM(string fileName, string outfilename)
  {
  using( var ano = new gdcm.FileAnonymizer() )
    {
    // The following is somewhat dangerous, do not try at home:
    string nframes = "1000";
    ano.Replace( new gdcm.Tag(0x0028,0x0008), nframes );
    ano.SetInputFileName(fileName);
    ano.SetOutputFileName(outfilename);
    ano.Write(); // at this point the DICOM is invalid !
    }
  }
static private void CreateDummyFile(string fileName, long length)
  {
  using (var fileStream = new FileStream(fileName, FileMode.Create, FileAccess.Write, FileShare.None))
    {
    // Looks like C# always init to 0 (fallocate ?)
    // For the purpose of the test we could add some random noise
    fileStream.SetLength(length);
    }
  }
static private void ReadBytesIntoArray( byte[] array, FileStream source )
  {
  int numBytesToRead = array.Length;
  int numBytesRead = 0;
  while (numBytesToRead > 0)
    {
    // According to spec: Read() may return anything from 0 to numBytesToRead.
    int n = source.Read(array, numBytesRead, numBytesToRead);

    // Break when the end of the file is reached.
    if (n == 0)
      break;

    numBytesRead += n;
    numBytesToRead -= n;
    }
  }
static private void AssembleDICOMAndRaw(string dicomfn, string rawdata, string outfn)
  {
  using ( var fs = new gdcm.FileStreamer() )
    {
    fs.SetTemplateFileName(dicomfn);
    fs.SetOutputFileName(outfn);
    gdcm.Tag pixeldata = new gdcm.Tag(0x7fe0, 0x0010);
    // FileStreamer support automatic checking of pixel data length
    // based on DICOM attributes, only if we say so:
    fs.CheckDataElement( pixeldata );
    // Declare we are working on Pixel Data attribute:
    fs.StartDataElement( pixeldata );
    using (FileStream rawSource = new FileStream(rawdata,
        FileMode.Open, FileAccess.Read))
      {
      byte[] bytes = new byte[512];
      // Only read one scanline at a time
      // We could have been reading more at once, if this is more efficient,
      // AppendToDataElement will do the logic in all cases.
      for( int i = 0; i < 512 * 1000; ++i )
        {
        // Read the source file into a byte array.
        ReadBytesIntoArray( bytes, rawSource );
        fs.AppendToDataElement( pixeldata, bytes, (uint)bytes.Length );
        }
      }
    if( !fs.StopDataElement( pixeldata ) )
      {
      // Most likely an issue with Pixel Data Length computation:
      throw new Exception("StopDataElement failed");
      }
    }
  }
static private void CompressIntoJPEG(string rawdicom, string jpegdicom)
  {
  using( var sfcts = FileChangeTransferSyntax.New() )
    {
    // Need to retrieve the actual C++ reference, to pass to
    // SimpleSubjectWatcher:
    FileChangeTransferSyntax fcts = sfcts.__ref__();
```

```
      SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(fcts, "FileChangeTransferSyntax");
      gdcm.TransferSyntax ts = new TransferSyntax( TransferSyntax.TSType.JPEGLosslessProcess14_1 );
      fcts.SetTransferSyntax( ts );
      fcts.SetInputFileName( rawdicom );
      fcts.SetOutputFileName( jpegdicom );
      fcts.Change();
      }
    }
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];
    string rawfilename = args[2];
    string mergefn = args[3];
    string jpegfn = args[4];

    CreateSmallDICOM(filename);
    CreateBigDICOM(filename, outfilename);
    CreateDummyFile(rawfilename, 512 * 512 * 1000 );
    AssembleDICOMAndRaw(outfilename, rawfilename, mergefn);
    CompressIntoJPEG(mergefn, jpegfn);

    return 0;
    }
}
```

14.28 FileChangeTSLossy.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example
 *
 * Shows multiple steps:
 * Steps 1.
 * Create a fake (dummy) DICOM file, with size 512 x 512 x 2 We use a small
 * image to be able to create the volume in memory Of course you can use any
 * existing DICOM instead
 *
 * Step 2.
 * Hack the DICOM file to pretend the number of frames is 1000 (instead of 2)
 * At this point in time this makes the DICOM file invalid (truncated). But the
 * next step will fix this.
 *
 * Step 3.
 * Use C# to create a binary data which will represent our source object for
 * image.
 *
 * Step 4.
 * We use gdcm.FileStreamer to merge the template DICOM file from Step 2, with
 * the binary data from Step 3. We decide to read a scanline at a time, but
 * this can be read with any number of bytes. AppendToDataElement() will always
 * do the proper computation.
 *
 * Step 5.
 * We compress this gigantic file, into [JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit
     Image Compression]
 *
 * Usage:
 * $ bin/FileChangeTSLossy.exe small.dcm big.dcm raw.data merge.dcm jpeg.dcm
 */
using System;
using System.IO;
```

```
using gdcm;

public class FileChangeTS
{
  public static byte[] StrToByteArray(string str)
    {
    System.Text.ASCIIEncoding  encoding=new System.Text.ASCIIEncoding();
    return encoding.GetBytes(str);
    }
  // Create a 256 x 256 Secondary Capture Image Storage
  static private void CreateSmallDICOM(string fileName)
    {
    using( var writer = new gdcm.PixmapWriter() )
      {
      gdcm.Pixmap img = writer.GetImage();
      img.SetNumberOfDimensions( 3 );
      img.SetDimension(0, 512 );
      img.SetDimension(1, 512 );
      img.SetDimension(2, 2 ); // fake a 3d volume
      PhotometricInterpretation pi = new PhotometricInterpretation( PhotometricInterpretation.PIType.MONOCHROME2
      );
      img.SetPhotometricInterpretation( pi );
      gdcm.DataElement pixeldata = new gdcm.DataElement( new gdcm.Tag(0x7fe0,0x0010) );
      byte[] buffer = new byte[ 512 * 512 * 2 ];
      pixeldata.SetByteValue( buffer, new gdcm.VL((uint)buffer.Length) );
      img.SetDataElement( pixeldata );

      gdcm.File file = writer.GetFile();
      gdcm.DataSet ds = file.GetDataSet();
      gdcm.DataElement ms = new gdcm.DataElement(new gdcm.Tag(0x0008,0x0016));
      string mediastorage = "1.2.840.10008.5.1.4.1.1.7.2"; // Multi-frame Grayscale Byte Secondary Capture Image
      Storage
      byte[] val = StrToByteArray(mediastorage);
      ms.SetByteValue( val, new gdcm.VL( (uint)val.Length) );
      ds.Insert( ms );

      writer.SetFileName( fileName );
      writer.Write();
      }
    }
  static private void CreateBigDICOM(string fileName, string outfilename)
    {
    using( var ano = new gdcm.FileAnonymizer() )
      {
      // The following is somewhat dangerous, do not try at home:
      string nframes = "1000";
      ano.Replace( new gdcm.Tag(0x0028,0x0008), nframes );
      ano.SetInputFileName(fileName);
      ano.SetOutputFileName(outfilename);
      ano.Write(); // at this point the DICOM is invalid !
      }
    }
  static private void CreateDummyFile(string fileName, long length)
    {
    using (var fileStream = new FileStream(fileName, FileMode.Create, FileAccess.Write, FileShare.None))
      {
      // Looks like C# always init to 0 (fallocate ?)
      // For the purpose of the test we could add some random noise
      fileStream.SetLength(length);
      }
    }
  static private void ReadBytesIntoArray( byte[] array, FileStream source )
    {
    int numBytesToRead = array.Length;
    int numBytesRead = 0;
    while (numBytesToRead > 0)
      {
      // According to spec: Read() may return anything from 0 to numBytesToRead.
      int n = source.Read(array, numBytesRead, numBytesToRead);

      // Break when the end of the file is reached.
      if (n == 0)
        break;

      numBytesRead += n;
      numBytesToRead -= n;
      }
    }
  static private void AssembleDICOMAndRaw(string dicomfn, string rawdata, string outfn)
    {
    using ( var fs = new gdcm.FileStreamer() )
```

```
      {
      fs.SetTemplateFileName(dicomfn);
      fs.SetOutputFileName(outfn);
      gdcm.Tag pixeldata = new gdcm.Tag(0x7fe0, 0x0010);
      // FileStreamer support automatic checking of pixel data length
      // based on DICOM attributes, only if we say so:
      fs.CheckDataElement( pixeldata );
      // Declare we are working on Pixel Data attribute:
      fs.StartDataElement( pixeldata );
      using (FileStream rawSource = new FileStream(rawdata,
          FileMode.Open, FileAccess.Read))
        {
        byte[] bytes = new byte[512];
        // Only read one scanline at a time
        // We could have been reading more at once, if this is more efficient,
        // AppendToDataElement will do the logic in all cases.
        for( int i = 0; i < 512 * 1000; ++i )
          {
          // Read the source file into a byte array.
          ReadBytesIntoArray( bytes, rawSource );
          fs.AppendToDataElement( pixeldata, bytes, (uint)bytes.Length );
          }
        }
      if( !fs.StopDataElement( pixeldata ) )
        {
        // Most likely an issue with Pixel Data Length computation:
        throw new Exception("StopDataElement failed");
        }
      }
    }
  static private void CompressIntoJPEG(string rawdicom, string jpegdicom)
    {
    using( var sfcts = FileChangeTransferSyntax.New() )
      {
      // Need to retrieve the actual C++ reference, to pass to
      // SimpleSubjectWatcher:
      FileChangeTransferSyntax fcts = sfcts.__ref__();
      SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(fcts, "FileChangeTransferSyntax");
      gdcm.TransferSyntax ts = new TransferSyntax( TransferSyntax.TSType.JPEGBaselineProcess1 );
      fcts.SetTransferSyntax( ts );
      ImageCodec ic = fcts.GetCodec();
      JPEGCodec jpeg = JPEGCodec.Cast( ic );
      jpeg.SetLossless( false );
      jpeg.SetQuality( 50 ); // poor quality !

      fcts.SetInputFileName( rawdicom );
      fcts.SetOutputFileName( jpegdicom );
      fcts.Change();
      }
    }
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];
    string rawfilename = args[2];
    string mergefn = args[3];
    string jpegfn = args[4];

    CreateSmallDICOM(filename);
    CreateBigDICOM(filename, outfilename);
    CreateDummyFile(rawfilename, 512 * 512 * 1000 );
    AssembleDICOMAndRaw(outfilename, rawfilename, mergefn);
    CompressIntoJPEG(mergefn, jpegfn);

    return 0;
    }
}
```

14.29 FileStreaming.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
```

```
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Simple C# example
 *
 * Usage:
 * $ mono bin/FileStreaming.exe gdcmData/CT_16b_signed-UsedBits13.dcm output.dcm
 *
 * The class will take care of group handling and will use the first available group:
 * (0009,0012) ?? (LO) [MYTEST]                            # 6,1 Private Creator
 */
using System;
using gdcm;

public class FileStreaming
{
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];

    gdcm.PrivateTag pt = new gdcm.PrivateTag( new gdcm.Tag(0x9,0x10), "MYTEST" );

    gdcm.FileStreamer fs = new gdcm.FileStreamer();
    fs.SetTemplateFileName( filename );
    fs.SetOutputFileName( outfilename );

    byte[] buffer = new byte[ 8192 ];
    uint len = (uint)buffer.Length;

    // In this example, we want that each newly created Private Attribute
    // contains at most 1000 bytes of incoming dataset.
    // We are also calling the function twice to check that appending mode is
    // working from one call to the other. The last element will have a length
    // of (2 * 8192) % 1000 = 384
    if( !fs.StartGroupDataElement( pt, 1000, 1 )
      || !fs.AppendToGroupDataElement( pt, buffer, len )
      || !fs.AppendToGroupDataElement( pt, buffer, len )
      || !fs.StopGroupDataElement( pt ) )
      {
      System.Console.WriteLine( "Could not change private group" );
      return 1;
      }

    return 0;
    }
}
```

14.30 GetArray.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/GetArray.exe gdcmData/012345.002.050.dcm
 */
using System;
```

```
using gdcm;

public class GetArray
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    ImageReader reader = new ImageReader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    Image image = reader.GetImage();

    PixelFormat pixeltype = image.GetPixelFormat();

    if( image.GetNumberOfDimensions() != 2 )
      {
      // For the purpose of the test, exit early on
      return 1;
      }
    uint dimx = image.GetDimension(0);
    uint dimy = image.GetDimension(1);
    uint npixels = dimx * dimy;
    //LookupTable lut = image.GetLUT();
    //uint rl = lut.GetLUTLength( LookupTable.LookupTableType.RED );
    //byte[] rbuf = new byte[ rl ];
    //uint rl2 = lut.GetLUT( LookupTable.LookupTableType.RED, rbuf );
    //assert rl == rl2;

    //byte[] str1 = new byte[ image.GetBufferLength()];
    //image.GetBuffer( str1 );
    if( pixeltype.GetScalarType() == PixelFormat.ScalarType.UINT8 )
      {
      System.Console.WriteLine( "Processing UINT8 image type" );
      byte[] str1 = new byte[ npixels ];
      image.GetArray( str1 );
      }
    else if( pixeltype.GetScalarType() == PixelFormat.ScalarType.INT16 )
      {
      System.Console.WriteLine( "Processing INT16 image type" );
      short[] str1 = new short[ npixels ];
      image.GetArray( str1 );
      }
    else if( pixeltype.GetScalarType() == PixelFormat.ScalarType.UINT16 )
      {
      System.Console.WriteLine( "Processing UINT16 image type" );
      ushort[] str1 = new ushort[ npixels ];
      image.GetArray( str1 );
      }
    else
      {
      //System.Console.WriteLine( "Default (unhandled pixel format): " + pixeltype.toString() );
      System.Console.WriteLine( "Default (unhandled pixel format): " + pixeltype.GetScalarTypeAsString() );
      // Get bytes
      byte[] str1 = new byte[ image.GetBufferLength()];
      image.GetBuffer( str1 );
      }

    return 0;
    }
}
```

14.31 MpegVideoInfo.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This examples takes in a MPEG2 and write out a Video Endoscopic Imagae Storage
 * encoded using MPEG2 @ Main Profile
 * ref: http://chrisa.wordpress.com/2007/11/21/decoding-mpeg2-information/
 * See also:
 * http://dvd.sourceforge.net/dvdinfo/mpeghdrs.html#gop
 * http://cvs.linux.hr/cgi-bin/viewcvs.cgi/mpeg_mod/README.infompeg?view=markup
 * http://www.guru-group.fi/~too/sw/m2vmp2cut/mpeg2info.c
 */

/*
 * Provides information about an MPEG2 file, including the duration, frame rate, aspect
 * ratio, and resolution.  Good information about the MPEG2 file structure that helps
 * explain parts of the code can be found here:
 * http://dvd.sourceforge.net/dvdinfo/mpeghdrs.html#gop
 *
 * Copyright (c) 2007 Chris Anderson (chrisa@wordpress.com)
 *
 * This library is free software; you can redistribute it and/or
 * modify it under the terms of the GNU Lesser General Public
 * License as published by the Free Software Foundation; either
 * version 2 of the License, or (at your option) any later version.
 *
 * This library is distributed in the hope that it will be useful,
 * but WITHOUT ANY WARRANTY; without even the implied warranty of
 * MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the GNU
 * Lesser General Public License for more details.
 */
using System;
using System.IO;
using gdcm;

public class Mpeg2VideoInfo
{
    #region Member Variables
    private TimeSpan        m_startTime     = TimeSpan.Zero;
    private TimeSpan        m_endTime       = TimeSpan.Zero;
    private TimeSpan        m_duration      = TimeSpan.Zero;
    private eAspectRatios   m_aspectRatio   = eAspectRatios.Invalid;
    private eFrameRates     m_frameRate     = 0;
    private int             m_pictureWidth  = 0;
    private int             m_pictureHeight = 0;
    #endregion

    #region Constants
    private const byte PADDING_PACKET = 0xBE;
    private const byte VIDEO_PACKET = 0xE0;
    private const byte AUDIO_PACKET = 0xC0;
    private const byte SYSTEM_PACKET = 0xBB;
    private const byte TIMESTAMP_PACKET = 0xB8;
    private const byte HEADER_PACKET = 0xB3;

    private const int BUFFER_SIZE = 8162; // 8K buffer

    private readonly static TimeSpan EMPTY_TIMESPAN = new TimeSpan(0, 0, -1);
    #endregion

    #region Enumerations
    public enum eFrameRates
    {
        Invalid,
        PulldownNTSC,           // 24000d/1001d = 23.976 Hz
        Film,                   // 24 Hz
        PAL,                    // 25 Hz
        NTSC,                   // 30000d/1001d = 29.97 Hz
        DropFrameNTSC,          // 30 Hz
        DoubleRatePAL,          // 50 Hz
        DoubleRateNTSC,         // 59.97 Hz
        DoubleRateDropFrameNTSC // 60 Hz
    }

    public enum eAspectRatios
    {
        Invalid,
        VGA,        // 1/1
        StandardTV, // 4/3
```

```
    LargeTV,    // 16/9
    Cinema      // 2.21/1
}
#endregion

#region Constructor
public Mpeg2VideoInfo(string file)
{
    ParseMpeg(file);
}
#endregion

#region Public Properties
public TimeSpan StartTime
{
    get { return m_startTime; }
}

public TimeSpan EndTime
{
    get { return m_endTime; }
}

public TimeSpan Duration
{
    get { return m_duration; }
}

public eAspectRatios AspectRatio
{
    get { return m_aspectRatio; }
}

public eFrameRates FrameRate
{
    get { return m_frameRate; }
}

public int PictureWidth
{
    get { return m_pictureWidth; }
}

public int PictureHeight
{
    get { return m_pictureHeight; }
}
#endregion

#region Private Functions
private void ParseMpeg(string file)
{
    FileStream fs = new FileStream(file, FileMode.Open, FileAccess.Read, FileShare.ReadWrite);
    BinaryReader br = new BinaryReader(fs);

    m_startTime = GetStartTimeStampInfo(br);
    m_endTime = GetEndTimeStampInfo(br);

    m_duration = m_endTime.Subtract(m_startTime);

    GetHeaderInfo(br);

    br.Close();
    fs.Close();
}

private TimeSpan GetStartTimeStampInfo(BinaryReader br)
{
    TimeSpan startTime = EMPTY_TIMESPAN;
    byte[] buffer = new byte[BUFFER_SIZE];

    br.BaseStream.Seek(0, SeekOrigin.Begin);

    while (startTime == EMPTY_TIMESPAN && br.BaseStream.Position < br.BaseStream.Length)
    {
        int readBytes = br.Read(buffer, 0, BUFFER_SIZE);

        for (int offset = 0; offset < readBytes - 8; offset++)
        {
            if (IsStreamMarker(ref buffer, offset, TIMESTAMP_PACKET))
            {
```

```
                offset += 4; // Move to the data position which follows the stream header
                uint timeStampEncoded = GetData(ref buffer, offset);
                startTime = DecodeTimeStamp(timeStampEncoded);

                if (startTime != EMPTY_TIMESPAN)
                    break;
            }
        }
    }

    return startTime;
}

private TimeSpan GetEndTimeStampInfo(BinaryReader br)
{
    TimeSpan endTime = EMPTY_TIMESPAN;
    byte[] buffer = new byte[BUFFER_SIZE];

    br.BaseStream.Seek(-BUFFER_SIZE, SeekOrigin.End);

    while (endTime == EMPTY_TIMESPAN && br.BaseStream.Position > BUFFER_SIZE)
    {
        int readBytes = br.Read(buffer, 0, BUFFER_SIZE);

        for (int offset = readBytes - 8; offset >= 0; offset--)
        {
            if (IsStreamMarker(ref buffer, offset, TIMESTAMP_PACKET))
            {
                offset += 4; // Move to the data position which follows the stream header
                uint timeStampEncoded = GetData(ref buffer, offset);
                endTime = DecodeTimeStamp(timeStampEncoded);

                if (endTime != EMPTY_TIMESPAN)
                    break;
            }
        }

        br.BaseStream.Seek(-BUFFER_SIZE * 2, SeekOrigin.Current);
    }

    return endTime;
}

private TimeSpan DecodeTimeStamp(uint timeStampEncoded)
{
    TimeSpan timeStamp = EMPTY_TIMESPAN;

    // Mask out the bits containing the property we are after, then
    // shift the data to the right to get its value
    int hour = (int)(timeStampEncoded & 0x7C000000) >> 26;   // Bits 31 -> 27
    int minute = (int)(timeStampEncoded & 0x03F00000) >> 20; // Bits 26 -> 21
    int second = (int)(timeStampEncoded & 0x0007E000) >> 13; // Bits 19 -> 14
    int frame = (int)(timeStampEncoded & 0x00001F80) >> 7;   // Bits 13 -> 8 - not used, but included for
  completeness

    timeStamp = new TimeSpan(hour, minute, second);
    return timeStamp;
}

private void GetHeaderInfo(BinaryReader br)
{
    byte[] buffer = new byte[BUFFER_SIZE];

    br.BaseStream.Seek(0, SeekOrigin.Begin);
    br.Read(buffer, 0, BUFFER_SIZE);

    for (int offset = 0; offset < buffer.Length - 4; offset++)
    {
        if (IsStreamMarker(ref buffer, offset, HEADER_PACKET))
        {
            offset += 4; // Move to the data position which follows the stream header
            uint headerData = GetData(ref buffer, offset);

            // Mask out the bits containing the property we are after, then
            // shift the data to the right to get its value
            m_pictureWidth = (int)(headerData & 0xFFF00000) >> 20;
            m_pictureHeight = (int)(headerData & 0x000FFF00) >> 8;

            uint aspectRatioIndex = (headerData & 0x000000F0) >> 4;
```

```
                uint fpsIndex = headerData & 0x0000000F;

                m_aspectRatio = (eAspectRatios)fpsIndex;
                m_frameRate = (eFrameRates)fpsIndex;

                break;
            }
        }
    }

    private uint GetData(ref byte[] buffer, int offset)
    {
        return (uint)  ((buffer[offset] << 24) |
                        (buffer[offset + 1] << 16) |
                        (buffer[offset + 2] << 8) |
                        (buffer[offset + 3]));
    }

    private bool IsStreamMarker(ref byte[] buffer, int offset, byte markerType)
    {
        return (buffer[offset] == 0x00 &&
                buffer[offset + 1] == 0x00 &&
                buffer[offset + 2] == 0x01 &&
                buffer[offset + 3] == markerType);
    }
    #endregion
  public static int Main(string[] args)
    {
    string file1 = args[0];
    Mpeg2VideoInfo info = new Mpeg2VideoInfo(file1);
    System.Console.WriteLine( info.StartTime );
    System.Console.WriteLine( info.EndTime );
    System.Console.WriteLine( info.Duration );
    System.Console.WriteLine( info.AspectRatio );
    System.Console.WriteLine( info.FrameRate );
    System.Console.WriteLine( info.PictureWidth );
    System.Console.WriteLine( info.PictureHeight );

    ImageReader r = new ImageReader();
    //Image image = new Image();
    Image image = r.GetImage();
    image.SetNumberOfDimensions( 3 );
    DataElement pixeldata = new DataElement( new gdcm.Tag(0x7fe0,0x0010) );

    System.IO.FileStream infile =
      new System.IO.FileStream(file1, System.IO.FileMode.Open, System.IO.FileAccess.Read);
    uint fsize = gdcm.PosixEmulation.FileSize(file1);

    byte[] jstream  = new byte[fsize];
    infile.Read(jstream, 0 , jstream.Length);

    SmartPtrFrag sq = SequenceOfFragments.New();
    Fragment frag = new Fragment();
    frag.SetByteValue( jstream, new gdcm.VL( (uint)jstream.Length) );
    sq.AddFragment( frag );
    pixeldata.SetValue( sq.__ref__() );

    // insert:
    image.SetDataElement( pixeldata );

    PhotometricInterpretation pi = new PhotometricInterpretation(
      PhotometricInterpretation.PIType.YBR_PARTIAL_420 );
    image.SetPhotometricInterpretation( pi );
    // FIXME hardcoded:
    PixelFormat pixeltype = new PixelFormat(3,8,8,7);
    image.SetPixelFormat( pixeltype );

    // FIXME hardcoded:
    TransferSyntax ts = new TransferSyntax( TransferSyntax.TSType.MPEG2MainProfile);
    image.SetTransferSyntax( ts );

    image.SetDimension(0, (uint)info.PictureWidth);
    image.SetDimension(1, (uint)info.PictureHeight);
    image.SetDimension(2, 721);

    ImageWriter writer = new ImageWriter();
    gdcm.File file = writer.GetFile();
    file.GetHeader().SetDataSetTransferSyntax( ts );
    Anonymizer anon = new Anonymizer();
```

```
    anon.SetFile( file );

    MediaStorage ms = new MediaStorage( MediaStorage.MSType.VideoEndoscopicImageStorage);

    UIDGenerator gen = new UIDGenerator();
    anon.Replace( new Tag(0x0008,0x16), ms.GetString() );
    anon.Replace( new Tag(0x0018,0x40), "25" );
    anon.Replace( new Tag(0x0018,0x1063), "40.000000" );
    anon.Replace( new Tag(0x0028,0x34), "4\\3" );
    anon.Replace( new Tag(0x0028,0x2110), "01" );

    writer.SetImage( image );
    writer.SetFileName( "dummy.dcm" );
    if( !writer.Write() )
      {
      System.Console.WriteLine( "Could not write" );
      return 1;
      }

    return 0;
    }
}
```

14.32 NewSequence.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/NewSequence.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
//using gdcm;

public class NewSequence
{
  public static byte[] StrToByteArray(string str)
    {
    System.Text.ASCIIEncoding  encoding=new System.Text.ASCIIEncoding();
    return encoding.GetBytes(str);
    }

  public static int Main(string[] argv)
    {
    string file1 = argv[0];
    string file2 = argv[1];

    gdcm.Reader r = new gdcm.Reader();
    r.SetFileName( file1 );
    if ( ! r.Read() )
      {
      return 1;
      }

    gdcm.File f = r.GetFile();
    gdcm.DataSet ds = f.GetDataSet();
    // tsis = gdcm.Tag(0x0008,0x2112) # SourceImageSequence

    // Create a dataelement
    gdcm.DataElement de = new gdcm.DataElement(new gdcm.Tag(0x0010, 0x2180));
    string occ = "Occupation";
    de.SetByteValue( StrToByteArray(occ), new gdcm.VL((uint)occ.Length));
```

```
    de.SetVR(new gdcm.VR(gdcm.VR.VRType.SH));

    // Create an item
    gdcm.Item it = new gdcm.Item();
    it.SetVLToUndefined();      // Needed to not popup error message
    //it.InsertDataElement(de)
    gdcm.DataSet nds = it.GetNestedDataSet();
    nds.Insert(de);

    // Create a Sequence
    gdcm.SmartPtrSQ sq = gdcm.SequenceOfItems.New();
    sq.SetLengthToUndefined();
    sq.AddItem(it);

    // Insert sequence into data set
    gdcm.DataElement des = new gdcm.DataElement(new gdcm.Tag(0x0400,0x0550));
    des.SetVR(new gdcm.VR(gdcm.VR.VRType.SQ));
    des.SetValue(sq.__ref__());
    des.SetVLToUndefined();

    ds.Insert(des);

    gdcm.Writer w = new gdcm.Writer();
    w.SetFile( f );
    w.SetFileName( file2 );
    if ( !w.Write() )
      return 1;

    return 0;
    }
}
```

14.33 RescaleImage.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/DecompressImage.exe gdcmData/012345.002.050.dcm rescaled.dcm
 */
using System;
using gdcm;

public class DecompressImage
{
  public static int Main(string[] args)
    {
    string file1 = args[0];
    ImageReader reader = new ImageReader();
    reader.SetFileName( file1 );
    bool ret = reader.Read();
    if( !ret )
      {
      return 1;
      }

    Image image = reader.GetImage();
    PixelFormat pixeltype = image.GetPixelFormat();

    Rescaler r = new Rescaler();
    r.SetIntercept( 0 );
    r.SetSlope( 1.2 );
    r.SetPixelFormat( pixeltype );
```

```
    PixelFormat outputpt = new PixelFormat( r.ComputeInterceptSlopePixelType() );

    System.Console.WriteLine( "pixeltype" );
    System.Console.WriteLine( pixeltype.toString() );
    System.Console.WriteLine( "outputpt" );
    System.Console.WriteLine( outputpt.toString() );

    uint len = image.GetBufferLength();
    short[] input = new short[ len / 2 ]; // sizeof(short) == 2
    image.GetArray( input );

    double[] output = new double[ len / 2 ];
    r.Rescale( output, input, len );

    // First Pixel is:
    System.Console.WriteLine( "Input:" );
    System.Console.WriteLine( input[0] );

    System.Console.WriteLine( "Output:" );
    System.Console.WriteLine( output[0] );

    return 0;
    }
}
```

14.34 SendFileSCU.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Perso/gdcm-gcc/bin
 * $ mono bin/SendFileSCU.exe server port input.dcm
 */
using System;
using gdcm;

public class SendFileSCU
{
  public static int Main(string[] args)
    {
    string server = args[0];
    ushort port = ushort.Parse(args[1]);
    string filename = args[2];

    bool b = CompositeNetworkFunctions.CEcho( server, port );
    if( !b ) return 1;

    FilenamesType files = new FilenamesType();
    files.Add( filename );
    b = CompositeNetworkFunctions.CStore( server, port, files );
    if( !b ) return 1;

    return 0;
    }
}
```

14.35 SimplePrintPatientName.cs

```
/*=========================================================================
```

```
  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Perso/gdcm/debug-gcc/bin
 * $ mono bin/SimplePrintPatientName.exe gdcmData/012345.002.050.dcm
 */
/*
 This example was provided by Jonathan Morra /jonmorra gmail com/
 on the gdcm mailing list (Fri, 28 May 2010)
*/
using System;
using gdcm;

namespace GDCMTest
{
  class SimplePrintPatientName
    {
    static int Main(string[] args)
      {
      if (args.Length != 1)
        {
        Console.WriteLine("This program prints the patient name of a dicom file with gdcm");
        Console.WriteLine("Usage: [input.dcm]");
        return 1;
        }

      gdcm.Reader reader = new gdcm.Reader();
      reader.SetFileName(args[0]);
      bool ret = reader.Read();
      //TagSetType tst = new TagSetType();
      //tst.Add( new Tag(0x7fe0,0x10) );
      //bool ret = reader.ReadUpToTag( new Tag(0x88,0x200), tst );
      if( !ret )
        {
        return 1;
        }

      gdcm.File file = reader.GetFile();

      gdcm.StringFilter filter = new gdcm.StringFilter();
      filter.SetFile(file);
      string value = filter.ToString(new gdcm.Tag(0x0010, 0x0010));

      Console.WriteLine("Patient Name: " + value);
      return 0;
      }
    }
}
```

14.36 SortImage2.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
```

```
 * Usage:
 * $ export LD_LIBRARY_PATH=$HOME/Projects/gdcm/debug-gcc/bin
 * $ mono bin/SortImage.exe gdcmData/012345.002.050.dcm out.dcm
 */
using System;
using gdcm;

public class SortImage2
{
  bool mysort(DataSet ds1, DataSet ds2)
    {
    return false;
    }

  public static int Main(string[] args)
    {
    Sorter sorter = new Sorter();
    sorter.SetSortFunction( mysort );

    return 0;
    }
}
```

14.37 CStoreQtProgress.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This small example show how one can use the virtual function
 * mechanism of the SimpleSubjectWatcher class to redirect progress
 * report to a custom Qt classes
 *
 * http://doc.qt.nokia.com/latest/qprogressdialog.html
 *
 * Usage:
 * CStoreQtProgress dicom.example.com 11112 gdcmData/MR_Spectroscopy_SIEMENS_OF.dcm
 *
 */

#include "gdcmServiceClassUser.h"
#include "gdcmSimpleSubjectWatcher.h"
#include "gdcmProgressEvent.h"
#include "gdcmDirectory.h"
#include "gdcmPresentationContextGenerator.h"

#include <QApplication>
#include <QProgressDialog>
#include <QVBoxLayout>

namespace gdcm {
/*
 * This class is a little more complicated than what this example demonstrate
 * This watcher is capable of handling nested progress. Since the Progress
 * grows from [0 to 1] on a per file basis and we only have one instance of a
 * watcher per association, we need some calculation to compute the global
 * (total) progress
 * In fact we simply divide the per-file progress by the number of files.
 *
 * This QtWatcher class will then update the progress bar according to the
 * progress.
 */
class MyQtWatcher : public SimpleSubjectWatcher
{
  size_t nfiles;
  double progress;
```

```
  size_t index;
  double refprogress;
  QWidget* win;
  QProgressDialog* qtprogress;
public:
  MyQtWatcher(Subject * s, const char *comment = "", QWidget *w = NULL, QProgressDialog* p = NULL, size_t n =
      1):
    SimpleSubjectWatcher(s,comment),nfiles(n),progress(0),index(0),refprogress(0),win(w),qtprogress(p){}
  void ShowIteration()
    {
    index++;
    gdcm_assert( index <= nfiles );
    // update refprogess (we are moving to the next file)
    refprogress = progress;
    }
  void ShowProgress(Subject *, const Event &evt)
    {
    // Retrieve the ProgressEvent:
    const ProgressEvent &pe = dynamic_cast<const ProgressEvent&>(evt);
    // compute global progress:
    progress = refprogress + (1. / (double)nfiles ) * pe.GetProgress();
    // Print Global and local progress to stdout:
    std::cout « "Global Progress: " « progress « " per file progress " « pe.GetProgress() « std::endl;
    //set progress value in the QtProgress bar
    int i = (int)(progress * 100 + 0.5); // round to next int
    qtprogress->setValue(i);
    win->show();
    }
  virtual void ShowDataSet(Subject *caller, const Event &evt)
    {
    (void)caller;
    (void)evt;
    }
};
} // end namespace gdcm

int main(int argc, char *argv[])
{
  if( argc < 4 )
    {
    std::cerr « argv[0] « " remote_server port filename" « std::endl;
    return 1;
    }
  QApplication a(argc, argv);

  std::ostringstream error_log;
  gdcm::Trace::SetErrorStream( error_log );

  const char *remote = argv[1];
  int portno = atoi(argv[2]);
  const char *filename = argv[3];

  QVBoxLayout* layout = new QVBoxLayout;
  QWidget*  win = new QWidget;

  QProgressDialog* progress = new QProgressDialog("Sending data...", "Cancel", 0, 100);
  progress->setWindowModality(Qt::WindowModal);

  layout->addWidget(progress,Qt::AlignCenter);
  win->setLayout(layout);

  gdcm::SmartPointer<gdcm::ServiceClassUser> scup = new gdcm::ServiceClassUser;
  gdcm::ServiceClassUser &scu = *scup;
  //gdcm::SimpleSubjectWatcher w( &scu, "TestServiceClassUser" );
  // let's use a more complicated progress reported in this example
  gdcm::MyQtWatcher w( &scu, "QtWatcher", win, progress );

  scu.SetHostname( remote );
  scu.SetPort( (uint16_t)portno );
  scu.SetTimeout( 1000 );
  scu.SetCalledAETitle( "GDCM_STORE" );

  if( !scu.InitializeConnection() )
    {
    std::cerr « "Could not InitializeConnection" « std::endl;
    return 1;
    }

  gdcm::Directory::FilenamesType filenames;
```

```
  filenames.push_back( filename );

  // setup the PC(s) based on the filenames:
  gdcm::PresentationContextGenerator generator;
  if( !generator.GenerateFromFilenames(filenames) )
    {
    std::cerr « "Could not GenerateFromFilenames" « std::endl;
    return 1;
    }

  // Setup PresentationContext(s)
  scu.SetPresentationContexts( generator.GetPresentationContexts() );

  // Start ASSOCIATION
  if( !scu.StartAssociation() )
    {
    std::cerr « "Could not Start" « std::endl;
    return 1;
    }

  // Send C-STORE
  if( !scu.SendStore( filename ) )
    {
    std::cerr « "Could not Store" « std::endl;
    std::cerr « "Error log is:" « std::endl;
    std::cerr « error_log.str() « std::endl;
    return 1;
    }

  // Stop ASSOCIATION
  if( !scu.StopAssociation() )
    {
    std::cerr « "Could not Stop" « std::endl;
    return 1;
    }

  win->show();

  return a.exec();
}
```

14.38 ChangePrivateTags.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmPrivateTag.h"

int main(int argc, char* argv[] )
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " path/to/05148044-mr-siemens-avanto-syngo.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if (! reader.Read() )
    {
    return 1;
```

```
    }

  // (0029,0010) LO [SIEMENS CSA HEADER]                                  # 18,1 Private Creator
  // (0029,0011) LO [SIEMENS MEDCOM HEADER ]                              # 22,1 Private Creator
  // (0029,0012) LO [SIEMENS MEDCOM HEADER2]                              # 22,1 Private Creator
  // [...]
  // (0029,1018) CS [MR]                                                  # 2,1 CSA Series Header Type
  // (0029,1134) CS [DB TO DICOM ]                                        # 12,1 PMTF Information 4
  // (0029,1260) LO [com ]                                                # 4,1 Series Workflow Status

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  // Declare private tag we need to find:
  gdcm::PrivateTag pt1( 0x29,0x18, "SIEMENS CSA HEADER" );
  gdcm::PrivateTag pt2( 0x29,0x34, "SIEMENS MEDCOM HEADER" );
  gdcm::PrivateTag pt3( 0x29,0x60, "SIEMENS MEDCOM HEADER2" );

  const char str1[] = "GDCM was here 3!";
  if( !ds.FindDataElement( pt1 ) ) return 1;
  gdcm::DataElement de1 = ds.GetDataElement( pt1 ); // Convert Private tag, into actual DataElement
  std::cout << de1 << std::endl;
  de1.SetByteValue( str1, (uint32_t)strlen(str1) );
  ds.Replace( de1 );

  const char str2[] = "GDCM was here 2!";
  if( !ds.FindDataElement( pt2 ) ) return 1;
  gdcm::DataElement de2 = ds.GetDataElement( pt2 );
  std::cout << de2 << std::endl;
  de2.SetByteValue( str2, (uint32_t)strlen(str2) );
  ds.Replace( de2 );

  const char str3[] = "GDCM was here 3!";
  if( !ds.FindDataElement( pt3 ) ) return 1;
  gdcm::DataElement de3 = ds.GetDataElement( pt3 );
  std::cout << de3 << std::endl;
  de3.SetByteValue( str3, (uint32_t)strlen(str3) );
  ds.Replace( de3 );

  gdcm::Writer writer;
  writer.SetFile( file );
  writer.SetFileName( outfilename );
  if ( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.39 ChangeSequenceUltrasound.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmSmartPointer.h"
#include "gdcmDataSetHelper.h"

/*
 ./ChangeSequenceUltrasound gdcmData/D_CLUNIE_CT1_J2KI.dcm myoutput.dcm

 This is the exact C++ translation of the original python example: ManipulateSequence.py
 */

int main(int argc, char* argv[] )
```

```
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if (! reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  gdcm::Tag tsis(0x0008,0x2112); // SourceImageSequence
  if ( ds.FindDataElement( tsis ) )
    {
    const gdcm::DataElement &sis = ds.GetDataElement( tsis );
    gdcm::SmartPointer<gdcm::SequenceOfItems> sqsis = sis.GetValueAsSQ();
    if ( sqsis && sqsis->GetNumberOfItems() )
      {
      gdcm::Item &item1 = sqsis->GetItem(1);
      gdcm::DataSet &nestedds = item1.GetNestedDataSet();
      gdcm::Tag tprcs(0x0040,0xa170); // PurposeOfReferenceCodeSequence
      if( nestedds.FindDataElement( tprcs ) )
        {
        const gdcm::DataElement &prcs = nestedds.GetDataElement( tprcs );
        gdcm::SmartPointer<gdcm::SequenceOfItems> sqprcs = prcs.GetValueAsSQ();
        if ( sqprcs && sqprcs->GetNumberOfItems() )
          {
          gdcm::Item &item2 = sqprcs->GetItem(1);
          gdcm::DataSet &nestedds2 = item2.GetNestedDataSet();
          // (0008,0104) LO [Uncompressed predecessor]               #  24, 1 CodeMeaning
          gdcm::Tag tcm(0x0008,0x0104);
          if( nestedds2.FindDataElement( tcm ) )
            {
            gdcm::DataElement cm = nestedds2.GetDataElement( tcm );
            std::string mystr = "GDCM was here";
            cm.SetByteValue( mystr.c_str(), (uint32_t)mystr.size() );
            nestedds2.Replace( cm );
            }
          }
        }
      }
    }

  gdcm::Writer writer;
  writer.SetFile( file );
  writer.SetFileName( outfilename );
  if ( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.40 CheckBigEndianBug.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
```

```
/*
 * WARNING: This is a dev tool, do not use !
 *
 * Usage: after a gdcmconv, you would like to know if the conversion process is acceptable
 * sometime a vbindiff is acceptable, sometime it is not. In the case of the famous Philips
 * Little/Big Endian Explicit Transfer Syntax it is not easy to compare two files. However
 * this only impact byte ordering, thus we can compute byte-indenpendant information to still
 * compare the files.
 */

#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmSystem.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr << argv[0] << " input1.dcm input2.dcm" << std::endl;
    return 1;
    }
  const char *filename1 = argv[1];
  const char *filename2 = argv[2];

  gdcm::ImageReader reader1;
  reader1.SetFileName( filename1 );
  if( !reader1.Read() )
    {
    std::cerr << "Could not read: " << filename1 << std::endl;
    return 1;
    }

  gdcm::ImageReader reader2;
  reader2.SetFileName( filename2 );
  if( !reader2.Read() )
    {
    std::cerr << "Could not read: " << filename2 << std::endl;
    return 1;
    }

  // TODO: need a DataSet== operator implementation

  std::cout << "Both files can be read and looks like DICOM" << std::endl;

  size_t s1 = gdcm::System::FileSize(filename1);
  size_t s2 = gdcm::System::FileSize(filename2);

  if( s1 != s2 )
    {
    std::cout << "Size mismatch: " << s1 << " != " << s2 << std::endl;
    return 1;
    }
  else
    {
    std::cout << "Size match: " << s1 << " = " << s2 << std::endl;
    }

  std::ifstream is1( filename1, std::ios::binary );
  char *buffer1 = new char[s1];
  is1.read(buffer1, s1);

  std::ifstream is2( filename2, std::ios::binary );
  char *buffer2 = new char[s2];
  is2.read(buffer2, s2);

  gdcm_assert( s1 == s2 );
  if( memcmp(buffer1, buffer2, s1 ) == 0 )
    {
    std::cout << "memcmp succeed ! File are bit identical" << std::endl;
    }
  else
    {
    std::cout << "memcmp failed!" << std::endl;
    }

  // Hum...memcmp failed, for big endian/ little endian inversion the histogram of bytes
```

```
  // should still be the same. So let's compute it
  // buffer2[0] = 1; // let's make the test fail
  std::multiset<char> set1( buffer1, buffer1 + s1 );
  std::multiset<char> set2( buffer2, buffer2 + s2 );


  if( set1 == set2 )
    {
    std::cout « "set1 == set2. Byte histogram seems valid" « std::endl;
    }
  else
    {
    std::cout « "set1 != set2" « std::endl;
    }
  delete[] buffer1;
  delete[] buffer2;


  return 0;
}
```

14.41 ClinicalTrialAnnotate.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Dummy implementation of C.7.1.3 Clinical Trial Subject Module
 *
 * Usage:
 *  ClinicalTrialAnnotate gdcmData/012345.002.050.dcm out.dcm
 */

#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAnonymizer.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // The output of gdcm::Reader is a gdcm::File
  //gdcm::File &file = reader.GetFile();

  // the dataset is the the set of element we are interested in:
  //gdcm::DataSet &ds = file.GetDataSet();

  gdcm::Anonymizer ano;
  ano.SetFile( reader.GetFile() );
  ano.RemoveGroupLength();
  ano.RemovePrivateTags();

  // PS 3.3 - 2008
```

```
  // C.7.1.3 Clinical Trial Subject Module
  // <entry group="0012" element="0010" vr="LO" vm="1" name="Clinical Trial Sponsor Name"/>
  ano.Replace( gdcm::Tag(0x12,0x10), "BigCompany name" );
  // <entry group="0012" element="0020" vr="LO" vm="1" name="Clinical Trial Protocol ID"/>
  ano.Replace( gdcm::Tag(0x12,0x20), "My Clinical Trial Protocol ID" );
  // <entry group="0012" element="0021" vr="LO" vm="1" name="Clinical Trial Protocol Name"/>
  ano.Replace( gdcm::Tag(0x12,0x21), "My Clinical Trial Protocol Name" );
  // <entry group="0012" element="0030" vr="LO" vm="1" name="Clinical Trial Site ID"/>
  ano.Replace( gdcm::Tag(0x12,0x30), "My Clinical Trial Site ID" );
  // <entry group="0012" element="0031" vr="LO" vm="1" name="Clinical Trial Site Name"/>
  ano.Replace( gdcm::Tag(0x12,0x31), "My Clinical Trial Site Name" );
  // <entry group="0012" element="0040" vr="LO" vm="1" name="Clinical Trial Subject ID"/>
  ano.Replace( gdcm::Tag(0x12,0x40), "My Clinical Trial Subject ID" );
  // <entry group="0012" element="0042" vr="LO" vm="1" name="Clinical Trial Subject Reading ID"/>
  ano.Replace( gdcm::Tag(0x12,0x42), "My Clinical Trial Subject Reading ID" );


  gdcm::Writer writer;
  writer.SetFile( reader.GetFile() );
  writer.SetFileName( outfilename );
  if( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.42 CompressImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 *
 */

#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"
#include "gdcmImageChangeTransferSyntax.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // The output of gdcm::Reader is a gdcm::File
```

```
  //gdcm::File &file = reader.GetFile();

  // the dataset is the the set of element we are interested in:
  //gdcm::DataSet &ds = file.GetDataSet();

  gdcm::Image &image = reader.GetImage();
  // image.SetSpacing(0, 0.1);
  // image.SetSpacing(1, 0.2);
  image.Print( std::cout );

  gdcm::ImageChangeTransferSyntax change;
  change.SetTransferSyntax( gdcm::TransferSyntax::JPEG2000Lossless );
  change.SetTransferSyntax( gdcm::TransferSyntax::JPEGLosslessProcess14_1 );
  //change.SetTransferSyntax( gdcm::TransferSyntax::JPEGBaselineProcess1 );
  //change.SetTransferSyntax( image.GetTransferSyntax() );
  change.SetInput( image );
  bool b = change.Change();
  if( !b )
    {
    std::cerr « "Could not change the Transfer Syntax" « std::endl;
    return 1;
    }

  //std::ofstream out( outfilename, std::ios::binary );
  //image.GetBuffer2(out);
  //out.close();
  gdcm::ImageWriter writer;
  writer.SetImage( change.GetOutput() );
  writer.SetFile( reader.GetFile() );
  writer.SetFileName( outfilename );
  if( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.43 ConvertToQImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example shows how to setup the pipeline from a gdcm::ImageReader into a
 * Qt QImage data structure.
 * It only handles 2D image.
 *
 * Ref:
 * http://doc.trolltech.com/4.5/qimage.html
 *
 * Usage:
 *  ConvertToQImage gdcmData/012345.002.050.dcm output.png

 * Thanks:
 *   Sylvain ADAM (sylvain51 hotmail com) for contributing this example
 */

#include "gdcmImageReader.h"
#include <QImage>
#include <QImageWriter>

bool ConvertToFormat_RGB888(gdcm::Image const & gimage, char *buffer, QImage* &imageQt)
{
  const unsigned int* dimension = gimage.GetDimensions();

  unsigned int dimX = dimension[0];
```

```
  unsigned int dimY = dimension[1];

  gimage.GetBuffer(buffer);

  // Let's start with the easy case:
  if( gimage.GetPhotometricInterpretation() == gdcm::PhotometricInterpretation::RGB )
    {
    if( gimage.GetPixelFormat() != gdcm::PixelFormat::UINT8 )
      {
      return false;
      }
    unsigned char *ubuffer = (unsigned char*)buffer;
    // QImage::Format_RGB888  13  The image is stored using a 24-bit RGB format (8-8-8).
    imageQt = new QImage((unsigned char *)ubuffer, dimX, dimY, 3*dimX, QImage::Format_RGB888);
    }
  else if( gimage.GetPhotometricInterpretation() == gdcm::PhotometricInterpretation::MONOCHROME2 )
    {
    if( gimage.GetPixelFormat() == gdcm::PixelFormat::UINT8 )
      {
      // We need to copy each individual 8bits into R / G and B:
      unsigned char *ubuffer = new unsigned char[dimX*dimY*3];
      unsigned char *pubuffer = ubuffer;
      for(unsigned int i = 0; i < dimX*dimY; i++)
        {
        *pubuffer++ = *buffer;
        *pubuffer++ = *buffer;
        *pubuffer++ = *buffer++;
        }

      imageQt = new QImage(ubuffer, dimX, dimY, QImage::Format_RGB888);
      }
    else if( gimage.GetPixelFormat() == gdcm::PixelFormat::INT16 )
      {
      // We need to copy each individual 16bits into R / G and B (truncate value)
      short *buffer16 = (short*)buffer;
      unsigned char *ubuffer = new unsigned char[dimX*dimY*3];
      unsigned char *pubuffer = ubuffer;
      for(unsigned int i = 0; i < dimX*dimY; i++)
        {
        // Scalar Range of gdcmData/012345.002.050.dcm is [0,192], we could simply do:
        // *pubuffer++ = *buffer16;
        // *pubuffer++ = *buffer16;
        // *pubuffer++ = *buffer16;
        // instead do it right:
        *pubuffer++ = (unsigned char)std::min(255, (32768 + *buffer16) / 255);
        *pubuffer++ = (unsigned char)std::min(255, (32768 + *buffer16) / 255);
        *pubuffer++ = (unsigned char)std::min(255, (32768 + *buffer16) / 255);
        buffer16++;
        }

      imageQt = new QImage(ubuffer, dimX, dimY, QImage::Format_RGB888);
      }
    else
      {
      std::cerr « "Pixel Format is: " « gimage.GetPixelFormat() « std::endl;
      return false;
      }
    }
  else
    {
    std::cerr « "Unhandled PhotometricInterpretation: " « gimage.GetPhotometricInterpretation() « std::endl;
    return false;
    }

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::ImageReader ir;
  ir.SetFileName( filename );
  if(!ir.Read())
    {
    //Read failed
```

```
    return 1;
    }

  std::cout«"Getting image from ImageReader..."«std::endl;

  const gdcm::Image &gimage = ir.GetImage();
  std::vector<char> vbuffer;
  vbuffer.resize( gimage.GetBufferLength() );
  char *buffer = &vbuffer[0];

  QImage *imageQt = NULL;
  if( !ConvertToFormat_RGB888( gimage, buffer, imageQt ) )
    {
    return 1;
    }

  QImageWriter writer;
  writer.setFormat("png");
  writer.setFileName( outfilename );
  if( !writer.write( *imageQt ) )
    {
    return 1;
    }

  return 0;
}
```

14.44 CreateARGBImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * http://www.w3.org/Graphics/PNG/inline-alpha.html
 * alphatest.png: PNG image data, 380 x 287, 8-bit/color RGBA, non-interlaced
 *
 * $ convert alphatest.png alphatest.rgba
 */

#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmSystem.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.rgba output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  size_t len = gdcm::System::FileSize(filename);
  std::ifstream is(filename, std::ios::binary);

  char * buf = new char[len];
  is.read(buf, len);

  gdcm::ImageWriter writer;
  gdcm::Image &image = writer.GetImage();
  image.SetNumberOfDimensions( 2 );
```

```
  unsigned int dims[3] = {};
  dims[0] = 380;
  dims[1] = 287;
  image.SetDimensions( dims );
  gdcm::PixelFormat pf = gdcm::PixelFormat::UINT8;
  pf.SetSamplesPerPixel( 4 );
  image.SetPixelFormat( pf );
  gdcm::PhotometricInterpretation pi = gdcm::PhotometricInterpretation::ARGB;
  image.SetPhotometricInterpretation( pi );
  image.SetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
  pixeldata.SetByteValue( buf, (uint32_t)len );
  image.SetDataElement( pixeldata );

  writer.SetFileName( outfilename );
  if( !writer.Write() )
    {
    return 1;
    }
  delete[] buf;


  return 0;
}
```

14.45 CreateCMYKImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * http://www.w3.org/Graphics/PNG/inline-alpha.html
 * alphatest.png: PNG image data, 380 x 287, 8-bit/color RGBA, non-interlaced
 *
 * $ convert alphatest.png alphatest.cmyk
 */

#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmSystem.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.cmyk output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  size_t len = gdcm::System::FileSize(filename);
  std::ifstream is(filename, std::ios::binary);

  char * buf = new char[len];
  is.read(buf, len);

  gdcm::ImageWriter writer;
  gdcm::Image &image = writer.GetImage();
  image.SetNumberOfDimensions( 2 );
  unsigned int dims[3] = {};
```

```
  dims[0] = 380;
  dims[1] = 287;
  image.SetDimensions( dims );
  gdcm::PixelFormat pf = gdcm::PixelFormat::UINT8;
  pf.SetSamplesPerPixel( 4 );
  image.SetPixelFormat( pf );
  gdcm::PhotometricInterpretation pi = gdcm::PhotometricInterpretation::CMYK;
  image.SetPhotometricInterpretation( pi );
  image.SetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
  pixeldata.SetByteValue( buf, (uint32_t)len );
  image.SetDataElement( pixeldata );

  writer.SetFileName( outfilename );
  if( !writer.Write() )
    {
    return 1;
    }
  delete[] buf;

  return 0;
}
```

14.46 CreateJPIPDataSet.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example was created during the GSOC 2011 project for
 * JPIP
 */
#include "gdcmAnonymizer.h"
#include "gdcmWriter.h"
#include "gdcmUIDGenerator.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmSystem.h"
#include "gdcmAttribute.h"

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " output.dcm" « std::endl;
    return 1;
    }
  const char *outfilename = argv[1];

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  //w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::JPIPReferenced );

  gdcm::Anonymizer anon;
  anon.SetFile( file );

  gdcm::MediaStorage ms = gdcm::MediaStorage::SecondaryCaptureImageStorage;

  gdcm::UIDGenerator gen;
  anon.Replace( gdcm::Tag(0x0008,0x16), ms.GetString() );
  std::cout « ms.GetString() « std::endl;
```

```
  anon.Replace( gdcm::Tag(0x0008,0x18), gen.Generate() );
  //
  anon.Replace( gdcm::Tag(0x0010,0x10), "JPIP^EXAMPLE" );
  anon.Replace( gdcm::Tag(0x0010,0x20), "012345" );
  anon.Empty( gdcm::Tag(0x0010,0x30) );
  anon.Empty( gdcm::Tag(0x0010,0x40) );
  anon.Empty( gdcm::Tag(0x0008,0x20) );
  anon.Empty( gdcm::Tag(0x0008,0x30) );
  anon.Empty( gdcm::Tag(0x0008,0x90) );
  anon.Empty( gdcm::Tag(0x0020,0x10) );
  anon.Empty( gdcm::Tag(0x0020,0x11) );
  anon.Empty( gdcm::Tag(0x0008,0x50) );
  anon.Empty( gdcm::Tag(0x0020,0x0013) );
  anon.Replace( gdcm::Tag(0x0020,0xd), gen.Generate() );
  anon.Replace( gdcm::Tag(0x0020,0xe), gen.Generate() );
  anon.Replace( gdcm::Tag(0x0008,0x64), "WSD " );
  anon.Replace( gdcm::Tag(0x0008,0x60), "OT" );

  gdcm::Attribute<0x0028,0x7FE0> at;
  at.SetValue( "http://dicom.example.com/jpipserver.cgi?target=img.jp2" );
  ds.Insert( at.GetAsDataElement() );

  // Need to retrieve the PixelFormat information from the given file

  if (!w.Write() )
    {
    std::cerr « "Could not write: " « outfilename « std::endl;
    return 1;
    }

  return 0;
}
```

14.47 DeriveSeries.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFileDerivation.h"
#include "gdcmUIDGenerator.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
  {
    return 1;
  }
  const char * ref = argv[1];
  const char * in  = argv[2];

  gdcm::Reader r1;
  r1.SetFileName( ref );
  if( !r1.Read() ) return 1;

  gdcm::Reader r2;
  r2.SetFileName( in );
  if( !r2.Read() ) return 1;


  // Fix Spatial info:
  gdcm::DataSet & ds1 = r1.GetFile().GetDataSet();
  gdcm::File & file2 = r2.GetFile();
  gdcm::DataSet & ds2 = file2.GetDataSet();
```

```
  //gdcm::Attribute<0x8,0x8> img_type = { "ORIGINAL", "PRIMARY" };
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0008,0x0008) ));
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0020,0x0032) ));
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0020,0x0037) ));
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0018,0x0088) )); // Spacing between slices
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0020,0x0013) )); // Instance Number
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0018,0x5100) )); // Patient Position
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0018,0x0050) )); // Slice Thickness
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0008,0x0070) )); // Manufacturer
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0018,0x0081) )); // Echo Time
  ds2.Replace( ds1.GetDataElement( gdcm::Tag(0x0020,0x1041) )); // Slice Location

  gdcm::Attribute<0x8,0x16> sopclassuid;
  sopclassuid.SetFromDataSet( ds1 );
  gdcm::Attribute<0x8,0x18> sopinstanceuid;
  sopinstanceuid.SetFromDataSet( ds1 );

  // Step 2: DERIVED object
  gdcm::FileDerivation fd;
  fd.AddReference( sopclassuid.GetValue(), sopinstanceuid.GetValue() );

  // http://dicom.nema.org/MEDICAL/dicom/current/output/chtml/part16/chapter_D.html#DCM_121321
  // CID 7202 "Source Image Purposes of Reference"
  // DCM 121321 "Mask image for image processing operation"
  fd.SetPurposeOfReferenceCodeSequenceCodeValue( 121321 );
  // CID 7203 "Image Derivation"
  // DCM 113047 "Pixel by pixel mask"
  fd.SetDerivationCodeSequenceCodeValue( 113047 );
  fd.SetFile( file2 );
  // If all Code Value are ok the filter will execute properly
  if( !fd.Derive() )
    {
    std::cerr « "Sorry could not derive using input info" « std::endl;
    return 1;
    }

  gdcm::Writer w;
  w.SetFile( r2.GetFile() );
  w.SetFileName( "derived.dcm" );
  if( !w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.48 DiffFile.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input1.dcm input2.dcm" « std::endl;
    return 1;
    }
  const char *filename1 = argv[1];
  const char *filename2 = argv[2];

  gdcm::Reader reader1;
  reader1.SetFileName( filename1 );
```

```
  if( !reader1.Read() )
    {
    return 1;
    }

  gdcm::Reader reader2;
  reader2.SetFileName( filename2 );
  if( !reader2.Read() )
    {
    return 1;
    }

  const gdcm::File &file1 = reader1.GetFile();
  const gdcm::File &file2 = reader2.GetFile();

  const gdcm::DataSet &ds1 = file1.GetDataSet();
  const gdcm::DataSet &ds2 = file2.GetDataSet();

  gdcm::DataSet::ConstIterator it1 = ds1.Begin();
  gdcm::DataSet::ConstIterator it2 = ds2.Begin();

  const gdcm::DataElement &de1 = *it1;
  const gdcm::DataElement &de2 = *it2;
  if( de1 == de2 )
    {
    }
  while( it1 != ds1.End() && it2 != ds2.End() && *it1 == *it2 )
    {
    ++it1;
    ++it2;
    }

  if( it1 != ds1.End() || it2 != ds2.End() )
    {
    std::cerr « "Problem with:" « std::endl;
    if( it1 != ds1.End() )
      {
      std::cerr « "ds1: " « *it1 « std::endl;
      }
    if( it2 != ds2.End() )
      {
      std::cerr « "ds2: " « *it2 « std::endl;
      }
    return 1;
    }

  return 0;
}
```

14.49 DiscriminateVolume.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmScanner.h"
#include "gdcmTesting.h"
#include "gdcmIPPSorter.h"
#include "gdcmDirectionCosines.h"
#include <cmath>

/*
 * The following example is a basic sorted which should work in generic cases.
 * It sort files based on:
 * Study Instance UID
 *   Series Instance UID
 *     Frame of Reference UID
```

```
 *       Image Orientation (Patient)
 *         Image Position (Patient) (Sorting based on IPP + IOP)
 */

namespace gdcm {
  const Tag t1(0x0020,0x000d); // Study Instance UID
  const Tag t2(0x0020,0x000e); // Series Instance UID
  const Tag t3(0x0020,0x0052); // Frame of Reference UID
  const Tag t4(0x0020,0x0037); // Image Orientation (Patient)

class DiscriminateVolume
{
private:
  std::vector< Directory::FilenamesType > SortedFiles;
  std::vector< Directory::FilenamesType > UnsortedFiles;

  Directory::FilenamesType GetAllFilenamesFromTagToValue(
    Scanner const & s, Directory::FilenamesType const &filesubset, Tag const &t, const char *valueref)
{
  Directory::FilenamesType theReturn;
  if( valueref )
    {
    size_t len = strlen( valueref );
    Directory::FilenamesType::const_iterator file = filesubset.begin();
    for(; file != filesubset.end(); ++file)
      {
      const char *filename = file->c_str();
      const char * value = s.GetValue(filename, t);
      if( value && strncmp(value, valueref, len ) == 0 )
        {
        theReturn.push_back( filename );
        }
      }
    }
  return theReturn;
}

void ProcessAIOP(Scanner const & , Directory::FilenamesType const & subset, const char *iopval)
{
  std::cout « "IOP: " « iopval « std::endl;
  IPPSorter ipp;
  ipp.SetComputeZSpacing( true );
  ipp.SetZSpacingTolerance( 1e-3 ); // ??
  bool b = ipp.Sort( subset );
  if( !b )
    {
    // If you reach here this means you need one more parameter to discriminiat this
    // series. Eg. T1 / T2 intertwinted. Multiple Echo (0018,0081)
    std::cerr « "Failed to sort: " « subset.begin()->c_str() « std::endl;
    for(
      Directory::FilenamesType::const_iterator file = subset.begin();
      file != subset.end(); ++file)
      {
      std::cerr « *file « std::endl;
      }
    UnsortedFiles.push_back( subset );
    return ;
    }
  ipp.Print( std::cout );
  SortedFiles.push_back( ipp.GetFilenames() );
}

void ProcessAFrameOfRef(Scanner const & s, Directory::FilenamesType const & subset, const char * frameuid)
{
  // In this subset of files (belonging to same series), let's find those
  // belonging to the same Frame ref UID:
  Directory::FilenamesType files = GetAllFilenamesFromTagToValue(
    s, subset, t3, frameuid);

  std::set< std::string > iopset;

  for(
    Directory::FilenamesType::const_iterator file = files.begin();
    file != files.end(); ++file)
    {
    //std::cout « *file « std::endl;
    const char * value = s.GetValue(file->c_str(), gdcm::t4 );
    gdcm_assert( value );
    iopset.insert( value );
    }
  size_t n = iopset.size();
```

```
  if ( n == 0 )
    {
    gdcm_assert( files.empty() );
    return;
    }

  std::cout « "Frame of Ref: " « frameuid « std::endl;
  if ( n == 1 )
    {
    ProcessAIOP(s, files, iopset.begin()->c_str() );
    }
  else
    {
    const char *f = files.begin()->c_str();
    std::cerr « "More than one IOP: " « f « std::endl;
    // Make sure that there is actually 'n' different IOP
    gdcm::DirectionCosines ref;
    gdcm::DirectionCosines dc;
    for(
      std::set< std::string >::const_iterator it = iopset.begin();
      it != iopset.end(); ++it )
      {
      ref.SetFromString( it->c_str() );
      for(
        Directory::FilenamesType::const_iterator file = files.begin();
        file != files.end(); ++file)
        {
        std::string value = s.GetValue(file->c_str(), gdcm::t4 );
        if( value != it->c_str() )
          {
          dc.SetFromString( value.c_str() );
          const double crossdot = ref.CrossDot(dc);
          const double eps = std::fabs( 1. - crossdot );
          if( eps < 1e-6 )
            {
            std::cerr « "Problem with IOP discrimination: " « file->c_str()
              « " " « it->c_str() « std::endl;
            return;
            }
          }
        }
      }
      // If we reach here this means there is actually 'n' different IOP
    for(
      std::set< std::string >::const_iterator it = iopset.begin();
      it != iopset.end(); ++it )
      {
      const char *iopvalue = it->c_str();
      Directory::FilenamesType iopfiles = GetAllFilenamesFromTagToValue(
        s, files, t4, iopvalue );
      ProcessAIOP(s, iopfiles, iopvalue );
      }
    }
}

void ProcessASeries(Scanner const & s, const char * seriesuid)
{
  std::cout « "Series: " « seriesuid « std::endl;
  // let's find all files belonging to this series:
  Directory::FilenamesType seriesfiles = GetAllFilenamesFromTagToValue(
    s, s.GetFilenames(), t2, seriesuid);

  gdcm::Scanner::ValuesType vt3 = s.GetValues(t3);
  for(
    gdcm::Scanner::ValuesType::const_iterator it = vt3.begin()
    ; it != vt3.end(); ++it )
    {
    ProcessAFrameOfRef(s, seriesfiles, it->c_str());
    }
}

void ProcessAStudy(Scanner const & s, const char * studyuid)
{
  std::cout « "Study: " « studyuid « std::endl;
  gdcm::Scanner::ValuesType vt2 = s.GetValues(t2);
  for(
    gdcm::Scanner::ValuesType::const_iterator it = vt2.begin()
    ; it != vt2.end(); ++it )
    {
    ProcessASeries(s, it->c_str());
    }
```

```
}
public:

void Print( std::ostream & os )
{
  os « "Sorted Files: " « std::endl;
  for(
    std::vector< Directory::FilenamesType >::const_iterator it = SortedFiles.begin();
    it != SortedFiles.end(); ++it )
    {
    os « "Group: " « std::endl;
    for(
      Directory::FilenamesType::const_iterator file = it->begin();
      file != it->end(); ++file)
      {
      os « *file « std::endl;
      }
    }
  os « "Unsorted Files: " « std::endl;
  for(
    std::vector< Directory::FilenamesType >::const_iterator it = UnsortedFiles.begin();
    it != UnsortedFiles.end(); ++it )
    {
    os « "Group: " « std::endl;
    for(
      Directory::FilenamesType::const_iterator file = it->begin();
      file != it->end(); ++file)
      {
      os « *file « std::endl;
      }
    }

}

  std::vector< Directory::FilenamesType > const & GetSortedFiles() const { return SortedFiles; }
  std::vector< Directory::FilenamesType > const & GetUnsortedFiles() const { return UnsortedFiles; }

void ProcessIntoVolume( Scanner const & s )
{
  gdcm::Scanner::ValuesType vt1 = s.GetValues( gdcm::t1 );
  for(
    gdcm::Scanner::ValuesType::const_iterator it = vt1.begin()
    ; it != vt1.end(); ++it )
    {
    ProcessAStudy( s, it->c_str() );
    }

}

};

} // namespace gdcm

int main(int argc, char *argv[])
{
  std::string dir1;
  if( argc < 2 )
    {
    const char *extradataroot = nullptr;
#ifdef GDCM_BUILD_TESTING
    extradataroot = gdcm::Testing::GetDataExtraRoot();
#endif
    if( !extradataroot )
      {
      return 1;
      }
    dir1 = extradataroot;
    dir1 += "/gdcmSampleData/ForSeriesTesting/VariousIncidences/ST1";
    }
  else
    {
    dir1 = argv[1];
    }

  gdcm::Directory d;
  d.Load( dir1, true ); // recursive !

  gdcm::Scanner s;
  s.AddTag( gdcm::t1 );
  s.AddTag( gdcm::t2 );
  s.AddTag( gdcm::t3 );
```

```
  s.AddTag( gdcm::t4 );
  bool b = s.Scan( d.GetFilenames() );
  if( !b )
    {
    std::cerr « "Scanner failed" « std::endl;
    return 1;
    }

  gdcm::DiscriminateVolume dv;
  dv.ProcessIntoVolume( s );
  dv.Print( std::cout );

  return 0;
}
```

14.50 DumpADAC.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * the goal of this example is to mimic the behavior of disp_img_header
 * see http://www.gmecorp-usa.com/IM/NM/GC/ADAC/SV/adactechtips/Released_01Q3.pdf
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <string.h>
#include <assert.h>
#include <stdint.h>

struct dict
{
  uint16_t key;
  const char *name;
};

dict Array[] = {
  { 0x01, "Patient name" },
  { 0x02, "Patient ID" },
  { 0x03, "Patient sex" },
  { 0x04, "Patient age" },
  { 0x05, "Patient height" },
  { 0x06, "Patient weight" },
  { 0x07, "Exam date" },
  { 0x08, "Dose admin. time" },
  { 0x09, "Unique exam key" },
  { 0x0a, "Exam procedure" },
  { 0x0b, "Referring physician" },
  { 0x0c, "Attending physician" },
  { 0x0d, "Imaging modality" },
  { 0x0e, "Hospital ID" },
  { 0x0f, "Histogram crv file" },
  { 0x10, "Acq. start time" },
  { 0x11, "Object data type" },
  { 0x12, "Image viewid" },
  { 0x13, "Imaging device name" },
  { 0x14, "Device serial number" },
  { 0x15, "Collimator" },
  { 0x16, "Software version" },
```

```
  { 0x17, "Radiopharmaceutical #1" },
  { 0x18, "Energy window #1 center" },
  { 0x19, "Radiopharmaceutical #2" },
  { 0x1a, "Energy window #1 width" },
  { 0x1b, "Isotope imaging mode" },
  { 0x1c, "Energy window #2 center" },
  { 0x1d, "Energy window #2 width" },
  { 0x1e, "Energy window #3 center" },
  { 0x1f, "Energy window #3 width" },
  { 0x20, "Energy window #4 center" },
  { 0x21, "Energy window #4 width" },
  { 0x22, "??Energy window #5 center" },
  { 0x23, "??Energy window #5 width" },
  { 0x24, "Patient orientation" },
  { 0x25, "Spatial resolution" },
  { 0x26, "Slice thickness" },
  { 0x27, "Image X dimension" },
  { 0x28, "Image Y dimension" },
  { 0x29, "Image Z dimension" },
  { 0x2a, "Image pixel width" },
  { 0x2b, "Uniformity corr. file" },
  { 0x2c, "Acquisition zoom factor" },
  { 0x2d, "Total counts in set" },
  { 0x2e, "Time / frame" },
  { 0x2f, "Total acq. time" },
  { 0x30, "Maximum pixel value" },
  { 0x31, "Minimum pixel value" },
  { 0x32, "R-R interval time" },
  { 0x33, "Percent of cycle imaged" },
  { 0x34, "# of cycles accepted" },
  { 0x35, "# of cycles rejected" },
  { 0x36, "Approximate ED frame" },
  { 0x37, "Approximate ES frame" },
  { 0x38, "Approximate EF" },
  { 0x39, "Starting angle" },
  { 0x3a, "Degrees of rotation" },
  { 0x3b, "Direction of rotation" },
  { 0x3c, "Cont. or step/shoot" },
  { 0x3d, "Lim recon start frame" },
  { 0x3e, "Upper window grey shade" },
  { 0x3f, "Lower lvl grey shade" },
  { 0x40, "Associated color map" },
  { 0x41, "Custom color map file" },
  { 0x42, "Manipulated image" },
  { 0x43, "Axis of rotation corr." },
  { 0x44, "Reorientation azimuth" },
  { 0x45, "Reorientation elevation" },
  { 0x46, "Filter type" },
  { 0x47, "Filter order" },
  { 0x48, "Filter cutoff frequency" },
  { 0x49, "Reconstruction type" },
  { 0x4a, "Attenuation coefficient" },
  { 0x4b, "Associated parent file" },
  { 0x4c, "Unique patient key" },
  { 0x52, "Normalization crv file" },
  { 0x53, "Unique object key" },
  { 0x54, "This phase of VFR is" },
  { 0x55, "True color value" },
  { 0x56, "# of sets of x,y,z grps" },
  { 0x57, "Scale factor of set" },
  { 0x6d, "Date of birth" },
  { 0x6e, "Directional orientation" },
  { 0x6f, "Number of VFR studies" },
  { 0x70, "R-R low tolerance" },
  { 0x71, "R-R high tolerance" },
  { 0x72, "Prog specific results:" },

  { 0x99, nullptr }
};

void printname( int , int , uint16_t v )
{
  if( v == 0x1 )
    {
    std::cout « "DATABASE PARAMETERS" « std::endl;
    std::cout « "____________________" « std::endl;
    }
  else if( v == 0x27 )
    {
    std::cout « "IMAGE PARAMETERS" « std::endl;
    std::cout « "________________" « std::endl;
```

```
    }
  else if( v == 0x13 )
    {
    std::cout « "EXTRA PARAMETERS" « std::endl;
    std::cout « "_________________" « std::endl;
    }
  else if( v == 0x2e )
    {
    std::cout « "*** NOT CURRENTLY USED :" « std::endl;
    }
  static const unsigned int n = sizeof( Array ) / sizeof( *Array ) - 1;
  for( unsigned int i = 0; i < n; ++i )
    {
    if( v == Array[i].key )
      {
      std::cout « /*"" « std::dec « len « "," « mult « " " « */ Array[i].name;
      std::cout « " : ";
      return;
      }
    }
  std::cout « /*"\t# " « std::dec « len « "," « mult « */ std::hex « v « "\t: ";
}

uint16_t readint16(std::istream &is )
{
  uint16_t val;
  is.read( (char*)&val, sizeof( val ));
  return (uint16_t)((val»8) | (val«8));
}

uint32_t readint32(std::istream &is )
{
  uint32_t val;
  is.read( (char*)&val, sizeof( val ));
  val= ((val«8)&0xFF00FF00) | ((val»8)&0x00FF00FF);
  return (val»16) | (val«16);
}

float readfloat32(std::istream &is )
{
  union { uint32_t val; float f;} dual;
  dual.val = readint32(is);
  return dual.f;
}

struct el
{
  uint16_t v1;
  uint16_t v2;
  uint16_t v3;
  void read( std::istream & is )
    {
    v1 = readint16(is);
    v2 = readint16(is);
    v3 = readint16(is);
    }
  void print( std::ostream & os )
    {
    os « std::hex « v1 « "\t" « v2 « "\t" « v3 « std::endl;
    }
};

std::vector<el> Vel;

void readelement( std::istream & is )
{
  el e;
  e.read( is );
  Vel.push_back( e );
}

void printascii( uint16_t tag, const char *buffer, size_t len )
{
  std::ostream & os = std::cout;
  if( tag == 0x72 )
    {
    os « "\n  ";
    for(size_t i = 0; i < len; ++i)
      {
      const char &c = buffer[i];
      if( c == 0x0 ) os « "!";
```

```
      else if( c == 0x0f ) os « " ";
      else if( c == 0x17 ) os « ":";
      else if( c == 0x14 ) os « ":";
      else if( c == 0x10 ) os « ":";
      else if( c == 0x16 ) os « ":";
      else if( c == 0x08 ) os « ":";
      else if( c == 0x0b ) os « ":";
      else if( c == 0x0e ) os « ":";
      else if( c == 0x07 ) os « ":";
      else os « c;
      }
    os « "";
    }
  else
    {
    (void)len;
    os « "" « buffer « "";
    }
}

bool DumpADAC( std::istream & is )
{
  std::ostream &os = std::cout;

  char magic[6 + 1];
  magic[6] = 0;
  is.read( magic, 6);
//  std::cout « magic « " ";
  gdcm_assert( strcmp( magic, "adac01" ) == 0 );
  int c = is.get();
  gdcm_assert( c == 0 ); (void)c;
  c = is.get();
  gdcm_assert( c == 'X' );

  uint16_t v;
  v = readint16(is);
//  std::cout « v « std::endl;
  gdcm_assert( v == 512 ); (void)v; // ??

  int nel = 87;
  for (int i = 0; i <= nel; ++i )
    {
    readelement( is );
    }

  char buffer[512];
  for( int i = 0; i <= nel; ++i )
    {
    const el &e = Vel[i];
    int diff;
    if( i == nel )
      {
      diff = 2048 - e.v3;
      if( diff > 512 ) diff = 512;
      }
    else
      {
      const el &enext = Vel[i+1];
      diff = enext.v3 - e.v3;
      }
    is.seekg( e.v3, std::ios::beg );
    //std::cout « "(" « std::hex « std::setw( 2 ) « std::setfill( '0' ) « e.v1 « ") " « std::hex « std::setw( 3
      ) « std::setfill( '0' ) « e.v2 « " ";
    printname( diff, 0, e.v1 );
    int mult = 1;
    if( e.v2 == 0 )
      {
      is.read( buffer, diff);
      buffer[ diff ] = 0;
      printascii( e.v1, buffer, diff);
      }
    else if( e.v2 == 0x100 )
      {
      mult = diff / 2;
      gdcm_assert( diff == 2 * mult );
      for ( int ii = 0; ii < mult; ++ii )
        {
        if ( ii ) os « "\\";
        uint16_t val = readint16(is);
        os « "" « std::dec « val « "";
        }
```

```
      }
    else if( e.v2 == 0x200 )
      {
      gdcm_assert( diff == 4 );
      uint32_t val = readint32(is);
      os « "" « std::dec « val « "";
      }
    else if( e.v2 == 0x300 )
      {
      gdcm_assert( diff == 4 );
      float val = readfloat32(is);
      os « "" « std::dec « val « "";
      }
    else
      {
      gdcm_assert( 0 );
      }
    os « std::endl;
    }
  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  // (0019,1061) UN (OB) 61\64\61\63\30         # 2048,1 Ver200 ADAC Pegasys Headers
  const gdcm::PrivateTag tver200adacpegasysheaders(0x0019,0x61,"ADAC_IMG");
  if( !ds.FindDataElement( tver200adacpegasysheaders ) ) return 1;
  const gdcm::DataElement& ver200adacpegasysheaders = ds.GetDataElement( tver200adacpegasysheaders );
  if ( ver200adacpegasysheaders.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = ver200adacpegasysheaders.GetByteValue();

  // (0019,1021) US 1               # 2,1 Ver200 Number of ADAC Headers
  // TODO

  // (0019,1041) IS [2048\221184 ]  # 12,1-n Ver200 ADAC Header/Image Size
  if( bv->GetLength() != 2048 ) return 1;

  gdcm::Element<gdcm::VR::IS,gdcm::VM::VM2> el;
  const gdcm::PrivateTag tver200adacheaderimagesize(0x0019,0x41,"ADAC_IMG");
  if( !ds.FindDataElement( tver200adacheaderimagesize ) ) return 1;
  const gdcm::DataElement& ver200adacheaderimagesize = ds.GetDataElement( tver200adacheaderimagesize );
  el.SetFromDataElement( ver200adacheaderimagesize );
  if( el.GetValue(0) != 2048 ) return 1;

  std::istringstream is;
  std::string dup( bv->GetPointer(), bv->GetLength() );
  is.str( dup );
  bool b = DumpADAC( is );
  if( !b ) return 1;



  return 0;
}
```

14.51 DumpExamCard.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.
```

```
     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*

  Try to extract contents of Philips RAW storage class:

(0002,0002) UI [1.2.840.10008.5.1.4.1.1.66]                       # 26,1 Media Storage SOP Class UID
(0002,0003) UI [1.3.46.670589.11.17240.5.23.4.1.3012.2010032409482568018]         # 56,1 Media Storage SOP
      Instance UID
(0002,0010) UI [1.2.840.10008.1.2.1]                              # 20,1 Transfer Syntax UID
(0002,0012) UI [1.3.46.670589.11.0.0.51.4.4.1]                    # 30,1 Implementation Class UID
(0002,0013) SH [MR DICOM 4.1]                                     # 12,1 Implementation Version Name

 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Triplett,William T for bringing to your attention on this ExamCard stuff
 */
#include "gdcmReader.h"
#include "gdcmDataSet.h"
#include "gdcmPrivateTag.h"
#include "gdcmBase64.h"

#include <iomanip>

static bool compfn(const char *s1, const char *s2)
{
  return strcmp(s1,s2) < 0 ? true : false;
}

static const char *PDFStrings[] = { // Keep me ordered please
  "COILSTATE", // series of string ?
  "HARDWARE_CONFIG", // series of number ?
  "PDF_CONTROL_GEN_PARS",
  "PDF_CONTROL_PREP_PARS",
  "PDF_CONTROL_RECON_PARS",
  "PDF_CONTROL_SCAN_PARS",
  "PDF_EXAM_PARS",
  "PDF_HARDWARE_PARS",
  "PDF_PREP_PARS",
  "PDF_PRESCAN_COIL_PARS",
  "PDF_SPT_PARS",
};

static bool isvalidpdfstring( const char *pdfstring )
{
  gdcm_assert( pdfstring );
  static const size_t n = sizeof( PDFStrings ) / sizeof( *PDFStrings );
  static const char **begin = PDFStrings;
  static const char **end = begin + n;
  return std::binary_search(begin, end, pdfstring, compfn);
}

typedef enum
{
  param_float = 0,
  param_integer = 1, // 1 « 0
  param_string = 2, // 1 « 1
  param_3, // ??
  param_enum = 4  // 1 « 2
} param_type;

static const char *gettypenamefromtype( int i)
{
  const char *ret = nullptr;
  param_type e = (param_type)i;
  switch( e )
    {
  case param_float:
    ret = "float";
    break;
```

```
  case param_integer:
    ret = "int";
    break;
  case param_string:
    ret = "string";
    break;
  case param_3:
    ret = "??";
    break;
  case param_enum:
    ret = "enum";
    break;
    }
  gdcm_assert( ret );
  return ret;
}

struct header
{
/*
 * TODO:
 * Looks as if we could read all int*, float* and string* at once...
 */
  int32_t v1; // offset to int pointer array ?
  uint16_t nints; // number of ints (max number?)
  uint16_t v3; // always 0 ?
  int32_t v4; // offset to float pointer array ?
  uint32_t nfloats;
  int32_t v6; // offset to string pointer array ?
  uint32_t nstrings;
  int32_t v8; // always 8 ??
  uint32_t numparams;
  uint32_t getnints() const { return nints; }
  uint32_t getnfloats() const { return nfloats; }
  uint32_t getnstrings() const { return nstrings; }
  uint32_t getnparams() const { return numparams; }
  void read( std::istream & is )
    {
    is.read( (char*)&v1,sizeof(v1));
    if( v1 == 0x01 ) {
      // direct (FIXME how should we detect this, much like TIFF ???)
      nints = 0;
      v3 = 0;
      v4 = 0;
      nfloats = 0;
      v6 = 0;
      nstrings = 0;
      v8 = 0;
      numparams = 0;
      uint32_t bla;
      is.read( (char*)&bla, sizeof(bla) );
      gdcm_assert( bla == 0x2 || bla == 0x3 || bla == 0x4 || bla == 0x7 );
      nstrings = 1;
      numparams = 1;
    } else {
      // indirect
      is.read( (char*)&nints,sizeof(nints));
      is.read( (char*)&v3,sizeof(v3));
      gdcm_assert( v3 == 0 ); // looks like this is always 0
      is.read( (char*)&v4,sizeof(v4));
      is.read( (char*)&nfloats,sizeof(nfloats));
      is.read( (char*)&v6,sizeof(v6));
      is.read( (char*)&nstrings,sizeof(nstrings));
      is.read( (char*)&v8,sizeof(v8));
      gdcm_assert( v8 == 8 );
      is.read( (char*)&numparams,sizeof(numparams));
    }
    }
  void print( std::ostream & os )
    {
    os « v1 « ",";
    os « nints « ",";
    os « v3 « ",";
    os « v4 « ",";
    os « nfloats « ",";
    os « v6 « ",";
    os « nstrings « ",";
    os « v8 « ",";
    os « numparams « std::endl;
    }
```

```
};

struct param
{
  char name[32+1];
  uint8_t boolean;
  int32_t type;
  uint32_t dim;
  union {
  uint32_t val;
  char * ptr; } v4;
  int32_t /*std::streamoff*/ offset;
  param_type gettype() const { return (param_type)type; }
  uint32_t getdim() const { return dim; }
  void read_direct_int( std::istream & is ) {
    uint32_t bla;
    int max = 9;
    std::vector<uint32_t> v;
    for( int i = 0; i < max; ++i ) {
      is.read( (char*)&bla, sizeof(bla) );
      v.push_back( bla );
    }
    is.read( (char*)&bla, sizeof(bla) );
    char name0[32];
    memset(name0,0,sizeof(name0));
    gdcm_assert( bla < sizeof(name0) );
    is.read( name0, bla);
    size_t l = strlen(name0);
    gdcm_assert( l == bla ); (void)l;
    char * ptr = strdup( name0 );
    v4.ptr = ptr;
    type = param_string;
    dim = 1;
    offset = 0; // important !
  }
  void read_direct_string( std::istream & is ) {
    uint32_t bla;
    is.read( (char*)&bla, sizeof(bla) );
    char name0[32*2];
    memset(name0,0,sizeof(name0));
    gdcm_assert( bla < sizeof(name0) );
    is.read( name0, bla);
    size_t l = strlen(name0);
    gdcm_assert( l == bla ); (void)l;
    memcpy( this->name, name0, bla );
    is.read( (char*)&bla, sizeof(bla) );
    gdcm_assert( bla == 0x1 );
    is.read( (char*)&bla, sizeof(bla) );
    char value[32];
    memset(value,0,sizeof(value));
    gdcm_assert( bla < sizeof(value) );
    is.read( value, bla);
    is.read( (char*)&bla, sizeof(bla) );
    gdcm_assert( bla == 0 ); // trailing stuff ?
    is.read( (char*)&bla, sizeof(bla) );
    gdcm_assert( bla == 0 ); // trailing stuff ?
    const uint32_t cur = (uint32_t)is.tellg();
    std::cerr « "offset:" « cur « std::endl;
    if( cur == 65 )
      is.read( (char*)&bla, 1 );
    else if( cur == 66 )
      is.read( (char*)&bla, 1 );
    else if( cur == 89 )
      is.read( (char*)&bla, 1 );
    else if( cur == 95 )
      is.read( (char*)&bla, 2 );
    else if( cur == 122 )
      is.read( (char*)&bla, 2 );
    else
      gdcm_assert(0);
    type = param_string;
    dim = 1;
    // FIXME: store the value in v4 for now:
    char * ptr = strdup( value );
    v4.ptr = ptr;
    offset = 0; // important !
  }
  void read( std::istream & is )
    {
    is.read( name, 32 + 1);
    // This is always the same issue the string can contains garbage from previous run,
```

```
  // we need to print only until the first \0 character:
  gdcm_assert( strlen( name ) <= 32 );
  is.read( (char*)&boolean,1);
  gdcm_assert( boolean == 0 || boolean == 1 || boolean == 0x69 || boolean == 128 || boolean == 95 || boolean
    == 116 ); // some kind of bool, or digital trash ?
  is.read( (char*)&type, sizeof( type ) );
  gdcm_assert( gettypenamefromtype( type ) );
  is.read( (char*)&dim, sizeof( dim ) ); // number of elements
  is.read( (char*)&v4.val, sizeof( v4.val ) );
  //gdcm_assert( v4.val == 0 ); // always 0 ? sometimes not...
  const uint32_t cur = (uint32_t)is.tellg();
  is.read( (char*)&offset, sizeof( offset ) );
  gdcm_assert( offset != 0 );
  offset += cur;
  }

void print( std::ostream & os ) const
  {
  os « name « ",";
  os « (int)boolean « ",";
  os « type « ",";
  os « dim « ",";
  os « v4.val « ",";
  os « offset « std::endl;
  }
void printvalue( std::ostream & os, std::istream & is ) const
  {
  if( offset ) {
  is.seekg( offset );
  switch( type )
    {
  case param_float:
      {
      os.precision(2);
      os « std::fixed;
      for( uint32_t idx = 0; idx < dim; ++idx )
        {
        if( idx ) os « ",";
        float v;
        is.read( (char*)&v, sizeof(v) );
        os « v; // what if the string contains \0 ?
        }
      }
    break;
  case param_integer:
      {
      int32_t v;
      for( uint32_t idx = 0; idx < dim; ++idx )
        {
        if( idx ) os « ",";
        is.read( (char*)&v, sizeof(v) );
        os « v;
        }
      }
    break;
  case param_string:
      {
      int size = 81;
      std::string v;
      v.resize( size );
      for( uint32_t idx = 0; idx < dim; ++idx )
        {
        if( idx ) os « ";";
        is.read( &v[0], size );
        os « v.c_str();
        }
      }
    break;
  case param_enum:
      {
      int32_t v;
      for( uint32_t idx = 0; idx < dim; ++idx )
        {
        if( idx ) os « ",";
        is.read( (char*)&v, sizeof(v) );
        os « v;
        }
      }
    break;
    }
  } else {
```

```
#if 1
      // direct
      assert ( type == param_string );
      char * ptr = v4.ptr;
        //std::string v;
        //v.resize( dim );
        //is.read( &v[0], dim );
        os « ptr;
#endif
    }

    }
  void printxml( std::ostream & os, std::istream & is ) const
    {
    // <Attribute Name="CGEN_force_par_mode" Type="enum">0</Attribute>
    os « "  <Attribute";
    os « " Name=\"" « name « "\"";
    os « " Type=\"" « gettypenamefromtype(type) « "\"";
    if( dim != 1 )
      {
      os « " ArraySize=\"" « dim « "\"";
      }
    os « ">";
    printvalue( os, is );
    os « "</Attribute>\n";
    }
  void printcsv( std::ostream & os, std::istream & is ) const
    {
    os « std::setw(32) « std::left « name « ",";
    os « std::setw(7) « std::right « gettypenamefromtype(type) « ",";
    os « std::setw(4) « dim « ",";
    os « " ";
    printvalue( os, is );
    os « ",\n";
    }
};

static bool ProcessNested( gdcm::DataSet & ds )
{
  /*
  TODO:
   Looks like the real length of the blob is stored here:
(2005,1132) SQ                                          # u/l,1 ?
  (fffe,e000) na (Item with undefined length)
    (2005,0011) LO [Philips MR Imaging DD 002 ]         # 26,1 Private Creator
    (2005,1143) SL 3103                                 # 4,1 ?

Wotsit ?
(2005,1132) SQ                                          # u/l,1 ?
  (fffe,e000) na (Item with undefined length)
    (2005,0011) LO [Philips MR Imaging DD 002 ]         # 26,1 Private Creator
    (2005,1147) CS [Y ]                                 # 2,1 ?
  */
  bool ret = false;

  //  (2005,1137) PN (LO) [PDF_CONTROL_GEN_PARS]          # 20,1 Protocol Data Name
  const gdcm::PrivateTag pt0(0x2005,0x37,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt0 ) ) return false;
  const gdcm::DataElement &de0 = ds.GetDataElement( pt0 );
  if( de0.IsEmpty() ) return false;
  const gdcm::ByteValue * bv0 = de0.GetByteValue();
  std::string s0( bv0->GetPointer() , bv0->GetLength() );

  // (2005,1139) LO [IEEE_PDF]                          # 8,1 Protocol Data Type
  const gdcm::PrivateTag pt1(0x2005,0x39,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt1 ) ) return false;
  const gdcm::DataElement &de1 = ds.GetDataElement( pt1 );

  // (2005,1143) SL 53                                  # 4,1 Protocol Data Block Length (non-padded)
  const gdcm::PrivateTag pt2(0x2005,0x43,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt2 ) ) return false;
  const gdcm::DataElement &de2 = ds.GetDataElement( pt2 );

  // (2005,1147) CS [Y ]                                # 2,1 Protocol Data Boolean
  const gdcm::PrivateTag pt3(0x2005,0x47,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt3 ) ) return false;
  const gdcm::DataElement &de3 = ds.GetDataElement( pt3 );
  (void)de3;

  // (2005,1144) OW 00\00\00\00\05\00\00\00\35\2e\31\2e\37\00         # 54,1 Protocol Data Block
  const gdcm::PrivateTag pt(0x2005,0x44,"Philips MR Imaging DD 002");
```

```
  if( !ds.FindDataElement( pt ) ) return false;
  const gdcm::DataElement &de = ds.GetDataElement( pt );
  if( de.IsEmpty() ) return false;
  const gdcm::ByteValue * bv = de.GetByteValue();

  if( s0 == "ExamCardBlob" )
    {
    gdcm_assert( de1.IsEmpty() );

    std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
    fn += ".xml";
    std::ofstream out( fn.c_str() );

    // remove trailing \0
    size_t len = strlen( bv->GetPointer() );
    out.write( bv->GetPointer() , len );
    out.close();

    // Extract binary64 thingy (this is a ugly hack, better use an XML parser)
    std::string dup( bv->GetPointer(), len );
    std::string::size_type pos1 = dup.find( "<ExamCardBlob>" );
    std::string::size_type pos2 = dup.find( "</ExamCardBlob>" );

    std::string b64( bv->GetPointer() + pos1 + 14, pos2 - (pos1 + 14) );

    // ulgy hack to remove \r\n from input base64:
    std::string::iterator r_pos = std::remove(b64.begin(), b64.end(), '\r');
    b64.erase(r_pos, b64.end());
    std::string::iterator n_pos = std::remove(b64.begin(), b64.end(), '\n');
    b64.erase(n_pos, b64.end());
#if 0
    std::ofstream out2( "debug" );
    out2.write( b64.c_str(), b64.size() );
    out2.close();
#endif

    const size_t dlen = gdcm::Base64::GetDecodeLength(b64.c_str(), b64.size() );

    std::string decoded;
    decoded.resize( dlen );
    gdcm::Base64::Decode( &decoded[0], decoded.size(), b64.c_str(), b64.size() );

    std::ofstream f64( "soap.xml" );
    f64.write( decoded.c_str(), decoded.size() );
    f64.close();

    ret = true;
    }
  else
    {
    if( de1.IsEmpty() ) return false;
    const gdcm::ByteValue * bv1 = de1.GetByteValue();
    gdcm::Element<gdcm::VR::SL,gdcm::VM::VM1> dlen = {{0L}};
    dlen.SetFromDataElement( de2 );
    std::string s1( bv1->GetPointer() , bv1->GetLength() );

    if( s1 == "IEEE_PDF" )
      {

      std::istringstream is;
      gdcm_assert( bv->GetLength() == (size_t)dlen.GetValue() || bv->GetLength() == (size_t)(dlen.GetValue() +
      1) );
      std::string dup( bv->GetPointer(), dlen.GetValue() /*bv->GetLength()*/ );
      is.str( dup );

      header h;
      h.read( is );
      //gdcm_assert( is.peek() && is.eof() );
#if 1
      static int c = 0;
      std::string fn0 = gdcm::LOComp::Trim( s1.c_str() ); // remove trailing space
      std::stringstream ss;
      ss << fn0 << "_" << c++;
      if( h.v1 == 0x01 )
        ss << ".direct";
      else
        ss << ".indirect";
      std::cout << "fn0=" << ss.str() << " Len= " << bv->GetLength() << std::endl;
      std::ofstream out( ss.str().c_str() );
      out.write( bv->GetPointer(), bv->GetLength() );
      out.close();
```

```
#endif
#if 1
      std::cout « dup.c_str() « std::endl;
      h.print( std::cout );
#endif

      std::vector< param > params;
      if( h.v1 == 0x01 ) {
        for( uint32_t i = 0; i < 1 /* h.getnparams()*/; ++i ) {
          param p;
          if( s0 == "HARDWARE_CONFIG " )
            {
            p.read_direct_int( is );
            }
          else if( s0 == "COILSTATE " )
            {
            p.read_direct_string( is );
            }
          else
            {
            gdcm_assert(0);
            }
          params.push_back( p );
        }
      } else {
        gdcm_assert( is.tellg() == std::streampos(0x20) );
        is.seekg( 0x20 );

        param p;
        for( uint32_t i = 0; i < h.getnparams(); ++i )
          {
          p.read( is );
          //p.print( std::cout );
          params.push_back( p );
          }
      }

      std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
      bool b1 = isvalidpdfstring( fn.c_str() );
      gdcm_assert( b1 ); (void)b1;
      fn += ".csv";
      //fn += ".xml";
      std::ofstream csv( fn.c_str() );

      // let's do some bookkeeping:
      uint32_t nfloats = 0;
      uint32_t nints = 0;
      uint32_t nstrings = 0;
      for( std::vector<param>::const_iterator it = params.begin();
        it != params.end(); ++it )
        {
        param_type type = it->gettype();
        switch( type )
          {
        case param_float:
          nfloats += it->getdim();
          break;
        case param_integer:
          nints += it->getdim();
          break;
        case param_string:
          nstrings += it->getdim();
          break;
        default:
          ;
          }
        }
#if 0
      std::cout « "Stats:" « std::endl;
      std::cout « "nfloats:" « nfloats « std::endl;
      std::cout « "nints:" « nints « std::endl;
      std::cout « "nstrings:" « nstrings « std::endl;
#endif
      gdcm_assert( h.getnints() >= nints );
      gdcm_assert( h.getnfloats() >= nfloats );
      gdcm_assert( h.getnstrings() >= nstrings);

      for( uint32_t i = 0; i < h.getnparams(); ++i )
        {
        params[i].printcsv( csv, is );
        //params[i].printxml( csv, is );
```

```
        }
      csv.close();
      ret = true;
      }
    else if( s1 == "ASCII " )
      {
#if 0
      std::cerr « "ASCII is not handled" « std::endl;
      std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
      fn += ".asc";
      std::ofstream out( fn.c_str() );
      out.write( bv->GetPointer() , bv->GetLength() );
      out.close();
#endif
      std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
      fn += ".sin";
      std::ofstream sin( fn.c_str() );

      const char *beg = bv->GetPointer();
      const char *end = beg + bv->GetLength();
      gdcm_assert( *beg == 0 );
      const char *p = beg + 1; // skip first \0
      size_t prev = 0;
      for( ; p != end; ++p )
        {
        if( *p == 0 )
          {
          const char *s = beg + prev + 1;
          if( *s )
            {
            sin « s « std::endl;
            }
          else
            {
            sin « std::endl;
            }
          prev = p - beg;
          }
        }
      sin.close();

      ret = true;
      }
    else if( s1 == "BINARY" )
      {
      std::cerr « "BINARY is not handled" « std::endl;
      std::string fn = gdcm::LOComp::Trim( s0.c_str() ); // remove trailing space
      fn += ".bin";
      std::ofstream out( fn.c_str() );
      //out.write( bv->GetPointer() + 512, bv->GetLength() - 512);
      out.write( bv->GetPointer() , bv->GetLength() );
      out.close();

#if 0
      int array[ 128 ];
      memcpy( array, bv->GetPointer(), 512 );
      for( int i = 0; i < 14; ++i )
        {
        std::cout « array[i] « std::endl;
        }
#endif

      ret = true;
      }
    }
  // else -> ret == false
  gdcm_assert( ret );

  return ret;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
```

```
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();
/*
(2005,1132) SQ                                          # u/l,1 ?
  (fffe,e000) na (Item with undefined length)
    (2005,0011) LO [Philips MR Imaging DD 002 ]         # 26,1 Private Creator
    (2005,1137) PN (LO) [PDF_CONTROL_GEN_PARS]          # 20,1 ?
    (2005,1138) PN (LO) (no value)                      # 0,1 ?
    (2005,1139) PN (LO) [IEEE_PDF]                      # 8,1 ?
    (2005,1140) PN (LO) (no value)                      # 0,1 ?
    (2005,1141) PN (LO) (no value)                      # 0,1 ?
    (2005,1143) SL 3103                                 # 4,1 ?
    (2005,1144) OW
      66\05\00\00\3b\01\00\00\4a\0a\00\00\0e\00\00\00\7a\0a\00\00\95\01\00\00\08\00\00\00\1b\00\00\00\43\47\45\4e\5f\75\73\65\72\5
      # 3104,1 ?
    (2005,1147) CS [Y ]                                 # 2,1 ?
  (fffe,e00d)
*/
  const gdcm::PrivateTag pt(0x2005,0x32,"Philips MR Imaging DD 002");
  if( !ds.FindDataElement( pt ) ) return 1;
  const gdcm::DataElement &de = ds.GetDataElement( pt );
  if( de.IsEmpty() ) return 1;

  gdcm::SequenceOfItems *sqi = de.GetValueAsSQ();
  if ( !sqi ) return 1;
  gdcm::SequenceOfItems::SizeType s = sqi->GetNumberOfItems();
  for( gdcm::SequenceOfItems::SizeType i = 1; i <= s; ++i )
    {
    gdcm::Item &item = sqi->GetItem(i);

    gdcm::DataSet &nestedds = item.GetNestedDataSet();

    if( !ProcessNested( nestedds ) ) {
      std::cerr « "Error processing Item #" « i « std::endl;
    }
    }

  return 0;
}
```

14.52 DumpGEMSMovieGroup.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmImage.h"
#include "gdcmImageWriter.h"
#include "gdcmDataElement.h"
#include "gdcmPrivateTag.h"
#include "gdcmUIDGenerator.h"

#include <iostream>
#include <string>

#include <map>

bool PrintNameValueMapping( gdcm::SequenceOfItems *sqi_values,
gdcm::SequenceOfItems *sqi_names, std::string const & indent )
{
  using namespace gdcm;
  // prepare names mapping:
  typedef VRToType<VR::UL>::Type UL;
  std::map< UL, std::string > names;
  gdcm_assert( sqi_names );
  gdcm_assert( sqi_values );
```

```
  SequenceOfItems::SizeType s = sqi_names->GetNumberOfItems();
  PrivateTag tindex(0x7fe1,0x71,"GEMS_Ultrasound_MovieGroup_001");
  PrivateTag tname (0x7fe1,0x72,"GEMS_Ultrasound_MovieGroup_001");
  // First sequence contains all possible names (this is a dict)
  for( SequenceOfItems::SizeType i = 1; i <= s; ++i )
    {
    const Item & item = sqi_names->GetItem( i );
    const DataSet & ds = item.GetNestedDataSet();
    if( !ds.FindDataElement( tindex )
      || !ds.FindDataElement( tname ) )
      {
      gdcm_assert( 0 );
      return false;
      }
    const DataElement & index = ds.GetDataElement( tindex );
    const DataElement & name = ds.GetDataElement( tname );
    if( index.IsEmpty() || name.IsEmpty() )
      {
      gdcm_assert( 0 );
      return false;
      }
    gdcm::Element<VR::UL, VM::VM1> el1;
    el1.SetFromDataElement( index );

    gdcm::Element<VR::LO, VM::VM1> el2;
    el2.SetFromDataElement( name );
//    std::cout « el1.GetValue() « " " « el2.GetValue() « std::endl;
    names.insert( std::make_pair( el1.GetValue(), el2.GetValue() ) );
    }

  SequenceOfItems::SizeType s2 = sqi_values->GetNumberOfItems();
  gdcm_assert( s2 <= s );
  PrivateTag tindex2(0x7fe1,0x48,"GEMS_Ultrasound_MovieGroup_001");
  for( SequenceOfItems::SizeType i = 1; i <= s2; ++i )
    {
    const Item & item = sqi_values->GetItem( i );
    const DataSet & ds = item.GetNestedDataSet();
    if( !ds.FindDataElement( tindex2 ) )
      {
      gdcm_assert( 0 );
      return false;
      }
    const DataElement & index2 = ds.GetDataElement( tindex2 );
    if( index2.IsEmpty() )
      {
      gdcm_assert( 0 );
      return false;
      }
    gdcm::Element<VR::FD, VM::VM1_2> el1;
    el1.SetFromDataElement( index2 );

    UL copy = (UL)el1.GetValue();
#if 1
    std::cout « indent;
    std::cout « "( " « names[ copy ];
#endif
    // (7fe1,1052) FD 1560                                     # 8,1 ?
    // (7fe1,1057) LT [MscSkelSup]                             # 10,1 ?
    //PrivateTag tvalue(0x7fe1,0x52,"GEMS_Ultrasound_MovieGroup_001");
    PrivateTag tvalueint(0x7fe1,0x49,"GEMS_Ultrasound_MovieGroup_001"); // UL
    PrivateTag tvaluefloat1(0x7fe1,0x51,"GEMS_Ultrasound_MovieGroup_001"); // FL
    PrivateTag tvaluefloat(0x7fe1,0x52,"GEMS_Ultrasound_MovieGroup_001"); // FD
    PrivateTag tvalueul(0x7fe1,0x53,"GEMS_Ultrasound_MovieGroup_001"); // UL
    PrivateTag tvaluesl(0x7fe1,0x54,"GEMS_Ultrasound_MovieGroup_001"); // SL
    PrivateTag tvalueob(0x7fe1,0x55,"GEMS_Ultrasound_MovieGroup_001"); // OB
    PrivateTag tvaluetext(0x7fe1,0x57,"GEMS_Ultrasound_MovieGroup_001");  // LT
    PrivateTag tvaluefd(0x7fe1,0x77,"GEMS_Ultrasound_MovieGroup_001");  // FD / 1-N
    PrivateTag tvaluesl3(0x7fe1,0x79,"GEMS_Ultrasound_MovieGroup_001");  // SL / 1-N
    PrivateTag tvaluesl2(0x7fe1,0x86,"GEMS_Ultrasound_MovieGroup_001");  // SL ??
    PrivateTag tvaluefd1(0x7fe1,0x87,"GEMS_Ultrasound_MovieGroup_001");  // FD / 1-N
    PrivateTag tvaluefloat2(0x7fe1,0x88,"GEMS_Ultrasound_MovieGroup_001");  // FD ??
#if 1
    std::cout « " ) = ";
#endif
    if( ds.FindDataElement( tvalueint ) )
      {
      const DataElement & value = ds.GetDataElement( tvalueint );
      gdcm::Element<VR::UL,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout « el2.GetValue() « std::endl;
      }
```

```
    else if( ds.FindDataElement( tvaluefloat1 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefloat1 );
      gdcm::Element<VR::FL,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout << el2.GetValue() << std::endl;
      }
    else if( ds.FindDataElement( tvaluefloat ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefloat );
      gdcm::Element<VR::FD,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout << el2.GetValue() << std::endl;
      }
    else if( ds.FindDataElement( tvaluesl ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluesl );
      gdcm::Element<VR::SL,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout << el2.GetValue() << std::endl;
      }
    else if( ds.FindDataElement( tvalueul ) )
      {
      const DataElement & value = ds.GetDataElement( tvalueul );
      gdcm::Element<VR::UL,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      gdcm_assert( el2.GetLength() == 1 );
      std::cout << el2.GetValue() << std::endl;
      }
    else if( ds.FindDataElement( tvalueob ) )
      {
      const DataElement & value = ds.GetDataElement( tvalueob );
//      gdcm::Element<VR::SL,VM::VM1> el2;
//      el2.SetFromDataElement( value );
//      std::cout << el2.GetValue() << std::endl;
      std::cout << value << std::endl;
      }
    else if( ds.FindDataElement( tvaluetext ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluetext );
      gdcm::Element<VR::LT,VM::VM1> el2;
      el2.SetFromDataElement( value );
      std::cout << el2.GetValue() << std::endl;
      }
    else if( ds.FindDataElement( tvaluesl2 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluesl2 );
      gdcm::Element<VR::SL,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
      gdcm_assert( el2.GetLength() == 4 );
      std::cout << std::endl;
      }
    else if( ds.FindDataElement( tvaluesl3 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluesl3 );
      gdcm::Element<VR::SL,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
//      gdcm_assert( el2.GetLength() == 4 );
      std::cout << std::endl;
      }
    else if( ds.FindDataElement( tvaluefd ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefd );
      gdcm::Element<VR::FD,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
//      gdcm_assert( el2.GetLength() == 4 || el2.GetLength() == 3 || el2.GetLength() == 8 );
      std::cout << std::endl;
      }
    else if( ds.FindDataElement( tvaluefloat2 ) )
      {
      const DataElement & value = ds.GetDataElement( tvaluefloat2 );
      gdcm::Element<VR::FD,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
      gdcm_assert( el2.GetLength() == 2 );
      std::cout << std::endl;
      }
    else if( ds.FindDataElement( tvaluefd1 ) )
```

```
      {
      const DataElement & value = ds.GetDataElement( tvaluefd1 );
      gdcm::Element<VR::FD,VM::VM1_n> el2;
      el2.SetFromDataElement( value );
      el2.Print( std::cout );
      gdcm_assert( el2.GetLength() == 4 );
      std::cout << std::endl;
      }
    else
      {
      std::cout << "(no value)" << std::endl;
//      std::cout << ds << std::endl;
      gdcm_assert( ds.Size() == 2 );
      }
    }
  return true;
}

bool PrintNameValueMapping2( gdcm::PrivateTag const & privtag, const gdcm::DataSet & ds ,
  gdcm::SequenceOfItems *sqi_names, std::string const & indent )
{
  if( !ds.FindDataElement( privtag ) ) return false;
  const gdcm::DataElement& seq_values = ds.GetDataElement( privtag );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = seq_values.GetValueAsSQ();

  return PrintNameValueMapping( sqi, sqi_names, indent);
}

bool PrintNameValueMapping3( gdcm::PrivateTag const & privtag1, gdcm::PrivateTag const & privtag2, const
      gdcm::DataSet & ds ,
gdcm::SequenceOfItems *sqi_names, std::string const & indent )
{
  if( !ds.FindDataElement( privtag1 ) )
    {
    gdcm_assert( 0 );
    return false;
    }
  const gdcm::DataElement& values10name = ds.GetDataElement( privtag1 );
  gdcm::Element<gdcm::VR::LO,gdcm::VM::VM1> el;
  el.SetFromDataElement( values10name );
  std::cout << std::endl;
  std::cout << " <" << el.GetValue().c_str() << ">" << std::endl;

  return PrintNameValueMapping2( privtag2, ds, sqi_names, indent);
}

bool print73( gdcm::DataSet const & ds10, gdcm::SequenceOfItems *sqi_dict, std::string const & indent )
{
  const gdcm::PrivateTag tseq_values73(0x7fe1,0x73,"GEMS_Ultrasound_MovieGroup_001");
  if( !ds10.FindDataElement( tseq_values73 ) )
    {
    std::cout << indent << "No group 73" << std::endl;
    return false;
    }
  const gdcm::DataElement& seq_values73 = ds10.GetDataElement( tseq_values73 );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values73 = seq_values73.GetValueAsSQ();

  size_t ni3 = sqi_values73->GetNumberOfItems();
  for( size_t i3 = 1; i3 <= ni3; ++i3 )
    {
    gdcm::Item &item_73 = sqi_values73->GetItem(i3);
    gdcm::DataSet &ds73 = item_73.GetNestedDataSet();
    gdcm_assert( ds73.Size() == 3 );

    const gdcm::PrivateTag tseq_values74name(0x7fe1,0x74,"GEMS_Ultrasound_MovieGroup_001");
    const gdcm::PrivateTag tseq_values75(0x7fe1,0x75,"GEMS_Ultrasound_MovieGroup_001");
    PrintNameValueMapping3( tseq_values74name, tseq_values75, ds73, sqi_dict, indent);
    std::cout << std::endl;
    }
  return true;
}

bool print36( gdcm::DataSet const & ds10, gdcm::SequenceOfItems *sqi_dict, std::string const & indent )
{
  (void)sqi_dict;
  const gdcm::PrivateTag tseq_values36(0x7fe1,0x36,"GEMS_Ultrasound_MovieGroup_001");
  if( !ds10.FindDataElement( tseq_values36 ) )
    {
    std::cout << indent << "No group 36" << std::endl;
    return false;
    }
```

```
  const gdcm::DataElement& seq_values36 = ds10.GetDataElement( tseq_values36 );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values36 = seq_values36.GetValueAsSQ();

  size_t ni3 = sqi_values36->GetNumberOfItems();
  gdcm_assert( ni3 >= 1 );
  for( size_t i3 = 1; i3 <= ni3; ++i3 )
    {
    gdcm::Item &item_36 = sqi_values36->GetItem(i3);
    gdcm::DataSet &ds36 = item_36.GetNestedDataSet();
    gdcm_assert( ds36.Size() == 4 );

    // (7fe1,1037) UL 47  # 4,1 US MovieGroup Number of Frames
    // (7fe1,1043) OB 40\00\1c\c4\67\2f\0b\11\40         # 376,1 ?
    // (7fe1,1060) OB 4e\4e\49\4f\4e\47\46\43\2a         # 4562714,1 US MovieGroup Image Data
    //
    const gdcm::PrivateTag timagedata(0x7fe1,0x60,"GEMS_Ultrasound_MovieGroup_001");
    gdcm_assert( ds36.FindDataElement( timagedata ) );
    gdcm::DataElement const & imagedata = ds36.GetDataElement( timagedata );

      const gdcm::ByteValue * bv = imagedata.GetByteValue();
  gdcm_assert( bv );
      static int c = 0;
      std::stringstream ss;
      ss << "/tmp/debug";
      ss << c++;
      std::ofstream os( ss.str().c_str(), std::ios::binary );
      os.write( bv->GetPointer(), bv->GetLength() );
      os.close();

    //const gdcm::PrivateTag tseq_values85(0x7fe1,0x85,"GEMS_Ultrasound_MovieGroup_001");
    //PrintNameValueMapping3( tseq_values84name, tseq_values85, ds83, sqi_dict, indent);
    //std::cout << std::endl;
    }
  return true;
}
bool print83( gdcm::DataSet const & ds10, gdcm::SequenceOfItems *sqi_dict, std::string const & indent )
{
  const gdcm::PrivateTag tseq_values83(0x7fe1,0x83,"GEMS_Ultrasound_MovieGroup_001");
  if( !ds10.FindDataElement( tseq_values83 ) )
    {
    std::cout << indent << "No group 83" << std::endl;
    return false;
    }
  const gdcm::DataElement& seq_values83 = ds10.GetDataElement( tseq_values83 );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values83 = seq_values83.GetValueAsSQ();

  size_t ni3 = sqi_values83->GetNumberOfItems();
  for( size_t i3 = 1; i3 <= ni3; ++i3 )
    {
    gdcm::Item &item_83 = sqi_values83->GetItem(i3);
    gdcm::DataSet &ds83 = item_83.GetNestedDataSet();
    gdcm_assert( ds83.Size() == 3 );

    const gdcm::PrivateTag tseq_values84name(0x7fe1,0x84,"GEMS_Ultrasound_MovieGroup_001");
    const gdcm::PrivateTag tseq_values85(0x7fe1,0x85,"GEMS_Ultrasound_MovieGroup_001");
    PrintNameValueMapping3( tseq_values84name, tseq_values85, ds83, sqi_dict, indent);
    std::cout << std::endl;
    }
  return true;
}

bool PrintNameValueMapping4( gdcm::PrivateTag const & privtag0, const gdcm::DataSet & subds, gdcm::PrivateTag
      const & privtag1, gdcm::PrivateTag const & privtag2,
gdcm::SequenceOfItems *sqi_dict, std::string const & indent )
{
  (void)indent;
  if( !subds.FindDataElement( privtag0 ) )
    {
    gdcm_assert( 0 );
    return false;
    }
  const gdcm::DataElement& seq_values10 = subds.GetDataElement( privtag0 );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values10 = seq_values10.GetValueAsSQ();

  size_t ni1 = sqi_values10->GetNumberOfItems();
//  gdcm_assert( ni1 == 1 );
  for( size_t i1 = 1; i1 <= ni1; ++i1 )
    {
    gdcm::Item &item_10 = sqi_values10->GetItem(i1);
    gdcm::DataSet &ds10 = item_10.GetNestedDataSet();
    gdcm_assert( ds10.Size() == 2 + 3 );
```

```
    // (7fe1,0010)
    // (7fe1,1012)
    // (7fe1,1018)
    // (7fe1,1020)
    // (7fe1,1083)

    PrintNameValueMapping3( privtag1, privtag2, ds10, sqi_dict, "  " );
    std::cout « std::endl;

    const gdcm::PrivateTag tseq_values20(0x7fe1,0x20,"GEMS_Ultrasound_MovieGroup_001");
    if( !ds10.FindDataElement( tseq_values20 ) )
      {
      gdcm_assert( 0 );
      return false;
      }
    const gdcm::DataElement& seq_values20 = ds10.GetDataElement( tseq_values20 );
    gdcm::SmartPointer<gdcm::SequenceOfItems> sqi_values20 = seq_values20.GetValueAsSQ();

    size_t ni2 = sqi_values20->GetNumberOfItems();
    //gdcm_assert( ni == 1 );
    for( size_t i2 = 1; i2 <= ni2; ++i2 )
      {
      gdcm::Item &item_20 = sqi_values20->GetItem(i2);
      gdcm::DataSet &ds20 = item_20.GetNestedDataSet();
      size_t count = ds20.Size(); (void)count;
      gdcm_assert( ds20.Size() == 2 + 3 || ds20.Size() == 2 + 2 );
      // (7fe1,0010)
      // (7fe1,1024)
      // (7fe1,1026)
      // (7fe1,1036)
      // (7fe1,103a)
      // (7fe1,1083) (*)

      const gdcm::PrivateTag tseq_values20name(0x7fe1,0x24,"GEMS_Ultrasound_MovieGroup_001");
      const gdcm::PrivateTag tseq_values26(0x7fe1,0x26,"GEMS_Ultrasound_MovieGroup_001");
      PrintNameValueMapping3( tseq_values20name, tseq_values26, ds20, sqi_dict, "   ");
      std::cout « std::endl;

      print36(ds20, sqi_dict, "    ");
      print83(ds20, sqi_dict, "    ");
      }

    print83(ds10, sqi_dict, "   ");
    }
  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() ) return 1;

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  const PrivateTag tseq(0x7fe1,0x1,"GEMS_Ultrasound_MovieGroup_001");

  if( !ds.FindDataElement( tseq ) ) return 1;
  const DataElement& seq = ds.GetDataElement( tseq );

  SmartPointer<SequenceOfItems> sqi = seq.GetValueAsSQ();
  gdcm_assert( sqi->GetNumberOfItems() == 1 );

  Item &item = sqi->GetItem(1);
  DataSet &subds = item.GetNestedDataSet();

  const PrivateTag tseq_dict(0x7fe1,0x70,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds.FindDataElement( tseq_dict ) ) return 1;
  const DataElement& seq_dict = subds.GetDataElement( tseq_dict );
  SmartPointer<SequenceOfItems> sqi_dict = seq_dict.GetValueAsSQ();

  const PrivateTag tseq_values8(0x7fe1,0x8,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds.FindDataElement( tseq_values8 ) ) return 1;
  const DataElement& seq_values8 = subds.GetDataElement( tseq_values8 );
  SmartPointer<SequenceOfItems> sqi_values8 = seq_values8.GetValueAsSQ();

  const PrivateTag tseq_values8name(0x7fe1,0x2,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds.FindDataElement( tseq_values8name ) ) return 1;
```

```
  const DataElement& values8name = subds.GetDataElement( tseq_values8name );
{
  Element<VR::LO,VM::VM1> el;
  el.SetFromDataElement( values8name );
  std::cout « el.GetValue() « std::endl;
}
  size_t count = subds.Size(); (void)count;
  gdcm_assert( subds.Size() == 3 + 2 + 1 || subds.Size() == 3 + 2 + 2);

//  (7fe1,0010) # 30,1 Private Creator
//  (7fe1,1002) # 8,1 US MovieGroup Value 0008 Name
//  (7fe1,1003) # 4,1 ?
//  (7fe1,1008) # 8140,1 US MovieGroup Value 0008 Sequence
//  (7fe1,1010) # 1372196,1 ?
//  (7fe1,1070) # 33684,1 US MovieGroup Dict
//  (7fe1,1073) (*)
  PrintNameValueMapping( sqi_values8, sqi_dict, " ");

  const PrivateTag tseq_values10(0x7fe1,0x10,"GEMS_Ultrasound_MovieGroup_001");
  const PrivateTag tseq_values10name(0x7fe1,0x12,"GEMS_Ultrasound_MovieGroup_001");
  const PrivateTag tseq_values18(0x7fe1,0x18,"GEMS_Ultrasound_MovieGroup_001");
  PrintNameValueMapping4( tseq_values10, subds, tseq_values10name, tseq_values18, sqi_dict,"  ");

  print73( subds, sqi_dict, "  " );

#if 0
  gdcm::DataSet::ConstIterator it = subds.Begin();
  for( ; it != subds.End(); ++it )
    {
  const gdcm::DataElement &de = *it;
    std::cout « de.GetTag() « std::endl;
    }
#endif

  return 0;
}
```

14.53 DumpImageHeaderInfo.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Dump TOSHIBA MDW HEADER / Image Header Info
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <string.h>
#include <assert.h>
#include <stdint.h>

struct element
{
  std::istream & read( std::istream & is );
};

std::istream & element::read( std::istream & is )
{
  static const uint32_t ref = 0xe000fffe;
```

```
  std::ostream &os = std::cout;
  if( is.eof() )
    {
    return is;
    }
  uint32_t magic;
  if( !is.read( (char*)&magic, sizeof(magic) ) )
    {
    return is;
    }
  //os « magic « std::endl;
  gdcm_assert( magic == ref ); (void)ref;

  uint32_t l;
  is.read( (char*)&l, sizeof(l) );
  //os « l « std::endl;

  char str[17];
  str[16] = 0;
  is.read( str, 16 );
  os « str « " (" « l « ")" « std::endl;
  std::vector<char> bytes;
  bytes.resize( l - 16 );
  if( !bytes.empty() )
    {
    is.read( bytes.data(), l - 16 );
    }
  //os « "pos:" « is.tellg() « std::endl;

  if( strcmp(str, "TUSREMEASUREMENT" ) == 0 )
    {
    const char *p = bytes.data();
    uint32_t val;
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
#if 0
    float f;
    memcpy( (char*)&f, p, sizeof(f) );
    os « " " « f « std::endl;
    p += sizeof(f);
#else
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
#endif
    memcpy( (char*)&val, p, sizeof(val) );
    os « " " « val « std::endl;
    p += sizeof(val);
    char str2[17];
    memcpy( str2, p, 16 );
    str2[16] = 0;
    os « " " « str2 « std::endl;
    }

#if 0
  std::ofstream out( str, std::ios::binary );
  out.write( (char*)&magic, sizeof( magic ) );
  out.write( (char*)&l, sizeof( l ) );
  out.write( str, 16 );
  out.write( &bytes[0], bytes.size() );
#endif
  return is;
}

static bool DumpImageHeaderInfo( std::istream & is, size_t reflen )
```

```
{
  // TUSNONIMAGESTAM (5176)
  // TUSREMEASUREMEN (1352)
  // TUSBSINGLELAYOU (16)
  // TUSCLIPPARAMETE (104)

  element el;
  while( el.read( is ) )
    {
    }
  //size_t pos = is.tellg();
  //gdcm_assert( pos == reflen );
  (void)reflen;

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  const gdcm::PrivateTag timageheaderinfo(0x0029,0x10,"TOSHIBA MDW HEADER");
  if( !ds.FindDataElement( timageheaderinfo) ) return 1;
  const gdcm::DataElement& imageheaderinfo = ds.GetDataElement( timageheaderinfo );
  if ( imageheaderinfo.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = imageheaderinfo.GetByteValue();

  std::istringstream is;
  std::string dup( bv->GetPointer(), bv->GetLength() );
  is.str( dup );
  bool b = DumpImageHeaderInfo( is, bv->GetLength() );
  if( !b ) return 1;

#if 0
  const float d1 = 0.0041666668839752674; // 89 88 88 3B // 0x44c
  //const float d1 = 0.053231674455417881;
  const float d2 = 0.10828025639057159; // 0A C2 DD 3D // 0x1ac
  //const float d1 = 0.1786956206927281 3;
  //const unsigned int d2 = 4294967280;
  const float d3 = 0.10828025639057159; // 0A C2 DD 3D // 0x15c
  const int32_t d4 = 134;
  const uint32_t d5 = 1153476;
  std::ofstream t("/tmp/debug", std::ios::binary );
  //t.write( (char*)&d0, sizeof( d0 ) );
  t.write( (char*)&d1, sizeof( d1 ) );
  t.write( (char*)&d2, sizeof( d2 ) );
  t.write( (char*)&d3, sizeof( d3 ) );
  t.write( (char*)&d4, sizeof( d4 ) );
  t.write( (char*)&d5, sizeof( d5 ) );
  t.close();
#endif

  return 0;
}
```

14.54 DumpPhilipsECHO.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

```
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmDeflateStream.h"
#include "gdcm_zlib.h"

/*
 * This example extract the ZLIB compressed US image from a Philips private tag
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Usage:
 *
 * $ DumpPhilipsECHO private_us.dcm raw_us_img.raw
 * $ gdcmimg --sop-class-uid 1.2.840.10008.5.1.4.1.1.3.1 --size 608,427,88 raw_us_img.raw raw_us_img.dcm
 */

// header:
struct hframe
{
  uint32_t val0; // 800 increment ?
  uint16_t val1[2];
  uint16_t val2[2];
  uint32_t imgsize;

  bool operator==(const hframe &h) const
    {
    return val0 == h.val0 &&
      val1[0] == h.val1[0] &&
      val1[1] == h.val1[1] &&
      val2[0] == h.val2[0] &&
      val2[1] == h.val2[1] &&
      imgsize == h.imgsize;
    }

};

static bool ProcessDeflate( const char *outfilename, const int nslices, const
  int buf_size, const char *buf, const std::streampos len,
  const char *crcbuf, const size_t crclen )
{
  std::vector< hframe > crcheaders;
  crcheaders.reserve( nslices );
    {
    std::istringstream is;
    is.str( std::string( crcbuf, crclen ) );
    hframe header;
    for( int r = 0; r < nslices; ++r )
      {
      is.read( (char*)&header, sizeof( header ));
#if 0
      std::cout « header.val0
         « " " « header.val1[0]
         « " " « header.val1[1]
         « " " « header.val2[0]
         « " " « header.val2[1]
         « " " « header.imgsize « std::endl;
#endif
      crcheaders.push_back( header );
      }
    }

  std::istringstream is;
  is.str( std::string( buf, (size_t)len ) );

  std::streamoff totalsize;
  is.read( (char*)&totalsize, sizeof( totalsize ));
  gdcm_assert( totalsize == len );

  uint32_t nframes;
  is.read( (char*)&nframes, sizeof( nframes ));
```

```
  gdcm_assert( nframes == (uint32_t)nslices );

  std::vector< std::streamoff > offsets;
  offsets.reserve( nframes );
  for( uint32_t frame = 0; frame < nframes ; ++frame )
    {
    uint32_t offset;
    is.read( (char*)&offset, sizeof( offset ));
    offsets.push_back( offset );
    }

  std::vector<char> outbuf;

  const int size[2] = { 608, 427 }; // FIXME: where does it comes from ?
  std::stringstream ss;
  ss « outfilename;
  ss « '_';
  //ss « crcheaders[0].imgsize; // FIXME: Assume all header are identical !
  ss « size[0];
  ss « '_';
  ss « size[1];
  ss « '_';
  ss « nframes;
  ss « ".raw";
  std::ofstream os( ss.str().c_str(), std::ios::binary );

  gdcm_assert( buf_size >= size[0] * size[1] );
  outbuf.resize( buf_size );

  hframe header;
  //uint32_t prev = 0;
  for( unsigned int r = 0; r < nframes; ++r )
    {
    is.read( (char*)&header, sizeof( header ));

    gdcm_assert( header == crcheaders[r] );
    gdcm_assert( header.val1[0] == 2000 );
    gdcm_assert( header.val1[1] == 3 );
    gdcm_assert( header.val2[0] == 1 );
    gdcm_assert( header.val2[1] == 1280 );

    uLongf destLen = buf_size; // >= 608,427
    Bytef *dest = (Bytef*)outbuf.data();
    gdcm_assert( is.tellg() == offsets[r] + 16 );
    const Bytef *source = (const Bytef*)buf + offsets[r] + 16;
    uLong sourceLen;
    if( r + 1 == nframes )
      sourceLen = (uLong)totalsize - (uLong)offsets[r] - 16;
    else
      sourceLen = (uLong)offsets[r+1] - (uLong)offsets[r] - 16;
    // FIXME: in-memory decompression:
    int ret = uncompress (dest, &destLen, source, sourceLen);
    gdcm_assert( ret == Z_OK ); (void)ret;
    gdcm_assert( destLen >= (uLongf)size[0] * size[1] ); // 16bytes padding ?
    gdcm_assert( header.imgsize == (uint32_t)size[0] * size[1] );
    //os.write( &outbuf[0], outbuf.size() );
    os.write( outbuf.data(), size[0] * size[1] );

    // skip data:
    is.seekg( sourceLen, std::ios::cur );
    }
  os.close();
  gdcm_assert( is.tellg() == totalsize );

  return true;
}

static bool ProcessNone( const char *outfilename, const int nslices, const
  int buf_size, const char *buf, const std::streampos len,
  const char *crcbuf, const size_t crclen )
{
  std::vector< hframe > crcheaders;
  crcheaders.reserve( nslices );
    {
    std::istringstream is;
    is.str( std::string( crcbuf, crclen ) );
    hframe header;
    for( int r = 0; r < nslices; ++r )
      {
      is.read( (char*)&header, sizeof( header ));
#if 0
```

```
      std::cout « header.val0
         « " " « header.val1[0]
         « " " « header.val1[1]
         « " " « header.val2[0]
         « " " « header.val2[1]
         « " " « header.imgsize « std::endl;
#endif
      crcheaders.push_back( header );
      }
    }

  std::istringstream is;
  is.str( std::string( buf, (size_t)len ) );

  std::streampos totalsize;
  is.read( (char*)&totalsize, sizeof( totalsize ));
  gdcm_assert( totalsize == len );

  uint32_t nframes;
  is.read( (char*)&nframes, sizeof( nframes ));
  gdcm_assert( nframes == (uint32_t)nslices );

  std::vector< uint32_t > offsets;
  offsets.reserve( nframes );
  for( uint32_t frame = 0; frame < nframes ; ++frame )
    {
    uint32_t offset;
    is.read( (char*)&offset, sizeof( offset ));
    offsets.push_back( offset );
    //std::cout « offset « std::endl;
    }

  std::vector<char> outbuf;
  // No idea how to present the data, I'll just append everything, and present it as 2D
  std::stringstream ss;
  ss « outfilename;
  ss « '_';
  ss « crcheaders[0].imgsize; // FIXME: Assume all header are identical !
  ss « '_';
  ss « nframes;
  ss « ".raw";
  std::ofstream os( ss.str().c_str(), std::ios::binary );
  outbuf.resize( buf_size ); // overallocated + 16
  char *buffer = outbuf.data();

  hframe header;
  for( unsigned int r = 0; r < nframes; ++r )
    {
    is.read( (char*)&header, sizeof( header ));
#if 0
      std::cout « header.val0
         « " " « header.val1[0]
         « " " « header.val1[1]
         « " " « header.val2[0]
         « " " « header.val2[1]
         « " " « header.imgsize « std::endl;
#endif
    gdcm_assert( header == crcheaders[r] );

    is.read( buffer, buf_size - 16 );
    os.write( buffer, header.imgsize );
    }
  gdcm_assert( is.tellg() == totalsize );
  os.close();

  return true;
}

#ifndef NDEBUG
static const char * const UDM_USD_DATATYPE_STRINGS[] = {
  "UDM_USD_DATATYPE_DIN_2D_ECHO",
  "UDM_USD_DATATYPE_DIN_2D_ECHO_CONTRAST",
  "UDM_USD_DATATYPE_DIN_DOPPLER_CW",
  "UDM_USD_DATATYPE_DIN_DOPPLER_PW",
  "UDM_USD_DATATYPE_DIN_DOPPLER_PW_TDI",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_FLOW",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_PMI",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_CPA",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_TDI",
  "UDM_USD_DATATYPE_DIN_MMODE_ECHO",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR",
```

```
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR_TDI",
  "UDM_USD_DATATYPE_DIN_PARAM_BLOCK",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_VELOCITY",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_POWER",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_VARIANCE",
  "UDM_USD_DATATYPE_DIN_DOPPLER_AUDIO",
  "UDM_USD_DATATYPE_DIN_DOPPLER_HIGHQ",
  "UDM_USD_DATATYPE_DIN_PHYSIO",
  "UDM_USD_DATATYPE_DIN_2D_COLOR_STRAIN",
  "UDM_USD_DATATYPE_DIN_COMPOSITE_RGB",
  "UDM_USD_DATATYPE_DIN_XFOV_REALTIME_GRAPHICS",
  "UDM_USD_DATATYPE_DIN_XFOV_MOSAIC",
  "UDM_USD_DATATYPE_DIN_COMPOSITE_R",
  "UDM_USD_DATATYPE_DIN_COMPOSITE_G",
  "UDM_USD_DATATYPE_DIN_COMPOSITE_B",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR_VELOCITY",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR_POWER",
  "UDM_USD_DATATYPE_DIN_MMODE_COLOR_VARIANCE",
  "UDM_USD_DATATYPE_DIN_2D_ELASTO",
};

static inline bool is_valid( const char * datatype_str )
{
  static const int n = sizeof( UDM_USD_DATATYPE_STRINGS ) / sizeof( *UDM_USD_DATATYPE_STRINGS );
  bool found = false;
  if( datatype_str )
    {
    for( int i = 0; !found && i < n; ++i )
      {
      found = strcmp( datatype_str, UDM_USD_DATATYPE_STRINGS[i] ) == 0;
      }
    }
  return found;
}
#endif

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() ) return 1;

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds1 = file.GetDataSet();

  const PrivateTag tseq1(0x200d,0x3cf8,"Philips US Imaging DD 045");
  if( !ds1.FindDataElement( tseq1 ) ) return 1;
  const DataElement& seq1 = ds1.GetDataElement( tseq1 );

  SmartPointer<SequenceOfItems> sqi1 = seq1.GetValueAsSQ();
  gdcm_assert( sqi1->GetNumberOfItems() >= 1 );

  const size_t nitems = sqi1->GetNumberOfItems();
  for( size_t item = 1; item < nitems; ++item )
    {
    Item &item1 = sqi1->GetItem(item);
    DataSet &ds2 = item1.GetNestedDataSet();

    // (200d,300d)  LO  28  UDM_USD_DATATYPE_DIN_2D_ECHO
    const PrivateTag tdatatype(0x200d,0x300d,"Philips US Imaging DD 033");
    if( !ds2.FindDataElement( tdatatype ) ) return 1;
    const DataElement& datatype = ds2.GetDataElement( tdatatype );
    const ByteValue *bvdatatype = datatype.GetByteValue();
    if( !bvdatatype ) return 1;

    const PrivateTag tseq2(0x200d,0x3cf1,"Philips US Imaging DD 045");
    if( !ds2.FindDataElement( tseq2 ) ) return 1;
    const DataElement& seq2 = ds2.GetDataElement( tseq2 );

    SmartPointer<SequenceOfItems> sqi2 = seq2.GetValueAsSQ();
    gdcm_assert( sqi2->GetNumberOfItems() >= 1 );

    // FIXME: what if not in first Item ?
    gdcm_assert( sqi2->GetNumberOfItems() == 1 );
    Item &item2 = sqi2->GetItem(1);
    DataSet &ds3 = item2.GetNestedDataSet();

    const PrivateTag tzlib(0x200d,0x3cfa,"Philips US Imaging DD 045");
```

```
    if( !ds3.FindDataElement( tzlib ) ) return 1;
    const DataElement& zlib = ds3.GetDataElement( tzlib );

    const ByteValue *bv = zlib.GetByteValue();
    if( !bv ) return 1;
    if( bv->GetLength() != 4 ) return 1;

    // (200d,3010)  IS  2  88
    const PrivateTag tnslices(0x200d,0x3010,"Philips US Imaging DD 033");
    if( !ds3.FindDataElement( tnslices ) ) return 1;
    const DataElement& nslices = ds3.GetDataElement( tnslices );
    Element<VR::IS,VM::VM1> elnslices;
    elnslices.SetFromDataElement( nslices );
    const int nslicesref = elnslices.GetValue();
    gdcm_assert( nslicesref >= 0 );
    // (200d,3011)  IS  6  259648
    const PrivateTag tzalloc(0x200d,0x3011,"Philips US Imaging DD 033");
    if( !ds3.FindDataElement( tzalloc ) ) return 1;
    const DataElement& zalloc = ds3.GetDataElement( tzalloc );
    Element<VR::IS,VM::VM1> elzalloc;
    elzalloc.SetFromDataElement( zalloc );
    const int zallocref = elzalloc.GetValue();
    gdcm_assert( zallocref >= 0 );
    // (200d,3021)  IS  2  0
    const PrivateTag tzero(0x200d,0x3021,"Philips US Imaging DD 033");
    if( !ds3.FindDataElement( tzero ) ) return 1;
    const DataElement& zero = ds3.GetDataElement( tzero );
    Element<VR::IS,VM::VM1> elzero;
    elzero.SetFromDataElement( zero );
    const int zerocref = elzero.GetValue();
    gdcm_assert( zerocref == 0 ); (void)zerocref;

    // (200d,3cf3) OB
    const PrivateTag tdeflate(0x200d,0x3cf3,"Philips US Imaging DD 045");
    if( !ds3.FindDataElement( tdeflate) ) return 1;
    const DataElement& deflate = ds3.GetDataElement( tdeflate );
    const ByteValue *bv2 = deflate.GetByteValue();

    // (200d,3cfb) OB
    const PrivateTag tcrc(0x200d,0x3cfb,"Philips US Imaging DD 045");
    if( !ds3.FindDataElement( tcrc ) ) return 1;
    const DataElement& crc = ds3.GetDataElement( tcrc );
    const ByteValue *bv3 = crc.GetByteValue();

    std::string outfile = std::string( bvdatatype->GetPointer(), bvdatatype->GetLength() );
    outfile = LOComp::Trim( outfile.c_str() );
    const char *outfilename = outfile.c_str();
#ifndef NDEBUG
    gdcm_assert( is_valid(outfilename) );
#endif
    if( bv2 )
      {
      gdcm_assert( bv3 );
      gdcm_assert( zallocref > 0 );
      gdcm_assert( nslicesref > 0 );
      std::cout « ds2 « std::endl;

      if( strncmp(bv->GetPointer(), "ZLib", 4) == 0 )
        {
        if( !ProcessDeflate( outfilename, nslicesref, zallocref, bv2->GetPointer(),
            std::streampos(bv2->GetLength()), bv3->GetPointer(), bv3->GetLength() ) )
          {
          return 1;
          }
        }
      else if( strncmp(bv->GetPointer(), "None", 4) == 0 )
        {
        if( !ProcessNone( outfilename, nslicesref, zallocref, bv2->GetPointer(),
            std::streampos(bv2->GetLength()), bv3->GetPointer(), bv3->GetLength() ) )
          {
          return 1;
          }
        }
      else
        {
        std::string str( bv->GetPointer(), bv->GetLength() );
        std::cerr « "Unhandled: " « str « std::endl;
        return 1;
        }
      }
```

```
    }

  return 0;
}
```

14.55 DumpSiemensBase64.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * https://groups.google.com/forum/#!msg/comp.protocols.dicom/2kZ2lLP8EcM/WzjFrtjnAgAJ
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmPrinter.h"
#include "gdcmDictPrinter.h"
#include "gdcmCSAHeader.h"
#include "gdcmBase64.h"
#include "gdcmExplicitDataElement.h"
#include "gdcmSwapper.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <assert.h>

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
  {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
  }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  gdcm::CSAHeader csa;
  const gdcm::PrivateTag &t1 = csa.GetCSAImageHeaderInfoTag();
  if( !ds.FindDataElement( t1 ) ) return 1;
  csa.LoadFromDataElement( ds.GetDataElement( t1 ) );

  //const char name[] = "MRDiffusion";
  const char name[] = "MR_ASL";
  if( csa.FindCSAElementByName(name) )
  {
    const gdcm::CSAElement & el = csa.GetCSAElementByName(name);
    const gdcm::ByteValue* bv = el.GetByteValue();
    std::string str( bv->GetPointer(), bv->GetLength() );
    str.erase(std::remove(str.begin(), str.end(), '\n'), str.end());
    size_t dl = gdcm::Base64::GetDecodeLength( str.c_str(), str.size() );
    std::vector<char> buf;
    buf.resize( dl );
    size_t dl2 = gdcm::Base64::Decode( buf.data(), buf.size(), str.c_str(), str.size() );
    (void)dl2;
    std::stringstream ss;
    ss.str( std::string(buf.data(), buf.size()) );
    gdcm::File file;
    gdcm::DataSet &ds2 = file.GetDataSet();
    gdcm::DataElement xde;
    try
    {
```

```
      while( xde.Read<gdcm::ExplicitDataElement,gdcm::SwapperNoOp>( ss ) )
      {
        ds2.Insert( xde );
      }
      gdcm_assert( ss.eof() );
    }
    catch(std::exception &)
    {
      return 1;
    }
    gdcm::Printer p;
    p.SetFile( file );
    p.Print(std::cout);

  }

  return 0;
}
```

14.56 DumpToSQLITE3.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Ref:
 * http://massmail.spl.harvard.edu/public-archives/slicer-devel/2010/004408.html
 *
 * Implementation details:
 * http://www.sqlite.org/c3ref/bind_blob.html
 * http://www.adp-gmbh.ch/sqlite/bind_insert.html
 */
#include "gdcmScanner.h"
#include "gdcmDirectory.h"
#include "gdcmTag.h"
#include "gdcmTrace.h"

#include "sqlite3.h"

#include <stdio.h>
#include <time.h>

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    return 1;
    }
  time_t time_start = time(nullptr);

  gdcm::Trace::SetDebug( false );
  gdcm::Trace::SetWarning( false );
  const char *inputdirectory = argv[1];

  gdcm::Directory d;
  unsigned int nfiles = d.Load( inputdirectory, true);

  gdcm::Scanner s;
  using gdcm::Tag;
  s.AddTag( Tag(0x20,0xd) ); // Study Instance UID
  s.AddTag( Tag(0x20,0xe) ); // Series Instance UID

  bool b0 = s.Scan( d.GetFilenames() );
  if( !b0 ) return 1;
```

```
  time_t time_scanner = time(nullptr);

  std::cout « "Finished loading data from : " « nfiles « " files" « std::endl;

//  MappingType const &mappings = s.GetMappings();


  sqlite3* db;
  sqlite3_open("./dicom.db", &db);

  if(db == nullptr)
    {
    std::cerr « "Could not open database." « std::endl;
    return 1;
    }

  const char sql_stmt[] = "create table browser (seriesuid, studyuid)";
  int   ret;

  char *errmsg;
  ret = sqlite3_exec(db, sql_stmt, nullptr, nullptr, &errmsg);

  if(ret != SQLITE_OK)
    {
    printf("Error in statement: %s [%s].\n", sql_stmt, errmsg);
    return 1;
    }
  using gdcm::Directory;
  using gdcm::Scanner;
  const Directory::FilenamesType& files = d.GetFilenames();
  Directory::FilenamesType::const_iterator file = files.begin();

  sqlite3_stmt *stmt;
  if ( sqlite3_prepare(
      db,
      "insert into browser values (?,?)",  // stmt
      -1, // If than zero, then stmt is read up to the first nul terminator
      &stmt,
      nullptr  // Pointer to unused portion of stmt
  )
    != SQLITE_OK)
    {
    printf("\nCould not prepare statement.");
    return 1;
    }
  //printf("\nThe statement has %d wildcards\n", sqlite3_bind_parameter_count(stmt));
  for(; file != files.end(); ++file)
    {
    const char *filename = file->c_str();
    bool b = s.IsKey(filename);
    if( b )
      {
      const Scanner::TagToValue &mapping = s.GetMapping(filename);
      Scanner::TagToValue::const_iterator it = mapping.begin();

      sqlite3_reset(stmt);

      for( int index = 1; it != mapping.end(); ++it, ++index)
        {
        //const Tag & tag = it->first;
        const char *value = it->second;

        if (sqlite3_bind_text (
            stmt,
            index,  // Index of wildcard
            value,
            (int)strlen(value),  // length of text
            SQLITE_STATIC // SQLite assumes that the information is in static
        )
          != SQLITE_OK)
          {
          printf("\nCould not bind int.\n");
          return 1;
          }
        }
      if (sqlite3_step(stmt) != SQLITE_DONE)
        {
        printf("\nCould not step (execute) stmt.\n");
        return 1;
        }
      }
```

```
    }

  sqlite3_close(db);

  time_t time_sqlite = time(nullptr);

  std::cout « "Time to scan DICOM files: " « (time_scanner - time_start) « std::endl;
  std::cout « "Time to build SQLITE3: " « (time_sqlite - time_scanner) « std::endl;

  return 0;
}
```

14.57 DumpToshibaDTI.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * https://groups.google.com/d/msg/comp.protocols.dicom/7IaIkT0ZG5U/k7LPu81VvAMJ
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmPrinter.h"
#include "gdcmDictPrinter.h"

#include <iostream>
#include <fstream>
#include <vector>

#include <assert.h>

static bool DumpToshibaDTI( const char * input, size_t len )
{
  static int i = 0;
  ++i;
  if( len % 2 ) return false;

  std::vector<char> copy( input, input + len );
  std::reverse( copy.begin(), copy.end() );

#if 0
  std::ostringstream f;
  f « "debug" « i;
  std::ofstream of( f.str().c_str(), std::ios::binary );
  of.write( &copy[0], copy.size() );
  of.close();
#else

  std::istringstream is;
  std::string dup( copy.data(), copy.size() );
  is.str( dup );

  gdcm::File file;
  gdcm::FileMetaInformation & fmi = file.GetHeader();
  fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );
  gdcm::DataSet & ds = file.GetDataSet();
  ds.Read<gdcm::ExplicitDataElement,gdcm::SwapperNoOp>( is );

  //gdcm::DictPrinter p;
  gdcm::Printer p;
  p.SetFile( file );
  p.SetColor( true );
  p.Print( std::cout );
#endif

  return true;
```

```
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  // (0029,0010) ?? (LO) [PMTF INFORMATION DATA ]                      # 22,1 Private Creator
  // (0029,1001) ?? (SQ) (Sequence with undefined length)              # u/l,1 ?

  const gdcm::PrivateTag tpmtf(0x0029,0x1,"PMTF INFORMATION DATA");
  if( !ds.FindDataElement( tpmtf) ) return 1;
  const gdcm::DataElement& pmtf = ds.GetDataElement( tpmtf );
  if ( pmtf.IsEmpty() ) return 1;
  gdcm::SmartPointer<gdcm::SequenceOfItems> seq = pmtf.GetValueAsSQ();
  if ( !seq || !seq->GetNumberOfItems() ) return 1;

  size_t n = seq->GetNumberOfItems();
  for( size_t i = 1; i <= n; ++i )
    {
    gdcm::Item &item = seq->GetItem(i);
    gdcm::DataSet &subds = item.GetNestedDataSet();
    // (0029,0010) ?? (LO) [PMTF INFORMATION DATA ]                  # 22,1 Private Creator
    // (0029,1090) ?? (OB) 00\05\00\13\00\12\00\22\                  # 202,1 ?
    const gdcm::PrivateTag tseq(0x0029,0x90,"PMTF INFORMATION DATA");

    if( subds.FindDataElement( tseq ) )
      {
      const gdcm::DataElement & de = subds.GetDataElement( tseq );
      const gdcm::ByteValue * bv = de.GetByteValue();
      if( !bv ) return 1;

      bool b = DumpToshibaDTI( bv->GetPointer(), bv->GetLength() );
      if( !b ) return 1;
      }

    }

  return 0;
}
```

14.58 DumpToshibaDTI2.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 *
      https://gazelle.ihe.net/EVSClient/dicomResult.seam;jsessionid=x+Rf9Zs+ip49P+jC3L8SLZb8?&oid=1.3.6.1.4.1.12559.11.1.2.1.4.162
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmPrinter.h"
#include "gdcmDictPrinter.h"

#include <iostream>
#include <fstream>
```

```
#include <vector>

#include <assert.h>

static bool DumpToshibaDTI2( const char * input, size_t len )
{
  static int i = 0;
  ++i;
  if( len % 2 ) return false;

  std::vector<char> copy( input, input + len );
  std::reverse( copy.begin(), copy.end() );

#if 0
  std::ostringstream f;
  f « "debug" « i;
  std::ofstream of( f.str().c_str(), std::ios::binary );
  of.write( &copy[0], copy.size() );
  of.close();
#else

  std::istringstream is;
  std::string dup( copy.data(), copy.size() );
  is.str( dup );

  gdcm::File file;
  gdcm::FileMetaInformation & fmi = file.GetHeader();
  fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );
  gdcm::DataSet & ds = file.GetDataSet();
  ds.Read<gdcm::ExplicitDataElement,gdcm::SwapperNoOp>( is );

  //gdcm::DictPrinter p;
  gdcm::Printer p;
  p.SetFile( file );
  p.SetColor( true );
  p.Print( std::cout );
#endif

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  /*
  (0029,1001) SQ (Sequence with explicit length #=6)      # 18746, 1 Unknown Tag & Data
    (fffe,e000) na (Item with explicit length #=2)          # 206, 1 Item
      (0029,0010) LO [TOSHIBA_MEC_MR3]                        #  16, 1 PrivateCreator
      (0029,1090) OB 00\07\00\06\00\05\00\04\00\03\00\02\00\0c\00\01\00\00\00\00\12... # 170, 1 Unknown Tag &
      Data
    (fffe,e00d) na (ItemDelimitationItem for re-encoding)   #   0, 0 ItemDelimitationItem
    (fffe,e000) na (Item with explicit length #=2)          # 866, 1 Item
      (0029,0010) LO [TOSHIBA_MEC_MR3]                        #  16, 1 PrivateCreator
      (0029,1090) OB 45\4e\49\50\53\4c\20\52\41\5c\45\4e\49\50\53\4c\54\5c\52\45\53\55... # 830, 1 Unknown Tag &
      Data
  [...]
  (0029,1002) SQ (Sequence with explicit length #=1)      # 120, 1 Unknown Tag & Data
    (fffe,e000) na (Item with explicit length #=2)          # 112, 1 Item
      (0029,0010) LO [TOSHIBA_MEC_MR3]                        #  16, 1 PrivateCreator
      (0029,1090) OB 00\10\00\02\53\55\10\80\70\0d\30\31\5e\33\52\4d\5f\43\45\4d\5f\41... #  76, 1 Unknown Tag &
      Data
    (fffe,e00d) na (ItemDelimitationItem for re-encoding)   #   0, 0 ItemDelimitationItem
  */

  const gdcm::PrivateTag tmecmr3(0x0029,0x1,"TOSHIBA_MEC_MR3");
  if( !ds.FindDataElement( tmecmr3) ) return 1;
  const gdcm::DataElement& mecmr3 = ds.GetDataElement( tmecmr3 );
  if ( mecmr3.IsEmpty() ) return 1;
  gdcm::SmartPointer<gdcm::SequenceOfItems> seq = mecmr3.GetValueAsSQ();
```

```
  if ( !seq || !seq->GetNumberOfItems() ) return 1;

  size_t n = seq->GetNumberOfItems();
  for( size_t i = 1; i <= n; ++i )
    {
    gdcm::Item &item = seq->GetItem(i);
    gdcm::DataSet &subds = item.GetNestedDataSet();
    const gdcm::PrivateTag tseq(0x0029,0x90,"TOSHIBA_MEC_MR3");

    if( subds.FindDataElement( tseq ) )
      {
      const gdcm::DataElement & de = subds.GetDataElement( tseq );
      const gdcm::ByteValue * bv = de.GetByteValue();
      if( !bv ) return 1;

      bool b = DumpToshibaDTI2( bv->GetPointer(), bv->GetLength() );
      if( !b ) return 1;
      }

    }

  return 0;
}
```

14.59 DumpVisusChange.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmDirectory.h"
#include "gdcmStringFilter.h"

#include <vector>
#include <algorithm>

/*
 */
static bool process( std::vector<gdcm::DataElement> & ms, const char * filename)
{
  using namespace gdcm;
  Tag pd(0x7fe0,0x0000);
  std::set<gdcm::Tag> skiptags;
  skiptags.insert( pd );

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.ReadUpToTag( pd, skiptags ) )
  {
    std::cerr « "Failure to read: " « filename « std::endl;
    return false;
  }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds1 = file.GetDataSet();

  const gdcm::PrivateTag tseq1(0x5533,0x33,"Visus Change");
  if( !ds1.FindDataElement( tseq1 ) ) return true;
  const gdcm::DataElement& seq1 = ds1.GetDataElement( tseq1 );

  SmartPointer<SequenceOfItems> sqi1 = seq1.GetValueAsSQ();

  const size_t nitems = sqi1->GetNumberOfItems();
  for( size_t item = 1; item < nitems; ++item )
    {
    Item &item1 = sqi1->GetItem(item);
```

```
    DataSet &ds2 = item1.GetNestedDataSet();
    for(DataSet::ConstIterator it = ds2.Begin(); it != ds2.End(); ++it )
      {
      DataElement const & de = *it;
      // cannot simply use std::set here, see there is a discrepancy in between
      // operator== and operator<.
      // So only use operator== here:
      std::vector<DataElement>::iterator vit = std::find(ms.begin(), ms.end(), de);
      if( vit == ms.end() )
        ms.push_back(de);
      }
    }
  return true;
}

int main(int argc, char *argv[])
{
  bool usefastpath = true;

  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Directory::FilenamesType filenames;
  if( !gdcm::System::FileExists(filename) )
    {
    std::cerr << "Could not find file: " << filename << std::endl;
    return 1;
    }

  gdcm::Directory dir;
  if( gdcm::System::FileIsDirectory(filename) )
  {
    unsigned int nfiles = dir.Load(filename, false);
    if( nfiles == 0 )
      {
      std::cerr << "Could not find files: " << filename << std::endl;
      return 1;
      }
    filenames = dir.GetFilenames();
  }
  else
  {
    filenames.push_back( filename );
  }
  gdcm::StringFilter sf;

  Tag pd(0x7fe0,0x0000);
  std::set<gdcm::Tag> skiptags;
  skiptags.insert( pd );

  gdcm::Reader reader;
  reader.SetFileName( filenames[0].c_str() );
  if( !reader.ReadUpToTag( pd, skiptags ) )
  {
    std::cerr << "Could not read file: " << filename << std::endl;
    return 1;
  }
  gdcm::File &file = reader.GetFile();
  sf.SetFile(file);

  if( usefastpath ) {
    // Heuristic, assume if private tag cannot be found in first file, skip the directory
    gdcm::DataSet &ds1 = file.GetDataSet();

    const gdcm::PrivateTag tseq1(0x5533,0x33,"Visus Change");
    if( !ds1.FindDataElement( tseq1 ) ){
      std::cerr << "Could not find private tag in first file skipping whole directory: " << filename << std::endl;
      return 0;
    }
  }
  std::vector<DataElement> ms;
  for(gdcm::Directory::FilenamesType::const_iterator cit = filenames.begin(); cit != filenames.end(); ++cit )
  {
    if( !process(ms, cit->c_str()) ) {
      return 1;
    }
  }

  if( !ms.empty() ) {
    std::sort(ms.begin(), ms.end());
    std::cout << filename << ",\"";
```

```
    for(std::vector<DataElement>::const_iterator it = ms.begin(); it != ms.end(); ++it )
    {
      DataElement const & de = *it;
      std::string const & s = sf.ToString( de );
      std::cout « de.GetTag() « " " « s « std::endl;
    }
    std::cout « "\"" « std::endl;
  }

  return 0;
}
```

14.60 DuplicatePCDE.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
/*
  Usage:
  DuplicatePCDE gdcmData/D_CLUNIE_CT1_J2KI.dcm out.dcm

aka:
medical.nema.org/medical/dicom/DataSets/WG04/IMAGES/J2KI/CT1_J2KI

See:
  gdcmConformanceTests/CT1_J2KI_DuplicatePCDE.dcm

Original thread can be found at:

http://groups.google.com/group/comp.protocols.dicom/browse_thread/thread/82f28c4db28963af


Question:
1.
  There is no restriction for a specific Private Creator Data Element
(PCDE) to be unique within the same group, right ?
  Decoders of Private Data would have to handle the case where a PCDE
would be repeated and should NOT stop on the first instance of a
particular PCDE, right ?

  Eg. when searching for the tag associated with
(0x0029,0x0010,"SIEMENS CSA HEADER") in the following (pseudo)
dataset:

(0029,0010) LO [SIEMENS CSA HEADER]                     #  18, 1
PrivateCreator
(0029,0011) LO [SIEMENS MEDCOM HEADER]                  #  22, 1
PrivateCreator
(0029,0012) LO [SIEMENS MEDCOM HEADER2]                 #  22, 1
PrivateCreator
(0029,0013) LO [SIEMENS CSA HEADER]                     #  18, 1
PrivateCreator
(0029,1008) CS [IMAGE NUM 4]                            #  12, 1
CSAImageHeaderType
(0029,1009) LO [20050723]                               #   8, 1
CSAImageHeaderVersion
(0029,1010) OB 53\56\31\30\04\03\02\01\38\00\00\00\4d
\00\00\00\45\63\68\6f\4c\69... # 6788, 1 CSAImageHeaderInfo
(0029,1018) CS [MR]                                     #   2, 1
```

```
CSASeriesHeaderType
(0029,1019) LO [20050723]                                #   8, 1
CSASeriesHeaderVersion
(0029,1020) OB 53\56\31\30\04\03\02\01\2c\00\00\00\4d
\00\00\00\55\73\65\64\50\61... # 51520, 1 CSASeriesHeaderInfo
(0029,1131) LO [4.0.163088300]                           #  14, 1
PMTFInformation1
(0029,1132) UL 32768                                     #   4, 1
PMTFInformation2
(0029,1133) UL 0                                         #   4, 1
PMTFInformation3
(0029,1134) CS [DB TO DICOM]                             #  12, 1
PMTFInformation4
(0029,1260) ?? 63\6f\6d\20                               #   4, 1
Unknown Tag & Data
(0029,1310) OB 53\56\31\30\04\03\02\01\38\00\00\00\4d
\00\00\00\45\63\68\6f\4c\69... # 6788, 1 CSAImageHeaderInfo

  one should return two instances, correct ?

Answer:
I would say that this is covered in principle by the PS 3.5 7.1
"The Data Elements ... shall occur at most once in a Data Set"
rule, since the data element is defined by the tuple
(private creator,gggg,ee) where xxee is the element
number and xx is arbitrary and has no inherent meaning and
does not serve to disambiguate the data element.

E.g.:

(0019,0030) Private Creator ID = "Smith"
...
(0019,0032) Private Creator ID = "Smith"
...
(0019,3015) Fractal Index = "32"
...
(0019,3215) Fractal Index = "32"

would be illegal because even though they are assigned different
(completely arbitrary) blocks, with the same group, element
number and private creator, (0019,3015) and (0019,3215) are the
"same" data element.

*/

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  // Let's get all private element from group 0x9:
/*
(0009,0010) LO [GEMS_IDEN_01]                                    # 12,1 Private Creator
(0009,1001) LO [GE_GENESIS_FF ]                                  # 14,1 Full fidelity
(0009,1002) SH [CT01]                                            # 4,1 Suite id
(0009,1004) SH [HiSpeed CT/i]                                    # 12,1 Product id
(0009,1027) SL 862399669                                         # 4,1 Image actual date
(0009,1030) SH (no value)                                        # 0,1 Service id
(0009,1031) SH (no value)                                        # 0,1 Mobile location number
(0009,10e6) SH [05]                                              # 2,1 Genesis Version - now
(0009,10e7) UL 973283917                                         # 4,1 Exam Record checksum
(0009,10e9) SL 862399669                                         # 4,1 Actual series data time stamp
*/
  gdcm::Tag start(0x0009,0x0);
  // Create a temporary duplicate dataset, since we cannot insert data element as we go over them (std::set
  // would reorganize itself as we go over it ...)
  gdcm::DataSet dup;
```

```
  gdcm::Tag new_private(0x0009,0x0);
  while (start.GetGroup() == 0x9 )
    {
    const gdcm::DataElement& de = ds.FindNextDataElement(start);
    const gdcm::Tag &t = de.GetTag();
    if( t.IsPrivateCreator() )
      {
      std::cout « t « std::endl;
      // Ok let's duplicate into the next available attribute:
      gdcm::DataElement duplicate = de;
      duplicate.GetTag().SetElement( (uint16_t)(t.GetElement() + 1) );
      dup.Insert( duplicate );
      new_private = duplicate.GetTag();
      }
    else if( t.IsPrivate() && !t.IsPrivateCreator() )
      {
      //std::cout « de « std::endl;
      std::string owner = ds.GetPrivateCreator( de.GetTag() );
      //std::cout « owner « std::endl;
      gdcm::DataElement duplicate = de;
      duplicate.GetTag().SetPrivateCreator( new_private );
      if( const gdcm::ByteValue *bv = duplicate.GetByteValue() )
        {
        // Warning: when doing : duplicate = de, only the pointer to the ByteValue is passed
        // (to avoid large memory duplicate). We need to explicitly duplicate the bytevalue ourselves:
        gdcm::ByteValue *dupbv = new gdcm::ByteValue( bv->GetPointer(),
          bv->GetLength() );
        // Let's recognize the duplicated ASCII-type elements:
        if( duplicate.GetVR() & gdcm::VR::VRASCII )
          dupbv->Fill( 'X' );
        duplicate.SetValue( *dupbv );
        }
      dup.Insert( duplicate );
      }
    start = t;
    // move to next possible 'public' element
    start.SetElement( (uint16_t)(start.GetElement() + 1) );
    }

  gdcm::DataSet::ConstIterator it = dup.Begin();
  for( ; it != dup.End(); ++it )
    {
    ds.Insert( *it );
    }

  gdcm::Writer w;
  w.SetFile( file );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.61 ELSCINT1WaveToText.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"

/*
 * This example shows how to read a Wave Information tag from ELSCINT1
```

```
 * The wave information is stored in Tag (01e1,18,ELSCINT1) hidden in a
 * Secondary Capture Image Storage (usually a 'N' Symbol is shown)
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Gauthier Bouilhol
 */

template <typename T>
bool dumpargs(std::ostream & os, T c1, T c2, T c3, T c4, T c5, T c6, T c7, T c8)
{
  static const char sep = '\t';
  os « c1 « sep « c2 « sep « c3 « sep « c4 « sep « c5 « sep « c6 « sep « c7 « sep « c8;
  os « std::endl;
  return true;
}

bool wave2stream( std::ostream &text_file, const char *in, size_t len )
{
  const short * buffer = (const short*)in;
  size_t length = len / sizeof( short );
  text_file « "COMPLETE_WAVE" « '\t' « "MASK"       « '\t' « "AQUISITION_PROFIL" « '\t' « "END-INHALE" « '\t' «
      "END-EXHALE" « '\t' « "AQUISITION_WAVE" « '\t' « "WAVE_STATISTICS" « '\t' « "MASK"        « std::endl;
  for (size_t i=0;i<length-76;i+=2)
    {
    if ( i < 74 )
      {
      if (buffer[i+75] == 0)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                « '\t' « "  "         «
      '\t' « "  "         « '\t' « "  "              « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == 16384)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                « '\t' « buffer[i+74] «
      '\t' « "  "         « '\t' « "  "              « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == 256)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                « '\t' « "  "         «
      '\t' « buffer[i+74] « '\t' « "  "              « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == -32768)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                « '\t' « "  "         «
      '\t' « "  "         « '\t' « buffer[i+74]      « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == -16384)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                « '\t' « buffer[i+74] «
      '\t' « "  "         « '\t' « buffer[i+74]      « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      if (buffer[i+75] == -32512)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                « '\t' « "  "         «
      '\t' « buffer[i+74] « '\t' « buffer[i+74]      « '\t' « buffer[i]         « '\t' « buffer[i+1] «
      std::endl;
      }
    else
      {
      if (buffer[i+75] == 0)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                « '\t' « "  "         «
      '\t' « "  "         « '\t' « "  "              « '\t' « "  "              « '\t' « "  "         «
      std::endl;
      if (buffer[i+75] == 16384)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                « '\t' « buffer[i+74] «
      '\t' « "  "         « '\t' « "  "              « '\t' « "  "              « '\t' « "  "         «
      std::endl;
      if (buffer[i+75] == 256)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 0                « '\t' « "  "         «
      '\t' « buffer[i+74] « '\t' « "  "              « '\t' « "  "              « '\t' « "  "         «
      std::endl;
      if (buffer[i+75] == -32768)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                « '\t' « "  "         «
      '\t' « "  "         « '\t' « buffer[i+74]      « '\t' « "  "              « '\t' « "  "         «
      std::endl;
      if (buffer[i+75] == -16384)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                « '\t' « buffer[i+74] «
      '\t' « "  "         « '\t' « buffer[i+74]      « '\t' « "  "              « '\t' « "  "         «
```

```
      std::endl;
      if (buffer[i+75] == -32512)
        text_file « buffer[i+74]    « '\t' « buffer[i+75] « '\t' « 1                    « '\t' « "  "          «
      '\t' « buffer[i+74] « '\t' « buffer[i+74]      « '\t' « "  "               « '\t' « "  "        «
      std::endl;
      }
    }

  return true;
}

int main(int argc, char *argv [])
{
  if( argc < 3 ) return 1;
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  const gdcm::PrivateTag twave(0x01e1,0x18,"ELSCINT1");
  if( !ds.FindDataElement( twave ) ) return 1;
  const gdcm::DataElement& wave = ds.GetDataElement( twave );
  if ( wave.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = wave.GetByteValue();
  gdcm_assert( bv );

  std::ofstream os( outfilename, std::ios::binary );
  // Dump that to a CSV file:
  wave2stream( os, bv->GetPointer(), bv->GetLength() );
  os.close();

  return 0;
}
```

14.62 EmptyMask.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmEmptyMaskGenerator.h"

#include <string>
#include <cstring>

int main( int argc, char *argv[] )
{
  std::string inputdir;
  std::string outputdir;
  bool input_sopclassuid = true;
  bool grayscale_secondary_sopclassuid = false;
  if( argc < 3 ) return 1;
  inputdir = argv[1];
  outputdir = argv[2];
  // input_sopclassuid -> Use original SOP Class UID from input DICOM (Default).
  // grayscale_secondary_sopclassuid -> Use Grayscale Secondary Image Storage SOP Class UID.
  if( argc >= 3 )
  {
    input_sopclassuid = false;
    if( strcmp("input_sopclassuid", argv[3]) == 0 )
      input_sopclassuid = true;
```

```
    else if (strcmp("grayscale_secondary_sopclassuid", argv[3]) == 0 ) {
      grayscale_secondary_sopclassuid = true;
    }
  }

  //
  gdcm::EmptyMaskGenerator emg;
  if( input_sopclassuid )
    emg.SetSOPClassUIDMode( gdcm::EmptyMaskGenerator::UseOriginalSOPClassUID );
  else if( grayscale_secondary_sopclassuid )
    emg.SetSOPClassUIDMode( gdcm::EmptyMaskGenerator::UseGrayscaleSecondaryImageStorage );
  emg.SetInputDirectory( inputdir.c_str() );
  emg.SetOutputDirectory( outputdir.c_str() );
  if( !emg.Execute() )
  {
    return 1;
  }

  return 0;
}
```

14.63 EncapsulateFileInRawData.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmAnonymizer.h"
#include "gdcmWriter.h"
#include "gdcmUIDGenerator.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmSystem.h"

#include "magic.h" // libmagic, API to file command line tool

/*
 * Let say you want to encapsulate a file type that is not defined in DICOM (exe, zip, png)
 * PNG is a bad example, unless it contains transparency (which has been deprecated).
 * It will take care of dispatching each chunk to an appropriate data item (pretty much like
 * WaveformData)
 *
 * Usage:
 * ./EncapsulateFileInRawData large_input_file.exe large_input_file.dcm
 */

// TODO:
// $ file -bi /tmp/gdcm-2.1.0.pdf
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " inputfile output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  if( !gdcm::System::FileExists( filename ) ) return 1;

  size_t s = gdcm::System::FileSize(filename);
  if( !s ) return 1;

  magic_t cookie = magic_open(MAGIC_NONE);
  const char * file_type = magic_file(cookie, filename);
  if( !file_type ) return 1;
```

```
  magic_close(cookie);

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  //gdcm::DataSet &ds = file.GetDataSet();
  //w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ImplicitVRLittleEndian );

  gdcm::Anonymizer anon;
  anon.SetFile( file );

  gdcm::MediaStorage ms = gdcm::MediaStorage::RawDataStorage;

  gdcm::UIDGenerator gen;
  anon.Replace( gdcm::Tag(0x0008,0x16), ms.GetString() );
  std::cout << ms.GetString() << std::endl;
  anon.Replace( gdcm::Tag(0x0008,0x18), gen.Generate() );


  if (!w.Write() )
    {
    std::cerr << "Could not write: " << outfilename << std::endl;
    return 1;
    }

  return 0;
}
```

14.64 ExtractEncryptedContent.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"

#include <fstream>

/*

openssl smime -encrypt -binary -aes256 -in outputfile.dcm -inform DER -out outputfile.der -outform DER
      ../trunk/Testing/Source/Data/certificate.pem

openssl smime -decrypt -binary -in out.der -inform DER -out outputfile.dcm -outform DER -inkey
      ../trunk/Testing/Source/Data/privatekey.pem ../trunk/Testing/Source/Data/certificate.pem

 */

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr << argv[0] << " input.dcm output.der" << std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
```

```
  gdcm::DataSet &ds = file.GetDataSet();

  const gdcm::DataElement &EncryptedAttributesSequence = ds.GetDataElement( gdcm::Tag( 0x0400,0x0500 ) );

  gdcm::SequenceOfItems *sqi = EncryptedAttributesSequence.GetValueAsSQ();

  if ( !sqi || sqi->GetNumberOfItems() != 1 ) return 1;

  gdcm::Item &item = sqi->GetItem(1);

  gdcm::DataSet &nestedds = item.GetNestedDataSet();

  if( ! nestedds.FindDataElement( gdcm::Tag( 0x0400,0x0520) ) ) return 1;

  const gdcm::DataElement &EncryptedContent = nestedds.GetDataElement( gdcm::Tag( 0x0400,0x0520) );

  const gdcm::ByteValue *bv = EncryptedContent.GetByteValue();

  std::ofstream of( outfilename, std::ios::binary );
  of.write( bv->GetPointer(), bv->GetLength() );
  of.close();

  return 0;
}
```

14.65 ExtractIconFromFile.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example shows how to either retrieve an Icon if present somewhere
 * in the file, or else generate one.
 */
#include "gdcmImageReader.h"
#include "gdcmPNMCodec.h"
#include "gdcmIconImageFilter.h"
#include "gdcmIconImageGenerator.h"

bool WriteIconAsPNM(const char* filename, const gdcm::IconImage& icon)
{
  gdcm::PNMCodec pnm;
  pnm.SetDimensions( icon.GetDimensions() );
  pnm.SetPixelFormat( icon.GetPixelFormat() );
  pnm.SetPhotometricInterpretation( icon.GetPhotometricInterpretation() );
  pnm.SetLUT( icon.GetLUT() );
  const gdcm::DataElement& in = icon.GetDataElement();
  bool b = pnm.Write( filename, in );
  gdcm_assert(b);
  return b;
}

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read (or not image): " « filename « std::endl;
    return 1;
    }

  gdcm::IconImageFilter iif;
  iif.SetFile( reader.GetFile() );
```

```
  bool b = iif.Extract();

  if( b )
    {
    const gdcm::IconImage &icon = iif.GetIconImage(0);
    icon.Print( std::cout );

    if( !icon.GetTransferSyntax().IsEncapsulated() )
      {
      // Let's write out this icon as PNM file
      WriteIconAsPNM("icon.ppm", icon);
      }
    else if( icon.GetTransferSyntax() == gdcm::TransferSyntax::JPEGBaselineProcess1
      || icon.GetTransferSyntax() == gdcm::TransferSyntax::JPEGExtendedProcess2_4
    )
      {
      const gdcm::DataElement& in = icon.GetDataElement();
      const gdcm::ByteValue *bv = in.GetByteValue();
      gdcm_assert( bv );
      std::ofstream out( "icon.jpg", std::ios::binary );
      out.write( bv->GetPointer(), bv->GetLength() );
      out.close();
      }
    }
  else
    {
    gdcm_assert( iif.GetNumberOfIconImages() == 0 );
    std::cerr « "No Icon Found anywhere in file" « std::endl;

    const gdcm::Image &img = reader.GetImage();
    gdcm::IconImageGenerator iig;
    iig.AutoPixelMinMax(true);
    iig.SetPixmap( img );
    const unsigned int idims[2] = { 64, 64 };
    iig.SetOutputDimensions( idims );
    //iig.SetPixelMinMax(60, 868);
    if( !iig.Generate() ) return 1;
    const gdcm::IconImage & icon = iig.GetIconImage();
    WriteIconAsPNM("icon.ppm", icon);
    }

  return 0;
}
```

14.66 Extracting_All_Resolution.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// This work was realised during the GSOC 2011 by Manoj Alwani

#include <fstream>
#include <stdint.h>
#include <string.h>
#include <assert.h>
#include <gdcm_j2k.h>
#include <gdcm_jp2.h>
#include<iostream>
#include <cstring>
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include <math.h>
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmSystem.h"
```

```
#include <fstream>



#include "gdcm_openjpeg.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmAnonymizer.h"
#include "gdcmStreamImageWriter.h"
#include "gdcmImageHelper.h"
#include "gdcmTrace.h"

void error_callback(const char *msg, void *) {
  (void)msg;
}
void warning_callback(const char *msg, void *) {
  (void)msg;
}
void info_callback(const char *msg, void *) {
  (void)msg;
}


bool Write_Resolution(gdcm::StreamImageWriter & theStreamWriter, const char *filename, int res, std::ostream&
      of, int flag,  gdcm::SequenceOfItems *sq, int No_Of_Resolutions)
{
  std::ifstream is;
  is.open( filename, std::ios::binary );
  opj_dparameters_t parameters;  /* decompression parameters */
  opj_event_mgr_t event_mgr;    /* event manager */
  opj_dinfo_t* dinfo;  /* handle to a decompressor */
  opj_cio_t *cio;
  opj_image_t *image = NULL;
  // FIXME: Do some stupid work:
  is.seekg( 0, std::ios::end);
  std::streampos buf_size = is.tellg();
  char *dummy_buffer = new char[(unsigned int)buf_size];
  is.seekg(0, std::ios::beg);
  is.read( dummy_buffer, buf_size);
  unsigned char *src = (unsigned char*)dummy_buffer;
  uint32_t file_length = (uint32_t)buf_size; // 32bits truncation should be ok since DICOM cannot have larger
      than 2Gb image


  /* configure the event callbacks (not required) */
  memset(&event_mgr, 0, sizeof(opj_event_mgr_t));
  event_mgr.error_handler = error_callback;
  event_mgr.warning_handler = warning_callback;
  event_mgr.info_handler = info_callback;

  /* set decoding parameters to default values */
  opj_set_default_decoder_parameters(&parameters);

  // default blindly copied
  parameters.cp_layer=0;
  parameters.cp_reduce= res;
  //   parameters.decod_format=-1;
  //   parameters.cod_format=-1;

  const char jp2magic[] = "\x00\x00\x00\x0C\x6A\x50\x20\x20\x0D\x0A\x87\x0A";
  if( memcmp( src, jp2magic, sizeof(jp2magic) ) == 0 )
    {
    /* JPEG-2000 compressed image data ... sigh */
    // gdcmData/ELSCINT1_JP2vsJ2K.dcm
    // gdcmData/MAROTECH_CT_JP2Lossy.dcm
    //gdcmWarningMacro( "J2K start like JPEG-2000 compressed image data instead of codestream" );
    parameters.decod_format = 1; //JP2_CFMT;
    //gdcm_assert(parameters.decod_format == JP2_CFMT);
    }
  else
    {
    /* JPEG-2000 codestream */
    //parameters.decod_format = J2K_CFMT;
    //gdcm_assert(parameters.decod_format == J2K_CFMT);
```

```
    gdcm_assert( 0 );
    }
  parameters.cod_format = 11; // PGX_DFMT;
  //gdcm_assert(parameters.cod_format == PGX_DFMT);

  /* get a decoder handle */
    dinfo = opj_create_decompress(CODEC_JP2);

  /* catch events using our callbacks and give a local context */
  opj_set_event_mgr((opj_common_ptr)dinfo, &event_mgr, NULL);

  /* setup the decoder decoding parameters using user parameters */
  opj_setup_decoder(dinfo, &parameters);

  /* open a byte stream */
  cio = opj_cio_open((opj_common_ptr)dinfo, src, file_length);

  /* decode the stream and fill the image structure */
  image = opj_decode(dinfo, cio);
  if(!image) {
    opj_destroy_decompress(dinfo);
    opj_cio_close(cio);
    //gdcmErrorMacro( "opj_decode failed" );
    return 1;
  }

       opj_cp_t * cp = ((opj_jp2_t*)dinfo->jp2_handle)->j2k->cp;
       opj_tcp_t *tcp = &cp->tcps[0];
       opj_tccp_t *tccp = &tcp->tccps[0];
    /*   std::cout « "\n No of Cols In Image" « image->x1;
       std::cout « "\n No of Rows In Image" « image->y1;
       std::cout « "\n No of Components in Image" « image->numcomps;
       std::cout « "\n No of Resolutions"« tccp->numresolutions « "\n";
*/
        opj_j2k_t* j2k = NULL;
        opj_jp2_t* jp2 = NULL;
        jp2 = (opj_jp2_t*)dinfo->jp2_handle;
        int reversible = jp2->j2k->cp->tcps->tccps->qmfbid;
        //std:: cout « reversible;
       int compno = 0;
       opj_image_comp_t *comp = &image->comps[compno];
       int Dimensions[2];
       Dimensions[0]= comp->w;
       Dimensions[1] = comp->h;
       opj_cio_close(cio);
       unsigned long len = Dimensions[0]*Dimensions[1] * image->numcomps;
       //std::cout « "\nTest" «image->comps[0].factor;
       char *raw = new char[len];
  for (unsigned int compno = 0; compno < (unsigned int)image->numcomps; compno++)
    {
    opj_image_comp_t *comp = &image->comps[compno];

    int w = image->comps[compno].w;
    int h = image->comps[compno].h;
      uint8_t *data8 = (uint8_t*)raw + compno;
      for (int i = 0; i < w * h ; i++)
        {
        int v = image->comps[compno].data[i];
        *data8 = (uint8_t)v;
        data8 += image->numcomps;
        }
    }

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::UIDGenerator uid;
  gdcm::DataElement de( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( gdcm::VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, strlen(u) );
  ds.Insert( de );

  gdcm::DataElement de1( gdcm::Tag(0x8,0x16) );
  de1.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::CTImageStorage );
  de1.SetByteValue( ms.GetString(), strlen(ms.GetString()));
```

```
  ds.Insert( de1 );

  const char mystr[] = "MONOCHROME2 ";
  gdcm::DataElement de2( gdcm::Tag(0x28,0x04) );
  //de.SetTag(gdcm::Tag(0x28,0x04));
  de2.SetVR( gdcm::VR::CS );
  de2.SetByteValue(mystr, strlen(mystr));
  ds.Insert( de2 );

   gdcm::Attribute<0x0028,0x0010> row = {image->comps[0].w};
   //row.SetValue(512);
   ds.Insert( row.GetAsDataElement() );
//   w.SetCheckFileMetaInformation( true );
   gdcm::Attribute<0x0028,0x0011> col = {image->comps[0].h};
   ds.Insert( col.GetAsDataElement() );
   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
   ds.Insert( Number_Of_Frames.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0100> at = {8};
   ds.Insert( at.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0002> at1 = {image->numcomps};
   ds.Insert( at1.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0101> at2 = {8};
   ds.Insert( at2.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0102> at3 = {7};
  ds.Insert( at3.GetAsDataElement() );



  if (flag == 1)
  {

    for (int i=0; i < No_Of_Resolutions; i++)
    {

     int a = 1;
     int b =1;

     while(a!=((No_Of_Resolutions)-i))
        {
          b = b*2;
          a = a+1;
         }
     uint16_t row = (image->y1)/b;
     uint16_t col = (image->x1)/b;
     //std::cout « row;
     gdcm::Element<gdcm::VR::IS,gdcm::VM::VM1> el2;
     el2.SetValue(i+1);
     gdcm::DataElement rfn = el2.GetAsDataElement();     //ulr --> upper left row
     rfn.SetTag( gdcm::Tag(0x0008,0x1160) );

     gdcm::Element<gdcm::VR::US,gdcm::VM::VM2> el;
     el.SetValue(1,0);
     el.SetValue(1,1);
     gdcm::DataElement ulr = el.GetAsDataElement();     //ulr --> upper left col/row
     ulr.SetTag( gdcm::Tag(0x0048,0x0201) );

     gdcm::Element<gdcm::VR::US,gdcm::VM::VM2> el1;
     el1.SetValue(col,0);
     el1.SetValue(row,1);
     gdcm::DataElement brr = el1.GetAsDataElement();
     brr.SetTag( gdcm::Tag(0x0048,0x0202) );            //brr --> bottom right col/row
    gdcm::Item it;
    gdcm::DataSet &nds = it.GetNestedDataSet();
    nds.Insert( rfn );
    nds.Insert(ulr);
    nds.Insert(brr);

    sq->AddItem(it);
  }

  gdcm::Writer w1;
  gdcm::File &file1 = w1.GetFile();
  gdcm::DataSet &ds1 = file1.GetDataSet();
  file1.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::UIDGenerator uid1;
  gdcm::DataElement dea( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
```

```
  dea.SetVR( gdcm::VR::UI );
  const char *ui1 = uid1.Generate();
  dea.SetByteValue( ui1, strlen(ui1) );
  ds1.Insert( dea );

  gdcm::DataElement deb( gdcm::Tag(0x8,0x16) );
  deb.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms1( gdcm::MediaStorage::VLWholeSlideMicroscopyImageStorage );
  deb.SetByteValue( ms1.GetString(), strlen(ms1.GetString()));
  ds1.Insert( deb );

  const char mystr1[] = "MONOCHROME2 ";
  gdcm::DataElement dec( gdcm::Tag(0x28,0x04) );
  //de.SetTag(gdcm::Tag(0x28,0x04));
  dec.SetVR( gdcm::VR::CS );
  dec.SetByteValue(mystr, strlen(mystr1));
  ds1.Insert( dec );

   gdcm::Attribute<0x0028,0x0010> row1 = {image->y1};
   //row.SetValue(512);
   ds1.Insert( row1.GetAsDataElement() );
//  w.SetCheckFileMetaInformation( true );
   gdcm::Attribute<0x0028,0x0011> col1 = {image->x1};
   ds1.Insert( col1.GetAsDataElement() );
   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames1 = {tccp->numresolutions};
   ds1.Insert( Number_Of_Frames1.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0100> ata = {8};
   ds1.Insert( ata.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0002> atb = {image->numcomps};
   ds1.Insert( atb.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0101> atc = {8};
   ds1.Insert( atc.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0102> atd = {7};
  ds1.Insert( atd.GetAsDataElement() );

   theStreamWriter.SetFile(file1);

  gdcm::DataElement des( gdcm::Tag(0x0048,0x0200) );
  des.SetVR(gdcm::VR::SQ);
  //des.SetVR(gdcm::VM::VM1);
  des.SetValue(*sq);
  des.SetVLToUndefined();

  ds1.Insert(des);


  if (!theStreamWriter.WriteImageInformation()){
      std::cerr « "unable to write image information" « std::endl;
      return 1; //the CanWrite function should prevent getting here, else,
      //that's a test failure
    }

 }

   theStreamWriter.SetFile(file);

  if (!theStreamWriter.CanWriteFile()){
      delete [] raw;
      std::cout « "Not able to write";
      return 0;//this means that the file was unwritable, period.
      //very similar to a ReadImageInformation failure
    }
else
   std::cout«"\nabletoread";

 // Important to write here
 std::vector<unsigned int> extent = gdcm::ImageHelper::GetDimensionsValue(file);

    unsigned short xmax = extent[0];
    unsigned short ymax = extent[1];
    unsigned short theChunkSize = 4;
    unsigned short ychunk = extent[1]/theChunkSize; //go in chunk sizes of theChunkSize
    unsigned short zmax = extent[2];
    std::cout « "\n"«xmax « "\n" « ymax«"\n"«zmax«"\n" « image->numcomps«"\n";


    if (xmax == 0 || ymax == 0)
```

```
      {
      std::cerr « "Image has no size, unable to write zero-sized image." « std::endl;
      return 0;
      }


    int z, y, nexty;
    unsigned long prevLen = 0; //when going through the char buffer, make sure to grab
    //the bytes sequentially.  So, store how far you got in the buffer with each iteration.
    for (z = 0; z < zmax; ++z){
      for (y = 0; y < ymax; y += ychunk){
        nexty = y + ychunk;
        if (nexty > ymax) nexty = ymax;
        theStreamWriter.DefinePixelExtent(0, xmax, y, nexty, z, z+1);
        unsigned long len = theStreamWriter.DefineProperBufferLength();
        std::cout « "\n" «len;
        char* finalBuffer = new char[len];
        memcpy(finalBuffer, &(raw[prevLen]), len);
        std::cout « "\nable to write";
        if (!theStreamWriter.Write(finalBuffer, len)){
          std::cerr « "writing failure:" « "output.dcm" « " at y = " « y « " and z= " « z « std::endl;
          delete [] raw;
          delete [] finalBuffer;
          return 1;
        }
        delete [] finalBuffer;
        prevLen += len;
      }
    }
    delete raw;

  delete[] src;  //FIXME

if(dinfo) {
    opj_destroy_decompress(dinfo);
  }

 opj_image_destroy(image);

 return true;

}

bool Different_Resolution( gdcm::StreamImageWriter & theStreamWriter, const char *filename, int res,
      std::ostream& of)
{
  //std::vector<std::string>::const_iterator it = filenames.begin();
  bool b = true;
  int flag = 1;

 gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
 sq->SetLengthToUndefined();


  for(int i = res-1 ; i>=0; --i)
  {
    b = b && Write_Resolution( theStreamWriter, filename, i, of ,flag,sq,res);
   // b = b && Get_Resolution( theStreamWriter, filename, i, of ,0);
    flag = 0;
  }
  //b = b && Get_Lowest_Resolution( writer, sq, filename, res-1 );
  //b = b && PopulateSingeFile( writer, sq, jpeg, filename2 );
  //image.SetDimension(2,  res )
  return b;
}


int main(int argc, char *argv[])
{


   if( argc < 4 )
    {
    std::cerr « argv[0] « " input.jp2 output.dcm No. Of Resolutions " « std::endl;
    return 1;
    }
   const char *filename = argv[1];
  const char *outfilename = argv[2];
  char *resolutions = argv[3];
   int res = int((*resolutions)-48);
    //std:: cout « "\nres"« res;
```

```
   gdcm::StreamImageWriter theStreamWriter;

   std::ofstream of;
   of.open( outfilename, std::ios::out | std::ios::binary );
   theStreamWriter.SetStream(of);

   if( !Different_Resolution( theStreamWriter, filename,res,of ) ) return 1;

 uint16_t firstTag1 =  0xfffe;
 uint16_t secondTag1 = 0xe0dd;
 uint32_t thirdTag1 =  0x00000000;
 //uint16_t fourthTag1 = 0xffff;
 const int theBufferSize1 = 2*sizeof(uint16_t)+sizeof(uint32_t);
 char* tmpBuffer2 = new char[theBufferSize1];
 memcpy(&(tmpBuffer2[0]), &firstTag1, sizeof(uint16_t));
 memcpy(&(tmpBuffer2[sizeof(uint16_t)]), &secondTag1, sizeof(uint16_t));
 memcpy(&(tmpBuffer2[2*sizeof(uint16_t)]), &thirdTag1, sizeof(uint32_t));
 //memcpy(&(tmpBuffer2[3*sizeof(uint16_t)]), &fourthTag1, sizeof(uint16_t));
 gdcm_assert( of && !of.eof() && of.good() );
 of.write(tmpBuffer2, theBufferSize1);
 of.flush();
 gdcm_assert( of );



return 0;
}
```

14.67 Fake_Image_Using_Stream_Image_Writer.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// This work was realised during the GSOC 2011 by Manoj Alwani

#include "gdcmReader.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmAnonymizer.h"
#include "gdcmStreamImageWriter.h"
#include "gdcmImageHelper.h"
#include "gdcmTrace.h"

int main(int, char *[])
{

  char * buffer = new char[ 256 * 256 *3 ];
  // *p = (uint8_t*)buffer;
  char * p = buffer;

  gdcm::Trace::DebugOn();
  gdcm::Trace::WarningOn();

  for(int row = 0; row < 256; ++row)
  {
    for(int col = 0; col < 256; ++col)
      //for(int b = 0; b < 256; ++b)
      {
        *p++ = 255;
```

```
        *p++ = 0;
        *p++ = 0;
       }
  }

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::UIDGenerator uid;
  gdcm::DataElement de( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( gdcm::VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, strlen(u) );
  ds.Insert( de );

  gdcm::DataElement de1( gdcm::Tag(0x8,0x16) );
  de1.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::VLWholeSlideMicroscopyImageStorage );
  de1.SetByteValue( ms.GetString(), strlen(ms.GetString()));
  ds.Insert( de1 );

  const char mystr[] = "RGB";
  gdcm::DataElement de2( gdcm::Tag(0x28,0x04) );
  //de.SetTag(gdcm::Tag(0x28,0x04));
  de2.SetVR( gdcm::VR::CS );
  de2.SetByteValue(mystr, strlen(mystr));
  ds.Insert( de2 );

   gdcm::Attribute<0x0028,0x0010> row = {256};
   //row.SetValue(512);
   ds.Insert( row.GetAsDataElement() );
//  w.SetCheckFileMetaInformation( true );
   gdcm::Attribute<0x0028,0x0011> col = {256};
   ds.Insert( col.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
   ds.Insert( Number_Of_Frames.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0100> at = {8};
   ds.Insert( at.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0002> at1 = {3}; //bits per pixel
   ds.Insert( at1.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0101> at2 = {8};
   ds.Insert( at2.GetAsDataElement() );

  gdcm::Attribute<0x0028,0x0102> at3 = {7};
   ds.Insert( at3.GetAsDataElement() );

 gdcm::Attribute<0x0028,0x006> at4 = {0};
 ds.Insert( at4.GetAsDataElement() );

 gdcm::Attribute<0x0028,0x0103> at5 = {0};
 ds.Insert( at5.GetAsDataElement() );

 //de.SetTag(gdcm::Tag(0x7fe0,0x0010));
 //ds.Insert(de);

  gdcm::StreamImageWriter theStreamWriter;
gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
 sq->SetLengthToUndefined();

     uint16_t row1 = 256;
     uint16_t col1 = 256;
     //std::cout « row;

     gdcm::Element<gdcm::VR::IS,gdcm::VM::VM1> el2;
     el2.SetValue(1);
     gdcm::DataElement rfn = el2.GetAsDataElement();     //rfn ---> reference frame number
     rfn.SetTag( gdcm::Tag(0x0008,0x1160) );

     gdcm::Element<gdcm::VR::US,gdcm::VM::VM2> el;
     el.SetValue(1,0);
     el.SetValue(1,1);
     gdcm::DataElement ulr = el.GetAsDataElement();     //ulr --> upper left col/row
```

```
     ulr.SetTag( gdcm::Tag(0x0048,0x0201) );

     gdcm::Element<gdcm::VR::US,gdcm::VM::VM2> el1;
     el1.SetValue(col1,0);
     el1.SetValue(row1,1);
     gdcm::DataElement brr = el1.GetAsDataElement();
     brr.SetTag( gdcm::Tag(0x0048,0x0202) );            //brr --> bottom right col/row

    gdcm::Item it;
    gdcm::DataSet &nds = it.GetNestedDataSet();
    nds.Insert( rfn );
    nds.Insert(ulr);
    nds.Insert(brr);

    sq->AddItem(it);

  gdcm::DataElement des( gdcm::Tag(0x0048,0x0200) );
  des.SetVR(gdcm::VR::SQ);
  des.SetValue(*sq);
  des.SetVLToUndefined();

  ds.Insert(des);


 theStreamWriter.SetFile(file);

  std::ofstream of;
  of.open( "output.dcm", std::ios::out | std::ios::binary );
  theStreamWriter.SetStream(of);


if (!theStreamWriter.CanWriteFile()){
      delete [] buffer;
      std::cout « "Not able to write";
      return 0;//this means that the file was unwritable, period.
      //very similar to a ReadImageInformation failure
    }
else
   std::cout«"\nabletoread";

if (!theStreamWriter.WriteImageInformation()){
      std::cerr « "unable to write image information" « std::endl;
      delete [] buffer;
      return 1; //the CanWrite function should prevent getting here, else,
      //that's a test failure
    }

 std::vector<unsigned int> extent =
      gdcm::ImageHelper::GetDimensionsValue(file);

    unsigned short xmax = extent[0];
    unsigned short ymax = extent[1];
    unsigned short theChunkSize = 1;
    unsigned short ychunk = extent[1]/theChunkSize; //go in chunk sizes of theChunkSize
    unsigned short zmax = extent[2];

    std::cout « xmax « ymax « zmax;

    if (xmax == 0 || ymax == 0)
      {
      std::cerr « "Image has no size, unable to write zero-sized image." « std::endl;
      return 0;
      }

    int z, y, nexty;
    unsigned long prevLen = 0; //when going through the char buffer, make sure to grab
    //the bytes sequentially.  So, store how far you got in the buffer with each iteration.
    for (z = 0; z < zmax; ++z){
      for (y = 0; y < ymax; y += ychunk){
        nexty = y + ychunk;
        if (nexty > ymax) nexty = ymax;
        theStreamWriter.DefinePixelExtent(0, xmax, y, nexty, z, z+1);
        unsigned long len = theStreamWriter.DefineProperBufferLength();
        std::cout « "\n" «len;
        char* finalBuffer = new char[len];
        memcpy(finalBuffer, &(buffer[prevLen]), len);
        std::cout « "\nable to write";
        if (!theStreamWriter.Write(finalBuffer, len)){
          std::cerr « "writing failure:" « "output.dcm" « " at y = " « y « " and z= " « z « std::endl;
          delete [] buffer;
          delete [] finalBuffer;
```

```
          return 1;
        }
        delete [] finalBuffer;
        prevLen += len;
      }
    }
    delete buffer;

 uint16_t firstTag1 =  0xfffe;
 uint16_t secondTag1 = 0xe0dd;
 uint32_t thirdTag1 =  0x00000000;
 //uint16_t fourthTag1 = 0xffff;
 const int theBufferSize1 = 2*sizeof(uint16_t)+sizeof(uint32_t);
 char* tmpBuffer2 = new char[theBufferSize1];
 memcpy(&(tmpBuffer2[0]), &firstTag1, sizeof(uint16_t));
 memcpy(&(tmpBuffer2[sizeof(uint16_t)]), &secondTag1, sizeof(uint16_t));
 memcpy(&(tmpBuffer2[2*sizeof(uint16_t)]), &thirdTag1, sizeof(uint32_t));
 //memcpy(&(tmpBuffer2[3*sizeof(uint16_t)]), &fourthTag1, sizeof(uint16_t));
 gdcm_assert( of && !of.eof() && of.good() );
 of.write(tmpBuffer2, theBufferSize1);
 of.flush();
 gdcm_assert( of );


  return 0;
}
```

14.68 FixBrokenJ2K.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmFile.h"

// http://www.lost.in.ua/dicom/c.dcm
//
// -> BuggyJ2Kvvvua-fixed2-j2k.dcm

/*
 * This program attempts to fix a broken J2K/DICOM:
 * It contains 2 bugs:
 * 1. The first 8 bytes seems to be random bytes: remove them
 * 2. YCC is set to 1, while image is grayscale need to set it back to 0
 *
 * Ref:
 * It's a software from http://rentgenprom.ru/ , shipped with universal digital radiographic units
 * "ProScan-2000". The Ukrainian manufacturer developed own digital radiographic unit and it is
 * compatible with software from "ProScan-2000".
 * Information found in DICOM file is:
 *
 * (0008,0070) LO [ZAO "Renthenprom" (JSC Rentgenprom) ]             # 36,1 Manufacturer
 * (0018,1020) LO [2.13.1.7]                                         # 8,1-n Software Version(s)
 *
 */
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
```

```
const char *outfilename = argv[2];
gdcm::Reader reader;
reader.SetFileName( filename );
if( !reader.Read() )
  {
  return 1;
  }

gdcm::File &file = reader.GetFile();
const gdcm::DataElement &pixeldata0 = file.GetDataSet().GetDataElement( gdcm::Tag(0x7fe0,0x0010) );
const gdcm::SequenceOfFragments *sqf = pixeldata0.GetSequenceOfFragments();
if( !sqf )
  {
  return 1;
  }
const gdcm::Fragment &frag0 = sqf->GetFragment(0);

gdcm::ByteValue *bv = const_cast<gdcm::ByteValue*>(frag0.GetByteValue());
char *ptr = (char*)bv->GetVoidPointer();
size_t len = bv->GetLength();

static const unsigned char sig[] = {0,0,0,0,0x6A,0x70,0x32,0x63};
if( memcmp(ptr, sig, sizeof(sig)) != 0 )
  {
  std::cerr « "magic random signature not found" « std::endl;
  return 1;
  }

// Apparently the flag to enable a color transform on 3 color components is set in
// the COD marker. (YCC is byte[6] in the COD marker)
// we need to disable this flag;
char *cod_marker = ptr + 0x35; /* 0x2d + 0x8 */ // FIXME
if( cod_marker[0] == (char)0xff && cod_marker[1] == 0x52 )
  {
  // found start of COD
  if( cod_marker[6+2] == 1 )
    {
    // Change in place:
    *((char*)cod_marker + 6+2) = 0;
    // Prepare a new DataElement:
    gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
    pixeldata.SetVR( gdcm::VR::OB );
    gdcm::SmartPointer<gdcm::SequenceOfFragments> sq = new gdcm::SequenceOfFragments;

    gdcm::Fragment frag;
    // remove 8 first bytes:
    frag.SetByteValue( ptr + 8, (uint32_t)(len - 8) );
    sq->AddFragment( frag );
    pixeldata.SetValue( *sq );
    file.GetDataSet().Replace( pixeldata );
    }
  else
    {
    return 1;
    }
  }
else
  {
  std::cerr « "COD not found" « (int)cod_marker[0] « std::endl;
  return 1;
  }

gdcm::Writer writer;
writer.SetFile( reader.GetFile() );
writer.SetFileName( outfilename );
writer.CheckFileMetaInformationOff();
if( !writer.Write() )
  {
  std::cerr « "Could not write" « std::endl;
  }

// paranoid check:
gdcm::ImageReader ireader;
ireader.SetFileName( outfilename );
if( !ireader.Read() )
  {
  std::cerr « "file written is still not valid, please report" « std::endl;
  return 1;
```

```
    }


  return 0;
}
```

14.69 FixJAIBugJPEGLS.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmImageReader.h"

#include <fstream>

#include "gdcm_charls.h"

/*
 * This small example should show how one can handle the famous JAI-JPEGLS bug
 * It will take in as invalid DICOM/JAI-JPEG-LS and write out as Explicit Little
 * Endian. One can use `gdcmconv --jpegls' to recompress properly
 *
 * References:
 * http://charls.codeplex.com/discussions/230307?ProjectName=charls
 * http://charls.codeplex.com/workitem/7297
 * http://www.dcm4che.org/jira/browse/DCM-442
 * http://www.dcm4che.org/jira/browse/DCMEE-1144
 * http://java.net/jira/browse/JAI_IMAGEIO_CORE-183
 *
 * Explanation of the issue:
 *
 * Seems, the error is in the calculation of the default values for thresholds T1,
 * T2, T3, in particular min(MAXVAL, 4095) is not applied in
 *
 * FACTOR = (min(MAXVAL, 4095) + 128)/256
 *
 * as specified in http://www.itu.int/rec/T-REC-T.87-199806-I/en .
 *
 */
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::FileMetaInformation::SetSourceApplicationEntityTitle( "FixJAIBugJPEGLS" );

  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::Image &image = reader.GetImage();
  //unsigned long len = image.GetBufferLength();
  const gdcm::DataElement & in =
    reader.GetFile().GetDataSet().GetDataElement( gdcm::Tag(0x7fe0,0x0010) );
  const gdcm::SequenceOfFragments *sf = in.GetSequenceOfFragments();
  if( !sf )
    {
```

```
    std::cerr « "No pixel data (or not encapsulated)" « std::endl;
    return 1;
    }
  const unsigned int *dims = image.GetDimensions();
  if ( sf->GetNumberOfFragments() != dims[2] )
    {
    std::cerr « "Unsupported" « std::endl;
    return 1;
    }

//  unsigned long totalLen = sf->ComputeByteLength();
  std::vector<unsigned char> rgbyteOutall;
  for(unsigned int i = 0; i < sf->GetNumberOfFragments(); ++i)
    {
    const gdcm::Fragment &frag = sf->GetFragment(i);
    if( frag.IsEmpty() ) return 1;
    const gdcm::ByteValue *bv = frag.GetByteValue();
    if( !bv ) return 1;
    unsigned long totalLen = bv->GetLength();

    std::vector<char> vbuffer;
    vbuffer.resize( totalLen );
    char *buffer = vbuffer.data();
    bv->GetBuffer(buffer, totalLen);
    const unsigned char* pbyteCompressed0 = (const unsigned char*)buffer;
    while( totalLen > 0 && pbyteCompressed0[totalLen-1] != 0xd9 )
      {
      totalLen--;
      }

    JlsParameters metadata;
    char errorMsg[256+1]={'\0'};
    if (JpegLsReadHeader(buffer, totalLen, &metadata, errorMsg) != charls::ApiResult::OK)
      {
      std::cerr « "Can't parse jpegls: " « errorMsg « std::endl;
      return 1;
      }

    std::cout « metadata.width « std::endl;
    std::cout « metadata.height « std::endl;
    std::cout « metadata.bitsPerSample « std::endl;

    gdcm::PixelFormat const & pf = image.GetPixelFormat();
    std::cout « pf « std::endl;

    // http://charls.codeplex.com/discussions/230307?ProjectName=charls
    unsigned char marker_lse_13[] = {
      0xFF, 0xF8, 0x00, 0x0D,
      0x01,
      0x1F, 0xFF,
      0x00, 0x22,  // T1 = 34
      0x00, 0x83,  // T2 = 131
      0x02, 0x24,  // T3 = 548
      0x00, 0x40
    };

    unsigned char marker_lse_14[] = {
      0xFF, 0xF8, 0x00, 0x0D,
      0x01,
      0x3F, 0xFF,
      0x00, 0x42, // T1 = 66
      0x01, 0x03, // T2 = 259
      0x04, 0x44, // T3 = 1092
      0x00, 0x40
    };

    unsigned char marker_lse_15[] = {
      0xFF, 0xF8, 0x00, 0x0D,
      0x01,
      0x7F, 0xFF,
      0x00, 0x82, // T1 = 130
      0x02, 0x03, // T2 = 515
      0x08, 0x84, // T3 = 2180
      0x00, 0x40
    };

    unsigned char marker_lse_16[] = {
      0xFF, 0xF8, 0x00, 0x0D,
      0x01,
      0xFF, 0xFF,
      0x01, 0x02, // T1 = 258
```

```
      0x04, 0x03, // T2 = 1027
      0x11, 0x04, // T3 = 4356
      0x00, 0x40
    };

    const unsigned char *marker_lse = nullptr;
    switch( metadata.bitsPerSample )
      {
    case 13:
      marker_lse = marker_lse_13;
      break;
    case 14:
      marker_lse = marker_lse_14;
      break;
    case 15:
      marker_lse = marker_lse_15;
      break;
    case 16:
      marker_lse = marker_lse_16;
      break;
      }
    if( !marker_lse )
      {
      std::cerr « "Can't handle: " « metadata.bitsPerSample « std::endl;
      return 1;
      }

    // FIXME: One should recompute the value for 0x0F
    vbuffer.insert (vbuffer.begin() + 0x0F, marker_lse, marker_lse+15);

#if 0
    std::ofstream of( "/tmp/d.jls", std::ios::binary );
    of.write( &vbuffer[0], vbuffer.size() );
    of.close();
#endif

    const char *pbyteCompressed = vbuffer.data();
    size_t cbyteCompressed = vbuffer.size(); // updated length

    JlsParameters params;
    JpegLsReadHeader(pbyteCompressed, cbyteCompressed, &params, nullptr);

    std::vector<unsigned char> rgbyteOut;
    //rgbyteOut.resize( image.GetBufferLength() );
    rgbyteOut.resize(params.height *params.width * ((params.bitsPerSample + 7)
        / 8) * params.components);

    CharlsApiResultType result =
      JpegLsDecode(rgbyteOut.data(), rgbyteOut.size(), pbyteCompressed, cbyteCompressed, &params, errorMsg );
    if (result != charls::ApiResult::OK)
      {
      std::cerr « "Could not patch JAI-JPEGLS: " « errorMsg « std::endl;
      return 1;
      }
    rgbyteOutall.insert( rgbyteOutall.end(), rgbyteOut.begin(), rgbyteOut.end() );
    }

  gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
  pixeldata.SetVR( gdcm::VR::OW );
  pixeldata.SetByteValue( (char*)rgbyteOutall.data(), (uint32_t)rgbyteOutall.size() );


  // Add the pixel data element
  reader.GetFile().GetDataSet().Replace( pixeldata );
  reader.GetFile().GetHeader().SetDataSetTransferSyntax(
    gdcm::TransferSyntax::ExplicitVRLittleEndian);

  gdcm::Writer writer;
  writer.SetFileName( outfilename );
  writer.SetFile( reader.GetFile() );
  writer.Write();

  std::cout « "Success !" « std::endl;

  return 0;
}
```

14.70 FixOrientation.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmFile.h"
#include "gdcmOrientation.h"
#include "gdcmAttribute.h"

// Very simple orientation changer, fix invalid dataset
int main(int argc, char* argv[] )
{
  // assume AXIAL input for now
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if (! reader.Read() )
    {
    return 1;
    }

  const double axial[] = { 1,0,0, 0,1,0 };
  (void)axial;
  const double coronal[] = { 0,0,1, 1,0,0 };
  (void)coronal;
  const double sagittal[] = { 0,1,0, 0,0,1 };
  (void)sagittal;
  gdcm::Attribute<0x0020,0x0032> at1; // IPP
  (void)at1;
  gdcm::Attribute<0x0020,0x0037> at2; // IOP
  (void)at2;

  gdcm::File & f = reader.GetFile();
  gdcm::DataSet & ds = f.GetDataSet();
  at1.SetFromDataSet( ds );
#if 0
  at2.SetFromDataSet( ds );
  const double * iop = at2.GetValues();
  if( !std::equal(iop, iop + 6, axial ) )
  {
    gdcm::Orientation::OrientationType type = gdcm::Orientation::GetType ( iop );
    std::cerr « "Wrong orientation: " « gdcm::Orientation::GetLabel( type ) « std::endl;
    return 1;
  }
  at2.SetValues( sagittal );
  ds.Replace( at2.GetAsDataElement() );
#endif

  // for sagittal: swap element 0 & 2
  const double tmp0 = at1.GetValue(0);
  const double tmp2 = at1.GetValue(2);
  (void)tmp2;
  //at1.SetValue(tmp2, 0);
  //at1.SetValue(tmp0, 2);
  at1.SetValue( - tmp0 );
  ds.Replace( at1.GetAsDataElement() );

  gdcm::Writer writer;
  writer.SetFile( f );
  writer.SetFileName( outfilename );
  if ( !writer.Write() )
```

```
    {
    return 1;
    }

  return 0;
}
```

14.71 GenAllVR.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmGlobal.h"
#include "gdcmDummyValueGenerator.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmDicts.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmFileExplicitFilter.h"

#include <cstdlib>
#include <cstring>


gdcm::Tag FindTagFromVR(gdcm::Dict const &dict, gdcm::VR const &vr)
{
  using gdcm::Dict;
  Dict::ConstIterator beg = dict.Begin();
  Dict::ConstIterator end = dict.End();
  Dict::ConstIterator it;
  for( it = beg; it != end; ++it)
    {
    const gdcm::Tag &t = it->first;
    const gdcm::DictEntry &de = it->second;
    const gdcm::VR &vr_de = de.GetVR();
    if( vr == vr_de && !de.GetRetired() && t.GetGroup() >= 0x8 )
      {
      return t;
      }
    }
  return gdcm::Tag(0xffff,0xffff);
}

struct rnd_gen {
  rnd_gen(char const* r = "abcdefghijklmnopqrstuvwxyz0123456789")
    : range(r), len(std::strlen(r)) { }

  char operator ()() const {
    return range[static_cast<std::size_t>(std::rand() * (1.0 / ((double)RAND_MAX + 1.0 )) * (double)len)];
  }
private:
  char const* range;
  std::size_t len;
};

/*
 */
```

```
int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " output.dcm" « std::endl;
    return 1;
    }
  const char *outfilename = argv[1];
  static const gdcm::Global &g = gdcm::Global::GetInstance();
  static const gdcm::Dicts &dicts = g.GetDicts();
  static const gdcm::Dict &pubdict = dicts.GetPublicDict();
  using gdcm::VR;
  using gdcm::Tag;

  gdcm::Writer w;

  gdcm::File &f = w.GetFile();
  gdcm::DataSet &ds = f.GetDataSet();

  gdcm::FileExplicitFilter fef;
  //fef.SetChangePrivateTags( true );
  fef.SetFile( w.GetFile() );
  if( !fef.Change() )
    {
    std::cerr « "Failed to change" « std::endl;
    return 1;
    }

  gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
  sq->SetLengthToUndefined();

//  gdcm::DummyValueGenerator dvg;

  const std::size_t len = 10;
  char ss[len+1];
  ss[len] = '\0';

  const char owner_str[] = "GDCM CONFORMANCE TESTS";
  gdcm::DataElement owner( gdcm::Tag(0x4d4d, 0x10) );
  owner.SetByteValue(owner_str, (uint32_t)strlen(owner_str));
  owner.SetVR( gdcm::VR::LO );

  // Create an item
  gdcm::Item it;
  it.SetVLToUndefined();
  gdcm::DataSet &nds = it.GetNestedDataSet();
  //    nds.Insert(owner);
  //    nds.Insert(de);

  // Insert sequence into data set
  gdcm::DataElement des( gdcm::Tag(0x4d4d,0x1001) );
  des.SetVR(gdcm::VR::SQ);
  des.SetValue(*sq);
  des.SetVLToUndefined();

  ds.Insert(owner);
  ds.Insert(des);

  // avoid INVALID = 0
  for(int i = 1; i < 27; ++i)
    {
    VR vr = (VR::VRType)(1LL « i);
    Tag t = FindTagFromVR( pubdict, vr );
    if( vr != VR::UN && vr != VR::SQ )
      {
      gdcm_assert( t != Tag(0xffff,0xffff) );
      gdcm::DataElement de( t );
      std::generate_n(ss, len, rnd_gen());
      de.SetVR( vr );
      de.SetByteValue( ss, (uint32_t)std::strlen( ss ) );
      nds.Insert( de );
      }
    }
  sq->AddItem(it);

  // Make sure to override any UID stuff
  gdcm::UIDGenerator uid;
  gdcm::DataElement de( Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, (uint32_t)strlen(u) );
```

```
  ds.Insert( de );

  de.SetTag( Tag(0x8,0x16) ); // SOP Class UID
  de.SetVR( VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::RawDataStorage );
  de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.GetString()));
  ds.Insert( de );

  gdcm::FileMetaInformation &fmi = f.GetHeader();
  //fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ImplicitVRLittleEndian );
  fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.72 GenFakeIdentifyFile.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmGlobal.h"
#include "gdcmDummyValueGenerator.h"
#include "gdcmMediaStorage.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"
#include "gdcmDict.h"
#include "gdcmDictEntry.h"
#include "gdcmDicts.h"
#include "gdcmTransferSyntax.h"
#include "gdcmUIDGenerator.h"
#include "gdcmAnonymizer.h"

#include <cstdlib>
#include <cstring>

gdcm::DataElement CreateFakeElement(gdcm::Tag const &tag, bool toremove)
{
  static const gdcm::Global &g = gdcm::Global::GetInstance();
  static const gdcm::Dicts &dicts = g.GetDicts();
  static const gdcm::Dict &pubdict = dicts.GetPublicDict();
  static size_t countglobal = 0;
  static std::vector<gdcm::Tag> balcptags =
    gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes();
  size_t count = countglobal % balcptags.size();

  const gdcm::DictEntry &dictentry = pubdict.GetDictEntry(tag);

  gdcm::DataElement de;
  de.SetTag( tag );
  using gdcm::VR;
  const VR &vr = dictentry.GetVR();
  //if( vr != VR::INVALID )
  if( vr.IsDual() )
```

```
    {
    if( vr == VR::US_SS )
      {
      de.SetVR( VR::US );
      }
    else if( vr == VR::US_SS_OW )
      {
      de.SetVR( VR::OW );
      }
    else if( vr == VR::OB_OW )
      {
      de.SetVR( VR::OB );
      }
    }
  else
    {
    de.SetVR( vr );
    }
  const char str[] = "BasicApplicationLevelConfidentialityProfileAttributes";
  const char safe[] = "This is safe to keep";
  if( de.GetVR() != VR::SQ )
    {
    if( toremove )
      de.SetByteValue( str, (uint32_t)strlen(str) );
    else
      de.SetByteValue( safe, (uint32_t)strlen(safe) );
    }
  else
    {
    // Create an item
    gdcm::Item it;
    it.SetVLToUndefined();
    gdcm::DataSet &nds = it.GetNestedDataSet();
    // Insert sequence into data set
    gdcm_assert(de.GetVR() == gdcm::VR::SQ );
    gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
    sq->SetLengthToUndefined();
    de.SetValue(*sq);
    de.SetVLToUndefined();
    //ds.Insert(de);

    if( !toremove )
      {
      nds.Insert( CreateFakeElement( balcptags[count], true ) );
      countglobal++;
      }
    else
      {
      gdcm::Attribute<0x0008,0x0000> at1 = { 0 }; // This element has no reason to be 'anonymized'...
      nds.Insert( at1.GetAsDataElement() );
      gdcm::Attribute<0x000a,0x0000> at2 = { 0 };
      nds.Insert( at2.GetAsDataElement() );
      }
    sq->AddItem(it);
    }
  return de;
}

/*
 */
int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " output.dcm" « std::endl;
    return 1;
    }
  using gdcm::Tag;
  using gdcm::VR;
  const char *outfilename = argv[1];

  std::vector<gdcm::Tag> balcptags =
    gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes();

  gdcm::Writer w;
  gdcm::File &f = w.GetFile();
  gdcm::DataSet &ds = f.GetDataSet();

  // Add attribute that need to be anonymized:
  std::vector<gdcm::Tag>::const_iterator it = balcptags.begin();
  for(; it != balcptags.end(); ++it)
```

```
    {
    ds.Insert( CreateFakeElement( *it, true ) );
    }

  // Add attribute that do NOT need to be anonymized:
  static const gdcm::Global &g = gdcm::Global::GetInstance();
  static const gdcm::Dicts &dicts = g.GetDicts();
  static const gdcm::Dict &pubdict = dicts.GetPublicDict();

  using gdcm::Dict;
  Dict::ConstIterator dictit = pubdict.Begin();
  for(; dictit != pubdict.End(); ++dictit)
    {
    const gdcm::Tag &dicttag = dictit->first;
    if( dicttag == Tag(0x6e65,0x6146) ) break;
    //const gdcm::DictEntry &dictentry = dictit->second;
    ds.Insert( CreateFakeElement( dicttag, false ) );
    }
  ds.Remove( gdcm::Tag(0x400,0x500) );
  ds.Remove( gdcm::Tag(0x12,0x62) );
  ds.Remove( gdcm::Tag(0x12,0x63) );

  // Make sure to override any UID stuff
  gdcm::UIDGenerator uid;
  gdcm::DataElement de( Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, (uint32_t)strlen(u) );
  //ds.Insert( de );
  ds.Replace( de );

  de.SetTag( Tag(0x8,0x16) ); // SOP Class UID
  de.SetVR( VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::RawDataStorage );
  de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.GetString()));
  ds.Replace( de ); // replace !

  gdcm::FileMetaInformation &fmi = f.GetHeader();
  //fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ImplicitVRLittleEndian );
  fmi.SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.73 GenLongSeqs.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"

/*
 * This example is used to generate the file:
```

```
 *
 *
 * There is a flaw in the DICOM design were it is assumed that Sequence can be
 * either represented as undefined length or defined length. This should work
 * in most case, but the undefined length is a little more general and can
 * store sequence of items that a defined length cannot.
 * We need to make sure that we can store numerous Item in a SQ
 *
 * Warning: do not try to compute the group length elements !
 * Warning: You may need a 64bits machine for this example to work.
 */
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  // Create a Sequence
  gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
  sq->SetLengthToUndefined();

  const char owner_str[] = "GDCM CONFORMANCE TESTS";
  gdcm::DataElement owner( gdcm::Tag(0x4d4d, 0x10) );
  owner.SetByteValue(owner_str, (uint32_t)strlen(owner_str));
  owner.SetVR( gdcm::VR::LO );

  size_t nitems = 1000;
  nitems += std::numeric_limits<uint32_t>::max();
  for(unsigned int idx = 0; idx < nitems; ++idx)
    {
    // Create a dataelement
    //gdcm::DataElement de( gdcm::Tag(0x4d4d, 0x1002) );
    //de.SetByteValue(ptr, ptr_len);
    //de.SetVR( gdcm::VR::OB );

    // Create an item
    gdcm::Item it;
    it.SetVLToUndefined();
    //gdcm::DataSet &nds = it.GetNestedDataSet();
    //nds.Insert(owner);
    //nds.Insert(de);

    sq->AddItem(it);
    }

  // Insert sequence into data set
  gdcm::DataElement des( gdcm::Tag(0x4d4d,0x1001) );
  des.SetVR(gdcm::VR::SQ);
  des.SetValue(*sq);
  des.SetVLToUndefined();

  ds.Insert(owner);
  ds.Insert(des);

  gdcm::Writer w;
  w.SetFile( file );
  //w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.74 GenSeqs.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmItem.h"
#include "gdcmImageReader.h"
#include "gdcmSequenceOfItems.h"
#include "gdcmFile.h"
#include "gdcmTag.h"

/*
 * This example is used to generate the file:
 *
 * gdcmConformanceTests/SequenceWithUndefinedLengthNotConvertibleToDefinedLength.dcm
 *
 * There is a flaw in the DICOM design were it is assumed that Sequence can be
 * either represented as undefined length or defined length. This should work
 * in most case, but the undefined length is a little more general and can
 * store sequence of items that a defined length cannot.
 * Deflated syntax was used in this case since this synthetic example can be
 * nicely compressed using this transfer syntax.
 *
 * Warning: do not try to compute the group length elements !
 * Warning: You may need a 64bits machine for this example to work.
 */
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr << argv[0] << " input.dcm output.dcm" << std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  //const unsigned int nitems = 1000;
  const unsigned int ptr_len = 42; /*94967296 / nitems; */
  //gdcm_assert( ptr_len == 42949672 );
  char *ptr = new char[ptr_len];
  memset(ptr,0,ptr_len);

  // Create a Sequence
  gdcm::SmartPointer<gdcm::SequenceOfItems> sq = new gdcm::SequenceOfItems();
  sq->SetLengthToUndefined();

  const char owner_str[] = "GDCM CONFORMANCE TESTS";
  gdcm::DataElement owner( gdcm::Tag(0x4d4d, 0x10) );
  owner.SetByteValue(owner_str, (uint32_t)strlen(owner_str));
  owner.SetVR( gdcm::VR::LO );

  for(unsigned int idx = 0; idx < 10/* nitems*/; ++idx)
    {
    // Create a dataelement
    gdcm::DataElement de( gdcm::Tag(0x4d4d, 0x1002) );
    de.SetByteValue(ptr, ptr_len);
    de.SetVR( gdcm::VR::OB );

    // Create an item
```

```
    gdcm::Item it;
    it.SetVLToUndefined();
    gdcm::DataSet &nds = it.GetNestedDataSet();
    nds.Insert(owner);
    nds.Insert(de);

    sq->AddItem(it);
    }

  // Insert sequence into data set
  gdcm::DataElement des( gdcm::Tag(0x4d4d,0x1001) );
  des.SetVR(gdcm::VR::SQ);
  des.SetValue(*sq);
  des.SetVLToUndefined();

  ds.Insert(owner);
  ds.Insert(des);

  gdcm::Writer w;
  w.SetFile( file );
  //w.SetCheckFileMetaInformation( true );
  w.SetFileName( outfilename );
  if (!w.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.75 GenerateStandardSOPClasses.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 */

#include "gdcmDefs.h"
#include "gdcmUIDs.h"
#include "gdcmGlobal.h"
#include "gdcmMediaStorage.h"
#include "gdcmSOPClassUIDToIOD.h"

int main(int , char *[])
{
  using gdcm::MediaStorage;
  gdcm::Global& g = gdcm::Global::GetInstance();
  if( !g.LoadResourcesFiles() )
    {
    std::cerr << "Could not LoadResourcesFiles" << std::endl;
    return 1;
    }

  const gdcm::Defs &defs = g.GetDefs();

  int ret = 0;

  //std::cout << "Table B.5-1 STANDARD SOP CLASSES" << std::endl;
  std::cout << "SOP Class Name,SOP Class UID,IOD Specification (defined in PS 3.3)" << std::endl;


  gdcm::MediaStorage::MSType mst;
  for ( mst = gdcm::MediaStorage::MediaStorageDirectoryStorage; mst < gdcm::MediaStorage::MS_END;
    mst = (gdcm::MediaStorage::MSType)(mst + 1) )
    {
```

```
    const char *iod = defs.GetIODNameFromMediaStorage(mst);
    gdcm::UIDs uid;
    uid.SetFromUID( gdcm::MediaStorage::GetMSString(mst) /*mst.GetString()*/ );
    if( iod )
      {
      const char *iod_ref = gdcm::SOPClassUIDToIOD::GetIOD(uid);
      if( iod_ref )
        {
        std::string iod_ref_str = iod_ref;
        //iod_ref_str += " IOD Modules";
        //if( iod_ref_str != iod )
          {
          //std::cout « "UID: " « uid « "   ";
          std::cout « '"' « uid.GetName() « '"' «"," « '"' «uid.GetString() « '"' «"," « '"' «iod « '"' «
    std::endl;
          //std::cout « "Incompatible IODs: [" « iod « "] versus ref= [" « iod_ref_str « "]" « std::endl;
          ++ret;
          }
        }
      }
    }


  return 0;
}
```

14.76 GetJPEGSamplePrecision.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example is a little helper to detect the famous SIEMENS JPEG lossless compressed image
 * where DICOM is declared as:
 *
 *  (0028,0100) US 16                                       # 2,1 Bits Allocated
 *  (0028,0101) US 12                                       # 2,1 Bits Stored
 *  (0028,0102) US 11                                       # 2,1 High Bit
 *  (0028,0103) US 0                                        # 2,1 Pixel Representation
 *
 * But where JPEG is:
 *
 *        JPEG_SOF_Parameters:
 *                SamplePrecision = 16
 *                nLines = 192
 *                nSamplesPerLine = 192
 *                nComponentsInFrame = 1
 *                component 0
 *                        ComponentIdentifier = 1
 *                        HorizontalSamplingFactor = 1
 *                        VerticalSamplingFactor = 1
 *                        QuantizationTableDestinationSelector = 0
 *
 *
 * This case is valid. One simply has to use the 16bits jpeg decoder to decode the 12bits stored image.
 * This used to be an issue in GDCM 1.2.x (fixed in GDCM 1.2.5)
 *
 * The main return 0 (no error) when the file read is actually a potential problem. At the end of the main
 * function, the jpeg stream is stored in the filename specified as second argument
 */

#include "gdcmImageReader.h"
#include "gdcmSequenceOfFragments.h"
#include "gdcmJPEGCodec.h"

#include <iostream>
```

```
#include <fstream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.jpg" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // The output of gdcm::Reader is a gdcm::File
  const gdcm::File &file = reader.GetFile();
  const gdcm::Image &image = reader.GetImage();

  const gdcm::TransferSyntax &ts = file.GetHeader().GetDataSetTransferSyntax();

  if( ts != gdcm::TransferSyntax::JPEGLosslessProcess14 && ts != gdcm::TransferSyntax::JPEGLosslessProcess14_1 )
    {
    std::cerr « "Input is not a lossless JPEG" « std::endl;
    return 1;
    }

  // the dataset is the the set of element we are interested in:
  const gdcm::DataSet &ds = file.GetDataSet();

  const gdcm::Tag rawTag(0x7fe0, 0x0010); // Default to Pixel Data
  const gdcm::DataElement& pdde = ds.GetDataElement( rawTag );
  const gdcm::SequenceOfFragments *sf = pdde.GetSequenceOfFragments();
  if( sf )
    {
    std::ofstream output(outfilename, std::ios::binary);
    sf->WriteBuffer(output);
    }
  else
    {
    std::cerr « "Error" « std::endl;
    return 1;
    }

  gdcm::JPEGCodec jpeg;
  std::ifstream is(outfilename, std::ios::binary);
  gdcm::PixelFormat pf ( gdcm::PixelFormat::UINT8 ); // let's pretend it's a 8bits jpeg
  jpeg.SetPixelFormat( pf );
  gdcm::TransferSyntax ts_jpg;
  bool b = jpeg.GetHeaderInfo( is, ts_jpg );
  if( !b )
    {
    return 1;
    }

  //jpeg.Print( std::cout );
  if( jpeg.GetPixelFormat().GetBitsAllocated() != image.GetPixelFormat().GetBitsAllocated()
   || jpeg.GetPixelFormat().GetBitsStored() != image.GetPixelFormat().GetBitsStored() )
    {
    std::cerr « "There is a mismatch in between DICOM declared Pixel Format and Sample Precision used in the
      JPEG stream" « std::endl;
    return 0;
    }

  std::cout « jpeg.GetPixelFormat() « std::endl;
  std::cout « image.GetPixelFormat() « std::endl;

  return 1;
}
```

14.77 GetSequenceUltrasound.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmAttribute.h"

bool Region ( char* nomefile, unsigned int* X_min, unsigned int* Y_min, unsigned int* X_max, unsigned int* Y_max
      );

int main(int argc, char* argv[] )
{
  // Controllo del numero di argomenti introdotti da riga di comando
  if( argc < 2 )
    {
    std::cerr « "Usage: " « std::endl;
    std::cerr « argv[0] « " inputImageFile  " « std::endl;
    return EXIT_FAILURE;
    }


  unsigned int x_min = 1;
  unsigned int y_min = 1;
  unsigned int x_max = 1;
  unsigned int y_max = 1;

  if( Region ( argv[1], &x_min, &y_min, &x_max, &y_max ) )
    {
    std::cout « "x_min = " « x_min « std::endl;
    std::cout « "y_min = " « y_min « std::endl;
    std::cout « "x_max = " « x_max « std::endl;
    std::cout « "y_max = " « y_max « std::endl;
    }

  else
    {
    std::cout « "no\n";
    }

}

bool Region ( char* nomefile, unsigned int* X_min, unsigned int* Y_min, unsigned int* X_max, unsigned int* Y_max
      )
{
  gdcm::Reader reader;
  reader.SetFileName( nomefile );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « nomefile « std::endl;
    return false;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  gdcm::Tag tsqur(0x0018,0x6011);
  if( !ds.FindDataElement( tsqur ) )
    {
    return false;
    }

  const gdcm::DataElement &squr= ds.GetDataElement( tsqur );
  //std::cout « squr « std::endl;
  const gdcm::SequenceOfItems *sqi = squr.GetValueAsSQ();
  if( !sqi || !sqi->GetNumberOfItems() )
    {
    return false;
    }
```

```
  //std::cout « sqi « std::endl;

  const gdcm::Item & item = sqi->GetItem(1);
  //std::cout « item « std::endl;
  const gdcm::DataSet& nestedds = item.GetNestedDataSet();
  //std::cout « nestedds « std::endl;

  gdcm::Tag tX0(0x0018,0x6018);
  gdcm::Tag tY0(0x0018,0x601a);
  gdcm::Tag tX1(0x0018,0x601c);
  gdcm::Tag tY1(0x0018,0x601e);

  if( (!nestedds.FindDataElement( tX0 ))||(!nestedds.FindDataElement( tY0 ))||(!nestedds.FindDataElement( tX1
      ))||(!nestedds.FindDataElement( tY1 )) )
    {
    return false;
    }

  const gdcm::DataElement& deX0 = nestedds.GetDataElement( tX0 );
  const gdcm::DataElement& deY0 = nestedds.GetDataElement( tY0 );
  const gdcm::DataElement& deX1 = nestedds.GetDataElement( tX1 );
  const gdcm::DataElement& deY1 = nestedds.GetDataElement( tY1 );
  //std::cout « deX0 « std::endl « deY0 « std::endl « deX1 « std::endl « deY1 « std::endl;

  //const gdcm::ByteValue *bvX0 = deX0.GetByteValue();
  //const gdcm::ByteValue *bvY0 = deY0.GetByteValue();
  //const gdcm::ByteValue *bvX1 = deX1.GetByteValue();
  //const gdcm::ByteValue *bvY1 = deY1.GetByteValue();
  //std::cout « bvX0 « std::endl « bvY0 « std::endl « bvX1 « std::endl « bvY1 « std::endl;

  gdcm::Attribute<0x0018,0x6018> atX0;
  gdcm::Attribute<0x0018,0x601a> atY0;
  gdcm::Attribute<0x0018,0x601c> atX1;
  gdcm::Attribute<0x0018,0x601e> atY1;
  atX0.SetFromDataElement( deX0 );
  atY0.SetFromDataElement( deY0 );
  atX1.SetFromDataElement( deX1 );
  atY1.SetFromDataElement( deY1 );
  uint32_t X0 = atX0.GetValue();
  uint32_t Y0 = atY0.GetValue();
  uint32_t X1 = atX1.GetValue();
  uint32_t Y1 = atY1.GetValue();
  std::cout « X0 « std::endl « Y0 « std::endl « X1 « std::endl « Y1 « std::endl;

  *X_min = static_cast<unsigned int>(X0);
  *Y_min = static_cast<unsigned int>(Y0);
  *X_max = static_cast<unsigned int>(X1);
  *Y_max = static_cast<unsigned int>(Y1);

  //std::cout « "X_min = " « *X_min « std::endl;
  //std::cout « "Y_min = " « *Y_min « std::endl;
  //std::cout « "X_max = " « *X_max « std::endl;
  //std::cout « "Y_max = " « *Y_max « std::endl;

  return true;
}
```

14.78 GetSubSequenceData.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmImage.h"
#include "gdcmImageWriter.h"
#include "gdcmDataElement.h"
```

```
#include "gdcmPrivateTag.h"
#include "gdcmUIDGenerator.h"

#include <iostream>
#include <sstream>
#include <string>

#include <map>

/*
 * This example will extract the Movie from the private group of
 * GEMS_Ultrasound_MovieGroup_001 See Attribute
 * (7fe1,60,GEMS_Ultrasound_MovieGroup_001)
 *
 * The output file will be stored in `outvid.dcm` as
 * MultiframeGrayscaleByteSecondaryCaptureImageStorage
 */

using namespace gdcm;
static bool processgroup(Item & item3, std::string const & outfilename)
{
//  Item &item3 = sqi3->GetItem(1);
  DataSet &subds3 = item3.GetNestedDataSet();

  const PrivateTag tseq6(0x7fe1,0x26,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds3.FindDataElement( tseq6 ) ) return true;
  const DataElement& seq6 = subds3.GetDataElement( tseq6 );
  SmartPointer<SequenceOfItems> sqi6 = seq6.GetValueAsSQ();
  size_t ni6= sqi6->GetNumberOfItems();
  gdcm_assert( sqi6->GetNumberOfItems() >= 1 );
  const PrivateTag tseq7(0x7fe1,0x86,"GEMS_Ultrasound_MovieGroup_001");
  int dimx = 0, dimy = 0;
  for( size_t i6 = 1; i6 <= ni6; ++i6 )
    {
    Item &item6 = sqi6->GetItem(i6);
    DataSet &subds6 = item6.GetNestedDataSet();

    if( subds6.FindDataElement( tseq7 ) )
      {
      Element<VR::SL, VM::VM4> el;
      el.SetFromDataElement( subds6.GetDataElement( tseq7 ) );
      dimx = el.GetValue(0);
      dimy = el.GetValue(1);
      std::cout « "Dims= " « dimx « " " « dimy « std::endl;
      }
    }

  const PrivateTag tseq3(0x7fe1,0x36,"GEMS_Ultrasound_MovieGroup_001");
  if( !subds3.FindDataElement( tseq3 ) ) return true;
  const DataElement& seq3 = subds3.GetDataElement( tseq3 );

//    std::cout « seq3 « std::endl;

  SmartPointer<SequenceOfItems> sqi4 = seq3.GetValueAsSQ();
  size_t ni4= sqi4->GetNumberOfItems();
  gdcm_assert( sqi4->GetNumberOfItems() >= 1 );
  const PrivateTag tseq8(0x7fe1,0x37,"GEMS_Ultrasound_MovieGroup_001");
  const PrivateTag tseq4(0x7fe1,0x43,"GEMS_Ultrasound_MovieGroup_001");
  const PrivateTag tseq5(0x7fe1,0x60,"GEMS_Ultrasound_MovieGroup_001");

  std::vector<char> imbuffer;
  int dimz = 0;
  for( size_t i4 = 1; i4 <= ni4; ++i4 )
    {
    Item &item4 = sqi4->GetItem(i4);
    DataSet &subds4 = item4.GetNestedDataSet();

    if( !subds4.FindDataElement( tseq8 ) ) return true;
    const DataElement& de8 = subds4.GetDataElement( tseq8 );
    Element<VR::UL,VM::VM1> ldimz;
    ldimz.SetFromDataElement( de8 );
    std::cout « "ldimz: " « ldimz.GetValue() « std::endl;
    dimz += ldimz.GetValue();
    if( !subds4.FindDataElement( tseq4 ) ) return true;
    const DataElement& seq4 = subds4.GetDataElement( tseq4 );
    if( !subds4.FindDataElement( tseq5 ) ) return true;
    const DataElement& seq5 = subds4.GetDataElement( tseq5 );

    //    std::cout « seq4 « std::endl;
```

```
    //    std::cout « seq5 « std::endl;

    const ByteValue *bv4 = seq4.GetByteValue();
    (void)bv4;
    Element<VR::FD, VM::VM1_n> el0;
    el0.SetFromDataElement( seq4 );
    std::cout « "TimeStamp (" « el0.GetLength() « "): ";
    // Seems like the 3D volumes is split into chunks of max 100 frames...
    gdcm_assert( ldimz.GetValue() == el0.GetLength() );
    for( unsigned long i = 0; i < el0.GetLength(); ++i ) {
      if(i) std::cout « ",";
      std::cout « el0.GetValue(i);
    }
    std::cout « std::endl;
#if 0
      {
      std::ofstream out( "/tmp/mo4", std::ios::binary );
      out.write( bv4->GetPointer(), bv4->GetLength());
      out.close();
      }
#endif
  const ByteValue *bv5 = seq5.GetByteValue();
#if 0
    {
    std::ofstream out( "/tmp/mo5", std::ios::binary );
    out.write( bv5->GetPointer(), bv5->GetLength());
    out.close();
    }
#endif

    std::cout « bv5->GetLength() « std::endl;
    imbuffer.insert( imbuffer.begin(), bv5->GetPointer(), bv5->GetPointer() + bv5->GetLength() );
    }
  DataElement fakedata;
  fakedata.SetByteValue( imbuffer.data(), (uint32_t)imbuffer.size() );


  gdcm::SmartPointer<gdcm::Image> im = new gdcm::Image;
  im->SetNumberOfDimensions( 3 );

  im->SetDimension(0, dimx );
  im->SetDimension(1, dimy );
  im->SetDimension(2, dimz );
  size_t l1 = imbuffer.size();
  (void)l1;
  size_t l2 = im->GetBufferLength();
  (void)l2;
  gdcm_assert( im->GetBufferLength() == imbuffer.size() );
  im->SetPhotometricInterpretation( gdcm::PhotometricInterpretation::MONOCHROME2 );

  im->SetDataElement( fakedata );

  gdcm::ImageWriter w;
  w.SetImage( *im );
  DataSet &dataset = w.GetFile().GetDataSet();

  gdcm::UIDGenerator uid;
  gdcm::DataElement de( Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, (uint32_t)strlen(u) );
  //ds.Insert( de );
  dataset.Replace( de );

  de.SetTag( Tag(0x8,0x16) ); // SOP Class UID
  de.SetVR( VR::UI );
  gdcm::MediaStorage ms(
    gdcm::MediaStorage::MultiframeGrayscaleByteSecondaryCaptureImageStorage );
  de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.GetString()));
  dataset.Replace( de ); // replace !

  w.SetFileName( outfilename.c_str() );
  if( !w.Write() )
    {
    return false;
    }
  return true;
}

int main(int argc, char *argv[])
{
```

```
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  reader.Read();

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  const PrivateTag tseq(0x7fe1,0x1,"GEMS_Ultrasound_MovieGroup_001");

  if( !ds.FindDataElement( tseq ) ) return 1;
  const DataElement& seq = ds.GetDataElement( tseq );

  SmartPointer<SequenceOfItems> sqi = seq.GetValueAsSQ();
  gdcm_assert( sqi->GetNumberOfItems() == 1 );
  Item &item = sqi->GetItem(1);
  DataSet &subds = item.GetNestedDataSet();

  const PrivateTag tseq1(0x7fe1,0x10,"GEMS_Ultrasound_MovieGroup_001");

  if( !subds.FindDataElement( tseq1 ) ) return 1;
  const DataElement& seq1 = subds.GetDataElement( tseq1 );

  SmartPointer<SequenceOfItems> sqi2 = seq1.GetValueAsSQ();
  gdcm_assert( sqi2->GetNumberOfItems() == 1 );
  //int n = sqi2->GetNumberOfItems();
  int index = 1;
  Item &item2 = sqi2->GetItem(index);
  DataSet &subds2 = item2.GetNestedDataSet();

  const PrivateTag tseq2(0x7fe1,0x20,"GEMS_Ultrasound_MovieGroup_001");

  if( !subds2.FindDataElement( tseq2 ) ) return 1;
  const DataElement& seq2 = subds2.GetDataElement( tseq2 );

//    std::cout « seq2 « std::endl;

  SmartPointer<SequenceOfItems> sqi3 = seq2.GetValueAsSQ();
  size_t ni3 = sqi3->GetNumberOfItems(); (void)ni3;
  gdcm_assert( sqi3->GetNumberOfItems() >= 1 );
  std::cout « "#Groups = " « sqi3->GetNumberOfItems() « std::endl;
  for( SequenceOfItems::SizeType i = 1; i <= sqi3->GetNumberOfItems(); ++i) {
    Item &item3 = sqi3->GetItem(i);
    std::ostringstream os;
    os « "outvid";
    os « i;
    os « ".dcm";
    processgroup(item3, os.str());
  }

  return 0;
}
```

14.79 HelloVizWorld.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Basic example for dealing with a DICOM file that contains an Image
 * (read: Pixel Data element)
 */

#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmImage.h"
```

```
#include "gdcmPhotometricInterpretation.h"

#include <iostream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  // Instantiate the image reader:
  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }
  // If we reach here, we know for sure 2 things:
  // 1. It is a valid DICOM
  // 2. And it contains an Image !

  // The output of superclass gdcm::Reader is a gdcm::File
  //gdcm::File &file = reader.GetFile();

  // The other output of gdcm::ImageReader is a gdcm::Image
  const gdcm::Image &image = reader.GetImage();

  // Let's get some property from the image:
  unsigned int ndim = image.GetNumberOfDimensions();
  // Dimensions of the image:
  const unsigned int *dims = image.GetDimensions();
  // Origin
  const double *origin = image.GetOrigin();
  const gdcm::PhotometricInterpretation &pi = image.GetPhotometricInterpretation();
  for(unsigned int i = 0; i < ndim; ++i)
    {
    std::cout « "Dim(" « i « "): " « dims[i] « std::endl;
    }
  for(unsigned int i = 0; i < ndim; ++i)
    {
    std::cout « "Origin(" « i « "): " « origin[i] « std::endl;
    }
  std::cout « "PhotometricInterpretation: " « pi « std::endl;

  // Write the modified DataSet back to disk
  gdcm::ImageWriter writer;
  writer.SetImage( image );
  writer.SetFileName( outfilename );
  //writer.SetFile( file ); // We purposely NOT copy the meta information from the input
                            // file, and instead only pass the image
  if( !writer.Write() )
    {
    std::cerr « "Could not write: " « outfilename « std::endl;
    return 1;
    }

  return 0;
}
```

14.80 HelloWorld.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

```
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example is ... guess what this is for :)
 */

#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"

#include <iostream>

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  // Instantiate the reader:
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // If we reach here, we know for sure only 1 thing:
  // It is a valid DICOM file (potentially an old ACR-NEMA 1.0/2.0 file)
  // (Maybe, it's NOT a Dicom image -could be a DICOMDIR, a RTSTRUCT, etc-)

  // The output of gdcm::Reader is a gdcm::File
  gdcm::File &file = reader.GetFile();

  // the dataset is the the set of element we are interested in:
  gdcm::DataSet &ds = file.GetDataSet();

  // Construct a static(*) type for Image Comments :
  gdcm::Attribute<0x0020,0x4000> imagecomments;
  imagecomments.SetValue( "Hello, World !" );

  // Now replace the Image Comments from the dataset with our:
  ds.Replace( imagecomments.GetAsDataElement() );

  // Write the modified DataSet back to disk
  gdcm::Writer writer;
  writer.CheckFileMetaInformationOff(); // Do not attempt to reconstruct the file meta to preserve the file
                                        // as close to the original as possible.
  writer.SetFileName( outfilename );
  writer.SetFile( file );
  if( !writer.Write() )
    {
    std::cerr « "Could not write: " « outfilename « std::endl;
    return 1;
    }

  return 0;
}

/*
 * (*) static type, means that extra DICOM information VR & VM are computed at compilation time.
 * The compiler is deducing those values from the template arguments of the class.
 */
```

14.81 LargeVRDSExplicit.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
```

```
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFileExplicitFilter.h"
#include "gdcmSequenceOfItems.h"


bool interpolate(const double * pts, size_t npts, std::vector<double> &out )
{
  out.clear();
  for(size_t i = 0; i < 2*npts; ++i )
    {
    const size_t j = i / 2;
    if( i % 2 )
      {
      if( j != npts - 1 )
        {
        gdcm_assert( 3*j+5 < 3*npts );
        const double midpointx = (pts[3*j+0] + pts[3*j+3]) / 2;
        const double midpointy = (pts[3*j+1] + pts[3*j+4]) / 2;
        const double midpointz = (pts[3*j+2] + pts[3*j+5]) / 2;
        out.push_back( midpointx );
        out.push_back( midpointy );
        out.push_back( midpointz );
        }
      }
    else
      {
      gdcm_assert( j < npts );
      out.push_back( pts[3*j+0] );
      out.push_back( pts[3*j+1] );
      out.push_back( pts[3*j+2] );
      }
    }
  gdcm_assert( out.size() == 2 * npts * 3 - 3 );
  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  gdcm::FileExplicitFilter fef;
  //fef.SetChangePrivateTags( changeprivatetags );
  fef.SetFile( reader.GetFile() );
  if( !fef.Change() )
    {
    std::cerr « "Failed to change: " « filename « std::endl;
    return 1;
    }

  // (3006,0039) SQ (Sequence with undefined length #=4)     # u/l, 1 ROIContourSequence
  gdcm::Tag tag(0x3006,0x0039);

  const gdcm::DataElement &roicsq = ds.GetDataElement( tag );
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = roicsq.GetValueAsSQ();
  //sqi->SetNumberOfItems( 1 );
  const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
```

```
const gdcm::DataSet& nestedds = item.GetNestedDataSet();

gdcm::Tag tcsq(0x3006,0x0040);
if( !nestedds.FindDataElement( tcsq ) )
  {
  return 0;
  }
const gdcm::DataElement& csq = nestedds.GetDataElement( tcsq );
gdcm::SmartPointer<gdcm::SequenceOfItems> sqi2 = csq.GetValueAsSQ();
if( !sqi2 || !sqi2->GetNumberOfItems() )
  {
  return 0;
  }
//unsigned int nitems = sqi2->GetNumberOfItems();
gdcm::Item & item2 = sqi2->GetItem(1); // Item start at #1

gdcm::DataSet& nestedds2 = item2.GetNestedDataSet();
//item2.SetVLToUndefined();
//std::cout « nestedds2 « std::endl;
// (3006,0050) DS [43.57636\65.52504\-10.0\46.043102\62.564945\-10.0\49.126537\60.714... # 398,48 ContourData
gdcm::Tag tcontourdata(0x3006,0x0050);
const gdcm::DataElement & contourdata = nestedds2.GetDataElement( tcontourdata );
//std::cout « contourdata « std::endl;

//const gdcm::ByteValue *bv = contourdata.GetByteValue();
gdcm::Attribute<0x3006,0x0046> ncontourpoints;
ncontourpoints.Set( nestedds2 );

gdcm::Attribute<0x3006,0x0050> at;
at.SetFromDataElement( contourdata );
const double* pts = at.GetValues();
unsigned int npts = at.GetNumberOfValues() / 3;

std::vector<double> out( pts, pts + npts * 3 );
std::vector<double> out2;

//const unsigned int niter = 7;
const unsigned int niter = 8;
for( unsigned int i = 0; i < niter; ++i)
  {
  //bool b =
  interpolate(out.data(), out.size() / 3, out2);
  //const double *pout = &out[0];
  out = out2;
  out2.clear();
  }
gdcm_assert( out.size() % 3 == 0 );

gdcm::Attribute<0x3006,0x0050> at_interpolate;
at_interpolate.SetNumberOfValues( (unsigned int)(out.size() / 3) );
at_interpolate.SetValues( out.data(), (uint32_t)out.size() );

ncontourpoints.SetValue( at_interpolate.GetNumberOfValues() / 3 );
nestedds2.Replace( at_interpolate.GetAsDataElement() );
nestedds2.Replace( ncontourpoints.GetAsDataElement() );

//gdcm_assert(0);

// Let's take item one and subdivide it

gdcm::TransferSyntax ts = gdcm::TransferSyntax::ImplicitVRLittleEndian;
ts = gdcm::TransferSyntax::ExplicitVRLittleEndian;

gdcm::FileMetaInformation &fmi = file.GetHeader();
const char *tsuid = gdcm::TransferSyntax::GetTSString( ts );
// const char * is ok since padding is \0 anyway...
gdcm::DataElement de( gdcm::Tag(0x0002,0x0010) );
de.SetByteValue( tsuid, (uint32_t)strlen(tsuid) );
de.SetVR( gdcm::Attribute<0x0002, 0x0010>::GetVR() );
fmi.Replace( de );
fmi.Remove( gdcm::Tag(0x0002,0x0012) ); // will be regenerated
fmi.Remove( gdcm::Tag(0x0002,0x0013) ); //  '   '    '
fmi.SetDataSetTransferSyntax(ts);


gdcm::Writer w;
w.SetFile( file );
w.SetFileName( outfilename );
if (!w.Write() )
  {
  return 1;
```

```
    }

  return 0;
}
```

14.82 MakeTemplate.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmFileAnonymizer.h"
#include "gdcmReader.h"
#include "gdcmWriter.h"

int main(int argc, char *argv[])
{
  if( argc < 3 ) return 1;
  const char* filename = argv[1];
  const char* outfilename = argv[2];

  //gdcm::Trace::DebugOn();

  // Remove Pixel Data element:
  gdcm::FileAnonymizer fa;
  fa.SetInputFileName( filename );
  fa.SetOutputFileName( outfilename );

  fa.Empty( gdcm::Tag(0x7fe0,0x10) );
  // cannot replace in-place DICOM header:
  //fa.Replace( gdcm::Tag(0x2,0x2), "1.2.840.10008.5.1.4.1.1.7" );

  if( !fa.Write() )
    {
    std::cerr « "impossible to remove Pixel Data attribute" « std::endl;
    return 1;
    }

  // Update the DICOM Header:
  gdcm::Reader reader;
  reader.SetFileName( outfilename );
  if( !reader.Read() )
    {
    std::cerr « "could not read back" « std::endl;
    return 1;
    }

  gdcm::File & file = reader.GetFile();
  gdcm::FileMetaInformation &fmi = file.GetHeader();
  gdcm::TransferSyntax ts = gdcm::TransferSyntax::ImplicitVRLittleEndian;
  ts = gdcm::TransferSyntax::ExplicitVRLittleEndian;
  fmi.SetDataSetTransferSyntax(ts);

  gdcm::Writer writer;
  writer.SetFile( file );
  writer.SetFileName( outfilename ); // warning overwrite file !
  if( !writer.Write() )
    {
    std::cerr « "could not write back" « std::endl;
    return 1;
    }

  return 0;
}
```

14.83 MergeTwoFiles.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example will show how one can read in two DICOM files, use the dataset
 * from file1 and use image from file2  to save it in a 3rd file.
 *
 * Eg:
 * MergeTwoFiles gdcmData/012345.002.050.dcm gdcmData/test.acr merge.dcm
 */

#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmWriter.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    return 1;
    }
  const char *file1 = argv[1];
  const char *file2 = argv[2];
  const char *file3 = argv[3];

  // Read file1
  gdcm::ImageReader reader1;
  reader1.SetFileName( file1 );
  if( !reader1.Read() )
    {
    return 1;
    }

  // Read file2
  gdcm::ImageReader reader2;
  reader2.SetFileName( file2 );
  if( !reader2.Read() )
    {
    return 1;
    }

  // Ok now let's take the DataSet from file1 and the Image from file2
  // Warning: if file2 is -for example- a Secondary Capture Storage, then it has no
  // Image Orientation (Patient) thus any Image Orientation (Patient) from file1
  // will be discarded...

  // let's be fancy. In case reader2 contains explicit, but reader1 is implicit
  // we would rather see an implicit output
  if( reader1.GetFile().GetHeader().GetDataSetTransferSyntax() == gdcm::TransferSyntax::ImplicitVRLittleEndian )
    {
    reader2.GetImage().SetTransferSyntax( gdcm::TransferSyntax::ImplicitVRLittleEndian );
    }

  gdcm::ImageWriter writer;
  writer.SetFileName( file3 );
  writer.SetFile( reader1.GetFile() );
  // ImageWriter will always use all of gdcm::Image information an override anything wrong from
  // reader1.GetFile(), including the Transfer Syntax
  writer.SetImage( reader2.GetImage() );

  gdcm::DataSet &ds = reader1.GetFile().GetDataSet();

  // Make sure that SOPInstanceUID are different
  // Simply removing it is sufficient as gdcm::ImageWriter will generate one by default
  // if not found.
```

```
  ds.Remove( gdcm::Tag(0x0008,0x0018) );
  if( !writer.Write() )
    {
    return 1;
    }

  return 0;
}
```

14.84 MrProtocol.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 *
 */

/*
28 - 'MrProtocol' VM 1, VR UN, SyngoDT 0, NoOfItems 6, Data '### ASCCONV BEGIN ###
ulVersion                              = 0xbee332
tSequenceFileName                      = "%SiemensSeq%\fl_fq_shphs"
tProtocolName                          = "flash+AF8-100+AF8-through-plane+AF8-V"
tReferenceImage0                       = "1.3.12.2.1107.5.2.9.16041.30000007062106100181200004658"
tReferenceImage1                       = "1.3.12.2.1107.5.2.9.16041.30000007062106100181200004635"
tReferenceImage2                       = "1.3.12.2.1107.5.2.9.16041.30000007062106100181200004683"
ucScanRegionPosValid                   = 0x1
sProtConsistencyInfo.tBaselineString   = "N4_VB11A_LATEST_20031004"
sProtConsistencyInfo.flNominalB0       = 1.494
sProtConsistencyInfo.flGMax            = 22
sProtConsistencyInfo.flRiseTime        = 10
sGRADSPEC.sEddyCompensationX.aflAmplitude[0] = 0.0141111
sGRADSPEC.sEddyCompensationX.aflAmplitude[1] = 0.057038
sGRADSPEC.sEddyCompensationX.aflAmplitude[2] = -0.00986504
sGRADSPEC.sEddyCompensationX.aflAmplitude[3] = 0.00247627
sGRADSPEC.sEddyCompensationX.aflAmplitude[4] = 0.0026377
sGRADSPEC.sEddyCompensationX.aflTimeConstant[0] = 1.53826
sGRADSPEC.sEddyCompensationX.aflTimeConstant[1] = 0.746617
sGRADSPEC.sEddyCompensationX.aflTimeConstant[2] = 0.339236
sGRADSPEC.sEddyCompensationX.aflTimeConstant[3] = 0.0309809
sGRADSPEC.sEddyCompensationX.aflTimeConstant[4] = 0.00067694
sGRADSPEC.sEddyCompensationY.aflAmplitude[0] = 0.0156411
sGRADSPEC.sEddyCompensationY.aflAmplitude[1] = 0.0440623
sGRADSPEC.sEddyCompensationY.aflAmplitude[2] = -0.00782663
sGRADSPEC.sEddyCompensationY.aflAmplitude[3] = 0.00186828
sGRADSPEC.sEddyCompensationY.aflAmplitude[4] = 0.00154504
sGRADSPEC.sEddyCompensationY.aflTimeConstant[0] = 1.47145
sGRADSPEC.sEddyCompensationY.aflTimeConstant[1] = 0.750538
sGRADSPEC.sEddyCompensationY.aflTimeConstant[2] = 0.339397
sGRADSPEC.sEddyCompensationY.aflTimeConstant[3] = 0.0312962
sGRADSPEC.sEddyCompensationY.aflTimeConstant[4] = 0.000895133
sGRADSPEC.sEddyCompensationZ.aflAmplitude[0] = 0.00618504
sGRADSPEC.sEddyCompensationZ.aflAmplitude[1] = 0.00313121
sGRADSPEC.sEddyCompensationZ.aflAmplitude[2] = 0.000289346
sGRADSPEC.sEddyCompensationZ.aflAmplitude[3] = -0.00019677
sGRADSPEC.sEddyCompensationZ.aflAmplitude[4] = 7.66445e-005
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[0] = 3.37462
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[1] = 0.999351
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[2] = 0.0174646
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[3] = 0.0110094
sGRADSPEC.sEddyCompensationZ.aflTimeConstant[4] = 0.00199922
sGRADSPEC.bEddyCompensationValid       = 1
sGRADSPEC.sB0CompensationX.aflAmplitude[0] = 0.307474
sGRADSPEC.sB0CompensationX.aflAmplitude[1] = 0.029337
sGRADSPEC.sB0CompensationX.aflAmplitude[2] = -0.187118
sGRADSPEC.sB0CompensationX.aflTimeConstant[0] = 0.98583
```

```
sGRADSPEC.sB0CompensationX.aflTimeConstant[1] = 0.0308443
sGRADSPEC.sB0CompensationX.aflTimeConstant[2] = 0.000466792
sGRADSPEC.sB0CompensationY.aflAmplitude[0] = 0.365257
sGRADSPEC.sB0CompensationY.aflAmplitude[1] = -0.318647
sGRADSPEC.sB0CompensationY.aflAmplitude[2] = -0.0118978
sGRADSPEC.sB0CompensationY.aflTimeConstant[0] = 0.61535
sGRADSPEC.sB0CompensationY.aflTimeConstant[1] = 0.488831
sGRADSPEC.sB0CompensationY.aflTimeConstant[2] = 0.00199991
sGRADSPEC.sB0CompensationZ.aflAmplitude[0] = -0.44647
sGRADSPEC.sB0CompensationZ.aflAmplitude[1] = -0.0455154
sGRADSPEC.sB0CompensationZ.aflAmplitude[2] = -0.0304901
sGRADSPEC.sB0CompensationZ.aflTimeConstant[0] = 0.959231
sGRADSPEC.sB0CompensationZ.aflTimeConstant[1] = 0.0720189
sGRADSPEC.sB0CompensationZ.aflTimeConstant[2] = 0.00190141
sGRADSPEC.bB0CompensationValid           = 1
sGRADSPEC.sCrossTermCompensationXY.aflAmplitude[0] = 0.00105046
sGRADSPEC.sCrossTermCompensationXY.aflTimeConstant[0] = 0.842014
sGRADSPEC.sCrossTermCompensationXZ.aflAmplitude[0] = -0.00150189
sGRADSPEC.sCrossTermCompensationXZ.aflTimeConstant[0] = 0.736169
sGRADSPEC.sCrossTermCompensationYX.aflAmplitude[0] = -5.5278e-005
sGRADSPEC.sCrossTermCompensationYX.aflTimeConstant[0] = 0.228697
sGRADSPEC.sCrossTermCompensationYZ.aflAmplitude[0] = 0.000307999
sGRADSPEC.sCrossTermCompensationYZ.aflTimeConstant[0] = 1.19431
sGRADSPEC.sCrossTermCompensationZX.aflAmplitude[0] = -0.000286868
sGRADSPEC.sCrossTermCompensationZX.aflTimeConstant[0] = 0.665979
sGRADSPEC.sCrossTermCompensationZY.aflAmplitude[0] = 0.000355175
sGRADSPEC.sCrossTermCompensationZY.aflTimeConstant[0] = 0.844189
sGRADSPEC.bCrossTermCompensationValid    = 1
sGRADSPEC.lOffsetX                       = 25
sGRADSPEC.lOffsetY                       = 84
sGRADSPEC.lOffsetZ                       = 47
sGRADSPEC.bOffsetValid                   = 1
sGRADSPEC.lDelayX                        = 12
sGRADSPEC.lDelayY                        = 11
sGRADSPEC.lDelayZ                        = 9
sGRADSPEC.bDelayValid                    = 1
sGRADSPEC.flSensitivityX                 = 0.000264087
sGRADSPEC.flSensitivityY                 = 0.000272009
sGRADSPEC.flSensitivityZ                 = 0.000272677
sGRADSPEC.bSensitivityValid              = 1
sGRADSPEC.alShimCurrent[0]               = 183
sGRADSPEC.alShimCurrent[1]               = -25
sGRADSPEC.alShimCurrent[2]               = -85
sGRADSPEC.alShimCurrent[3]               = 378
sGRADSPEC.alShimCurrent[4]               = 82
sGRADSPEC.bShimCurrentValid              = 1
sGRADSPEC.ucMode                         = 0x2
sTXSPEC.asNucleusInfo[0].tNucleus        = "1H"
sTXSPEC.asNucleusInfo[0].lFrequency      = 63684693
sTXSPEC.asNucleusInfo[0].bFrequencyValid = 1
sTXSPEC.asNucleusInfo[0].flReferenceAmplitude = 359.734
sTXSPEC.asNucleusInfo[0].bReferenceAmplitudeValid = 1
sTXSPEC.asNucleusInfo[0].flAmplitudeCorrection = 1
sTXSPEC.asNucleusInfo[0].bAmplitudeCorrectionValid = 1
sTXSPEC.asNucleusInfo[1].bFrequencyValid = 1
sTXSPEC.asNucleusInfo[1].bReferenceAmplitudeValid = 1
sTXSPEC.asNucleusInfo[1].bAmplitudeCorrectionValid = 1
sTXSPEC.aRFPULSE[0].tName                = "03GreFCE"
sTXSPEC.aRFPULSE[0].bAmplitudeValid      = 0x1
sTXSPEC.aRFPULSE[0].flAmplitude          = 147.095
sTXSPEC.aRFPULSE[1].tName                = "02GreFCE"
sTXSPEC.aRFPULSE[1].bAmplitudeValid      = 0x1
sTXSPEC.aRFPULSE[1].flAmplitude          = 147.095
sTXSPEC.aRFPULSE[2].tName                = "01GreFCE"
sTXSPEC.aRFPULSE[2].bAmplitudeValid      = 0x1
sTXSPEC.aRFPULSE[2].flAmplitude          = 147.095
sTXSPEC.lNoOfTraPulses                   = 3
sTXSPEC.lBTB1ParallelCapacity            = 2
sTXSPEC.lBTB1SerialCapacity              = 24
sTXSPEC.lBTB2ParallelCapacity            = 2
sTXSPEC.lBTB2SerialCapacity              = 26
sTXSPEC.bBTBValid                        = 1
sTXSPEC.flKDynMagnitudeMin               = 0.5
sTXSPEC.flKDynMagnitudeMax               = 1.5
sTXSPEC.flKDynMagnitudeClipLow           = 0.96
sTXSPEC.flKDynMagnitudeClipHigh          = 1.04
sTXSPEC.flKDynPhaseMax                   = 0.698132
sTXSPEC.flKDynPhaseClip                  = 0.174533
sTXSPEC.bKDynValid                       = 1
sTXSPEC.ucRFPulseType                    = 0x1
sTXSPEC.ucExcitMode                      = 0x1
```

```
sTXSPEC.ucSimultaneousExcitation         = 0x1
sRXSPEC.lGain                            = 1
sRXSPEC.bGainValid                       = 1
sRXSPEC.aFFT_SCALE[0].lRxChannel         = 1
sRXSPEC.aFFT_SCALE[0].flFactor           = 1.06857
sRXSPEC.aFFT_SCALE[0].bValid             = 1
sRXSPEC.aFFT_SCALE[1].lRxChannel         = 2
sRXSPEC.aFFT_SCALE[1].flFactor           = 1.07454
sRXSPEC.aFFT_SCALE[1].bValid             = 1
sRXSPEC.aFFT_SCALE[2].lRxChannel         = 3
sRXSPEC.aFFT_SCALE[2].flFactor           = 1.06622
sRXSPEC.aFFT_SCALE[2].bValid             = 1
sRXSPEC.aFFT_SCALE[3].lRxChannel         = 4
sRXSPEC.aFFT_SCALE[3].flFactor           = 1.06524
sRXSPEC.aFFT_SCALE[3].bValid             = 1
sRXSPEC.aFFT_SCALE[4].lRxChannel         = 5
sRXSPEC.aFFT_SCALE[4].flFactor           = 0.982692
sRXSPEC.aFFT_SCALE[4].bValid             = 1
sRXSPEC.aFFT_SCALE[5].lRxChannel         = 6
sRXSPEC.aFFT_SCALE[5].flFactor           = 0.988603
sRXSPEC.aFFT_SCALE[5].bValid             = 1
sRXSPEC.aFFT_SCALE[6].lRxChannel         = 7
sRXSPEC.aFFT_SCALE[6].flFactor           = 0.981538
sRXSPEC.aFFT_SCALE[6].bValid             = 1
sRXSPEC.aFFT_SCALE[7].lRxChannel         = 8
sRXSPEC.aFFT_SCALE[7].flFactor           = 1.00856
sRXSPEC.aFFT_SCALE[7].bValid             = 1
sRXSPEC.bVariCapVoltagesValid            = 1
sRXSPEC.alDwellTime[0]                   = 8500
sAdjFreSpec.ulMode                       = 0x1
sAdjFreSpec.ucAdjWithBC                  = 0x1
sAdjTraSpec.ucAdjWithBC                  = 0x1
sAdjShimSpec.ulMode                      = 0x1
sAdjShimSpec.ucAdjWithBC                 = 0x1
sAdjWatSupSpec.ulMode                    = 0x1
sAdjWatSupSpec.ucAdjWithBC               = 0x1
alTR[0]                                  = 37000
lContrasts                               = 1
alTE[0]                                  = 4000
acFlowComp[0]                            = 1
lCombinedEchoes                          = 1
sSliceArray.asSlice[0].sPosition.dSag    = 35.31199581
sSliceArray.asSlice[0].sPosition.dCor    = -8.387765754
sSliceArray.asSlice[0].sPosition.dTra    = -23.13178296
sSliceArray.asSlice[0].sNormal.dSag      = 0.771051253
sSliceArray.asSlice[0].sNormal.dCor      = 0.5863890019
sSliceArray.asSlice[0].sNormal.dTra      = -0.2482496801
sSliceArray.asSlice[0].dThickness        = 6
sSliceArray.asSlice[0].dPhaseFOV         = 187.5
sSliceArray.asSlice[0].dReadoutFOV       = 250
sSliceArray.lSize                        = 1
sSliceArray.lSag                         = 1
sSliceArray.lConc                        = 1
sSliceArray.ucMode                       = 0x1
sSliceArray.sTSat.dThickness             = 40
sSliceArray.sTSat.dGap                   = 10
sGroupArray.asGroup[0].nSize             = 1
sGroupArray.asGroup[0].dDistFact         = 0.2
sGroupArray.anMember[1]                  = -1
sGroupArray.lSize                        = 1
sGroupArray.sPSat.dThickness             = 50
sGroupArray.sPSat.dGap                   = 10
sAutoAlign.dAAMatrix[0]                  = 1
sAutoAlign.dAAMatrix[5]                  = 1
sAutoAlign.dAAMatrix[10]                 = 1
sAutoAlign.dAAMatrix[15]                 = 1
sNavigatorPara.ucRespComp                = 0x4
sPrepPulses.ucFatSat                     = 0x4
sPrepPulses.ucWaterSat                   = 0x4
sPrepPulses.ucInversion                  = 0x4
sPrepPulses.ucSatRecovery                = 0x1
sPrepPulses.ucFatSatMode                 = 0x2
sKSpace.lBaseResolution                  = 256
sKSpace.lPhaseEncodingLines              = 192
sKSpace.dPhaseResolution                 = 1
sKSpace.lPartitions                      = 32
sKSpace.lImagesPerSlab                   = 32
sKSpace.dSliceResolution                 = 1
sKSpace.ucPhasePartialFourier            = 0x10
sKSpace.ucSlicePartialFourier            = 0x10
sKSpace.ucAveragingMode                  = 0x2
```

```
sKSpace.ucMultiSliceMode                = 0x1
sKSpace.ucDimension                     = 0x2
sKSpace.ucAsymmetricEchoAllowed         = 0x1
sKSpace.unReordering                    = 0x1
sFastImaging.lEPIFactor                 = 1
sFastImaging.lTurboFactor               = 1
sFastImaging.lSegments                  = 3
sFastImaging.ulEnableRFSpoiling         = 0x1
sPhysioImaging.lSignal1                 = 2
sPhysioImaging.lMethod1                 = 2
sPhysioImaging.lSignal2                 = 1
sPhysioImaging.lMethod2                 = 1
sPhysioImaging.lPhases                  = 21
sPhysioImaging.lRetroGatedImages        = 16
sPhysioImaging.sPhysioECG.lScanWindow   = 805
sPhysioImaging.sPhysioECG.lTriggerPulses = 1
sPhysioImaging.sPhysioECG.lTriggerWindow = 5
sPhysioImaging.sPhysioECG.lArrhythmiaDetection = 1
sPhysioImaging.sPhysioECG.lCardiacGateOnThreshold = 100000
sPhysioImaging.sPhysioECG.lCardiacGateOffThreshold = 700000
sPhysioImaging.sPhysioPulse.lTriggerPulses = 1
sPhysioImaging.sPhysioPulse.lTriggerWindow = 5
sPhysioImaging.sPhysioPulse.lCardiacGateOnThreshold = 100000
sPhysioImaging.sPhysioPulse.lCardiacGateOffThreshold = 700000
sPhysioImaging.sPhysioExt.lTriggerPulses = 1
sPhysioImaging.sPhysioExt.lTriggerWindow = 5
sPhysioImaging.sPhysioExt.lCardiacGateOnThreshold = 100000
sPhysioImaging.sPhysioExt.lCardiacGateOffThreshold = 700000
sPhysioImaging.sPhysioResp.lRespGateThreshold = 20
sPhysioImaging.sPhysioResp.lRespGatePhase = 2
sPhysioImaging.sPhysioResp.dGatingRatio  = 0.3
sSpecPara.lPhaseCyclingType             = 1
sSpecPara.lPhaseEncodingType            = 1
sSpecPara.lRFExcitationBandwidth        = 1
sSpecPara.ucRemoveOversampling          = 0x1
sSpecPara.lDecouplingType               = 1
sSpecPara.lNOEType                      = 1
sSpecPara.lExcitationType               = 1
sSpecPara.lSpectralSuppression          = 1
sDiffusion.ulMode                       = 0x1
sAngio.sFlowArray.asElm[0].nVelocity    = 100
sAngio.sFlowArray.asElm[0].nDir         = 0x4
sAngio.sFlowArray.lSize                 = 1
sAngio.ucPCFlowMode                     = 0x2
sAngio.ucTOFInflow                      = 0x4
sAngio.ucRephasedImage                  = 0x1
sAngio.ucPhaseImage                     = 0x1
sEllipticalFilter.ucMode                = 0x1
sPat.lAccelFactPE                       = 1
sPat.lAccelFact3D                       = 1
sPat.ucPATMode                          = 0x1
sPat.ucRefScanMode                      = 0x1
ucAutoMovie                             = 0x1
ucDisableChangeStoreImages              = 0x1
ucReconstructionMode                    = 0x1
ucPHAPSMode                             = 0x1
ucDixon                                 = 0x1
lAverages                               = 2
adFlipAngleDegree[0]                    = 30
lScanTimeSec                            = 103
lTotalScanTimeSec                       = 112
dRefSNR                                 = 165404.1473
dRefSNR_VOI                             = 165404.1473
tdefaultEVAProt                         = "%SiemensEvaDefProt%\Inline\Inline.evp"
tcurrentEVAProt                         = "%CURRENTEVAPROT%\EVA2A5.tmp"
sCOIL_SELECT_MEAS.asList[0].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[0].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[0].sCoilElementID.tElement = "PP6"
sCOIL_SELECT_MEAS.asList[0].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[0].lRxChannelConnected = 1
sCOIL_SELECT_MEAS.asList[1].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[1].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[1].sCoilElementID.tElement = "PP5"
sCOIL_SELECT_MEAS.asList[1].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[1].lRxChannelConnected = 1
sCOIL_SELECT_MEAS.asList[2].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[2].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[2].sCoilElementID.tElement = "PP3"
sCOIL_SELECT_MEAS.asList[2].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[2].lRxChannelConnected = 2
sCOIL_SELECT_MEAS.asList[3].sCoilElementID.tCoilID = "6_Ch_Body_P"
```

```
sCOIL_SELECT_MEAS.asList[3].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[3].sCoilElementID.tElement = "PP4"
sCOIL_SELECT_MEAS.asList[3].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[3].lRxChannelConnected = 3
sCOIL_SELECT_MEAS.asList[4].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[4].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[4].sCoilElementID.tElement = "PP2"
sCOIL_SELECT_MEAS.asList[4].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[4].lRxChannelConnected = 4
sCOIL_SELECT_MEAS.asList[5].sCoilElementID.tCoilID = "6_Ch_Body_P"
sCOIL_SELECT_MEAS.asList[5].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[5].sCoilElementID.tElement = "PP1"
sCOIL_SELECT_MEAS.asList[5].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[5].lRxChannelConnected = 4
sCOIL_SELECT_MEAS.asList[6].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[6].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[6].sCoilElementID.tElement = "PA6"
sCOIL_SELECT_MEAS.asList[6].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[6].lRxChannelConnected = 5
sCOIL_SELECT_MEAS.asList[7].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[7].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[7].sCoilElementID.tElement = "PA5"
sCOIL_SELECT_MEAS.asList[7].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[7].lRxChannelConnected = 5
sCOIL_SELECT_MEAS.asList[8].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[8].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[8].sCoilElementID.tElement = "PA3"
sCOIL_SELECT_MEAS.asList[8].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[8].lRxChannelConnected = 6
sCOIL_SELECT_MEAS.asList[9].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[9].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[9].sCoilElementID.tElement = "PA4"
sCOIL_SELECT_MEAS.asList[9].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[9].lRxChannelConnected = 7
sCOIL_SELECT_MEAS.asList[10].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[10].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[10].sCoilElementID.tElement = "PA2"
sCOIL_SELECT_MEAS.asList[10].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[10].lRxChannelConnected = 8
sCOIL_SELECT_MEAS.asList[11].sCoilElementID.tCoilID = "6_Ch_Body_A"
sCOIL_SELECT_MEAS.asList[11].sCoilElementID.lCoilCopy = 1
sCOIL_SELECT_MEAS.asList[11].sCoilElementID.tElement = "PA1"
sCOIL_SELECT_MEAS.asList[11].lElementSelected = 1
sCOIL_SELECT_MEAS.asList[11].lRxChannelConnected = 8
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[0] = 0xff
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[1] = 0x76
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[2] = 0x78
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[3] = 0x87
sCOIL_SELECT_MEAS.sCOILPLUGS.aulPlugId[4] = 0x67
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[0] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[1] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[2] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[3] = 0x2
sCOIL_SELECT_MEAS.sCOILPLUGS.auiNmbrOfNibbles[4] = 0x2
sEFISPEC.bEFIDataValid                   = 1
### ASCCONV END ###
'
*/

/*
 * Table of equivalence:
 *
ulVersion                                = 0xbee332
<=>
27 - 'MrProtocolVersion' VM 1, VR IS, SyngoDT 6, NoOfItems 6, Data '12510002'
*/

#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmCSAHeader.h"
#include "gdcmAttribute.h"
#include "gdcmGlobal.h"
#include "gdcmDicts.h"

#include <map>

#include <math.h>

int main(int argc, char *argv [])
{
```

```
if( argc < 2 ) return 1;
const char *filename = argv[1];
gdcm::ImageReader reader;
reader.SetFileName( filename );
if( !reader.Read() )
  {
  std::cerr « "Failed to read: " « filename « std::endl;
  return 1;
  }

gdcm::CSAHeader csa;
const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

//const gdcm::PrivateTag &t1 = csa.GetCSAImageHeaderInfoTag();
const gdcm::PrivateTag &t2 = csa.GetCSASeriesHeaderInfoTag();

if( ds.FindDataElement( t2 ) )
  {
  csa.LoadFromDataElement( ds.GetDataElement( t2 ) );
  //csa.Print( std::cout );
  }

if( !csa.FindCSAElementByName( "MrProtocol" ) )
  {
  return 1;
  }
const gdcm::CSAElement &csael = csa.GetCSAElementByName( "MrProtocol" );
//std::cout « csael « std::endl;

const gdcm::ByteValue *bv = csael.GetByteValue();
if( !bv )
  {
  return 1;
  }
std::string str(bv->GetPointer(), bv->GetLength());
std::istringstream is(str);
std::string s;
typedef std::map< std::string, std::string > MyMapType;
MyMapType mymap;
while( std::getline(is, s ) )
  {
  std::string::size_type pos = s.find( '=' );
  if( pos != std::string::npos )
    {
    std::string sub1 = s.substr(0, pos);
    sub1.erase( sub1.find_last_not_of(' ') + 1);
    std::string sub2 = s.substr(pos+1); // skip the '=' char
    sub2.erase( 0, sub2.find_first_not_of(' '));
    //std::cout « sub1 « std::endl;
    mymap.insert( MyMapType::value_type(sub1, sub2) );
    }
  else
    {
    // ### ASCCONV BEGIN ###
    // ### ASCCONV END ###
    }
  }
const char fourierstr[] = "sKSpace.ucSlicePartialFourier";
const gdcm::CSAHeaderDict &csadict = gdcm::Global::GetInstance().GetDicts().GetCSAHeaderDict();
const gdcm::CSAHeaderDictEntry &fourier = csadict.GetCSAHeaderDictEntry( fourierstr );
std::cout « fourier « std::endl;
MyMapType::const_iterator it = mymap.find ( fourierstr );
if( it == mymap.end() ) return 1;
//std::cout « it->second « std::endl;
const std::string &partial_fourier = it->second;
if( partial_fourier == "0x1" )
  {
  std::cout « "partial fourier is 4/8" « std::endl;
  }
else if( partial_fourier == "0x2" )
  {
  std::cout « "partial fourier is 5/8" « std::endl;
  }
else if( partial_fourier == "0x4" )
  {
  std::cout « "partial fourier is 6/8" « std::endl;
  }
else if( partial_fourier == "0x8" )
  {
  std::cout « "partial fourier is 7/8" « std::endl;
  }
```

```
  else if( partial_fourier == "0x10" )
    {
    std::cout « "partial fourier is 8/8" « std::endl;
    }
  else
    {
    std::cerr « "Impossible: " « partial_fourier « std::endl;
    return 1;
    }
/*
This is the Flip Angle:
adFlipAngleDegree[0]                    = 30

One can find it also in the protocol:

...
      <ParamFunctor.""T1mapFunctor"">
      {
        <Class> ""T1mapFunctor@IceImagePostProcFunctors""

        <ParamBool.""EXECUTE""> { }
        <ParamDouble.""Flip1_deg""> { <Precision> 16  14.7378520000000000  }
...

*/
  // Below is an attempt to play with the CSAHeader dict:
#if 0
  const char gspec[] = "sGRADSPEC.flSensitivityX";
  it = mymap.find( gspec );
  if( it == mymap.end() ) return 1;
  const std::string &dummy = it->second;
  std::cout « dummy « std::endl;

  const gdcm::CSAHeaderDictEntry &csaentry = csadict.GetCSAHeaderDictEntry( gspec );
  std::cout « csaentry  « std::endl;
#endif


/*
    sSliceArray.ucMode -- should be in (1, 2, 4)
    enum SeriesMode
    {
      ASCENDING   = 0x01,
      DESCENDING  = 0x02,
      INTERLEAVED = 0x04
    };
*/
  const char sliceorderstr[] = "sSliceArray.ucMode";
  const gdcm::CSAHeaderDictEntry &sliceorder = csadict.GetCSAHeaderDictEntry( sliceorderstr );
  std::cout « sliceorder « std::endl;

  it = mymap.find ( sliceorderstr );
  if( it == mymap.end() ) return 1;
  const std::string &slice_order = it->second;
  if( slice_order == "0x1" )
    {
    std::cout « "slice_order: ASCENDING" « std::endl;
    }
  else if( slice_order == "0x2" )
    {
    std::cout « "slice_order: DESCENDING" « std::endl;
    }
  else if( slice_order == "0x4" )
    {
    std::cout « "slice_order: INTERLEAVED" « std::endl;
    }
  else
    {
    std::cerr « "Impossible: " « slice_order « std::endl;
    return 1;
    }

  gdcm::MrProtocol mrprot;
  if(  csa.GetMrProtocol(ds, mrprot) )
  {
    std::cout « mrprot « std::endl;
  }

  return 0;
}
```

14.85 PrintLUT.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 */

#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmImage.h"
#include "gdcmPhotometricInterpretation.h"

#include <iostream>

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " input.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];

  // Instantiate the image reader:
  gdcm::ImageReader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }
  const gdcm::Image &image = reader.GetImage();

  const gdcm::LookupTable & lut = image.GetLUT();
  lut.Print( std::cout );

  return 0;
}
```

14.86 PublicDict.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Dummy example to show GDCM Dict(s) API (Part 6) + Collected Private Attributes:
 */

#include "gdcmGlobal.h"
#include "gdcmDicts.h"
#include "gdcmDict.h"
#include "gdcmCSAHeader.h"
#include "gdcmPrivateTag.h"

int main(int , char *[])
```

```
{
  const gdcm::Global& g = gdcm::Global::GetInstance(); // sum of all knowledge !
  const gdcm::Dicts &dicts = g.GetDicts();
  const gdcm::Dict &pub = dicts.GetPublicDict(); // Part 6

  //std::cout « pub « std::endl;

  // 3 different ways to access the same information

  // 1. From the public dict only:
  gdcm::Tag patient_name(0x10,0x10);
  const gdcm::DictEntry &entry1 = pub.GetDictEntry(patient_name);
  std::cout « entry1 « std::endl;

  // 2. From all dicts:
  const gdcm::DictEntry &entry2 = dicts.GetDictEntry(patient_name);
  std::cout « entry2 « std::endl;

  // 3. This solution is the most flexible solution as you can request using the same
  // API either a public tag or a private tag
  const char *strowner = nullptr;
  const gdcm::DictEntry &entry3 = dicts.GetDictEntry(patient_name,strowner);
  std::cout « entry3 « std::endl;

  // Private attributes:

  // try with a private tag now:
  const gdcm::PrivateTag &private_tag = gdcm::CSAHeader::GetCSAImageHeaderInfoTag();
  //std::cout « private_tag « std::endl;
  const gdcm::DictEntry &entry4 = dicts.GetDictEntry(private_tag,private_tag.GetOwner());
  std::cout « entry4 « std::endl;

  // Let's pretend that private lookup is on 0x10xx elements:
  gdcm::PrivateTag dummy = private_tag;
  dummy.SetElement( (uint16_t)(0x1000 + dummy.GetElement()) );
  const gdcm::DictEntry &entry5 = dicts.GetDictEntry(dummy,dummy.GetOwner());
  std::cout « entry5 « std::endl;


  return 0;
}
```

14.87 QIDO-RS.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmJSON.h"

/*
 * Simple QIDO-RS round-trip to test implementation of gdcm::JSON
 * See Sup166 for details
 */
int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  using namespace gdcm;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() ) return 1;

  gdcm::JSON json;
  json.PrettyPrintOn();
```

```
  std::stringstream ss;
  const gdcm::File & f = reader.GetFile();
  json.Code( f.GetDataSet(), ss);

  std::cout « ss.str() « std::endl;

  gdcm::Writer w;
  gdcm::File & ff = w.GetFile();
  ff.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );
  if( !json.Decode(ss, ff.GetDataSet() ) )
    {
    std::cerr « "Could not decode" « std::endl;
    return 1;
    }
  w.SetFileName( "/tmp/debug.dcm" );
  if( !w.Write() ) return 1;

  return 0;
}
```

14.88 ReadAndDumpDICOMDIR.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example shows how to read and dump a DICOMDIR File
 *
 * Thanks:
 *   Tom Marynowski (lordglub gmail) for contributing this example
 */
#include "gdcmReader.h"
#include "gdcmMediaStorage.h"

typedef std::set<gdcm::DataElement> DataElementSet;
typedef DataElementSet::const_iterator ConstIterator;

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];

  gdcm::Reader reader;
  reader.SetFileName( filename);
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }
  std::stringstream strm;

  gdcm::File &file = reader.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();
  gdcm::FileMetaInformation &fmi = file.GetHeader();

  gdcm::MediaStorage ms;
  ms.SetFromFile(file);
  if( ms != gdcm::MediaStorage::MediaStorageDirectoryStorage )
    {
    std::cout « "This file is not a DICOMDIR" « std::endl;
    return 1;
    }

  if (fmi.FindDataElement( gdcm::Tag (0x0002, 0x0002)))
    {   strm.str("");
    fmi.GetDataElement( gdcm::Tag (0x0002, 0x0002) ).GetValue().Print(strm);
```

```
  }
else
  {
  std::cerr « " Media Storage Sop Class UID not present" « std::endl;
  }

//TODO il faut trimer strm.str() avant la comparaison au cas ou...
if ("1.2.840.10008.1.3.10"!=strm.str())
  {
  std::cout « "This file is not a DICOMDIR" « std::endl;
  return 1;
  }

ConstIterator it = ds.GetDES().begin();

for( ; it != ds.GetDES().end(); ++it)
  {

  if (it->GetTag()==gdcm::Tag (0x0004, 0x1220))
    {

    const gdcm::DataElement &de = (*it);
    // ne pas utiliser GetSequenceOfItems pour extraire les items
    gdcm::SmartPointer<gdcm::SequenceOfItems> sqi =de.GetValueAsSQ();
    unsigned int itemused = 1;
    while (itemused<=sqi->GetNumberOfItems())

      {
      strm.str("");

      if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
        sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

      //TODO il faut trimer strm.str() avant la comparaison
      while((strm.str()=="PATIENT")||((strm.str()=="PATIENT ")))
        {
        std::cout « strm.str() « std::endl;
        strm.str("");
        if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0010, 0x0010)))
          sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0010, 0x0010)).GetValue().Print(strm);
        std::cout « "PATIENT NAME : " « strm.str() « std::endl;


        //PATIENT ID
        strm.str("");
        if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0010, 0x0020)))
          sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0010, 0x0020)).GetValue().Print(strm);
        std::cout « "PATIENT ID : " « strm.str() « std::endl;

        /*ADD TAG TO READ HERE*/
        std::cout « "========================== "  « std::endl;
        itemused++;
        strm.str("");
        if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
          sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

        //TODO il faut trimer strm.str() avant la comparaison
        while((strm.str()=="STUDY")||((strm.str()=="STUDY ")))
          {
          std::cout « "  " « strm.str() « std::endl;
          //UID
          strm.str("");
          if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0020, 0x000d)))
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0020, 0x000d)).GetValue().Print(strm);
          std::cout « "      STUDY UID : " « strm.str() « std::endl;

          //STUDY DATE
          strm.str("");
          if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0008, 0x0020)))
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0008, 0x0020)).GetValue().Print(strm);
          std::cout « "      STUDY DATE : " « strm.str() « std::endl;

          //STUDY DESCRIPTION
          strm.str("");
          if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0008, 0x1030)))
            sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0008, 0x1030)).GetValue().Print(strm);
          std::cout « "      STUDY DESCRIPTION : " « strm.str() « std::endl;

          /*ADD TAG TO READ HERE*/
```

```
            std::cout « "      " « "========================== "  « std::endl;

            itemused++;
            strm.str("");
            if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
              sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

            //TODO il faut trimer strm.str() avant la comparaison
            while((strm.str()=="SERIES")||((strm.str()=="SERIES ")))
              {
              std::cout « "      " « strm.str() « std::endl;
              strm.str("");
              if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0020, 0x000e)))
                sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0020, 0x000e)).GetValue().Print(strm);
              std::cout « "          SERIE UID" « strm.str() « std::endl;

              //SERIE MODALITY
              strm.str("");
              if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0008, 0x0060)))
                sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0008, 0x0060)).GetValue().Print(strm);
              std::cout « "          SERIE MODALITY" « strm.str() « std::endl;

              //SERIE DESCRIPTION
              strm.str("");
              if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0008, 0x103e)))
                sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0008, 0x103e)).GetValue().Print(strm);
              std::cout « "          SERIE DESCRIPTION" « strm.str() « std::endl;


              /*ADD TAG TO READ HERE*/

              std::cout « "          " « "========================== "  « std::endl;
              itemused++;
              strm.str("");
              if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
                sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);


              //TODO il faut trimer strm.str() avant la comparaison
              while ((strm.str()=="IMAGE")||((strm.str()=="IMAGE ")))
                // if(tmp=="IMAGE")
                {
                std::cout « "          " « strm.str() « std::endl;


                //UID
                strm.str("");
                if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1511)))
                  sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1511)).GetValue().Print(strm);
                std::cout « "              IMAGE UID : " « strm.str() « std::endl;

                //PATH de l'image
                strm.str("");
                if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1500)))
                  sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1500)).GetValue().Print(strm);
                std::cout « "              IMAGE PATH : " « strm.str() « std::endl;
                /*ADD TAG TO READ HERE*/



                if(itemused < sqi->GetNumberOfItems())
                  {itemused++;
                  }else{break;}

                strm.str("");

                if (sqi->GetItem(itemused).FindDataElement(gdcm::Tag (0x0004, 0x1430)))
                  sqi->GetItem(itemused).GetDataElement(gdcm::Tag (0x0004, 0x1430)).GetValue().Print(strm);

                }
              }
            }
          }
        itemused++;
        }
      }
    }
  return 0;
}
```

14.89 ReadAndDumpDICOMDIR2.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2017 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example shows how to read and dump a DICOMDIR File
 *
 * Thanks:
 *   Tom Marynowski (lordglub gmail) for contributing the original
 *    ReadAndDumpDICOMDIR.cxx example
 *   Mihail Isakov for contributing offset calculation code here:
 *    https://sourceforge.net/p/gdcm/mailman/gdcm-developers/?viewmonth=201707&viewday=15
 *   Tod Baudais for combining the above and cleaning up this example
 */

#include <string>
#include <unordered_map>
#include <iostream>
#include <memory>

#include "gdcmReader.h"
#include "gdcmAttribute.h"
#include "gdcmDirectory.h"

//============================================================================
//============================================================================

#define TAG_MEDIA_STORAGE_SOP_CLASS_UID 0x0002,0x0002
#define TAG_DIRECTORY_RECORD_SEQUENCE 0x0004,0x1220
#define TAG_DIRECTORY_RECORD_TYPE 0x0004,0x1430
#define TAG_PATIENTS_NAME 0x0010,0x0010
#define TAG_PATIENT_ID 0x0010,0x0020
#define TAG_STUDY_DATE 0x0008,0x0020
#define TAG_STUDY_DESCRIPTION 0x0008,0x1030
#define TAG_MODALITY 0x0008,0x0060
#define TAG_SERIES_DESCRIPTION 0x0008,0x103E
#define TAG_REFERENCED_FILE_ID 0x0004,0x1500
#define TAG_REFERENCED_LOWER_LEVEL_DIRECTORY_ENTITY_OFFSET 0x0004,0x1420
#define TAG_NEXT_DIRECTORY_RECORD_OFFSET 0x0004,0x1400

//============================================================================
// Some handy utility functions
//============================================================================

std::string left_trim(const std::string &s) {
    std::string ss(s);
    ss.erase(ss.begin(), std::find_if(ss.begin(), ss.end(), std::not1(std::ptr_fun<int, int>(std::isspace))));
    return ss;
}

std::string right_trim(const std::string &s) {
    std::string ss(s);
    ss.erase(std::find_if(ss.rbegin(), ss.rend(), std::not1(std::ptr_fun<int, int>(std::isspace))).base(),
      ss.end());
    return ss;
}

std::string trim(const std::string &s) {
    return left_trim(right_trim(s));
}

//============================================================================
// This code could be put in a header file somewhere
//============================================================================

class DICOMDIRReader {
    public:
                                DICOMDIRReader      (void) {}
                                DICOMDIRReader      (const DICOMDIRReader &rhs) = delete;
```

```
                            DICOMDIRReader      (DICOMDIRReader &&rhs) = delete;
    DICOMDIRReader &        operator =          (const DICOMDIRReader &rhs) = delete;
    DICOMDIRReader &        operator =          (DICOMDIRReader &&rhs) = delete;
    virtual                 ~DICOMDIRReader     (void) {}

public:
    struct Common {
        int64_t child_offset;
        int64_t sibling_offset;
    };

    struct Image: public Common {
        std::string path;
    };

    struct Series: public Common {
        std::string modality;
        std::string description;

        std::vector<std::shared_ptr<Image>> children;
    };

    struct Study: public Common {
        std::string date;
        std::string description;

        std::vector<std::shared_ptr<Series>> children;
    };

    struct Patient: public Common {
        std::string name;
        std::string id;

        std::vector<std::shared_ptr<Study>> children;
    };

    struct Other: public Common {
    };

    const std::vector<std::shared_ptr<Patient>>&    load        (const std::string &path);

    const std::vector<std::shared_ptr<Patient>>&    patients    (void)  {   return _patients;   }

private:

    template <class T>
    std::string     get_string              (const T &ds, const gdcm::Tag &tag)
    {
        std::stringstream strm;
        if (ds.FindDataElement(tag)) {
            auto &de = ds.GetDataElement(tag);
            if (!de.IsEmpty() && !de.IsUndefinedLength())
                de.GetValue().Print(strm);
        }
        return trim(strm.str());
    }

    template <class P, class C, class O>
    void            reassemble_hierarchy    (P &parent_offsets, C &child_offsets, O &other_offsets)
    {
        for (auto &parent : parent_offsets) {
            int64_t sibling_offset;
            auto c = child_offsets[parent.second->child_offset];
            if (!c) {
                auto o = other_offsets[parent.second->child_offset];
                if (!o) {
                    continue;
                } else {
                    sibling_offset = o->sibling_offset;
                }
            } else {
                parent.second->children.push_back(c);
                sibling_offset = c->sibling_offset;
            }

            // Get all siblings
            while (sibling_offset) {
                c = child_offsets[sibling_offset];
                if (!c) {
                    auto o = other_offsets[sibling_offset];
                    if (!o) {
```

```
                            break;
                        } else {
                            sibling_offset = o->sibling_offset;
                        }
                    } else {
                        parent.second->children.push_back(c);
                        sibling_offset = c->sibling_offset;
                    }
                }
            }
        }

        std::vector<std::shared_ptr<Patient» _patients;
};

//=============================================================================
// This code could be put in an implementation file somewhere
//=============================================================================

const std::vector<std::shared_ptr<DICOMDIRReader::Patient»& DICOMDIRReader::load (const std::string &path)
{
    _patients.clear();

    //
    // Read the dataset from the DICOMDIR file
    //

    gdcm::Reader reader;
    reader.SetFileName(path.c_str());
    if(!reader.Read()) {
        throw std::runtime_error("Unable to read file");
    }

    // Retrieve information from file
    auto &file = reader.GetFile();
    auto &data_set = file.GetDataSet();
    auto &file_meta_information = file.GetHeader();

    // Retrieve and check the Media Storage class from file
    gdcm::MediaStorage media_storage;
    media_storage.SetFromFile(file);
    if(media_storage != gdcm::MediaStorage::MediaStorageDirectoryStorage) {
        throw std::runtime_error("This file is not a DICOMDIR");
    }

    auto media_storage_sop_class_uid = get_string(file_meta_information,
      gdcm::Tag(TAG_MEDIA_STORAGE_SOP_CLASS_UID));

    // Make sure we have a DICOMDIR file
    if (media_storage_sop_class_uid != "1.2.840.10008.1.3.10") {
        throw std::runtime_error("This file is not a DICOMDIR");
    }

    //
    // Offset to first item courtesy of Mihail Isakov
    //

    gdcm::VL first_item_offset = 0;
    auto it = data_set.Begin();
    for(; it != data_set.End() && it->GetTag() != gdcm::Tag(TAG_DIRECTORY_RECORD_SEQUENCE); ++it) {
        first_item_offset += it->GetLength<gdcm::ExplicitDataElement>();
    }
    // Tag (4 bytes)
    first_item_offset += it->GetTag().GetLength();
    // VR field
    first_item_offset += it->GetVR().GetLength();
    // VL field
    // For Explicit VR: adventitiously VL field length = VR field length,
    // for SQ 4 bytes:
    // http://dicom.nema.org/medical/dicom/current/output/html/part05.html#table_7.1-1
    first_item_offset += it->GetVR().GetLength();

    //
    // Iterate all data elements
    //

    // For each item in data set
    for(auto data_element : data_set.GetDES()) {

        // Only look at Directory sequence
        if (data_element.GetTag() != gdcm::Tag(TAG_DIRECTORY_RECORD_SEQUENCE))
```

```
        continue;

    auto item_sequence = data_element.GetValueAsSQ();
    auto num_items = item_sequence->GetNumberOfItems();

    //
    // Compute an offset table
    //

    // Start calculation of offset to each item courtesy of Mihail Isakov
    std::vector<int64_t> item_offsets(num_items+1);
    item_offsets[0] = file_meta_information.GetFullLength() + static_cast<int64_t>(first_item_offset);

    //
    // Extract out all of the items
    //

    std::unordered_map<int64_t, std::shared_ptr<Patient» patient_offsets;
    std::unordered_map<int64_t, std::shared_ptr<Study» study_offsets;
    std::unordered_map<int64_t, std::shared_ptr<Series» series_offsets;
    std::unordered_map<int64_t, std::shared_ptr<Image» image_offsets;
    std::unordered_map<int64_t, std::shared_ptr<Other» other_offsets;

    for (uint32_t item_index = 1; item_index <= num_items; ++item_index) {
        auto &item = item_sequence->GetItem(item_index);

        // Add offset for item to offset table
        item_offsets[item_index] = item_offsets[item_index-1] + item.GetLength<gdcm::ExplicitDataElement>();

        // Child offset
        gdcm::Attribute<TAG_REFERENCED_LOWER_LEVEL_DIRECTORY_ENTITY_OFFSET> child_offset;
        child_offset.SetFromDataElement(item.GetDataElement(gdcm::Tag
(TAG_REFERENCED_LOWER_LEVEL_DIRECTORY_ENTITY_OFFSET)));

        // Sibling offset
        gdcm::Attribute<TAG_NEXT_DIRECTORY_RECORD_OFFSET> sibling_offset;
        sibling_offset.SetFromDataElement(item.GetDataElement(gdcm::Tag
(TAG_NEXT_DIRECTORY_RECORD_OFFSET)));

        // Record Type
        auto record_type = trim(get_string(item, gdcm::Tag (TAG_DIRECTORY_RECORD_TYPE)));

        // std::cout « "record_type " « record_type « " at " « item_offsets[item_index-1] « std::endl;
        // std::cout « " child_offset " « child_offset.GetValue() « std::endl;
        // std::cout « " sibling_offset " « sibling_offset.GetValue() « std::endl;

        // Extract patient information
        if (record_type == "PATIENT") {
            auto patient = std::make_shared<Patient>();
            patient->name = get_string(item, gdcm::Tag (TAG_PATIENTS_NAME));
            patient->id = get_string(item, gdcm::Tag (TAG_PATIENT_ID));

            patient->child_offset = child_offset.GetValue();
            patient->sibling_offset = sibling_offset.GetValue();
            patient_offsets[item_offsets[item_index-1]] = patient;

        // Extract study information
        } else if (record_type == "STUDY") {
            auto study = std::make_shared<Study>();
            study->date = get_string(item, gdcm::Tag (TAG_STUDY_DATE));
            study->description = get_string(item, gdcm::Tag (TAG_STUDY_DESCRIPTION));

            study->child_offset = child_offset.GetValue();
            study->sibling_offset = sibling_offset.GetValue();
            study_offsets[item_offsets[item_index-1]] = study;

        // Extract series information
        } else if (record_type == "SERIES") {
            auto series = std::make_shared<Series>();
            series->modality = get_string(item, gdcm::Tag (TAG_MODALITY));
            series->description = get_string(item, gdcm::Tag (TAG_SERIES_DESCRIPTION));

            series->child_offset = child_offset.GetValue();
            series->sibling_offset = sibling_offset.GetValue();
            series_offsets[item_offsets[item_index-1]] = series;

        // Extract image information
        } else if (record_type == "IMAGE") {
            auto image = std::make_shared<Image>();
```

```
                image->path = get_string(item, gdcm::Tag (TAG_REFERENCED_FILE_ID));

                image->child_offset = child_offset.GetValue();
                image->sibling_offset = sibling_offset.GetValue();
                image_offsets[item_offsets[item_index-1]] = image;
            } else {
                auto other = std::make_shared<Other>();

                other->child_offset = child_offset.GetValue();
                other->sibling_offset = sibling_offset.GetValue();
                other_offsets[item_offsets[item_index-1]] = other;
            }
        }

        // Check validity
        if (patient_offsets.size() == 0)
            throw std::runtime_error("Unable to find patient record");

        reassemble_hierarchy(series_offsets, image_offsets, other_offsets);
        reassemble_hierarchy(study_offsets, series_offsets, other_offsets);
        reassemble_hierarchy(patient_offsets, study_offsets, other_offsets);

        // Set the new root
        for (auto &patient : patient_offsets) {
            _patients.push_back(patient.second);
        }
    }

    return _patients;
}

//=============================================================================
// Quick test
//=============================================================================

int main(int argc, const char *argv[]) {
    DICOMDIRReader reader;

    try {
        if (argc != 2)
            throw std::runtime_error("Wrong number of arguments");

        auto &patients = reader.load(argv[1]);

        for (auto &patient : patients) {

            std::cout « "PATIENT" « std::endl;
            std::cout « "NAME: " « patient->name « std::endl;
            std::cout « "ID: " « patient->id « std::endl;

            int x = 0;
            for (auto &study : patient->children) {
                std::cout « "    STUDY" « std::endl;
                std::cout « "    DESCRIPTION: " « study->description « std::endl;
                std::cout « "    DATE: " « study->date « std::endl;

                for (auto &series : study->children) {
                    x+=1;
                    std::cout « "        SERIES " « x « std::endl;
                    std::cout « "        DESCRIPTION: " « series->description « std::endl;
                    std::cout « "        MODALITY: " « series->modality « std::endl;

                    for (auto &image : series->children) {
                        std::cout « "            IMAGE PATH: " « image->path « std::endl;
                    }
                }
            }
        }
    }
    catch (...) {
        // TODO handle this
        return EXIT_FAILURE;
    }

    return EXIT_SUCCESS;
}
```

14.90 ReadAndPrintAttributes.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This small example will show how one can read and print
 * a DICOM Attribute using different technique (by tag or by name)
 */

#include "gdcmReader.h"
#include "gdcmGlobal.h"
#include "gdcmDicts.h"
#include "gdcmDict.h"
#include "gdcmAttribute.h"
#include "gdcmStringFilter.h"

#include <iostream>

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " input.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];

  // Instantiate the reader:
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Could not read: " « filename « std::endl;
    return 1;
    }

  // The output of gdcm::Reader is a gdcm::File
  gdcm::File &file = reader.GetFile();

  // the dataset is the the set of element we are interested in:
  gdcm::DataSet &ds = file.GetDataSet();

  const gdcm::Global& g = gdcm::Global::GetInstance();
  const gdcm::Dicts &dicts = g.GetDicts();
  const gdcm::Dict &pubdict = dicts.GetPublicDict();

  using namespace gdcm;

  // In this example we will show why using name to lookup attribute can be
  // dangerous.
  Tag tPatientName(0x0,0x0);
  //const DictEntry &de1 =
  pubdict.GetDictEntryByName("Patient Name", tPatientName);

  std::cout « "Found: " « tPatientName « std::endl;

  // Indeed the attribute could not be found. Since DICOM 2003, Patient Name
  // has become Patient's Name.

  Tag tPatientsName;
  //const DictEntry &de2 =
  pubdict.GetDictEntryByName("Patient's Name", tPatientsName);

  std::cout « "Found: " « tPatientsName « std::endl;

  // Let's try to read an arbitrary DICOM Attribute:
  Tag tDoseGridScaling;
  //const DictEntry &de3 =
```

```
  pubdict.GetDictEntryByName("Dose Grid Scaling", tDoseGridScaling);

  std::cout « "Found: " « tDoseGridScaling « std::endl;

  if( ds.FindDataElement( tDoseGridScaling ) )
    {
    gdcm::StringFilter sf;
    sf.SetFile(file);
    std::cout « "Attribute Value as String: " « sf.ToString( tDoseGridScaling ) « std::endl;

    // Let's check the name again:
    std::pair<std::string, std::string> pss
      = sf.ToStringPair( tDoseGridScaling );
    std::cout « "Attribute Name Checked: " « pss.first « std::endl;
    std::cout « "Attribute Value (string): " « pss.second « std::endl;

    //const DataElement &dgs = ds.GetDataElement( tDoseGridScaling );

    // Let's assume for a moment we knew the tag number:
    Attribute<0x3004,0x000e> at;
    gdcm_assert( at.GetTag() == tDoseGridScaling );
    at.SetFromDataSet( ds );
    // For the sake of long term maintenance, we will not write
    // that this particular attribute is stored as a double. What if
    // a user made a mistake. It is much safer to rely on GDCM internal
    // mechanism to deduce the VR::DS type (represented as a ieee double)
    Attribute<0x3004,0x000e>::ArrayType v = at.GetValue();
    std::cout « "DoseGridScaling=" « v « std::endl;
    }

  return 0;
}
```

14.91 ReadExplicitLengthSQIVR.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmByteValue.h"
#include "gdcmDataSet.h"
#include "gdcmImplicitDataElement.h"
#include "gdcmPrivateTag.h"
#include "gdcmReader.h"
#include "gdcmSequenceOfItems.h"

using namespace gdcm;

int main(int argc, char *argv[])
{
  if ( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader r;
  r.SetFileName( filename );
  r.Read();


  //gdcm::PrivateTag pt(0xe1,0x42,"ELSCINT1");
  //gdcm::Tag pt(0x88,0x200);
  gdcm::Tag pt(0x8,0x1140);
  DataSet &ds = r.GetFile().GetDataSet();
  const DataElement &de = ds.GetDataElement( pt );

  std::cout « de « std::endl;
  const ByteValue *bv = de.GetByteValue();
  SmartPointer<SequenceOfItems> sqi = new SequenceOfItems;
  sqi->SetLength( bv->GetLength() );
```

```
  std::stringstream ss;
  ss.str( std::string( bv->GetPointer(), bv->GetLength() ) );
  sqi->Read<ImplicitDataElement,SwapperNoOp>( ss );

  std::cout « *sqi « std::endl;

  return 0;
}
```

14.92 ReadGEMSSDO.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmDataElement.h"
#include "gdcmPrivateTag.h"

#include <iostream>
#include <string>

using namespace gdcm;

struct SDOElement
{
  typedef std::vector<std::string>::size_type SizeType;
  const char *GetData(SizeType index) const {
    return Data[index].c_str();
  }
  SizeType GetNumberOfData() const {
    return Data.size();
  }
  void SetData(SizeType index, const char *data) {
    Data[index] = data;
  }
  const char *GetDataFormat() const {
    return DataFormat.c_str();
  }
  void SetDataFormat(const char *dataformat, SizeType num) {
    DataFormat = dataformat;
    Data.resize( num );
  }
  void Print( std::ostream &os ) const {
    os « DataFormat « ":" « std::endl;
    std::vector<std::string>::const_iterator it = Data.begin();
    size_t s = 0;
    for( ; it != Data.end(); ++it )
      {
      os « "  (" « s++ « ") " « *it « std::endl;
      }
  }
private:
  std::string DataFormat;
  std::vector<std::string> Data;
};

class SDOHeader
{
public:
  typedef std::vector<SDOElement> SDOElements;
  typedef SDOElements::size_type SizeType;
  SizeType GetNumberOfSDOElements() const {
  return InternalSDODataSet.size();
  }
  void AddSDOElement(SDOElement const &sdoelement) {
  InternalSDODataSet.push_back( sdoelement );
```

```
  }
  const SDOElement &GetSDOElement(SizeType index) const {
  return InternalSDODataSet[index];
  }
  const SDOElement &GetSDOElementByName(const char *) const {
    return InternalSDODataSet[0];
  }
  void LoadFromAttributes(std::string const &s1, std::string const &s2)
    {
  std::string tok;
  std::string tok2;
  std::stringstream strstr(s1);
  std::stringstream strstr2(s2);

  SDOElement element;
  // Do format
  size_t count = 0;
  while ( std::getline ( strstr2, tok, '\\' ) )
    {
    //std::cout << tok << " ";
    std::getline ( strstr2, tok2, '\\' );
    //std::cout << tok2 << std::endl;
    count += atoi( tok2.c_str() );
    element.SetDataFormat( tok.c_str(), atoi( tok2.c_str() ) );
    for( size_t t = 0; t < element.GetNumberOfData(); ++t )
      {
      std::getline ( strstr, tok, '\\' );
      element.SetData(t, tok.c_str() );
      }
    AddSDOElement( element );
    }
  //while ( std::getline ( strstr, tok, '^' ) )
//  while ( std::getline ( strstr, tok, '\\' ) )
//    {
//    std::cout << tok << std::endl;
//    count++;
//    }
//  std::cout << "Count: " << count << std::endl;
//  count = 0;

//  std::cout << "Count: " << count << std::endl;

    }
  void Print( std::ostream &os ) const {
    SDOElements::const_iterator it = InternalSDODataSet.begin();
    for( ; it != InternalSDODataSet.end(); ++it )
      {
      it->Print ( os );
      }
  }
private:
  SDOElements InternalSDODataSet;
};

bool sdo_decode( DataElement const &stringdata, DataElement const &stringdataformat )
{
  const char *sd = stringdata.GetByteValue()->GetPointer();
  const size_t len_sd = stringdata.GetByteValue()->GetLength();

  std::string s1 = std::string( sd, len_sd );

  const char *sdf = stringdataformat.GetByteValue()->GetPointer();
  const size_t len_sdf = stringdataformat.GetByteValue()->GetLength();

  std::string s2 = std::string( sdf, len_sdf );

//  std::cout << s1 << std::endl;
//  std::cout << s2 << std::endl;

  SDOHeader header;
  header.LoadFromAttributes( s1, s2 );

  header.Print( std::cout );

  return true;
}

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
```

```
    std::cerr « argv[0] « " input.dcm" « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  File &file = reader.GetFile();
  DataSet &ds = file.GetDataSet();

  // StringData (0033,xx1F) 3 "GEMS_GENIE_1" List of SDO parameters stored as
  // list of strings
  const PrivateTag tstringdata(0x33,0x1f,"GEMS_GENIE_1");
  // StringDataFormat (0033,xx23) 3 "GEMS_GENIE_1" Format of string parameters;
  // contains information about name and number of strings in list
  const PrivateTag tstringdataformat(0x33,0x23,"GEMS_GENIE_1");

  if( !ds.FindDataElement( tstringdata ) ) return 1;
  const DataElement& stringdata = ds.GetDataElement( tstringdata );
  if( !ds.FindDataElement( tstringdataformat ) ) return 1;
  const DataElement& stringdataformat = ds.GetDataElement( tstringdataformat );

  sdo_decode( stringdata, stringdataformat );

  return 0;
}
```

14.93 ReadMultiTimesException.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// The intention of this sample program is to provoke bad_alloc exceptions in gdcm code

#include "gdcmImageReader.h"

int main(int argc, char* argv[])
{
  // We pre-allocate some memory (about 1Gb) to help the issue to show up earlier
  char *dummyBuffer = new char[1024*1024*1100]; (void)dummyBuffer;
  // Check the number of parameters given
  if (argc < 3)
    {
    std::cerr « "Usage: " « argv[0] « " Filename numberOfTries" « std::endl;
    return 1;
    }

  std::cout « "We are going to read the file: " « argv[1] « " " « argv[2] « " times" « std::endl;
  // We hold the pointers in an array to avoid the memory to be released
  // We read the input file n-times
  for (int i = 0; i < atoi(argv[2]); ++i)
    {
    gdcm::ImageReader reader;
    std::cout « "Reading try: " « i « std::endl;
    // Read files
    reader.SetFileName(argv[1]);
    try
      {
      reader.Read();
      gdcm::Image & img = reader.GetImage();
      unsigned long len = img.GetBufferLength();
      char *buffer = new char[ len ];
```

```
      img.GetBuffer( buffer ); // do NOT de-allocate buffer !
      }
    catch (std::bad_alloc &ba)
      {
      (void)ba;
      std::cerr « "BAD ALLOC Exception caught!" « std::endl;
      }
    catch (...)
      {
      std::cerr « "Exception caught!" « std::endl;
      }
    }

  return 0;
}
```

14.94 ReadUTF8QtDir.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * GDCM API expect a const char * as input for SetFileName
 * In order to use this API from Qt, here is a simple test that
 * shows how to do it in a portable manner:
 *
 * http://doc.qt.nokia.com/latest/qdir.html#navigation-and-directory-operations
 */

#include "gdcmReader.h"
#include "gdcmDirectory.h"

#include <QDir>
#include <QString>
#include <QCoreApplication>

#include <string>
#include <fstream>

#include <stdio.h> // fopen

static int TestBothFuncs(const char *info , const char *ba_str)
{
  int res = 0;
  FILE *f = fopen( ba_str, "r" );
  if( f )
    {
    std::cout « info « " fopen: " « ba_str « std::endl;
    fclose(f);
    ++res;
    }
  gdcm::Reader reader;
  std::ifstream is( ba_str, std::ios::binary );
  if( is.is_open() )
    {
    std::cout « info « " is_open: " « ba_str « std::endl;
    ++res;
    }
  reader.SetStream( is );
  if( reader.CanRead() == true )
    {
    std::cout « info « " SetStream/CanRead:" « ba_str « std::endl;
    ++res;
    }
  is.close();
  reader.SetFileName( ba_str );
```

```
  if( reader.CanRead() == true )
    {
    std::cout « info « " SetFileName/CanRead:" « ba_str « std::endl;
    ++res;
    }
  return 4 - res;
}

static int scanFolder(const char dirname[])
{
  int res = 0;
  gdcm::Directory dir;
  unsigned int nfiles = dir.Load( dirname, true );
  const gdcm::Directory::FilenamesType &filenames = dir.GetFilenames();

  for( unsigned int i = 0; i < nfiles; ++i )
    {
    const char *ba_str = filenames[i].c_str();
    res += TestBothFuncs("GDCM",ba_str);
    }
  return res;
}

static int scanFolderQt(QDir const &dir, QStringList& files)
{
  int res = 0;
  QFileInfoList children = dir.entryInfoList(QDir::AllEntries|QDir::NoDotAndDotDot);
  for ( int i=0; i<children.count(); i++ ) {
    QFileInfo file = children.at(i);
    if ( file.isDir() == true ) {
      res += scanFolderQt(QDir(file.absoluteFilePath()), files);
      continue;
    }
    // Convert back from the internal representation to 8bits
    // toLocal8Bit() returns by copy. Need to store explicitly the QByteArray
    QByteArray str = file.absoluteFilePath().toLocal8Bit();
    const char *ba_str1 = str.constData();
    res += TestBothFuncs("QString", ba_str1);
    }
  return res;
}

int main(int argc, char *argv[])
{
  // very important:
  QCoreApplication qCoreApp( argc , argv );
  if( argc < 2 )
    {
    std::cerr « argv[0] « " dir " « std::endl;
    return 1;
    }

  int res = 0;
  const char *dirname = argv[1];
  res += scanFolder( dirname );

  QDir dir( QString::fromLocal8Bit(dirname) );
  QStringList files;
  res += scanFolderQt( dir, files);

  if( res )
    std::cerr « "Problem with UTF-8" « std::endl;
  else
    std::cerr « "Success with UTF-8" « std::endl;

  return res;
}
```

14.95 SimpleScanner.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
```

```
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Simple example to show how to use Scanner API.
 * It exposes the three different cases:
 *  - DICOM Attribute is present and has a value
 *  - DICOM Attribute is present and has no value
 *  - DICOM Attribute is not present at all
 * It also shows the purpose of the function 'IsKey' to detect whether or
 * not the file has been read by the gdcm::Scanner. Technically most of the time
 * if a file is not a 'Key' this is because it is not a DICOM file. You need to use
 * gdcm::System::FileExists to decide whether or not the file actually exist on the disk.
 *
 * It was tested on this particular image:
 * ./SimpleScanner gdcmData/012345.002.050.dcm
 */

#include "gdcmStrictScanner.h"
#include "gdcmSimpleSubjectWatcher.h"
#include "gdcmFileNameEvent.h"

class MyFileWatcher : public gdcm::SimpleSubjectWatcher
{
public:
  MyFileWatcher(gdcm::Subject * s, const char *comment = ""):
    gdcm::SimpleSubjectWatcher(s,comment){}
  void ShowFileName(gdcm::Subject *, const gdcm::Event &evt) override
    {
    const gdcm::FileNameEvent &pe = dynamic_cast<const gdcm::FileNameEvent&>(evt);
    const char *fn = pe.GetFileName();
    std::cout « "FileName: " « fn « " FileSize: " « gdcm::System::FileSize( fn ) « std::endl;
    }
};

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    return 1;
    }
  const char *filename = argv[1];
  const char filename_invalid[] = "this is a file that may not exist on this disk.dcm";


  gdcm::SmartPointer<gdcm::StrictScanner> sp = new gdcm::StrictScanner;
  gdcm::StrictScanner &s = *sp;
  //gdcm::SimpleSubjectWatcher w(&s, "TestFileName" );
  MyFileWatcher w(&s, "TestFileName" );

  const gdcm::Tag tag_array[] = {
    gdcm::Tag(0x8,0x50),
    gdcm::Tag(0x8,0x51),
    gdcm::Tag(0x8,0x60),
    gdcm::Tag(0x8,0x80),
  };
  s.AddTag( tag_array[0] );
  s.AddTag( tag_array[1] );
  s.AddTag( tag_array[2] );
  s.AddTag( tag_array[3] );

  gdcm::Directory::FilenamesType filenames;
  filenames.push_back( filename );
  filenames.push_back( filename_invalid );

  if( !s.Scan( filenames ) )
    {
    return 1;
    }

  //s.Print( std::cout );


  for(gdcm::Directory::FilenamesType::const_iterator it = filenames.begin();
    it != filenames.end(); ++it )
    {
    if( s.IsKey( it->c_str() ) )
```

```
      {
      std::cout « "INFO:" « it->c_str() « " is a proper Key for the Scanner (this is a DICOM file)" « std::endl;
      }
    else
      {
      std::cout « "INFO:" « it->c_str() « " is not a proper Key for the Scanner (this is either not a DICOM file
      or file does not exist)" « std::endl;
      }
    }

  gdcm::StrictScanner::TagToValue const &ttv = s.GetMapping(filename);

  const gdcm::Tag *ptag = tag_array;
  for( ; ptag != tag_array + 3; ++ptag )
    {
    gdcm::StrictScanner::TagToValue::const_iterator it = ttv.find( *ptag );
    if( it != ttv.end() )
      {
      std::cout « *ptag « " was properly found in this file" « std::endl;
      // it contains a pair of value. the first one is the actual tag, so the following is always true:
      //  *ptag == it->first
      // The second part is the actual value (stored as RAW strings). You will have to reinterpret this string
      // if VR for *ptag is not VR::VRASCII !
      const char *value = it->second;
      if( *value )
        {
        std::cout « "  It has the value: " « value « std::endl;
        }
      else
        {
        std::cout « "  It has no value (empty)" « std::endl;
        }
      }
    else
      {
      std::cout « "Sorry " « *ptag « " could not be found in this file" « std::endl;
      }
    }

  return 0;
}
```

14.96 SortImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 */
#include "gdcmSorter.h"
#include "gdcmScanner.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"


bool mysort(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  //gdcm::Attribute<0x0020,0x0013> at1; // Instance Number
  gdcm::Attribute<0x0018,0x1060> at1; // Trigger Time
  gdcm::Attribute<0x0020,0x0032> at11; // Image Position (Patient)
  at1.Set( ds1 );
  at11.Set( ds1 );
  //gdcm::Attribute<0x0020,0x0013> at2;
  gdcm::Attribute<0x0018,0x1060> at2;
  gdcm::Attribute<0x0020,0x0032> at22;
  at2.Set( ds2 );
```

```
  at22.Set( ds2 );
  if( at11 == at22 )
    {
    return at1 < at2;
    }
  return at11 < at22;
}

bool mysort_part1(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0018,0x1060> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0018,0x1060> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

bool mysort_part2(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0020,0x0032> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x0032> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

// technically all files are in the same Frame of Reference, so this function
// should be a no-op
bool mysort_dummy(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0020,0x0052> at1; // FrameOfReferenceUID
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x0052> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

int main(int argc, char *argv[])
{
  if (argc < 2 ) return 1;
  const char *dirname = argv[1];
  gdcm::Directory dir;
  unsigned int nfiles = dir.Load( dirname );

  dir.Print( std::cout );

  gdcm::Sorter sorter;
  sorter.SetSortFunction( mysort );
  sorter.Sort( dir.GetFilenames() );

  std::cout « "Sorter:" « std::endl;
  sorter.Print( std::cout );

  gdcm::Sorter sorter2;
  sorter2.SetSortFunction( mysort_part1 );
  sorter2.StableSort( dir.GetFilenames() );
  sorter2.SetSortFunction( mysort_part2 );
  sorter2.StableSort( sorter2.GetFilenames() ); // IMPORTANT
  sorter2.SetSortFunction( mysort_dummy );
  sorter2.StableSort( sorter2.GetFilenames() ); // IMPORTANT

  std::cout « "Sorter2:" « std::endl;
  sorter2.Print( std::cout );

  gdcm::Scanner s;
  s.AddTag( gdcm::Tag(0x20,0x32) ); // Image Position (Patient)
  //s.AddTag( gdcm::Tag(0x20,0x37) ); // Image Orientation (Patient)
  s.Scan( dir.GetFilenames() );

  //s.Print( std::cout );

  // Count how many different IPP there are:
  const gdcm::Scanner::ValuesType &values = s.GetValues();
  size_t nvalues = values.size();
  std::cout « "There are " « nvalues « " different type of values" « std::endl;

  //std::cout « "nfiles=" « nfiles « std::endl;
  if( nfiles % nvalues != 0 )
    {
    std::cerr « "Impossible: this is a not a proper series" « std::endl;
    return 1;
```

```
    }
  std::cout « "Series is composed of " « (nfiles/nvalues) « " different 3D volumes" « std::endl;

  return 0;
}
```

14.97 StreamImageReaderTest.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// This work was realised during the GSOC 2011 by Manoj Alwani

#include "gdcmStreamImageReader.h"
#include "gdcmFileMetaInformation.h"
#include "gdcmSystem.h"
#include "gdcmFilename.h"
#include "gdcmByteSwap.h"
#include "gdcmTrace.h"
#include "gdcmTesting.h"
#include "gdcmImageHelper.h"
#include "gdcmImageReader.h"
#include "gdcmImage.h"
#include "gdcmMediaStorage.h"
#include "gdcmRAWCodec.h"
#include "gdcmJPEGLSCodec.h"
#include "gdcmUIDGenerator.h"
#include "gdcmStreamImageWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFile.h"
#include "gdcmTag.h"

bool StreamImageRead(gdcm::StreamImageWriter & theStreamWriter,
  const char* filename, const char* outfilename, int resolution)
{
  gdcm::StreamImageReader reader;

  reader.SetFileName( filename );

  if (!reader.ReadImageInformation())
    {
    std::cerr « "unable to read image information" « std::endl;
    return 1; //unable to read tags as expected.
    }
  //let's be tricky; each image will be read in portions, first the top half, then the bottom
  //that way, we can test how the stream handles fragmentation of the data
  //we could also loop this to get various different size combinations, but I'm not sure
  //that's useful, yet.
  std::vector<unsigned int> extent =
    gdcm::ImageHelper::GetDimensionsValue(reader.GetFile());
  // std::cout « extent[0];
  //at this point, these values aren't used, but may be in the future
  //unsigned short xmin = 0;
  //unsigned short xmax = extent[0];
  //unsigned short ymin = 0;
  //unsigned short ymax = extent[1];
  //unsigned short zmin = 0;
  //unsigned short zmax = extent[2];

  std::cout« "\n Row: "«extent[0] «"\n Col :"« extent[1]« "\n Resolution :"« extent[2] « std::endl;

  int a =1;
  for (int i=1; i<=(extent[2]-resolution);++i)
```

```
    a = a*2;

  reader.DefinePixelExtent(0, extent[0]/a, 0, extent[1]/a, resolution-1, resolution);

  unsigned long len = reader.DefineProperBufferLength();
  char* finalBuffer = new char[len];
  memset(finalBuffer, 0, sizeof(char)*len);

  if (reader.CanReadImage())
    {
    bool result = reader.Read(finalBuffer, len);
    if( !result )
      {
      std::cout « "res2 failure:" « filename « std::endl;
      delete [] finalBuffer;
      return 1;
      }
    else
      {
      std::cout« "Able to read";
      }
    }
  else
    {
    std::cerr« "Not able to put in buffer"« std::endl;
    }
/*
    //now, read in smaller buffer extents
    reader.DefinePixelExtent(xmin, xmax, ymin, ymax);
    len = reader.DefineProperBufferLength();

    char* buffer = new char[len];
    bool res2 = reader.Read(buffer, len);
    if( !res2 ){
      std::cerr « "res2 failure:" « filename « std::endl;
      return 1;
    }
    //copy the result into finalBuffer
    memcpy(finalBuffer, buffer, len);

    //now read the next half of the image
    ymin = ymax;
    ymax = extent[1];

    reader.DefinePixelExtent(xmin, xmax, ymin, ymax);

    //std::cerr « "Success to read image from file: " « filename « std::endl;
    unsigned long len2 = reader.DefineProperBufferLength();

    char* buffer2 = new char[len2];
    bool res3 = reader.Read(buffer2, len2);
    if( !res3 ){
      std::cerr « "res3 failure:" « filename « std::endl;
      return 1;
    }
    //copy the result into finalBuffer
    memcpy(&(finalBuffer[len]), buffer2, len2);

    delete [] buffer;
    delete [] buffer2;
*/

  gdcm::Writer w;
  gdcm::File &file = w.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  file.GetHeader().SetDataSetTransferSyntax( gdcm::TransferSyntax::ExplicitVRLittleEndian );

  gdcm::UIDGenerator uid;
  gdcm::DataElement de( gdcm::Tag(0x8,0x18) ); // SOP Instance UID
  de.SetVR( gdcm::VR::UI );
  const char *u = uid.Generate();
  de.SetByteValue( u, strlen(u) );
  ds.Insert( de );

  gdcm::DataElement de1( gdcm::Tag(0x8,0x16) );
  de1.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms( gdcm::MediaStorage::VLWholeSlideMicroscopyImageStorage );
  de1.SetByteValue( ms.GetString(), strlen(ms.GetString()));
```

```
  ds.Insert( de1 );

  const char mystr[] = "MONOCHROME2 ";
  gdcm::DataElement de2( gdcm::Tag(0x28,0x04) );
  //de.SetTag(gdcm::Tag(0x28,0x04));
  de2.SetVR( gdcm::VR::CS );
  de2.SetByteValue(mystr, strlen(mystr));
  ds.Insert( de2 );

   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
   ds.Insert( Number_Of_Frames.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0010> row = {extent[0]/a};//
   ds.Insert( row.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0011> col = {extent[1]/a};//
   ds.Insert( col.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0100> at = {8};
   ds.Insert( at.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0002> at1 = {1};//
   ds.Insert( at1.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0101> at2 = {8};
   ds.Insert( at2.GetAsDataElement() );

   gdcm::Attribute<0x0028,0x0102> at3 = {7};
   ds.Insert( at3.GetAsDataElement() );
    /*
   ds1.Remove( gdcm::Tag(0x0028,0x0008) );

   gdcm::Attribute<0x0028,0x0008> Number_Of_Frames = {1};
   ds1.Insert( Number_Of_Frames.GetAsDataElement() );
*/
   theStreamWriter.SetFile(file);

   if (!theStreamWriter.WriteImageInformation())
     {
     std::cerr « "unable to write image information" « std::endl;
     return 1; //the CanWrite function should prevent getting here, else,
     //that's a test failure
     }
    std::vector<unsigned int> extent1 = gdcm::ImageHelper::GetDimensionsValue(file);

    unsigned short xmax = extent1[0];
    unsigned short ymax = extent1[1];
    unsigned short theChunkSize = 1;
    unsigned short ychunk = extent1[1]/theChunkSize; //go in chunk sizes of theChunkSize
    unsigned short zmax = 1;

    std::cout« "\n Row: "«extent1[0] «"\n Col :"« extent1[1]« "\n Resolution :"« extent1[2] « std::endl;

    if (xmax == 0 || ymax == 0)
      {
      std::cerr « "Image has no size, unable to write zero-sized image." « std::endl;
      return 0;
      }

    int z, y, nexty;
    unsigned long prevLen = 0; //when going through the char buffer, make sure to grab
    //the bytes sequentially.  So, store how far you got in the buffer with each iteration.

    for (z = 0; z < zmax; ++z){
      for (y = 0; y < ymax; y += ychunk){
        nexty = y + ychunk;
        if (nexty > ymax) nexty = ymax;
        theStreamWriter.DefinePixelExtent(0, xmax, y, nexty, z, z+1);
        unsigned long len = theStreamWriter.DefineProperBufferLength();
        std::cout « "\n" «len;
        char* finalBuffer1 = new char[len];
        memcpy(finalBuffer1, &(finalBuffer[prevLen]), len);
        std::cout « "\nable to write";

        if (!theStreamWriter.Write(finalBuffer1, len)){
          std::cerr « "writing failure:" « "output.dcm" « " at y = " « y « " and z= " « z « std::endl;
          delete [] finalBuffer1;
          delete [] finalBuffer;
          return 1;
        }
        delete [] finalBuffer1;
```

```
        prevLen += len;
      }
    }
   delete [] finalBuffer;
   std::cout « "all is set";

  return true;
}


int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm Resolution" « std::endl;
    return 1;
    }

  const char *filename = argv[1];
  const char *outfilename = argv[2];
  char *res = argv[3];

  int resolution = atoi(res);

  gdcm::StreamImageWriter theStreamWriter;

  std::ofstream of;
  of.open( outfilename, std::ios::out | std::ios::binary );
  theStreamWriter.SetStream(of);

  // else
  // First of get rid of warning/debug message
  gdcm::Trace::DebugOn();
  gdcm::Trace::WarningOn();

  if(!StreamImageRead( theStreamWriter, filename, outfilename, resolution))
    return 1;

  uint16_t firstTag1 =  0xfffe;
  uint16_t secondTag1 = 0xe0dd;
  uint32_t thirdTag1 =  0x00000000;
  //uint16_t fourthTag1 = 0xffff;
  const int theBufferSize1 = 2*sizeof(uint16_t)+sizeof(uint32_t);
  char* tmpBuffer2 = new char[theBufferSize1];
  memcpy(&(tmpBuffer2[0]), &firstTag1, sizeof(uint16_t));
  memcpy(&(tmpBuffer2[sizeof(uint16_t)]), &secondTag1, sizeof(uint16_t));
  memcpy(&(tmpBuffer2[2*sizeof(uint16_t)]), &thirdTag1, sizeof(uint32_t));
  //memcpy(&(tmpBuffer2[3*sizeof(uint16_t)]), &fourthTag1, sizeof(uint16_t));
  gdcm_assert( of && !of.eof() && of.good() );
  of.write(tmpBuffer2, theBufferSize1);
  of.flush();
  gdcm_assert( of );

  return 0;
}
```

14.98 TemplateEmptyImage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmFileStreamer.h"
#include "gdcmTag.h"
#include "gdcmTrace.h"
#include "gdcmImageRegionReader.h"
#include "gdcmImageHelper.h"
```

```
#include "gdcmWriter.h"
#include "gdcmImageWriter.h"
#include "gdcmTagKeywords.h"
#include "gdcmUIDGenerator.h"

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  const char * filename = argv[1];
  gdcm::ImageRegionReader irr;
  irr.SetFileName( filename );
  const bool b3 = irr.ReadInformation();
  std::cout « b3 « std::endl;
  gdcm::Image & img = irr.GetImage();
  std::cout « img « std::endl;
  //  const gdcm::Region & r = irr.GetRegion();
  //  std::cout « r « std::endl;
  gdcm::ImageWriter w;
  gdcm::File & file = w.GetFile();
  gdcm::DataSet & ds = file.GetDataSet();

  gdcm::UIDGenerator uid;
  namespace kwd = gdcm::Keywords;
  kwd::FrameOfReferenceUID frameref;
  frameref.SetValue( uid.Generate() );
  // ContentDate
  char date[22];
  const size_t datelen = 8;
  int res = gdcm::System::GetCurrentDateTime(date);
  (void)res;
  kwd::ContentDate contentdate;
  // Do not copy the whole cstring:
  contentdate.SetValue( gdcm::DAComp( date, datelen ) );
  ds.Insert( contentdate.GetAsDataElement() );
  // ContentTime
  const size_t timelen = 6 + 1 + 6; // time + milliseconds
  kwd::ContentTime contenttime;
  // Do not copy the whole cstring:
  contenttime.SetValue( gdcm::TMComp(date+datelen, timelen) );
  ds.Insert( contenttime.GetAsDataElement() );
  gdcm::MediaStorage ms0 = w.ComputeTargetMediaStorage();
  std::cout « ms0 « std::endl;
  kwd::SeriesNumber seriesnumber = { 1 };
  kwd::InstanceNumber instancenum = { 1 };
  kwd::StudyID studyid = { "St1" };
  kwd::PatientID patientid = { "P1" };
  kwd::SOPClassUID sopclassuid;
  kwd::PositionReferenceIndicator pri;
  //kwd::Laterality lat;
  //kwd::BodyPartExamined bodypartex = { "HEAD" };
  kwd::BodyPartExamined bodypartex = { "ANKLE" };
  kwd::PatientOrientation pator;
  kwd::BurnedInAnnotation bia = { "NO" };
  kwd::ConversionType convtype = { "SYN" };
  kwd::PresentationLUTShape plutshape = { "IDENTITY" }; // MONOCHROME2
  // gdcm will pick the Word in case Byte class is not compatible:
  gdcm::MediaStorage ms = gdcm::MediaStorage::MultiframeGrayscaleByteSecondaryCaptureImageStorage;
  sopclassuid.SetValue( ms.GetString() );
  ds.Insert( instancenum.GetAsDataElement() );
  ds.Insert( sopclassuid.GetAsDataElement() );
  ds.Insert( seriesnumber.GetAsDataElement() );
  ds.Insert( patientid.GetAsDataElement() );
  ds.Insert( studyid.GetAsDataElement() );
  ds.Insert( frameref.GetAsDataElement() );
  ds.Insert( pri.GetAsDataElement() );
  //ds.Insert( lat.GetAsDataElement() );
  ds.Insert( bodypartex.GetAsDataElement() );
  ds.Insert( pator.GetAsDataElement() );
  ds.Insert( bia.GetAsDataElement() );
  ds.Insert( convtype.GetAsDataElement() );
  ds.Insert( plutshape.GetAsDataElement() );
  //    gdcm::MediaStorage ms1 = w.ComputeTargetMediaStorage();
  //    std::cout « ms1 « std::endl;
  std::cout « ds « std::endl;
  gdcm::PixelFormat & pf = img.GetPixelFormat();
  pf.SetPixelRepresentation(0); // always overwrite
  img.SetSlope(1);
  img.SetIntercept(0);
  w.SetImage( img );
  w.SetFileName( "TemplateImage.dcm" );
  if( !w.Write() )
```

```
  {
    return 1;
  }

  return 0;
}
```

14.99 TraverseModules.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 */

#include "gdcmDefs.h"
#include "gdcmGlobal.h"
#include "gdcmIODs.h"
#include "gdcmIOD.h"
#include "gdcmMacros.h"
#include "gdcmIODEntry.h"
#include "gdcmModules.h"
#include "gdcmModule.h"
#include "gdcmAnonymizer.h"
#include "gdcmDicts.h"

int main(int , char *[])
{
  using namespace gdcm;
  static Global &g = Global::GetInstance();

  if( !g.LoadResourcesFiles() )
    {
    return 1;
    }

  static const Defs &defs = g.GetDefs();
  static const Modules &modules = defs.GetModules();
  static const IODs &iods = defs.GetIODs();
  static const Macros &macros = defs.GetMacros();
  static const Dicts &dicts = g.GetDicts();

  std::vector<Tag> tags = gdcm::Anonymizer::GetBasicApplicationLevelConfidentialityProfileAttributes();
  for( std::vector<Tag>::const_iterator tit = tags.begin(); tit != tags.end(); ++tit )
    {
    const Tag &tag = *tit;
    const DictEntry &dictentry = dicts.GetDictEntry(tag);
    std::cout << "Processing Attribute: " << tag << " " << dictentry << std::endl;

    IODs::IODMapTypeConstIterator it = iods.Begin();
    for( ; it != iods.End(); ++it )
      {
      const IODs::IODName &name = it->first;
      const IOD &iod = it->second;

      const size_t niods = iod.GetNumberOfIODs();
      // Iterate over each iod entry in order:
      for(unsigned int idx = 0; idx < niods; ++idx)
        {
        const IODEntry &iodentry = iod.GetIODEntry(idx);
        const char *ref = iodentry.GetRef();
        //Usage::UsageType ut = iodentry.GetUsageType();

        const Module &module = modules.GetModule( ref );
        if( module.FindModuleEntryInMacros(macros, tag ) )
```

```
          {
          const ModuleEntry &module_entry = module.GetModuleEntryInMacros(macros,tag);
          Type type = module_entry.GetType();
          std::cout « "IOD Name: " « name « std::endl;
          std::cout « "Type: " « type « std::endl;
          }
        }

      }
    }

  return 0;
}
```

14.100 VolumeSorter.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 */
#include "gdcmSorter.h"
#include "gdcmIPPSorter.h"
#include "gdcmScanner.h"
#include "gdcmDataSet.h"
#include "gdcmAttribute.h"
#include "gdcmTesting.h"


bool mysort1(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0020,0x000d> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x000d> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

bool mysort2(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  gdcm::Attribute<0x0020,0x000e> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x000e> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

bool mysort3(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  // This is a floating point number is the comparison ok ?
  gdcm::Attribute<0x0020,0x0037> at1;
  at1.Set( ds1 );
  gdcm::Attribute<0x0020,0x0037> at2;
  at2.Set( ds2 );
  return at1 < at2;
}

bool mysort4(gdcm::DataSet const & ds1, gdcm::DataSet const & ds2 )
{
  // Do the IPP sorting here
  gdcm::Attribute<0x0020,0x0032> ipp1;
  gdcm::Attribute<0x0020,0x0037> iop1;
  ipp1.Set( ds1 );
  iop1.Set( ds1 );
  gdcm::Attribute<0x0020,0x0032> ipp2;
  gdcm::Attribute<0x0020,0x0037> iop2;
```

```
  ipp2.Set( ds2 );
  iop2.Set( ds2 );
  if( iop1 != iop2 )
    {
    return false;
    }

  // else
  double normal[3];
  normal[0] = iop1[1]*iop1[5] - iop1[2]*iop1[4];
  normal[1] = iop1[2]*iop1[3] - iop1[0]*iop1[5];
  normal[2] = iop1[0]*iop1[4] - iop1[1]*iop1[3];
  double dist1 = 0;
  for (int i = 0; i < 3; ++i) dist1 += normal[i]*ipp1[i];
  double dist2 = 0;
  for (int i = 0; i < 3; ++i) dist2 += normal[i]*ipp2[i];

  std::cout << dist1 << "," << dist2 << std::endl;
  return dist1 < dist2;

}


int main(int argc, char *argv[])
{
  const char *extradataroot = gdcm::Testing::GetDataExtraRoot();
  std::string dir1;
  if( argc < 2 )
    {
    if( !extradataroot )
      {
      return 1;
      }
    dir1 = extradataroot;
    dir1 += "/gdcmSampleData/ForSeriesTesting/VariousIncidences/ST1";
    }
  else
    {
    dir1 = argv[1];
    }

  gdcm::Directory d;
  d.Load( dir1, true ); // recursive !
  const gdcm::Directory::FilenamesType &l1 = d.GetFilenames();
  const size_t nfiles = l1.size();
  std::cout << nfiles << std::endl;

  //if( nfiles != 280 )
  //  {
  //  return 1;
  //  }

  //d.Print( std::cout );

  gdcm::Scanner s0;
  const gdcm::Tag t1(0x0020,0x000d); // Study Instance UID
  const gdcm::Tag t2(0x0020,0x000e); // Series Instance UID
  //const gdcm::Tag t3(0x0010,0x0010); // Patient's Name
  s0.AddTag( t1 );
  s0.AddTag( t2 );
  //s0.AddTag( t3 );
  //s0.AddTag( t4 );
  //s0.AddTag( t5 );
  //s0.AddTag( t6 );
  bool b = s0.Scan( d.GetFilenames() );
  if( !b )
    {
    std::cerr << "Scanner failed" << std::endl;
    return 1;
    }

  //s0.Print( std::cout );

  // Only get the DICOM files:
  gdcm::Directory::FilenamesType l2 = s0.GetKeys();
  const size_t nfiles2 = l2.size();
  std::cout << nfiles2 << std::endl;

  if ( nfiles2 > nfiles )
    {
    return 1;
```

```
    }


  gdcm::Sorter sorter;
  sorter.SetSortFunction( mysort1 );
  sorter.StableSort( l2 );

  sorter.SetSortFunction( mysort2 );
  sorter.StableSort( sorter.GetFilenames() );

  sorter.SetSortFunction( mysort3 );
  sorter.StableSort( sorter.GetFilenames() );

  sorter.SetSortFunction( mysort4 );
  sorter.StableSort( sorter.GetFilenames() );

  //sorter.Print( std::cout );

  // Let's try to check our result:
  // assume that IPP is precise enough so that we can test floating point equality:
  size_t nvalues = 0;
{
  gdcm::Scanner s;
  s.AddTag( gdcm::Tag(0x20,0x32) ); // Image Position (Patient)
  //s.AddTag( gdcm::Tag(0x20,0x37) ); // Image Orientation (Patient)
  s.Scan( d.GetFilenames() );

  //s.Print( std::cout );

  const gdcm::Scanner::ValuesType &values = s.GetValues();
  nvalues = values.size();
  std::cout « "There are " « nvalues « " different type of values" « std::endl;
  gdcm_assert( nfiles2 % nvalues == 0 );
  std::cout « "Series is composed of " « (nfiles/nvalues) « " different 3D volumes" « std::endl;
}

  gdcm::Directory::FilenamesType sorted_files = sorter.GetFilenames();

  // Which means we can take nvalues files at a time and execute gdcm::IPPSorter on it:
  gdcm::IPPSorter ippsorter;
  gdcm::Directory::FilenamesType sub( sorted_files.begin(), sorted_files.begin() + nvalues);
  std::cout « sub.size() « std::endl;
  std::cout « sub[0] « std::endl;
  std::cout « sub[nvalues-1] « std::endl;
  ippsorter.SetComputeZSpacing( false );
  if( !ippsorter.Sort( sub ) )
    {
    std::cerr « "Could not sort" « std::endl;
    return 1;
    }

  std::cout « "IPPSorter:" « std::endl;
  ippsorter.Print( std::cout );


  return 0;
}
```

14.101 csa2img.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * I do not know what the format is, just guessing from info found on the net:
 *
```

```
 * http://atonal.ucdavis.edu/matlab/fmri/spm5/spm_dicom_convert.m
 *
 * This example is an attempt at understanding the format used by SIEMENS
 * their "SIEMENS CSA NON-IMAGE" DICOM file (1.3.12.2.1107.5.9.1)
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 */
#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmImageWriter.h"
#include "gdcmCSAHeader.h"
#include "gdcmAttribute.h"
#include "gdcmPrivateTag.h"

#include <math.h>

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  // gdcmDataExtra/gdcmNonImageData/exCSA_Non-Image_Storage.dcm
  // PHANTOM.MR.CARDIO_COEUR_S_QUENCE_DE_REP_RAGE.9.257.2008.03.20.14.53.25.578125.43151705.IMA
  const char *filename = argv[1];

  gdcm::Reader reader; // Do not use ImageReader
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }

  gdcm::CSAHeader csa;
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  const gdcm::PrivateTag &t1 = csa.GetCSAImageHeaderInfoTag();
  //std::cout « t1 « std::endl;
  //const gdcm::PrivateTag &t2 = csa.GetCSASeriesHeaderInfoTag();

  if( ds.FindDataElement( t1 ) )
    {
    csa.LoadFromDataElement( ds.GetDataElement( t1 ) );
    csa.Print( std::cout );
    }
  int dims[2] = {};
  if( csa.FindCSAElementByName( "Columns" ) )
    {
    const gdcm::CSAElement &csael = csa.GetCSAElementByName( "Columns" );
    std::cout « csael « std::endl;
    //const gdcm::ByteValue *bv = csael.GetByteValue();
    gdcm::Element<gdcm::VR::IS, gdcm::VM::VM1> el;
    el.Set( csael.GetValue() );
    dims[0] = el.GetValue();
    std::cout « "Columns:" « el.GetValue() « std::endl;
    }

  if( csa.FindCSAElementByName( "Rows" ) )
    {
    const gdcm::CSAElement &csael2 = csa.GetCSAElementByName( "Rows" );
    std::cout « csael2 « std::endl;
    gdcm::Element<gdcm::VR::IS, gdcm::VM::VM1> el2;
    el2.Set( csael2.GetValue() );
    dims[1] = el2.GetValue();
    std::cout « "Rows:" « el2.GetValue() « std::endl;
    }

  double spacing[2] = { 1. , 1. };
  bool spacingfound = false;
  if( csa.FindCSAElementByName( "PixelSpacing" ) )
    {
    const gdcm::CSAElement &csael3 = csa.GetCSAElementByName( "PixelSpacing" );
    if( !csael3.IsEmpty() )
      {
      std::cout « csael3 « std::endl;
      gdcm::Element<gdcm::VR::DS, gdcm::VM::VM2> el3;
      el3.Set( csael3.GetValue() );
      spacing[0] = el3.GetValue(0);
```

```
      spacing[1] = el3.GetValue(1);
      std::cout « "PixelSpacing:" « el3.GetValue() « "," « el3.GetValue(1) « std::endl;
      spacingfound = true;
      }
    }

  if( !spacingfound )
    {
    std::cerr « "Problem with PixelSpacing" « std::endl;
    //return 1;
    }
  if( !dims[0] || !dims[1] )
    {
    std::cerr « "Problem with dims" « std::endl;
    return 1;
    }

  gdcm::ImageWriter writer;

  gdcm::Image &image = writer.GetImage();
  image.SetNumberOfDimensions( 2 ); // good default
  image.SetDimension(0, dims[0] );
  image.SetDimension(1, dims[1] );
  image.SetSpacing(0, spacing[0] );
  image.SetSpacing(1, spacing[1] );
  gdcm::PixelFormat pixeltype = gdcm::PixelFormat::INT16; // bytepix = spm_type('int16','bits')/8;

  //unsigned long l = image.GetBufferLength();
  //const int p =  l / (dims[0] * dims[1]);

  //image.SetNumberOfDimensions( 3 );
  //image.SetDimension(2, p / pixeltype.GetPixelSize() );

  gdcm::PhotometricInterpretation pi;
  pi = gdcm::PhotometricInterpretation::MONOCHROME2;
  //pixeltype.SetSamplesPerPixel(  );
  image.SetPhotometricInterpretation( pi );
  image.SetPixelFormat( pixeltype );
  //image.SetIntercept( inputimage.GetIntercept() );
  //image.SetSlope( inputimage.GetSlope() );

  //gdcm::DataElement pixeldata( gdcm::Tag(0x7fe1,0x1010) );
  //pixeldata.SetByteValue( &outbuf[0], outbuf.size() );
  gdcm::PrivateTag csanonimaget(0x7fe1,0x10,"SIEMENS CSA NON-IMAGE");
  const gdcm::DataElement &pixeldata = ds.GetDataElement( csanonimaget );
  image.SetDataElement( pixeldata );

  std::string outfilename = "outcsa.dcm";
  //writer.SetFile( reader.GetFile() );
  writer.SetFileName( outfilename.c_str() );
  if( !writer.Write() )
    {
    std::cerr « "could not write: " « outfilename « std::endl;
    return 1;
    }


  return 0;
}
```

14.102 iU22tomultisc.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
```

```
 * iU22 Raw Data extractor
 */
#include "gdcmReader.h"
#include "gdcmImageWriter.h"
#include "gdcmAttribute.h"
#include "gdcmPrivateTag.h"

#include <math.h>

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  // IM_001
  const char *filename = argv[1];

  gdcm::Reader reader; // Do not use ImageReader
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }

 // * The data is simply 8-bit unsigned in the obvious x/y/z order
 // * 200D,300B contains the data
 // * 200D,3001 contains the no. of voxels (416,412,256 in this case)
 // * 200D,3003 contains the voxel sizes (0.156184527398215 /
 // 0.1223749613981957 / 0.328479990704639 in this case)

  const gdcm::File &file = reader.GetFile();
  const gdcm::DataSet &ds = file.GetDataSet();
  const gdcm::PrivateTag trawdataus( 0x200d, 0x0b, "Philips US Imaging DD 033" );
  const gdcm::DataElement &rawdataus = ds.GetDataElement( trawdataus );

  const gdcm::PrivateTag tcolsrowsframes( 0x200d, 0x01, "Philips US Imaging DD 036" );
  const gdcm::DataElement &colsrowsframes = ds.GetDataElement( tcolsrowsframes );
  // const gdcm::PrivateTag tcolsrowsframes( 0x200d, 0x02, "Philips US Imaging DD 036" );
  // this is just a duplicate previous tag.
  const gdcm::PrivateTag tvoxelspacing( 0x200d, 0x03, "Philips US Imaging DD 036" );
  const gdcm::DataElement &voxelspacing = ds.GetDataElement( tvoxelspacing );

  gdcm::Element<gdcm::VR::DS,gdcm::VM::VM3> dims; // Use DS to interpret value stored in LO
  dims.SetFromDataElement( colsrowsframes );

  gdcm::Element<gdcm::VR::DS,gdcm::VM::VM3> spacing;
  spacing.SetFromDataElement( voxelspacing );

  gdcm::ImageWriter writer;

  gdcm::Image &image = writer.GetImage();
  image.SetNumberOfDimensions( 3 ); // good default
  image.SetDimension(0, (unsigned int)dims[0] );
  image.SetDimension(1, (unsigned int)dims[1] );
  image.SetDimension(2, (unsigned int)dims[2] );
  image.SetSpacing(0, spacing[0] );
  image.SetSpacing(1, spacing[1] );
  image.SetSpacing(2, spacing[2] );
  gdcm::PixelFormat pixeltype = gdcm::PixelFormat::UINT8;

  gdcm::PhotometricInterpretation pi;
  pi = gdcm::PhotometricInterpretation::MONOCHROME2;
  image.SetPhotometricInterpretation( pi );
  image.SetPixelFormat( pixeltype );

  image.SetDataElement( rawdataus );

  std::string outfilename = "outiu22.dcm";

  gdcm::DataElement de( gdcm::Tag(0x8,0x16) ); // SOP Class UID
  de.SetVR( gdcm::VR::UI );
  gdcm::MediaStorage ms(
    gdcm::MediaStorage::UltrasoundMultiFrameImageStorage );
//    gdcm::MediaStorage::MultiframeGrayscaleByteSecondaryCaptureImageStorage );
  de.SetByteValue( ms.GetString(), (uint32_t)strlen(ms.GetString()));
  writer.GetFile().GetDataSet().Replace( de );

  writer.SetFileName( outfilename.c_str() );
  if( !writer.Write() )
    {
    std::cerr « "could not write: " « outfilename « std::endl;
    return 1;
```

```
    }

  return 0;
}
```

14.103 pmsct_rgb1.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example shows how to rewrite a ELSCINT1/PMSCT_RGB1 compressed
 * image so that it is readable by most 3rd party software (DICOM does
 * not specify this particular encoding).
 * This is required for the sake of interoperability with any standard
 * conforming DICOM system.
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Jean-Pierre Roux for providing the sample datasets
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

void delta_decode(const unsigned char *data_in, size_t data_size,
  std::vector<unsigned char> &new_stream, unsigned short pc, size_t w, size_t h)
{
  const size_t plane_size = h * w;
  const size_t outputlen = 3 * plane_size;
  new_stream.resize( outputlen );

  gdcm_assert( data_size != outputlen );
  if( data_size == outputlen )
    {
    return;
    }
  typedef unsigned char byte;
  enum {
    COLORMODE  = 0x81,
    ESCMODE    = 0x82,
    REPEATMODE = 0x83
  };

  const byte* src = (const byte*)data_in;
  byte* dest = (byte*)new_stream.data();
  union { byte gray; byte rgb[3]; } pixel;
  pixel.rgb[0] = pixel.rgb[1] = pixel.rgb[2] = 0;
  // always start in grayscale mode
  bool graymode = true;
  size_t dx = 1;
  size_t dy = 3;
  // algorithm works with both planar configuration
  // It does produce surprising greenish background color for planar
  // configuration is 0, while the nested Icon SQ display a nice black
  // background
```

```
if (pc)
  {
  dx = plane_size;
  dy = 1;
  }
size_t ps = plane_size;

// The following is highly unoptimized as we have nested if statement in a while loop
// we need to switch from one algorithm to the other (RGB <-> GRAY)
while (ps)
  {
  // next byte:
  byte b = *src++;
  gdcm_assert( src < data_in + data_size );
  // mode selection:
  switch ( b )
    {
  case ESCMODE:
    // Used to treat a byte 81/82/83 as a normal byte
    if (graymode)
      {
      pixel.gray += *src++;
      dest[0*dx] = pixel.gray;
      dest[1*dx] = pixel.gray;
      dest[2*dx] = pixel.gray;
      }
    else
      {
      pixel.rgb[0] += *src++;
      pixel.rgb[1] += *src++;
      pixel.rgb[2] += *src++;
      dest[0*dx] = pixel.rgb[0];
      dest[1*dx] = pixel.rgb[1];
      dest[2*dx] = pixel.rgb[2];
      }
    dest += dy;
    ps--;
    break;
  case REPEATMODE:
    // repeat mode (RLE)
    b = *src++;
    ps -= b;
    if (graymode)
      {
      while (b-- > 0)
        {
        dest[0*dx] = pixel.gray;
        dest[1*dx] = pixel.gray;
        dest[2*dx] = pixel.gray;
        dest += dy;
        }
      }
    else
      {
      while (b-- > 0)
        {
        dest[0*dx] = pixel.rgb[0];
        dest[1*dx] = pixel.rgb[1];
        dest[2*dx] = pixel.rgb[2];
        dest += dy;
        }
      }
    break;
  case COLORMODE:
    // We are switching from one mode to the other. The stream contains an intermixed
    // compression of RGB codec and GRAY codec. Each one not knowing of the other
    // reset old value to 0.
    if (graymode)
      {
      graymode = false;
      pixel.rgb[0] = pixel.rgb[1] = pixel.rgb[2] = 0;
      }
    else
      {
      graymode = true;
      pixel.gray = 0;
      }
    break;
  default:
    // This is identical to ESCMODE, it would be nicer to use fall-through
    if (graymode)
```

```
        {
        pixel.gray += b;
        dest[0*dx] = pixel.gray;
        dest[1*dx] = pixel.gray;
        dest[2*dx] = pixel.gray;
        }
      else
        {
        pixel.rgb[0] += b;
        pixel.rgb[1] += *src++;
        pixel.rgb[2] += *src++;
        dest[0*dx] = pixel.rgb[0];
        dest[1*dx] = pixel.rgb[1];
        dest[2*dx] = pixel.rgb[2];
        }
      dest += dy;
      ps--;
      break;
      } // end switch
    } // end while
}

int main(int argc, char *argv [])
{
  if( argc < 2 ) return 1;
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  // (07a1,1011) CS [PMSCT_RGB1]                                      # 10,1 Tamar Compression Type
  const gdcm::PrivateTag tcompressiontype(0x07a1,0x0011,"ELSCINT1");
  if( !ds.FindDataElement( tcompressiontype ) ) return 1;
  const gdcm::DataElement& compressiontype = ds.GetDataElement( tcompressiontype );
  if ( compressiontype.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv = compressiontype.GetByteValue();
  std::string comprle = "PMSCT_RLE1";
  std::string comprgb = "PMSCT_RGB1";
  bool isrle = false;
  bool isrgb = false;
  if( strncmp( bv->GetPointer(), comprle.c_str(), comprle.size() ) == 0 )
    {
    isrle = true;
    return 1;
    }
  if( strncmp( bv->GetPointer(), comprgb.c_str(), comprgb.size() ) == 0 )
    {
    isrgb = true;
    }
  if( !isrgb && !isrle ) return 1;

  const gdcm::PrivateTag tcompressedpixeldata(0x07a1,0x000a,"ELSCINT1");
  if( !ds.FindDataElement( tcompressedpixeldata) ) return 1;
  const gdcm::DataElement& compressionpixeldata = ds.GetDataElement( tcompressedpixeldata);
  if ( compressionpixeldata.IsEmpty() ) return 1;
  const gdcm::ByteValue * bv2 = compressionpixeldata.GetByteValue();

  gdcm::Attribute<0x0028,0x0006> at0;
  at0.SetFromDataSet( ds );
  gdcm::Attribute<0x0028,0x0010> at1;
  at1.SetFromDataSet( ds );
  gdcm::Attribute<0x0028,0x0011> at2;
  at2.SetFromDataSet( ds );

  std::vector<unsigned char> buffer;
  delta_decode((const unsigned char*)bv2->GetPointer(), bv2->GetLength(), buffer,
    at0.GetValue(), at1.GetValue(), at2.GetValue() );

  gdcm::DataElement pixeldata( gdcm::Tag(0x7fe0,0x0010) );
  pixeldata.SetVR( gdcm::VR::OW );
  pixeldata.SetByteValue( (char*)buffer.data(), (uint32_t)buffer.size() );
  // TODO we should check that decompress byte buffer match the expected size (row*col*...)

  // Add the pixel data element
```

```
  reader.GetFile().GetDataSet().Replace( pixeldata );

  reader.GetFile().GetHeader().SetDataSetTransferSyntax(
    gdcm::TransferSyntax::ExplicitVRLittleEndian);
  gdcm::Writer writer;
  writer.SetFile( reader.GetFile() );

  // Cleanup stuff:
  // remove the compressed pixel data:
  // FIXME: should I remove more private tags ? all of them ?
  // oh well this is just an example
  // use gdcm::Anonymizer::RemovePrivateTags if needed...
  writer.GetFile().GetDataSet().Remove( compressionpixeldata.GetTag() );
  std::string outfilename;
  if (argc > 2)
     outfilename = argv[2];
  else
     outfilename = "outrgb.dcm";
  writer.SetFileName( outfilename.c_str() );
  if( !writer.Write() )
    {
    std::cerr « "Failed to write" « std::endl;
    return 1;
    }

  std::cout « "success !" « std::endl;

  return 0;
}
```

14.104 rle2img.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * This example shows how to rewrite a ELSCINT1/PMSCT_RLE1 compressed
 * image so that it is readable by most 3rd party software (DICOM does
 * not specify this particular encoding).
 * This is required for the sake of interoperability with any standard
 * conforming DICOM system.
 *
 * Everything done in this code is for the sole purpose of writing interoperable
 * software under Sect. 1201 (f) Reverse Engineering exception of the DMCA.
 * If you believe anything in this code violates any law or any of your rights,
 * please contact us (gdcm-developers@lists.sourceforge.net) so that we can
 * find a solution.
 *
 * Everything you do with this code is at your own risk, since decompression
 * algorithm was not written from specification documents.
 *
 * Special thanks to:
 * Mauro Maiorca for bringing to our attention on this new ELSCINT1
 * compression algorithm : PMSCT_RLE1 (different from the 'LOSSLESS RICE')
 * See post at:
 * http://groups.google.com/group/comp.protocols.dicom/msg/f2b99bf706a7f8ca
 *
 * Thanks to Jesus Spinola, for more datasets,
 * http://www.itk.org/pipermail/insight-users/2008-April/025571.html
 *
 * And last but not least, a very big thank to Ivo van Poorten, without
 * whom we would still be looking at this compressed byte stream as if
 * it was RLE compressed.
 */
#include "gdcmReader.h"
#include "gdcmPrivateTag.h"
```

```
#include "gdcmAttribute.h"
#include "gdcmImageWriter.h"

/* FIXME: Why is PhilipsLosslessRice.dcm a 512x512 image ... */
void delta_decode(const char *inbuffer, size_t length, std::vector<unsigned short> &output)
{
  // RLE pass
  std::vector<char> temp;
  for(size_t i = 0; i < length; ++i)
    {
    if( inbuffer[i] == (char)0xa5 )
      {
      //unsigned char repeat = (unsigned char)inbuffer[i+1] + 1;
      //gdcm_assert( (unsigned char)inbuffer[i+1] != 255 );
      int repeat = (unsigned char)inbuffer[i+1] + 1;
      char value = inbuffer[i+2];
      while(repeat)
        {
        temp.push_back( value );
        --repeat;
        }
      i+=2;
      }
    else
      {
      temp.push_back( inbuffer[i] );
      }
    }

  // Delta encoding pass
  unsigned short delta = 0;
  for(size_t i = 0; i < temp.size(); ++i)
    {
    if( temp[i] == 0x5a )
      {
      unsigned char v1 = (unsigned char)temp[i+1];
      unsigned char v2 = (unsigned char)temp[i+2];
      unsigned short value = (unsigned short)(v2 * 256 + v1);
      output.push_back( value );
      delta = value;
      i+=2;
      }
    else
      {
      unsigned short value = (unsigned short)((signed char)temp[i] + delta);
      output.push_back( value );
      delta = value;
      }
    //gdcm_assert( output[output.size()-1] == ref[output.size()-1] );
    }

  if ( output.size() % 2 )
    {
    output.resize( output.size() - 1 );
    }
  std::cout « length « " -> " « output.size() * 2 « std::endl;
}

int main(int argc, char *argv [])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « "input.dcm [output.dcm]" « std::endl;
    std::cerr « "will default to 'outrle.dcm' unless output.dcm is specified."
      « std::endl;
    return 1;
    }
  const char *filename = argv[1];
  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    std::cerr « "Failed to read: " « filename « std::endl;
    return 1;
    }
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();

  // (07a1,1011) CS [PMSCT_RLE1]                                      # 10,1 Tamar Compression Type
  const gdcm::PrivateTag tcompressiontype(0x07a1,0x0011,"ELSCINT1");
  if( !ds.FindDataElement( tcompressiontype ) ) return 1;
  const gdcm::DataElement& compressiontype = ds.GetDataElement( tcompressiontype );
```

```
if ( compressiontype.IsEmpty() ) return 1;
const gdcm::ByteValue * bv = compressiontype.GetByteValue();
std::string comprle = "PMSCT_RLE1";
std::string comprgb = "PMSCT_RGB1";
bool isrle = false;
bool isrgb = false;
if( strncmp( bv->GetPointer(), comprle.c_str(), comprle.size() ) == 0 )
  {
  isrle = true;
  }
if( strncmp( bv->GetPointer(), comprgb.c_str(), comprgb.size() ) == 0 )
  {
  isrgb = true;
  std::cerr « "See: pmsct_rgb1.cxx instead" « std::endl;
  return 1;
  }
if( !isrgb && !isrle ) return 1;

// check if compressed pixel data reside in private or standard tag
const gdcm::PrivateTag tprivatepixeldata(0x07a1,0x100a,"ELSCINT1");
const gdcm::Tag tstandardpixeldata(0x7fe0, 0x0010);
gdcm::Tag tpixeldata;
if(ds.FindDataElement(tprivatepixeldata)) tpixeldata = tprivatepixeldata;
else if(ds.FindDataElement(tstandardpixeldata)) tpixeldata = tstandardpixeldata;
if(!ds.FindDataElement(tpixeldata)) return 1;

const gdcm::DataElement& compressionpixeldata = ds.GetDataElement( tpixeldata);
if ( compressionpixeldata.IsEmpty() ) return 1;
const gdcm::ByteValue * bv2 = compressionpixeldata.GetByteValue();

gdcm::Attribute<0x0028,0x0010> at1;
at1.SetFromDataSet( ds );
gdcm::Attribute<0x0028,0x0011> at2;
at2.SetFromDataSet( ds );

gdcm::DataElement pixeldata;
// if standard voxel data element does not exist, create it
if( !reader.GetFile().GetDataSet().FindDataElement( tpixeldata ) )
{
  pixeldata = gdcm::DataElement( tpixeldata, 0, gdcm::VR::OW );
}
else{
  pixeldata = reader.GetFile().GetDataSet().GetDataElement( tpixeldata );
}

pixeldata.SetVR( gdcm::VR::OW );
gdcm::VL bv2l = bv2->GetLength();
gdcm::VL at1l = at1.GetValue() * at2.GetValue() * 2; /* sizeof(unsigned short) == 2 */
// Handle special case that is not compressed:
if( bv2l == at1l )
  {
  pixeldata.SetByteValue( bv2->GetPointer(), bv2->GetLength() );
  }
else
  {
  std::vector<unsigned short> buffer;
  delta_decode(bv2->GetPointer(), bv2->GetLength(), buffer);
  pixeldata.SetByteValue( (char*)buffer.data(), (uint32_t)(buffer.size() * sizeof( unsigned short )) );
  }
// TODO we should check that decompress byte buffer match the expected size (row*col*...)

// Add the pixel data element
if( reader.GetFile().GetDataSet().FindDataElement( tpixeldata ) )
{
  reader.GetFile().GetDataSet().Replace( pixeldata );
}
else
{
  reader.GetFile().GetDataSet().ReplaceEmpty( pixeldata );
}


reader.GetFile().GetHeader().SetDataSetTransferSyntax(
  gdcm::TransferSyntax::ExplicitVRLittleEndian);
gdcm::Writer writer;
writer.SetFile( reader.GetFile() );

// Cleanup stuff:
// This makes the code equivalent to Philips workstation IntelliSpace Portal
if( writer.GetFile().GetDataSet().FindDataElement( tcompressiontype ) )
{
```

```
    writer.GetFile().GetDataSet().Remove( gdcm::Tag(0x07a1,0x1011) );
  }
  if( writer.GetFile().GetDataSet().FindDataElement( tprivatepixeldata ) )
  {
    writer.GetFile().GetDataSet().Remove( gdcm::Tag(0x07a1,0x100a) );
  }

  std::string outfilename;
  if (argc > 2)
     outfilename = argv[2];
  else
     outfilename = "outrle.dcm";
  writer.SetFileName( outfilename.c_str() );
  if( !writer.Write() )
    {
    std::cerr « "Failed to write" « std::endl;
    return 1;
    }

  std::cout « "success !" « std::endl;

  return 0;
}
```

14.105 uid_unique.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmUIDGenerator.h"

#include <iostream>
#include <string>
#include <set>

int main()
{
  gdcm::UIDGenerator uid;
  //const char myroot[] = "9876543210.9876543210.9876543210.9876543210.9876543210"; // fails in ~40000 tries
  const char myroot[] = "9876543210.9876543210.9876543210";
  uid.SetRoot( myroot );
  std::set<std::string> uids;
  uint64_t wrap = 0;
  uint64_t c = 0;
  while(true)
    {
    const char *unique = uid.Generate();
    //std::cout « unique « std::endl;
    if( c % 10000 == 0 )
      {
      std::cout « "wrap=" « wrap « ",c=" « c « std::endl;
      }
    ++c;
    if( c == 0 )
      {
      wrap++;
      }
    if ( uids.count(unique) == 1 )
      {
      std::cerr « "Failed with: " « unique « std::endl;
      return 1;
      }
    uids.insert( unique );
    }
}
```

14.106 DecompressImage.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This example will take in a DICOM file, and tries to decompress it (actually write it
 * as ImplicitVRLittleEndian Transfer Syntax).
 *
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/DecompressImage.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java DecompressImage gdcmData/012345.002.050.dcm out.dcm
 */
import gdcm.*;

public class DecompressImage
{
  public static void main(String[] args) throws Exception
    {
    String file1 = args[0];
    String file2 = args[1];
    ImageReader reader = new ImageReader();
    reader.SetFileName( file1 );
    boolean ret = reader.Read();
    if( !ret )
      {
      throw new Exception("Could not read: " + file1 );
      }

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    change.SetTransferSyntax( new TransferSyntax(TransferSyntax.TSType.ImplicitVRLittleEndian) );
    change.SetInput( reader.GetImage() );
    if( !change.Change() )
      {
      throw new Exception("Could not change: " + file1 );
      }

    Image out = change.GetOutput();
    System.out.println( out.toString() );

    // Set the Source Application Entity Title
    FileMetaInformation.SetSourceApplicationEntityTitle( "Just For Fun" );

    ImageWriter writer = new ImageWriter();
    writer.SetFileName( file2 );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( out );
    ret = writer.Write();
    if( !ret )
      {
      throw new Exception("Could not write: " + file2 );
      }

    }
}
```

14.107 DecompressPixmap.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
```

```
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This example will take in a DICOM file, and tries to decompress it (actually write it
 * as ImplicitVRLittleEndian Transfer Syntax).
 *
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/DecompressPixmap.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java DecompressPixmap gdcmData/012345.002.050.dcm out.dcm
 */
import gdcm.*;

public class DecompressPixmap
{
  public static void main(String[] args) throws Exception
    {
    String file1 = args[0];
    String file2 = args[1];
    PixmapReader reader = new PixmapReader();
    reader.SetFileName( file1 );
    boolean ret = reader.Read();
    if( !ret )
      {
      throw new Exception("Could not read: " + file1 );
      }

    ImageChangeTransferSyntax change = new ImageChangeTransferSyntax();
    change.SetTransferSyntax( new TransferSyntax(TransferSyntax.TSType.ImplicitVRLittleEndian) );
    PixmapToPixmapFilter filter = (PixmapToPixmapFilter)change;
    filter.SetInput( reader.GetPixmap() );
    if( !change.Change() )
      {
      throw new Exception("Could not change: " + file1 );
      }

    // The following does not work in Java/swig 2.0.7
    //Pixmap p = ((PixmapToPixmapFilter)change).GetOutput();
    Pixmap p = change.GetOutputAsPixmap();  // be explicit
    //System.out.println( p.toString() );

    // Set the Source Application Entity Title
    FileMetaInformation.SetSourceApplicationEntityTitle( "Just For Fun" );

    PixmapWriter writer = new PixmapWriter();
    writer.SetFileName( file2 );
    writer.SetFile( reader.GetFile() );
    writer.SetImage( p );
    ret = writer.Write();
    if( !ret )
      {
      throw new Exception("Could not write: " + file2 );
      }

    }
}
```

14.108 ExtractImageRegion.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
```

```
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

/*
 * This small code shows how to use the gdcm.ImageRegionReader API
 * In this example we are taking each frame by frame and dump them to
 * /tmp/frame.raw.
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java ExtractImageRegion input.dcm
 */
import gdcm.*;
import java.io.FileOutputStream;

public class ExtractImageRegion
{
  public static void main(String[] args) throws Exception
    {
    String filename = args[0];

    // instantiate the reader:
    ImageRegionReader reader = new ImageRegionReader();
    reader.SetFileName( filename );

    // pull DICOM info:
    if (!reader.ReadInformation()) return;
    // Get file infos
    File f = reader.GetFile();

    // get some info about image
    UIntArrayType dims = ImageHelper.GetDimensionsValue(f);
    PixelFormat pf = ImageHelper.GetPixelFormatValue (f);
    int pixelsize = pf.GetPixelSize();

    // buffer to get the pixels
    long buffer_length = dims.get(0) * dims.get(1) * pixelsize;
    byte[] buffer = new byte[ (int)buffer_length ];

    // define a simple box region.
    BoxRegion box = new BoxRegion();
    for (int z = 0; z < dims.get(2); z++)
      {
      // Define that I want the image 0, full size (dimx x dimy pixels)
      // and do that for each z:
      box.SetDomain(0, dims.get(0) - 1, 0, dims.get(1) - 1, z, z);
      //System.Console.WriteLine( box.toString() );
      reader.SetRegion( box );

      // reader will try to load the uncompressed image region into buffer.
      // the call returns an error when buffer.Length is too small. For instance
      // one can call:
      // long buf_len = reader.ComputeBufferLength(); // take into account pixel size
      // to get the exact size of minimum buffer
      if (reader.ReadIntoBuffer(buffer, buffer_length))
        {
        FileOutputStream fos = new FileOutputStream("/tmp/frame.raw");
        fos.write(buffer);
        fos.close();
        }
      else
        {
        throw new Exception("can't read pixels error");
        }
      }

    }
}
```

14.109 FileAnonymize.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

import gdcm.*;

public class FileAnonymize
{
  public static class MyWatcher extends SimpleSubjectWatcher
    {
    public MyWatcher(Subject s) { super(s,"Override String"); }
    protected void ShowProgress(Subject caller, Event evt)
      {
      ProgressEvent pe = ProgressEvent.Cast(evt);
      System.out.println( "This is my progress: " + pe.GetProgress() );
      }
    }

  public static void main(String[] args) throws Exception
    {
    String input = args[0];
    String output = args[1];

    FileAnonymizer fa = new FileAnonymizer();
    fa.SetInputFileName( input );
    fa.SetOutputFileName( output );

    // Empty Operations
    // It will create elements, since those tags are non-registered public elements (2011):
    fa.Empty( new Tag(0x0008,0x1313) );
    fa.Empty( new Tag(0x0008,0x1317) );
    // Remove Operations
    // The following Tag are actually carefully chosen, since they refer to SQ:
    fa.Remove( new Tag(0x0008,0x2112) );
    fa.Remove( new Tag(0x0008,0x9215) );
    // Replace Operations
    // do not call replace operation on SQ attribute !
    fa.Replace( new Tag(0x0018,0x5100), "MYVALUE " );
    fa.Replace( new Tag(0x0008,0x1160), "MYOTHERVAL" );

    if( !fa.Write() )
      {
      System.out.println( "Could not write" );
      return;
      }

    System.out.println( "success" );
    }
}
```

14.110 HelloSimple.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/HelloSimple.java -d .
 *
 * Usage:
```

```
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java HelloSimple gdcmData/012345.002.050.dcm
 */
import gdcm.*;

public class HelloSimple
{
  public static void main(String[] args) throws Exception
    {
    String filename = args[0];
    Reader reader = new Reader();
    reader.SetFileName( filename );
    boolean ret = reader.Read();
    if( !ret )
      {
      throw new Exception("Could not read: " + filename );
      }
    File f = reader.GetFile();
    DataSet ds = f.GetDataSet();

    System.out.println( ds.toString() );

    System.out.println("Success reading: " + filename );
    }
}
```

14.111 ReadFiles.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
import gdcm.*;
import java.io.File;

public class ReadFiles
{
  static int i = 0;
  public static void process(String path)
    {
    //String path = file.getPath();
    assert PosixEmulation.FileExists(path) : "Problem converting to 8bits";

    System.out.println("Reading: " + path );
    System.out.println("File: " + i++);
    Reader r = new Reader();
    try
      {
      r.SetFileName( path );
      TagSetType skip = new TagSetType();
      skip.insert( new Tag(0x7fe0,0x10) );
      boolean b = r.ReadUpToTag( new Tag(0x88,0x200), skip );
      //System.out.println("DS:\n" + r.GetFile().GetDataSet().toString() );
      }
    finally
      {
      r.delete(); // will properly call C++ destructor and close file descriptor
      }
    }

  // Process only files under dir
  public static void visitAllFiles(File dir)
    {
    if (dir.isDirectory())
      {
      String[] children = dir.list();
      for (int i=0; i<children.length; i++)
        {
```

```
        visitAllFiles(new File(dir, children[i]));
        }
      }
    else
      {
      process(dir.getPath());
      }
    }

  public static void waiting (int n)
    {
    long t0, t1;
    t0 =  System.currentTimeMillis();
    do
      {
      t1 = System.currentTimeMillis();
      }
    while ((t1 - t0) < (n * 1000));
    }

  public static void main(String[] args) throws Exception
    {
    String directory = args[0];

    Directory gdir = new Directory();
    long n = gdir.Load( directory, true );
    System.out.println( gdir.toString() );
    FilenamesType files = gdir.GetFilenames();
    for( long i = 0; i < n; ++i )
      {
      String path = files.get( (int)i );
      process( path );
      }

    System.out.println( "Java API" );

    //waiting( 10 );
    for( int i = 0; i < 2; ++i )
      {
      File dir = new File(directory);
      visitAllFiles(dir);
      }
    }
}
```

14.112 ScanDirectory.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

import gdcm.*;
import gdcm.Reader;
import gdcm.LookupTable;
import java.io.File;
import java.io.*;
import java.awt.image.*;
import javax.imageio.ImageIO;

public class ScanDirectory
{
  public static class MyWatcher extends SimpleSubjectWatcher
    {
    public MyWatcher(Subject s) { super(s,"Override String"); }
    protected void ShowProgress(Subject caller, Event evt)
      {
```

```
    ProgressEvent pe = ProgressEvent.Cast(evt);
    System.out.println( "This is my progress: " + pe.GetProgress() );
    }
  }

public static byte[] GetAsByte(Bitmap input)
  {
  long len = input.GetBufferLength();
  byte[] buffer = new byte[ (int)len ];
  PhotometricInterpretation pi = input.GetPhotometricInterpretation();
  if( pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME1 )
    {
    ImageChangePhotometricInterpretation icpi = new ImageChangePhotometricInterpretation();
    icpi.SetInput( input );
    icpi.SetPhotometricInterpretation(
      new PhotometricInterpretation(
        PhotometricInterpretation.PIType.MONOCHROME2 ) );
    if( icpi.Change() )
      {
      Bitmap output = icpi.GetOutput();
      output.GetArray( buffer );
      }
    return buffer;
    }
  else
    {
    input.GetArray( buffer );
    return buffer;
    }
  }
public static short[] GetAsShort(Bitmap input)
  {
  long len = input.GetBufferLength(); // length in bytes
  short[] buffer = new short[ (int)len / 2 ];
  PhotometricInterpretation pi = input.GetPhotometricInterpretation();
  if( pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME1 )
    {
    ImageChangePhotometricInterpretation icpi = new ImageChangePhotometricInterpretation();
    icpi.SetInput( input );
    icpi.SetPhotometricInterpretation(
      new PhotometricInterpretation(
        PhotometricInterpretation.PIType.MONOCHROME2 ) );
    if( icpi.Change() )
      {
      Bitmap output = icpi.GetOutput();
      output.GetArray( buffer );
      }
    return buffer;
    }
  else
    {
    input.GetArray( buffer );
    return buffer;
    }
  }
public static boolean WritePNG(Bitmap input, String outfilename )
  {
  int imageType = BufferedImage.TYPE_CUSTOM;
  PixelFormat pf = input.GetPixelFormat();
  PhotometricInterpretation pi = input.GetPhotometricInterpretation();
  // We need to handle both public and private icon
  // It could well be that we are getting an RGB Icon or 16 bits Icon:
  ColorModel colorModel = null;
  if( pf.GetSamplesPerPixel() == 1 )
    {
    if( pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME1
       || pi.GetType() == PhotometricInterpretation.PIType.MONOCHROME2 )
      {
      if( pf.GetScalarType() == PixelFormat.ScalarType.UINT8 )
        {
        imageType = BufferedImage.TYPE_BYTE_GRAY;
        }
      else if( pf.GetScalarType() == PixelFormat.ScalarType.UINT12 )
        {
        imageType = BufferedImage.TYPE_USHORT_GRAY;
        }
      else if( pf.GetScalarType() == PixelFormat.ScalarType.UINT16 )
        {
        imageType = BufferedImage.TYPE_USHORT_GRAY;
        }
      }
```

```
      else if( pi.GetType() == PhotometricInterpretation.PIType.PALETTE_COLOR )
        {
        LookupTable lut = input.GetLUT();
        long rl = lut.GetLUTLength( LookupTable.LookupTableType.RED );
        byte[] rbuf = new byte[ (int)rl ];
        long rl2 = lut.GetLUT( LookupTable.LookupTableType.RED, rbuf );
        assert rl == rl2;
        long gl = lut.GetLUTLength( LookupTable.LookupTableType.GREEN );
        byte[] gbuf = new byte[ (int)gl ];
        long gl2 = lut.GetLUT( LookupTable.LookupTableType.GREEN, gbuf );
        assert gl == gl2;
        long bl = lut.GetLUTLength( LookupTable.LookupTableType.BLUE );
        byte[] bbuf = new byte[ (int)bl ];
        long bl2 = lut.GetLUT( LookupTable.LookupTableType.BLUE, bbuf );
        assert bl == bl2;
        colorModel = new IndexColorModel(8, (int)rl, rbuf, gbuf, bbuf);
        // For code below
        imageType = BufferedImage.TYPE_BYTE_GRAY;
        }
      }
    else if( pf.GetSamplesPerPixel() == 3 )
      {
      if( pf.GetScalarType() == PixelFormat.ScalarType.UINT8 )
        {
        // FIXME should be TYPE_3BYTE_RGB
        imageType = BufferedImage.TYPE_3BYTE_BGR;
        }
      }
    //System.out.println( "pf: " + pf.toString() );
    //System.out.println( "pi: " + pi.toString() );
    long width  = input.GetDimension(0);
    long height = input.GetDimension(0);
    BufferedImage bi;
    if( pi.GetType() == PhotometricInterpretation.PIType.PALETTE_COLOR )
      {
      bi = new BufferedImage(colorModel,
        colorModel.createCompatibleWritableRaster((int)width, (int)height),
        false, null);
      }
    else
      {
      bi = new BufferedImage((int)width,(int)height,imageType);
      }
    WritableRaster wr = bi.getRaster();
    //System.out.println( "imagetype: " + imageType );
    if( imageType == BufferedImage.TYPE_BYTE_GRAY
      || imageType == BufferedImage.TYPE_3BYTE_BGR )
      {
      byte[] buffer = GetAsByte( input );
      wr.setDataElements (0, 0, (int)width, (int)height, buffer);
      }
    else if( imageType == BufferedImage.TYPE_USHORT_GRAY )
      {
      short[] buffer = GetAsShort( input );
      wr.setDataElements (0, 0, (int)width, (int)height, buffer);
      }

    File outputfile = new File( outfilename );
    try {
      ImageIO.write(bi, "png", outputfile);
    } catch (IOException e) {
      return false;
    }
    return true;
    }

  public static void main(String[] args) throws Exception
    {
    String directory = args[0];

    Directory d = new Directory();
    long nfiles = d.Load( directory, true );
    if(nfiles == 0)
      {
      throw new Exception("No files found");
      }
//    System.out.println( "Files:\n" + d.toString() );
    FilenamesType fns = d.GetFilenames();

    //Scanner s = new Scanner();
    SmartPtrScan sscan = Scanner.New();
```

```
Scanner s = sscan.__ref__();
//SimpleSubjectWatcher watcher = new SimpleSubjectWatcher(s, "MySimple");
MyWatcher watcher = new MyWatcher(s);
Tag[] tagarray = {
  new Tag(0x0010, 0x0010),    // PatientName
  new Tag(0x0010, 0x0020),    // PatientID
  new Tag(0x0010, 0x0030),    // PatientBirthDate
  new Tag(0x0010, 0x0040),    // PatientSex
  new Tag(0x0010, 0x1010),    // PatientAge
  new Tag(0x0020, 0x000d),    // StudyInstanceUID
  new Tag(0x0020, 0x0010),    // StudyID
  new Tag(0x0008, 0x0020),    // StudyDate
  new Tag(0x0008, 0x1030),    // StudyDescription
  new Tag(0x0020, 0x000e),    // SeriesInstanceUID
  new Tag(0x0020, 0x0011),    // SeriesNumber
  new Tag(0x0008, 0x0021),    // SeriesDate
  new Tag(0x0008, 0x103e),    // SeriesDescription
  new Tag(0x0008, 0x0090),    // ReferringPhysicianName
  new Tag(0x0008, 0x0060),    // Modality
  new Tag(0x0054, 0x0400),    // ImageID ?? Should be Instance number ??
  new Tag(0x0008, 0x0018),    // SOPInstanceUID
  new Tag(0x0008, 0x0032),    // AcquisitionTime
  new Tag(0x0008, 0x0033),    // ContentTime
  new Tag(0x0020, 0x0013),    // InstanceNumber
  new Tag(0x0020, 0x1041),    // SliceLocation
  new Tag(0x0018, 0x0050),    // SliceThickness ?? Eg. Enhanced MR Image Storage
  new Tag(0x0008, 0x0080),    // InstitutionName
  new Tag(0x0028, 0x1050),    // WindowCenter
  new Tag(0x0028, 0x1051),    // WindowWidth
};
for( Tag t : tagarray ) {
  //System.out.println( "Tag: " + t.toString() );
  s.AddTag( t );
}
boolean b = s.Scan( fns );
if(!b)
  {
  throw new Exception("Could not scan");
  }
String fn0 = fns.get(0);
TagToValue mappings = s.GetMapping( fn0 );
System.out.println( "mappings size: " + mappings.size() );
for( Tag tag : tagarray ) {
  if( mappings.has_key( tag ) ) {
    String val = mappings.get( tag );
    System.out.println( "tag/val: " + tag + "->" + val );
  }
}

for( long idx = 0; idx < fns.size(); ++idx )
  {
  Reader r = new Reader();
  String fn = fns.get( (int)idx );
  String outfn = fn + ".png";
  r.SetFileName( fn );
  TagSetType tst = new TagSetType();
  tst.insert( new Tag(0x7fe0,0x10) );
  b = r.ReadUpToTag( new Tag(0x88,0x200), tst );
  UIntArrayType dims = ImageHelper.GetDimensionsValue( r.GetFile() );
  if( b )
    {
    IconImageFilter iif = new IconImageFilter();
    System.out.println( "Processing: " + fn );

    iif.SetFile( r.GetFile() );
    b = iif.Extract();
    if( b )
      {
      Bitmap icon = iif.GetIconImage(0);
      WritePNG(icon, outfn);
      }
    else
      {
      ImageReader ir = new ImageReader();
      ir.SetFileName( fn );
      if( ir.Read() )
        {
        Image img = ir.GetImage();
        StringFilter sf = new StringFilter();
        sf.SetFile( r.GetFile() );
        String strval = sf.ToString( new Tag(0x0028,0x0120) );
```

```
            IconImageGenerator iig = new IconImageGenerator();
            iig.SetPixmap( img );
            iig.AutoPixelMinMax( true );
            try {
              double val = Double.parseDouble( strval );
              iig.SetOutsideValuePixel( val );
            }
            catch ( NumberFormatException e) {
              }
            iig.ConvertRGBToPaletteColor( false );
            long idims[] = { 128, 128};
            iig.SetOutputDimensions( idims );
            iig.Generate();
            Bitmap icon = iig.GetIconImage();
            WritePNG(icon, outfn);
            }
          }
        }
      }

    System.out.println( "Scan:\n" + s.toString() );

    System.out.println( "success" );
    }
}
```

14.113 SimplePrint.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
/*
 * Compilation:
 * $ CLASSPATH=gdcm.jar javac ../../gdcm/Examples/Java/SimplePrint.java -d .
 *
 * Usage:
 * $ LD_LIBRARY_PATH=. CLASSPATH=gdcm.jar:. java SimplePrint gdcmData/012345.002.050.dcm
 */
import gdcm.*;

public class SimplePrint
{
  public static void RecurseDataSet(File f, DataSet ds, String indent)
    {
    JavaDataSet cds = new JavaDataSet(ds);
    while(!cds.IsAtEnd())
      {
      DataElement de = cds.GetCurrent();
      // Compute VR from the toplevel file, and the currently processed dataset:
      VR vr = DataSetHelper.ComputeVR(f, ds, de.GetTag() );

      if( vr.Compatible( new VR(VR.VRType.SQ) ) )
        {
        long uvl = de.GetVL().GetValueLength(); // Test cast is ok
        System.out.println(  indent + de.GetTag().toString() + ":" + uvl ); // why not ?
        //SequenceOfItems sq = de.GetSequenceOfItems();
        // GetValueAsSQ handle more cases than GetSequenceOfItems
        SmartPtrSQ sq = de.GetValueAsSQ();
        long n = sq.GetNumberOfItems();
        for( long i = 1; i <= n; i++) // item starts at 1, not 0
          {
          Item item = sq.GetItem( i );
          DataSet nested = item.GetNestedDataSet();
          RecurseDataSet( f, nested, indent + "  " );
          }
        }
```

```
      else
        {
        System.out.println( indent + de.toString() );
        }
      cds.Next();
      }
    }

  public static void main(String[] args) throws Exception
    {
    String filename = args[0];
    Reader reader = new Reader();
    reader.SetFileName( filename );
    boolean ret = reader.Read();
    if( !ret )
      {
      throw new Exception("Could not read: " + filename );
      }
    File f = reader.GetFile();
    DataSet ds = f.GetDataSet();

    RecurseDataSet( f, ds, "" );
    }
}
```

14.114 AddPrivateAttribute.py

```
"""
Usage:

  python AddPrivateAttribute.py input.dcm output.dcm


"""

import sys
import gdcm

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r = gdcm.Reader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  f = r.GetFile()
  ds = f.GetDataSet()

  # Create a dataelement
  de = gdcm.DataElement(gdcm.Tag(0x0051, 0x1011))
  de.SetByteStringValue("p2")
  de.SetVR(gdcm.VR(gdcm.VR.SH))

  ds.Insert(de)

  w = gdcm.Writer()
  w.SetFile( f )
  w.SetFileName( file2 )
  if not w.Write():
    sys.exit(1)
```

14.115 ConvertMPL.py

```
"""
display a DICOM image with matPlotLib via numpy
```

```
Caveats:
- Does not support UINT12/INT12

Usage:

 python ConvertNumpy.py "IM000000"

Thanks:
  plotting example - Ray Schumacher 2009
"""

import gdcm
import numpy
from pylab import *


def get_gdcm_to_numpy_typemap():
    """Returns the GDCM Pixel Format to numpy array type mapping."""
    _gdcm_np = {gdcm.PixelFormat.UINT8  :numpy.int8,
                gdcm.PixelFormat.INT8   :numpy.uint8,
                gdcm.PixelFormat.UINT16 :numpy.uint16,
                gdcm.PixelFormat.INT16  :numpy.int16,
                gdcm.PixelFormat.UINT32 :numpy.uint32,
                gdcm.PixelFormat.INT32  :numpy.int32,
                gdcm.PixelFormat.FLOAT32:numpy.float32,
                gdcm.PixelFormat.FLOAT64:numpy.float64 }
    return _gdcm_np

def get_numpy_array_type(gdcm_pixel_format):
    """Returns a numpy array typecode given a GDCM Pixel Format."""
    return get_gdcm_to_numpy_typemap()[gdcm_pixel_format]

def gdcm_to_numpy(image):
    """Converts a GDCM image to a numpy array.
    """
    pf = image.GetPixelFormat().GetScalarType()
    print 'pf', pf
    print image.GetPixelFormat().GetScalarTypeAsString()
    assert pf in get_gdcm_to_numpy_typemap().keys(), \
           "Unsupported array type %s"%pf
    d = image.GetDimension(0), image.GetDimension(1)
    print 'Image Size: %d x %d' % (d[0], d[1])
    dtype = get_numpy_array_type(pf)
    gdcm_array = image.GetBuffer()

    result = numpy.frombuffer(gdcm_array, dtype=dtype).astype(float)

    result.shape = d
    return result

if __name__ == "__main__":
  import sys
  r = gdcm.ImageReader()
  filename = sys.argv[1]
  r.SetFileName( filename )
  if not r.Read():  sys.exit(1)
  numpy_array = gdcm_to_numpy( r.GetImage() )

  subplot(111)# one plot, on left
  title(filename)

  imshow(numpy_array, interpolation='bilinear', cmap=cm.jet)

  subplots_adjust(bottom=0.1, right=0.8, top=0.9)
  cax = axes([0.85, 0.1, 0.075, 0.8])
  colorbar(cax=cax)
  title('values')
  get_current_fig_manager().window.title('plot')
  show()
```

14.116 ConvertNumpy.py

```
"""
```

```
This module add support for converting a gdcm.Image to a numpy array.

Caveats:
- Does not support UINT12/INT12

Removed:
- float16 is defined in GDCM API but no implementation exist for it ...
"""

import gdcm
import numpy

def get_gdcm_to_numpy_typemap():
    """Returns the GDCM Pixel Format to numpy array type mapping."""
    _gdcm_np = {gdcm.PixelFormat.UINT8  :numpy.uint8,
                gdcm.PixelFormat.INT8   :numpy.int8,
                #gdcm.PixelFormat.UINT12 :numpy.uint12,
                #gdcm.PixelFormat.INT12  :numpy.int12,
                gdcm.PixelFormat.UINT16 :numpy.uint16,
                gdcm.PixelFormat.INT16  :numpy.int16,
                gdcm.PixelFormat.UINT32 :numpy.uint32,
                gdcm.PixelFormat.INT32  :numpy.int32,
                #gdcm.PixelFormat.FLOAT16:numpy.float16,
                gdcm.PixelFormat.FLOAT32:numpy.float32,
                gdcm.PixelFormat.FLOAT64:numpy.float64 }
    return _gdcm_np

def get_numpy_array_type(gdcm_pixel_format):
    """Returns a numpy array typecode given a GDCM Pixel Format."""
    return get_gdcm_to_numpy_typemap()[gdcm_pixel_format]

def gdcm_to_numpy(image):
    """Converts a GDCM image to a numpy array.
    """
    pf = image.GetPixelFormat()

    assert pf.GetScalarType() in get_gdcm_to_numpy_typemap().keys(), \
           "Unsupported array type %s"%pf

    shape = image.GetDimension(0) * image.GetDimension(1), pf.GetSamplesPerPixel()
    if image.GetNumberOfDimensions() == 3:
      shape = shape[0] * image.GetDimension(2), shape[1]

    dtype = get_numpy_array_type(pf.GetScalarType())
    gdcm_array = image.GetBuffer()
    result = numpy.frombuffer(gdcm_array, dtype=dtype)
    result.shape = shape
    return result

if __name__ == "__main__":
  import sys
  r = gdcm.ImageReader()
  filename = sys.argv[1]
  r.SetFileName( filename )
  if not r.Read():
    sys.exit(1)

  numpy_array = gdcm_to_numpy( r.GetImage() )
  print numpy_array
```

14.117 ConvertPIL.py

```
"""
save a DICOM image with PIL via numpy

Caveats:
- Does not support UINT12/INT12

Usage:

 python ConvertNumpy.py "IM000000"

Thanks:
  plotting example - Ray Schumacher 2009
```

```
"""

import gdcm
import numpy
from PIL import Image, ImageOps


def get_gdcm_to_numpy_typemap():
    """Returns the GDCM Pixel Format to numpy array type mapping."""
    _gdcm_np = {gdcm.PixelFormat.UINT8  :numpy.int8,
                gdcm.PixelFormat.INT8   :numpy.uint8,
                gdcm.PixelFormat.UINT16 :numpy.uint16,
                gdcm.PixelFormat.INT16  :numpy.int16,
                gdcm.PixelFormat.UINT32 :numpy.uint32,
                gdcm.PixelFormat.INT32  :numpy.int32,
                gdcm.PixelFormat.FLOAT32:numpy.float32,
                gdcm.PixelFormat.FLOAT64:numpy.float64 }
    return _gdcm_np

def get_numpy_array_type(gdcm_pixel_format):
    """Returns a numpy array typecode given a GDCM Pixel Format."""
    return get_gdcm_to_numpy_typemap()[gdcm_pixel_format]

def gdcm_to_numpy(image):
    """Converts a GDCM image to a numpy array.
    """
    pf = image.GetPixelFormat().GetScalarType()
    print 'pf', pf
    print image.GetPixelFormat().GetScalarTypeAsString()
    assert pf in get_gdcm_to_numpy_typemap().keys(), \
           "Unsupported array type %s"%pf
    d = image.GetDimension(0), image.GetDimension(1)
    print 'Image Size: %d x %d' % (d[0], d[1])
    dtype = get_numpy_array_type(pf)
    gdcm_array = image.GetBuffer()
    result = numpy.frombuffer(gdcm_array, dtype=dtype)
    maxV = float(result[result.argmax()])

    result = numpy.log(result+50)
    maxV = float(result[result.argmax()])
    result = result*(2.**8/maxV)
    result.shape = d
    return result

if __name__ == "__main__":
  import sys
  r = gdcm.ImageReader()
  filename = sys.argv[1]
  r.SetFileName( filename )
  if not r.Read():  sys.exit(1)
  numpy_array = gdcm_to_numpy( r.GetImage() )

  pilImage = Image.frombuffer('L',
                              numpy_array.shape,
                              numpy_array.astype(numpy.uint8),
                              'raw','L',0,1)

  pilImage = ImageOps.autocontrast(pilImage, cutoff=.1)
  pilImage.save(sys.argv[1]+'.jpg')
```

14.118 CreateRAWStorage.py

```
"""
    <uid value="1.2.840.10008.5.1.4.1.1.66" name="Raw Data Storage" type="SOP Class" part="PS 3.4"
      retired="false"/>
"""

import gdcm
import sys,os

if __name__ == "__main__":
  r = gdcm.Reader()
  # Will require Testing...
  dataroot = gdcm.Testing.GetDataRoot()
```

```
  filename = os.path.join( dataroot, '012345.002.050.dcm' )
  r.SetFileName( filename )
  r.Read()
  f = r.GetFile()
  ds = f.GetDataSet()

  uid = "1.2.840.10008.5.1.4.1.1.66"
#  f = gdcm.File()
#  ds = f.GetDataSet()
  de = gdcm.DataElement( gdcm.Tag(0x0008,0x0016) )
  de.SetByteStringValue( uid )
  vr = gdcm.VR( gdcm.VR.UI )
  de.SetVR( vr )
  ds.Replace( de )

  ano = gdcm.Anonymizer()
  ano.SetFile( r.GetFile() )
  ano.RemovePrivateTags()
  ano.RemoveGroupLength()
  taglist = [
  gdcm.Tag(0x0008,0x0008),
  gdcm.Tag(0x0008,0x0022),
  gdcm.Tag(0x0008,0x0032),
  gdcm.Tag(0x0008,0x2111),
  gdcm.Tag(0x0008,0x1150),
  gdcm.Tag(0x0008,0x1155),
  gdcm.Tag(0x0008,0x0100),
  gdcm.Tag(0x0008,0x0102),
  gdcm.Tag(0x0008,0x0104),
  gdcm.Tag(0x0040,0xa170),
  gdcm.Tag(0x0008,0x2112),
  gdcm.Tag(0x0008,0x0100),
  gdcm.Tag(0x0008,0x0102),
  gdcm.Tag(0x0008,0x0104),
  gdcm.Tag(0x0008,0x9215),
  gdcm.Tag(0x0018,0x0010),
  gdcm.Tag(0x0018,0x0022),
  gdcm.Tag(0x0018,0x0050),
  gdcm.Tag(0x0018,0x0060),
  gdcm.Tag(0x0018,0x0088),
  gdcm.Tag(0x0018,0x0090),
  gdcm.Tag(0x0018,0x1040),
  gdcm.Tag(0x0018,0x1100),
  gdcm.Tag(0x0018,0x1110),
  gdcm.Tag(0x0018,0x1111),
  gdcm.Tag(0x0018,0x1120),
  gdcm.Tag(0x0018,0x1130),
  gdcm.Tag(0x0018,0x1150),
  gdcm.Tag(0x0018,0x1151),
  gdcm.Tag(0x0018,0x1152),
  gdcm.Tag(0x0018,0x1160),
  gdcm.Tag(0x0018,0x1190),
  gdcm.Tag(0x0018,0x1210),
  gdcm.Tag(0x0020,0x0012),
  gdcm.Tag(0x0020,0x0032),
  gdcm.Tag(0x0020,0x0037),
  gdcm.Tag(0x0020,0x1041),
  gdcm.Tag(0x0020,0x4000),
  gdcm.Tag(0x0028,0x0002),
  gdcm.Tag(0x0028,0x0004),
  gdcm.Tag(0x0028,0x0010),
  gdcm.Tag(0x0028,0x0011),
  gdcm.Tag(0x0028,0x0030),
  gdcm.Tag(0x0028,0x0100),
  gdcm.Tag(0x0028,0x0101),
  gdcm.Tag(0x0028,0x0102),
  gdcm.Tag(0x0028,0x0103),
  gdcm.Tag(0x0028,0x1052),
  gdcm.Tag(0x0028,0x1053),
  gdcm.Tag(0x0028,0x2110),
  gdcm.Tag(0x0028,0x2112),
  gdcm.Tag(0x7fe0,0x0010),
  gdcm.Tag(0x0018,0x0020),
  gdcm.Tag(0x0018,0x0021),
  gdcm.Tag(0x0018,0x0023),
  gdcm.Tag(0x0018,0x0025),
  gdcm.Tag(0x0018,0x0080),
  gdcm.Tag(0x0018,0x0081),
  gdcm.Tag(0x0018,0x0083),
  gdcm.Tag(0x0018,0x0084),
  gdcm.Tag(0x0018,0x0085),
```

```
  gdcm.Tag(0x0018,0x0086),
  gdcm.Tag(0x0018,0x0087),
  gdcm.Tag(0x0018,0x0091),
  gdcm.Tag(0x0018,0x0093),
  gdcm.Tag(0x0018,0x0094),
  gdcm.Tag(0x0018,0x0095),
  gdcm.Tag(0x0018,0x1088),
  gdcm.Tag(0x0018,0x1090),
  gdcm.Tag(0x0018,0x1094),
  gdcm.Tag(0x0018,0x1250),
  gdcm.Tag(0x0018,0x1251),
  gdcm.Tag(0x0018,0x1310),
  gdcm.Tag(0x0018,0x1312),
  gdcm.Tag(0x0018,0x1314),
  gdcm.Tag(0x0018,0x1315),
  gdcm.Tag(0x0018,0x1316),
  gdcm.Tag(0x0020,0x0110),
  gdcm.Tag(0x0028,0x0120),
  gdcm.Tag(0x0028,0x1050),
  gdcm.Tag(0x0028,0x1051)
  ]
  for tag in taglist:
    #print tag
    ano.Remove( tag )

  # special handling
  gen = gdcm.UIDGenerator()
  ano.Replace( gdcm.Tag(0x0008,0x9123), gen.Generate() )
  #ano.Empty( gdcm.Tag(0x0040,0x0555) )


#
#  uid = gen.Generate()
#  de.SetTag( gdcm.Tag(0x0008,0x0018) )
#  de.SetByteStringValue( uid )
#  ds.Insert( de )

  # init FMI now:
  #fmi = f.GetHeader()
  #ts = gdcm.TransferSyntax()
  #print ts
  #fmi.SetDataSetTransferSyntax( ts ) # default
  #print fmi.GetDataSetTransferSyntax()
  #de.SetTag( gdcm.Tag(0x0002,0x0010) )
  #uid = "1.2.840.10008.1.2"
  #de.SetByteStringValue( uid )
  #fmi.Insert( de )
#  f.SetHeader( r.GetFile().GetHeader() )

  writer = gdcm.Writer()
  writer.SetFile( ano.GetFile() )
  writer.SetFileName( "rawstorage.dcm" );
  writer.Write()
```

14.119 DecompressImage.py

```
"""
Usage:

 python DecompressImage.py gdcmData/012345.002.050.dcm decompress.dcm
"""

import gdcm
import sys

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r = gdcm.ImageReader()
  r.SetFileName( file1 )
  if not r.Read():
```

```
    sys.exit(1)

  # check GetFragment API:
  pd = r.GetFile().GetDataSet().GetDataElement(gdcm.Tag(0x7fe0, 0x0010))
  frags = pd.GetSequenceOfFragments();
  frags.GetFragment(0);

  ir = r.GetImage()
  w = gdcm.ImageWriter()
  image = w.GetImage()

  image.SetNumberOfDimensions( ir.GetNumberOfDimensions() );
  dims = ir.GetDimensions();
  print ir.GetDimension(0);
  print ir.GetDimension(1);
  print "Dims:",dims

  #  Just for fun:
  dircos =  ir.GetDirectionCosines()
  t = gdcm.Orientation.GetType(tuple(dircos))
  l = gdcm.Orientation.GetLabel(t)
  print "Orientation label:",l

  image.SetDimension(0, ir.GetDimension(0) );
  image.SetDimension(1, ir.GetDimension(1) );

  pixeltype = ir.GetPixelFormat();
  image.SetPixelFormat( pixeltype );

  pi = ir.GetPhotometricInterpretation();
  image.SetPhotometricInterpretation( pi );

  pixeldata = gdcm.DataElement( gdcm.Tag(0x7fe0,0x0010) )
  str1 = ir.GetBuffer()
  #print ir.GetBufferLength()
  pixeldata.SetByteStringValue( str1 )
  image.SetDataElement( pixeldata )

  w.SetFileName( file2 )
  w.SetFile( r.GetFile() )
  w.SetImage( image )
  if not w.Write():
    sys.exit(1)
```

14.120 DumbAnonymizer.py

```
"""
This example shows how one can use the gdcm.Anonymizer in 'dumb' mode.
This class becomes really handy when one knows which particular tag to fill in.

Usage:

 python DumbAnonymizer.py gdcmData/012345.002.050.dcm out.dcm

"""

import gdcm

# http://www.oid-info.com/get/1.3.6.1.4.17434
THERALYS_ORG_ROOT = "1.3.6.1.4.17434"

tag_rules={
  # Value
  (0x0012,0x0010):("Value","MySponsorName"),
  (0x0012,0x0020):("Value","MyProtocolID"),
  (0x0012,0x0021):("Value","MyProtocolName"),
  (0x0012,0x0062):("Value","YES"),
  (0x0012,0x0063):("Value","MyDeidentificationMethod"),

  # Method
  #(0x0002,0x0003):("Method","GenerateMSOPId"),
  #(0x0008,0x1155):("Method","GenerateMSOPId"),
  (0x0008,0x0018):("Method","GenerateMSOPId"),
  (0x0010,0x0010):("Method","GetSponsorInitials"),
```

```
  (0x0010,0x0020):("Method","GetSponsorId"),
  (0x0012,0x0030):("Method","GetSiteId"),
  (0x0012,0x0031):("Method","GetSiteName"),
  (0x0012,0x0040):("Method","GetSponsorId"),
  (0x0012,0x0050):("Method","GetTPId"),
  (0x0018,0x0022):("Method","KeepIfExist"),
  (0x0018,0x1315):("Method","KeepIfExist"),
  (0x0020,0x000d):("Method","GenerateStudyId"),
  (0x0020,0x000e):("Method","GenerateSeriesId"),
  (0x0020,0x1002):("Method","GetNumberOfFrames"),
  (0x0020,0x0020):("Method","GetPatientOrientation"),
  # Other:
  (0x0012,0x0051):("Patient Field","Type Examen"),
  (0x0018,0x1250):("Sequence Field","Receive Coil"),
  (0x0018,0x0088):("Sequence Field","Spacing Between Slice"),
  (0x0018,0x0095):("Sequence Field","Pixel Bandwidth"),
  (0x0018,0x0082):("Sequence Field","Inversion Time"),
}

class MyAnon:
  def __init__(self):
    self.studyuid = None
    self.seriesuid = None
    generator = gdcm.UIDGenerator()
    if not self.studyuid:
      self.studyuid = generator.Generate()
    if not self.seriesuid:
      self.seriesuid = generator.Generate()
  def GetSponsorInitials(self):
    return "dummy^foobar"
  def GenerateStudyId(self):
    return self.studyuid
  def GenerateSeriesId(self):
    return self.seriesuid
  #def GenerateMSOPId(self):
  def GenerateMSOPId(self):
    generator = gdcm.UIDGenerator()
    return generator.Generate()
  def GetSiteId(self):
    return "MySiteId"
  def GetSiteName(self):
    return "MySiteName"
  def GetSponsorId(self):
    return "MySponsorId"
  def GetTPId(self):
    return "MyTP"

if __name__ == "__main__":
  import sys
  gdcm.FileMetaInformation.SetSourceApplicationEntityTitle( "DumbAnonymizer" )
  gdcm.UIDGenerator.SetRoot( THERALYS_ORG_ROOT )

  r = gdcm.Reader()
  filename = sys.argv[1]
  r.SetFileName( filename )
  if not r.Read(): sys.exit(1)

  obj = MyAnon()

  w = gdcm.Writer()
  ano = gdcm.Anonymizer()
  ano.SetFile( r.GetFile() )
  ano.RemoveGroupLength()
  for tag,rule in tag_rules.items():
    if rule[0] == 'Value':
      print tag,rule
      ano.Replace( gdcm.Tag( tag[0], tag[1] ), rule[1] )
    elif rule[0] == 'Method':
      print tag,rule
      # result = locals()[rule[1]]()
      methodname = rule[1]
      if hasattr(obj, methodname):
        _member = getattr(obj, methodname)
        result = _member()
        ano.Replace( gdcm.Tag( tag[0], tag[1] ), result )
      else:
        print "Problem with: ", methodname

  outfilename = sys.argv[2]
  w.SetFileName( outfilename )
  w.SetFile( ano.GetFile() )
```

```
  if not w.Write(): sys.exit(1)
```

14.121 ExtractImageRegion.py

```
"""
 This small code shows how to use the gdcm.ImageRegionReader API
 In this example we are taking each frame by frame and dump them to
 /tmp/frame.raw.

 Usage:
 $ ExtractImageRegion.py input.dcm

 Example:
 $ ExtractImageRegion.py gdcmData/012345.002.050.dcm
 $ md5sum /tmp/frame.raw
 d594a5e2fde12f32b6633ca859b4d4a6  /tmp/frame.raw
 $ gdcminfo --md5sum gdcmData/012345.002.050.dcm
 [...]
 md5sum: d594a5e2fde12f32b6633ca859b4d4a6
"""

import gdcm

if __name__ == "__main__":
  import sys
  filename = sys.argv[1]

  file_size = gdcm.System.FileSize(filename);

  # instantiate the reader:
  reader = gdcm.ImageRegionReader();
  reader.SetFileName( filename );

  # pull DICOM info:
  if not reader.ReadInformation():
    sys.exit(1)

  # store current offset:
  cur_pos = reader.GetStreamCurrentPosition();

  remaining = file_size - cur_pos;

  print("Remaining bytes to read (Pixel Data): %d" % remaining );

  # Get file infos
  f = reader.GetFile();

  # get some info about image
  dims = gdcm.ImageHelper.GetDimensionsValue(f);
  print(dims)
  pf = gdcm.ImageHelper.GetPixelFormatValue (f);
  pixelsize = pf.GetPixelSize();
  pi = gdcm.ImageHelper.GetPhotometricInterpretationValue(f);
  print( pi );

  # buffer to get the pixels
  buffer = bytearray( dims[0] * dims[1] * pixelsize )

  # define a simple box region.
  box = gdcm.BoxRegion();
  for z in range(0, dims[2]):
    # Define that I want the image 0, full size (dimx x dimy pixels)
    # and do that for each z:
    box.SetDomain(0, dims[0] - 1, 0, dims[1] - 1, z, z);
    #print( box.toString() );
    reader.SetRegion( box );

    # reader will try to load the uncompressed image region into buffer.
    # the call returns an error when buffer.Length is too small. For instance
    # one can call:
    # uint buf_len = reader.ComputeBufferLength(); // take into account pixel size
    # to get the exact size of minimum buffer
    if reader.ReadIntoBuffer(buffer):
```

```
      open('/tmp/frame.raw', 'wb').write(buffer)
    else:
      #throw new Exception("can't read pixels error");
      sys.exit(1)
```

14.122 FindAllPatientName.py

```
"""
This example shows how one can use the gdcm.CompositeNetworkFunctions class
for executing a C-FIND query
It will print the list of patient name found

Usage:

 python FindAllPatientName.py

"""

import gdcm

# Patient Name
tag = gdcm.Tag(0x10,0x10)
de = gdcm.DataElement(tag)

# Search all patient name where string match 'F*'
de.SetByteStringValue('F*')

ds = gdcm.DataSet()
ds.Insert(de)

cnf = gdcm.CompositeNetworkFunctions()
theQuery = cnf.ConstructQuery (gdcm.ePatientRootType,gdcm.ePatient,ds)

#print theQuery.ValidateQuery()

# prepare the variable for output
ret = gdcm.DataSetArrayType()

# Execute the C-FIND query
cnf.CFind('dicom.example.com',11112,theQuery,ret,'GDCM_PYTHON','ANY-SCP')

for i in range(0,ret.size()):
  print "Patient #",i
  print ret[i]
```

14.123 FixCommaBug.py

```
"""
Using LC_NUMERIC set to something not compatible with "C" it is possible to write out "," instead of
"." as required by the DICOM standard
Issue is still current (IMHO) with gdcm 2.0.9
"""

import gdcm
import sys

filename = sys.argv[1]
outname = sys.argv[2]

# read
r = gdcm.Reader()
r.SetFileName( filename )
if not r.Read():
  print "not valid"
  sys.exit(1)

file = r.GetFile()
```

```
dataset = file.GetDataSet()

ano = gdcm.Anonymizer()
ano.SetFile( file )

tags = [
gdcm.Tag(0x0018,0x1164),
gdcm.Tag(0x0018,0x0088),
gdcm.Tag(0x0018,0x0050),
gdcm.Tag(0x0028,0x0030),
]

for tag in tags:
  print tag
  if dataset.FindDataElement( tag ):
    pixelspacing = dataset.GetDataElement( tag )
    #print pixelspacing
    bv = pixelspacing.GetByteValue()
    str = bv.GetBuffer()
    #print bv.GetLength()
    #print len(str)
    new_str = str.replace(",",".")
    # Need to explicitly pass bv.GetLength() to remove any trailing garbage
    ano.Replace( tag, new_str, bv.GetLength() )

#print dataset

w = gdcm.Writer()
w.SetFile( file )
w.SetFileName( outname )
if not w.Write():
  print "Cannot write"
  sys.exit(1)

# paranoid:
image_reader = gdcm.ImageReader()
image_reader.SetFileName( outname )
if not image_reader.Read():
  print "there is still a comma"
  sys.exit(1)

print "Success!"
sys.exit(0) # success
```

14.124 GetPortionCSAHeader.py

```
"""
Usage:

 python GetPortionCSAHeader.py input.dcm

Footnote:
  SIEMENS is not publishing any information on the CSA header. So any info extracted
  is at your own risk.
"""

import sys
import gdcm

if __name__ == "__main__":

  file = sys.argv[1]

  r = gdcm.Reader()
  r.SetFileName( file )
  if not r.Read():
    sys.exit(1)

  ds = r.GetFile().GetDataSet()
  csa_t1 = gdcm.CSAHeader()
  csa_t2 = gdcm.CSAHeader()
  #print csa
  t1 = csa_t1.GetCSAImageHeaderInfoTag();
  print t1
```

```
  t2 = csa_t2.GetCSASeriesHeaderInfoTag();
  print t2
  # Let's do it for t1:
  if ds.FindDataElement( t1 ):
    csa_t1.LoadFromDataElement( ds.GetDataElement( t1 ) )
    print csa_t1

  # Now let's pretend we are only interested in B_value and DiffusionGradientDirection entries:
  bvalues = csa_t1.GetCSAElementByName( "B_value" ) # WARNING: it is case sensitive !
  print bvalues

  diffgraddir = csa_t1.GetCSAElementByName( "DiffusionGradientDirection" ) # WARNING: it is case sensitive !
  print diffgraddir

  # repeat for t2 if you like it:
  if ds.FindDataElement( t2 ):
    csa_t2.LoadFromDataElement( ds.GetDataElement( t2 ) )
    # print csa_t2

  gdt = csa_t2.GetCSAElementByName( "GradientDelayTime" )
  print gdt

  bv = gdt.GetByteValue();
  #print bv
  str = bv.GetPointer()
  print str.split("\\")
```

14.125 HelloWorld.py

```
"""
Hello World !
"""

import gdcm
import sys

if __name__ == "__main__":

  # verbosity:
  #gdcm.Trace.DebugOn()
  #gdcm.Trace.WarningOn()
  #gdcm.Trace.ErrorOn()

  # Get the filename from the command line
  filename = sys.argv[1]

  # Instantiate a gdcm.Reader
  # This is the main class to handle any type of DICOM object
  # You should check for gdcm.ImageReader for reading specifically DICOM Image file
  r = gdcm.Reader()
  r.SetFileName( filename )
  # If the reader fails to read the file, we should stop !
  if not r.Read():
    print "Not a valid DICOM file"
    sys.exit(1)

  # Get the DICOM File structure
  file = r.GetFile()

  # Get the DataSet part of the file
  dataset = file.GetDataSet()

  # Ok let's print it !
  print dataset

  # Use StringFilter to print a particular Tag:
  sf = gdcm.StringFilter()
  sf.SetFile(r.GetFile())

  # Check if Attribute exist
  print dataset.FindDataElement( gdcm.Tag(0x0028,0x0010))

  # Let's print it as string pair:
  print sf.ToStringPair(gdcm.Tag(0x0028,0x0010))
```

14.126 ManipulateFile.py

```
"""
Usage:

 python ManipulateFile.py input.dcm output.dcm

Footnote:
  GDCM 1.2.x would create incorrect Multiframes MR Image Storage file. Try to recover from
  the issues to recreate a MultiframeGrayscaleByteSecondaryCaptureImageStorage file.
  e.g:

  python ManipulateFile.py Insight/Testing/Temporary/itkGDCMImageIOTest5-j2k.dcm manipulated.dcm
"""

import sys
import gdcm

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r = gdcm.Reader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  ano = gdcm.Anonymizer()
  ano.SetFile( r.GetFile() )
  ano.RemovePrivateTags()
  ano.Remove( gdcm.Tag(0x0032,0x1030) )
  ano.Remove( gdcm.Tag(0x008,0x14) )
  ano.Remove( gdcm.Tag(0x008,0x1111) )
  ano.Remove( gdcm.Tag(0x008,0x1120) )
  ano.Remove( gdcm.Tag(0x008,0x1140) )
  ano.Remove( gdcm.Tag(0x10,0x21b0) )
  ano.Empty( gdcm.Tag(0x10,0x10) )
  ano.Empty( gdcm.Tag(0x10,0x20) )
  ano.Empty( gdcm.Tag(0x10,0x30) )
  ano.Empty( gdcm.Tag(0x20,0x10) )
  ano.Empty( gdcm.Tag(0x32,0x1032) )
  ano.Empty( gdcm.Tag(0x32,0x1033) )
  ano.Empty( gdcm.Tag(0x40,0x241) )
  ano.Empty( gdcm.Tag(0x40,0x254) )
  ano.Empty( gdcm.Tag(0x40,0x253) )
  ano.Empty( gdcm.Tag(0x40,0x1001) )
  ano.Empty( gdcm.Tag(0x8,0x80) )
  ano.Empty( gdcm.Tag(0x8,0x50) )
  ano.Empty( gdcm.Tag(0x8,0x1030) )
  ano.Empty( gdcm.Tag(0x8,0x103e) )
  ano.Empty( gdcm.Tag(0x18,0x1030) )
  ano.Empty( gdcm.Tag(0x38,0x300) )
  g = gdcm.UIDGenerator()
  ano.Replace( gdcm.Tag(0x0008,0x0018), g.Generate() )
  ano.Replace( gdcm.Tag(0x0020,0x00d), g.Generate() )
  ano.Replace( gdcm.Tag(0x0020,0x00e), g.Generate() )
  ano.Replace( gdcm.Tag(0x0020,0x052), g.Generate() )
  #ano.Replace( gdcm.Tag(0x0008,0x0016), "1.2.840.10008.5.1.4.1.1.7.2" )
  """
  ano.Remove( gdcm.Tag(0x0018,0x0020) ) # ScanningSequence
  ano.Remove( gdcm.Tag(0x0018,0x0021) ) # SequenceVariant
  ano.Remove( gdcm.Tag(0x0018,0x0022) ) # ScanOptions
  ano.Remove( gdcm.Tag(0x0018,0x0023) ) # MRAcquisitionType
  ano.Remove( gdcm.Tag(0x0018,0x0050) ) # SliceThickness
  ano.Remove( gdcm.Tag(0x0018,0x0080) ) # RepetitionTime
  ano.Remove( gdcm.Tag(0x0018,0x0081) ) # EchoTime
  ano.Remove( gdcm.Tag(0x0018,0x0088) ) # SpacingBetweenSlices
  ano.Remove( gdcm.Tag(0x0018,0x0091) ) # EchoTrainLength
  ano.Remove( gdcm.Tag(0x0018,0x1164) ) # ImagerPixelSpacing

  ano.Remove( gdcm.Tag(0x0020,0x0032) ) # Image Position (Patient)
  ano.Remove( gdcm.Tag(0x0020,0x0037) ) # Image Orientation (Patient)
  ano.Remove( gdcm.Tag(0x0020,0x0052) ) # Frame of Reference UID
  ano.Remove( gdcm.Tag(0x0020,0x1040) ) # Position Reference Indicator

  ano.Replace( gdcm.Tag(0x0028,0x0301), "NO" ) # Burned In Annotation
```

```
  ano.Empty( gdcm.Tag(0x0020,0x0020) )

  ano.Remove( gdcm.Tag(0x7fe0,0x0000) )

  #ano.Empty( gdcm.Tag(0x0028,0x0009) ) # Frame Increment Pointer

  #ano.Empty( gdcm.Tag(0x0028,0x1052) )  #<entry group="0028" element="1052" vr="DS" vm="1" name="Rescale
      Intercept"/>
  #ano.Empty( gdcm.Tag(0x0028,0x1053) )  #<entry group="0028" element="1053" vr="DS" vm="1" name="Rescale
      Slope"/>
  #ano.Replace( gdcm.Tag(0x0028,0x1054), "US" )  #<entry group="0028" element="1054" vr="LO" vm="1"
      name="Rescale Type"/>

  ano.Replace( gdcm.Tag(0x2050, 0x0020), "IDENTITY")
  """

  w = gdcm.Writer()
  w.SetFile( ano.GetFile() )
  w.SetFileName( file2 )
  if not w.Write():
    sys.exit(1)
```

14.127 ManipulateSequence.py

```
"""
Usage:

 python ManipulateSequence.py input.dcm output.dcm

This was tested using:

 python ManipulateSequence.py gdcmData/D_CLUNIE_CT1_J2KI.dcm myoutput.dcm

This is a dummy example on how to modify a value set in a nested-nested dataset

WARNING:
Do not use as-is in production, this is just an example
This example works in an undefined length Item only (you need to explicitly recompute the length otherwise)
"""

import sys
import gdcm

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r = gdcm.Reader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  f = r.GetFile()
  ds = f.GetDataSet()
  tsis = gdcm.Tag(0x0008,0x2112) # SourceImageSequence
  if ds.FindDataElement( tsis ):
    sis = ds.GetDataElement( tsis )
    #sqsis = sis.GetSequenceOfItems()
    # GetValueAsSQ handle more cases
    sqsis = sis.GetValueAsSQ()
    if sqsis.GetNumberOfItems():
      item1 = sqsis.GetItem(1)
      nestedds = item1.GetNestedDataSet()
      tprcs = gdcm.Tag(0x0040,0xa170) # PurposeOfReferenceCodeSequence
      if nestedds.FindDataElement( tprcs ):
        prcs = nestedds.GetDataElement( tprcs )
        sqprcs = prcs.GetSequenceOfItems()
        if sqprcs.GetNumberOfItems():
          item2 = sqprcs.GetItem(1)
          nestedds2 = item2.GetNestedDataSet()
          # (0008,0104) LO [Uncompressed predecessor]               #  24, 1 CodeMeaning
          tcm = gdcm.Tag(0x0008,0x0104)
          if nestedds2.FindDataElement( tcm ):
```

```
            cm = nestedds2.GetDataElement( tcm )
            mystr = "GDCM was here"
            cm.SetByteStringValue( mystr )

  w = gdcm.Writer()
  w.SetFile( f )
  w.SetFileName( file2 )
  if not w.Write():
    sys.exit(1)
```

14.128 MergeFile.py

```
"""
Usage:

 python MergeFile.py input1.dcm input2.dcm

  It will produce a 'merge.dcm' output file, which contains all meta information from input1.dcm
  and copy the Stored Pixel values from input2.dcm
  This script even works when input2.dcm is a Secondary Capture and does not contains information
  such as IOP and IPP...
"""

import sys
import gdcm

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r1 = gdcm.ImageReader()
  r1.SetFileName( file1 )
  if not r1.Read():
    sys.exit(1)

  r2 = gdcm.ImageReader()
  r2.SetFileName( file2 )
  if not r2.Read():
    sys.exit(1)

  # Image from r2 could be Secondary Capture and thus would not contains neither IPP nor IOP
  # Instead always prefer to only copy the Raw Data Element.
  # Warning ! Image need to be identical ! Only the value of Stored Pixel can be different.
  r1.GetImage().SetDataElement( r2.GetImage().GetDataElement() )

  w = gdcm.ImageWriter()
  w.SetFile( r1.GetFile() )
  #w.SetImage( r2.GetImage() )  # See comment above
  w.SetImage( r1.GetImage() )

  w.SetFileName( "merge.dcm" )
  if not w.Write():
    sys.exit(1)

  sys.exit(0)
```

14.129 NewSequence.py

```
"""
Usage:

  python NewSequence.py input.dcm output.dcm


Thanks to Robert Irie for code
```

```
"""

import sys
import gdcm

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r = gdcm.Reader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  f = r.GetFile()
  ds = f.GetDataSet()
  #tsis = gdcm.Tag(0x0008,0x2112) # SourceImageSequence

  # Create a dataelement
  de = gdcm.DataElement(gdcm.Tag(0x0010, 0x2180))
  de.SetByteStringValue("Occupation")
  de.SetVR(gdcm.VR(gdcm.VR.SH))

  # Create an item
  it=gdcm.Item()
  it.SetVLToUndefined()      # Needed to not popup error message
  #it.InsertDataElement(de)
  nds=it.GetNestedDataSet()
  nds.Insert(de)

  # Create a Sequence
  sq=gdcm.SequenceOfItems().New()
  sq.SetLengthToUndefined()
  sq.AddItem(it)

  # Insert sequence into data set
  des=gdcm.DataElement(gdcm.Tag(0x0400,0x0550))
  des.SetVR(gdcm.VR(gdcm.VR.SQ))
  des.SetValue(sq.__ref__())
  des.SetVLToUndefined()

  ds.Insert(des)

  w = gdcm.Writer()
  w.SetFile( f )
  w.SetFileName( file2 )
  if not w.Write():
    sys.exit(1)
```

14.130 PhilipsPrivateRescaleInterceptSlope.py

```
"""
Usage:

 python
"""

import gdcm
import sys

filename = sys.argv[1]
tmpfile = "/tmp/philips_rescaled.dcm"


# Need to access some private tags, read the file :
reader = gdcm.Reader()
reader.SetFileName( filename )
if not reader.Read():
  sys.exit(1)

ds = reader.GetFile().GetDataSet()

#print ds
```

```
# (2005,1409)      DS      4       0.0
# (2005,140a)      DS      16      1.52283272283272

# (2005,0014)      LO      26      Philips MR Imaging DD 005
tag1 = gdcm.PrivateTag(0x2005,0x09,"Philips MR Imaging DD 005")
tag2 = gdcm.PrivateTag(0x2005,0x0a,"Philips MR Imaging DD 005")
print tag1
print tag2

# make sure to do a copy, we want the private tag to remain
# otherwise gdcm gives us a reference
el1 = gdcm.DataElement( ds.GetDataElement( tag1 ) )
print el1
el2 = gdcm.DataElement( ds.GetDataElement( tag2 ) )
print el2

# (0028,1052) DS [-1000]                                  #   6, 1 RescaleIntercept
# (0028,1053) DS [1]                                      #   2, 1 RescaleSlope

el1.SetTag( gdcm.Tag(0x0028,0x1052) )
el2.SetTag( gdcm.Tag(0x0028,0x1053) )

ds.Insert( el1 )
ds.Insert( el2 )

w = gdcm.Writer()
w.SetCheckFileMetaInformation( False )
w.SetFileName( tmpfile )
w.SetFile( reader.GetFile() )
if not w.Write():
  sys.exit(1)

print "success"
```

14.131 PlaySound.py

```
"""
Usage:

 python PlaySound.py input.dcm
"""

import gdcm
import sys

#filename = "/home/mmalaterre/Creatis/gdcmDataExtra/gdcmNonImageData/audio_from_rafael_sanguinetti.dcm"
filename = sys.argv[1]
print filename

r = gdcm.Reader()
r.SetFileName( filename )
if not r.Read():
  sys.exit(1)

ds = r.GetFile().GetDataSet()

waveformtag = gdcm.Tag(0x5400,0x0100)
waveformsq = ds.GetDataElement( waveformtag )
#print waveformsq

#print dir(waveformsq)

items = waveformsq.GetSequenceOfItems()

if not items.GetNumberOfItems():
  sys.exit(1)

item = items.GetItem(1)
#print item

waveformds = item.GetNestedDataSet()
#print waveformds

waveformdatatag = gdcm.Tag(0x5400,0x1010)
```

```
waveformdata = waveformds.GetDataElement( waveformdatatag )

#print waveformdata.GetPointer()
bv = waveformdata.GetByteValue()
print dir(bv)

#print bv.GetPointer()
print bv.GetLength()
l = 116838

file='test.wav'
myfile = open(file, "wb")
s = bv.GetPointer()
for i in range(0, l):
  myfile.write(s[i])
myfile.close()

# http://mail.python.org/pipermail/python-list/2004-October/288905.html
if sys.platform.startswith('win'):
   from winsound import PlaySound, SND_FILENAME, SND_ASYNC
   PlaySound(file, SND_FILENAME|SND_ASYNC)
elif sys.platform.find('linux')>-1:
   from wave import open as waveOpen
   from ossaudiodev import open as ossOpen
   s = waveOpen(file,'rb')
   (nc,sw,fr,nf,comptype, compname) = s.getparams( )
   dsp = ossOpen('/dev/dsp','w')
   try:
     from ossaudiodev import AFMT_S16_NE
   except ImportError:
     if byteorder == "little":
       AFMT_S16_NE = ossaudiodev.AFMT_S16_LE
     else:
       AFMT_S16_NE = ossaudiodev.AFMT_S16_BE
   dsp.setparameters(AFMT_S16_NE, nc, fr)
   data = s.readframes(nf)
   s.close()
   dsp.write(data)
   dsp.close()
```

14.132 PrivateDict.py

```
"""
"""

import gdcm
import sys,os

if __name__ == "__main__":
  #gdcm.Trace.DebugOn()
  globInst = gdcm.Global.GetInstance()
  # Try to load Part3.xml file
  # This file is too big for being accessible directly at runtime.
  globInst.LoadResourcesFiles()


  # Get a private tag from the runtime dicts. LoadResourcesFiles could
  # have failed but this has no impact on the private dict

  d = globInst.GetDicts()
  print d.GetDictEntry( gdcm.Tag(0x0029,0x0010) ,"SIEMENS CSA HEADER" )
  pd = d.GetPrivateDict()
  print pd.GetDictEntry( gdcm.PrivateTag(0x0029,0x0010,"SIEMENS CSA HEADER") )
```

14.133 ReWriteSCAsMR.py

```
"""
```

```
GDCM 1.x would write out MR Image Storage as Secondary Capture Object while still setting Rescale
      Slope/Intercept
and saving the Pixel Spacing in (0028,0030)
"""

import gdcm
import sys,os

def CheckSecondaryCaptureObjectIsMRImageStorage(r):
  ds = r.GetFile().GetDataSet()
  # Check Source Image Sequence
  if ds.FindDataElement( gdcm.Tag(0x0008,0x2112) ):
    sis = ds.GetDataElement( gdcm.Tag(0x0008,0x2112) )
    sqsis = sis.GetSequenceOfItems()
    if sqsis.GetNumberOfItems():
      item1 = sqsis.GetItem(1)
      nestedds = item1.GetNestedDataSet()
      if nestedds.FindDataElement( gdcm.Tag(0x0008,0x1150) ):
        ReferencedSOPClassUID = nestedds.GetDataElement( gdcm.Tag(0x0008,0x1150) )
        raw = ReferencedSOPClassUID.GetByteValue().GetPointer()
        uids = gdcm.UIDs()
        # what is the actual object we are looking at ?
        ms = gdcm.MediaStorage()
        ms.SetFromDataSet(ds)
        msuid = ms.GetString()
        uids.SetFromUID( msuid )
        msuidname = uids.GetName() # real Media Storage Name
        uids.SetFromUID( raw )
        sqmsuidname = uids.GetName() # Source Image Sequence Media Storage Name
        # If object is SC and Source derivation is MRImageStorage then we can assume 'Pixel Spacing' is correct
        if( sqmsuidname == 'MR Image Storage' and msuidname == 'Secondary Capture Image Storage' ):
          return True
  # in all other case simply return the currentspacing:
  return False

if __name__ == "__main__":
  r = gdcm.ImageReader()
  filename = sys.argv[1]
  r.SetFileName( filename )
  if not r.Read():
    sys.exit(1)
  f = r.GetFile()

  if( CheckSecondaryCaptureObjectIsMRImageStorage(r) ):
    # Special handling of the spacing:
    # GDCM 1.2.0 would not rewrite correctly DICOM Object and would always set them as 'Secondary Capture Image
      Storage'
    # while we would rather have 'MR Image Storage'
    gdcm.ImageHelper.SetForcePixelSpacing( True )
    mrspacing = gdcm.ImageHelper.GetSpacingValue( r.GetFile() )
    # TODO: I cannot do simply the following:
    #image.SetSpacing( mrspacing )
    image.SetSpacing(0, mrspacing[0] )
    image.SetSpacing(1, mrspacing[1] )
    image.SetSpacing(2, mrspacing[2] )
    gdcm.ImageHelper.SetForceRescaleInterceptSlope( True )
    ris = gdcm.ImageHelper.GetRescaleInterceptSlopeValue( r.GetFile() )
    image.SetIntercept( ris[0] )
    image.SetSlope( ris[1] )

  outfilename = sys.argv[2]
  w = gdcm.ImageWriter()
  w.SetFileName( outfilename )
  w.SetFile( r.GetFile() )
  w.SetImage( image )
  if not w.Write():
    sys.exit(1)

  sys.exit(0)
```

14.134 ReadAndDumpDICOMDIR.py

```
import sys
```

```
import gdcm

if __name__ == "__main__":
    # Check arguments
    if (len(sys.argv) < 2):
        # No filename passed
        print "No input filename found"
        quit()

    filename = sys.argv[1]


    # Read file
    reader = gdcm.Reader()
    reader.SetFileName(filename)
    if (not reader.Read()):
        print "Unable to read %s" % (filename)
        quit()

    file = reader.GetFile()

    # Retrieve header information
    fileMetaInformation = file.GetHeader()
    print fileMetaInformation

    # Retrieve data set
    dataSet = file.GetDataSet()
    #print dataSet

    # Check media storage
    mediaStorage = gdcm.MediaStorage()
    mediaStorage.SetFromFile(file)
    if (gdcm.MediaStorage.GetMSType(str(mediaStorage)) != gdcm.MediaStorage.MediaStorageDirectoryStorage):
        # File is not a DICOMDIR
        print "This file is not a DICOMDIR (Media storage type: %s)" % (str(mediaStorage))
        quit()

    # Check Media Storage SOP Class
    if (fileMetaInformation.FindDataElement(gdcm.Tag(0x0002, 0x0002))):
        sopClassUid = str(fileMetaInformation.GetDataElement(gdcm.Tag(0x0002, 0x0002)).GetValue())
        # Check SOP UID
        if (sopClassUid != "1.2.840.10008.1.3.10"):
            # File is not a DICOMDIR
            print "This file is not a DICOMDIR"
    else:
        # Not present
        print "Media Storage SOP Class not present"
        quit()

    # Iterate through the DICOMDIR data set
    iterator = dataSet.GetDES().begin()
    while (not iterator.equal(dataSet.GetDES().end())):
        dataElement = iterator.next()

        # Check the element tag
        if (dataElement.GetTag() == gdcm.Tag(0x004, 0x1220)):
            # The 'Directory Record Sequence' element
            sequence = dataElement.GetValueAsSQ()

            # Loop through the sequence items
            itemNr = 1
            while (itemNr < sequence.GetNumberOfItems()):
                item = sequence.GetItem(itemNr)

                # Check the element tag
                if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
                    # The 'Directory Record Type' element
                    value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())

                    # PATIENT
                    while (value.strip() == "PATIENT"):
                        print value.strip()
                        # Print patient name
                        if (item.FindDataElement(gdcm.Tag(0x0010, 0x0010))):
                            value = str(item.GetDataElement(gdcm.Tag(0x0010, 0x0010)).GetValue())
                            print value

                        # Print patient ID
                        if (item.FindDataElement(gdcm.Tag(0x0010, 0x0020))):
                            value = str(item.GetDataElement(gdcm.Tag(0x0010, 0x0020)).GetValue())
```

```
            print value

        # Next
        itemNr = itemNr + 1
        item = sequence.GetItem(itemNr)
        if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
            value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())

        # STUDY
        while (value.strip() == "STUDY"):
            print value.strip()

            # Print study UID
            if (item.FindDataElement(gdcm.Tag(0x0020, 0x000d))):
                value = str(item.GetDataElement(gdcm.Tag(0x0020, 0x000d)).GetValue())
                print value

            # Print study date
            if (item.FindDataElement(gdcm.Tag(0x0008, 0x0020))):
                value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x0020)).GetValue())
                print value

            # Print study description
            if (item.FindDataElement(gdcm.Tag(0x0008, 0x1030))):
                value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x1030)).GetValue())
                print value

            # Next
            itemNr = itemNr + 1
            item = sequence.GetItem(itemNr)
            if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
                    value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())

            # SERIES
            while (value.strip() == "SERIES"):
                print value.strip()

                # Print series UID
                if (item.FindDataElement(gdcm.Tag(0x0020, 0x000e))):
                    value = str(item.GetDataElement(gdcm.Tag(0x0020, 0x000e)).GetValue())
                    print value

                # Print series modality
                if (item.FindDataElement(gdcm.Tag(0x0008, 0x0060))):
                    value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x0060)).GetValue())
                    print "Modality"
                    print value

                # Print series description
                if (item.FindDataElement(gdcm.Tag(0x0008, 0x103e))):
                    value = str(item.GetDataElement(gdcm.Tag(0x0008, 0x103e)).GetValue())
                    print "Description"
                    print value

                # Next
                itemNr = itemNr + 1
                item = sequence.GetItem(itemNr)
                if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
                    value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1430)).GetValue())

                # IMAGE
                while (value.strip() == "IMAGE"):
                    print value.strip()

                    # Print image UID
                    if (item.FindDataElement(gdcm.Tag(0x0004, 0x1511))):
                        value = str(item.GetDataElement(gdcm.Tag(0x0004, 0x1511)).GetValue())
                        print value

                    # Next
                    if (itemNr < sequence.GetNumberOfItems()):
                        itemNr = itemNr + 1
                    else:
                        break

                    item = sequence.GetItem(itemNr)
                    if (item.FindDataElement(gdcm.Tag(0x0004, 0x1430))):
                            value = str(item.GetDataElement(gdcm.Tag(0x0004,
0x1430)).GetValue())

            # Next
```

```
                itemNr = itemNr + 1
```

14.135 RemovePrivateTags.py

```
"""
Usage:

 python RemovePrivateTags.py input.dcm output.dcm
"""

import sys
import gdcm


if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  # Instantiate the reader.
  r = gdcm.Reader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  # Remove private tags
  ano = gdcm.Anonymizer()
  ano.SetFile( r.GetFile() )
  if not ano.RemovePrivateTags():
    sys.exit(1)

  # Write DICOM file
  w = gdcm.Writer()
  w.SetFile( ano.GetFile() )
  #w.CheckFileMetaInformationOff() # Do not attempt to check meta header
  w.SetFileName( file2 )
  if not w.Write():
    sys.exit(1)

  # It is usually a good idea to exit the script with an error, as gdcm does not remove partial (incorrect)
      DICOM file
  # (application level)
```

14.136 ScanDirectory.py

```
import gdcm
import sys,os

class ProgressWatcher(gdcm.SimpleSubjectWatcher):
  def ShowProgress(self, sender, event):
    pe = gdcm.ProgressEvent.Cast(event)
    print pe.GetProgress()
  def EndFilter(self):
    print "Yay ! I am done"

if __name__ == "__main__":
  directory = sys.argv[1]

  # Define the set of tags we are interested in
  t1 = gdcm.Tag(0x8,0x8);
  t2 = gdcm.Tag(0x10,0x10);

  # Iterate over directory
  d = gdcm.Directory();
  nfiles = d.Load( directory );
  if(nfiles == 0): sys.exit(1);
```

```
  # System.Console.WriteLine( "Files:\n" + d.toString() );

  filenames = d.GetFilenames()

  #  Get rid of any Warning while parsing the DICOM files
  gdcm.Trace.WarningOff()

  # instantiate Scanner:
  sp = gdcm.Scanner.New();
  s = sp.__ref__()
  w = ProgressWatcher(s, 'Watcher')

  s.AddTag( t1 );
  s.AddTag( t2 );
  b = s.Scan( filenames );
  if(not b): sys.exit(1);

  print "success" ;
  #print s

  pttv = gdcm.PythonTagToValue( s.GetMapping( filenames[1] ) )
  pttv.Start()
  # iterate until the end:
  while( not pttv.IsAtEnd() ):
    # get current value for tag and associated value:
    # if tag was not found, then it was simply not added to the internal std::map
    # Warning value can be None
    tag = pttv.GetCurrentTag()
    value = pttv.GetCurrentValue()
    print tag,"->",value
    # increment iterator
    pttv.Next()

  sys.exit(0)
```

14.137 SortImage.py

```
"""
Usage:

 python SortImage.py dirname
"""

import gdcm
import sys

def PrintProgress(object, event):
  assert event == "ProgressEvent"
  print "Progress:", object.GetProgress()

def MySort(ds1, ds2):
  # compare ds1
  return False

if __name__ == "__main__":

  dirname = sys.argv[1]
  d = gdcm.Directory()
  d.Load( dirname )

  print d

  sorter = gdcm.Sorter()
  sorter.SetSortFunction( MySort )
  #sorter.AddObserver( "ProgressEvent", PrintProgress )
  sorter.Sort( d.GetFilenames() )

  print "Sorter:"
  print sorter
```

14.138 WriteBuffer.py

```
"""
Usage:

http://chuckhahm.com/Ischem/Zurich/XX_0134

(2005,1132) SQ (Sequence with undefined length #=8)     # u/l, 1 Unknown Tag & Data
  (fffe,e000) na (Item with undefined length #=9)         # u/l, 1 Item
    (2005,0011) LO [Philips MR Imaging DD 002]              #  26, 1 PrivateCreator
    (2005,1137) PN [PDF_CONTROL_GEN_PARS]                   #  20, 1 Unknown Tag & Data
    (2005,1138) PN (no value available)                     #   0, 0 Unknown Tag & Data
    (2005,1139) PN [IEEE_PDF]                               #   8, 1 Unknown Tag & Data
    (2005,1140) PN (no value available)                     #   0, 0 Unknown Tag & Data
    (2005,1141) PN (no value available)                     #   0, 0 Unknown Tag & Data
    (2005,1143) SL 3103                                     #   4, 1 Unknown Tag & Data
    (2005,1144) OW 0566\0000\013b\0000\0a4a\0000\000e\0000\0a7a\0000\0195\0000\0008... # 3104, 1 Unknown Tag &
      Data
    (2005,1147) CS [Y]                                      #   2, 1 Unknown Tag & Data
  (fffe,e00d) na (ItemDelimitationItem)                   #   0, 0 ItemDelimitationItem
  (fffe,e000) na (Item with undefined length #=9)         # u/l, 1 Item
    (2005,0011) LO [Philips MR Imaging DD 002]              #  26, 1 PrivateCreator
    (2005,1137) PN [PDF_CONTROL_PREP_PARS]                  #  22, 1 Unknown Tag & Data
    (2005,1138) PN (no value available)                     #   0, 0 Unknown Tag & Data
    (2005,1139) PN [IEEE_PDF]                               #   8, 1 Unknown Tag & Data
    (2005,1140) PN (no value available)                     #   0, 0 Unknown Tag & Data
    (2005,1141) PN (no value available)                     #   0, 0 Unknown Tag & Data
    (2005,1143) SL 7934                                     #   4, 1 Unknown Tag & Data
    (2005,1144) OW 19b6\0000\005f\0000\1b2a\0000\00f3\0000\1eee\0000\0000\0000\0008... # 7934, 1 Unknown Tag &
      Data
    (2005,1147) CS [Y]                                      #   2, 1 Unknown Tag & Data
  (fffe,e00d) na (ItemDelimitationItem)                   #   0, 0 ItemDelimitationItem
...
"""

import sys
import gdcm

if __name__ == "__main__":

  file1 = sys.argv[1]
  file2 = sys.argv[2]

  r = gdcm.Reader()
  r.SetFileName( file1 )
  if not r.Read():
    sys.exit(1)

  fg = gdcm.FilenameGenerator()
  f = r.GetFile()
  ds = f.GetDataSet()
  tsis = gdcm.Tag(0x2005,0x1132) #
  if ds.FindDataElement( tsis ):
    sis = ds.GetDataElement( tsis )
    #sqsis = sis.GetSequenceOfItems()
    # GetValueAsSQ handle more cases
    sqsis = sis.GetValueAsSQ()
    if sqsis.GetNumberOfItems():
      nitems = sqsis.GetNumberOfItems();
      fg.SetNumberOfFilenames( nitems )
      fg.SetPrefix( file2 )
      if not fg.Generate():
        print "problem"
        sys.exit(1)
      for i in range(0,nitems):
        item1 = sqsis.GetItem(i+1) # Item start at 1
        nestedds = item1.GetNestedDataSet()
        tprcs = gdcm.Tag(0x2005,0x1144) #
        if nestedds.FindDataElement( tprcs ):
          prcs = nestedds.GetDataElement( tprcs )
          bv = prcs.GetByteValue()
          print bv
          f = open( fg.GetFilename(i) , "w" )
          f.write( bv.WriteBuffer() )
```

14.139 HelloActiviz.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using vtkgdcm;
using Kitware.VTK;
using System;
using System.Runtime.InteropServices;

/*
 * This example shows how vtkgdcm can be connected to Kitware.VTK Activiz product.
 * Three (3) arguments are required:
 * 1. Input DICOM file                      (SWIG)
 * 2. Temporary PNG (intermediate) file     (Activiz)
 * 3. Final DICOM file                      (SWIG)
 *
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz.exe ~/Creatis/gdcmData/test.acr out.png toto.dcm
 *
 * Footnote:
 * this test originally used vtkBMPWriter / vtkBMPReader combination to store intermediate
 * image file, but BMP file are 24bits by default. Instead use PNG format which supports seems
 * to be closer to what was expected in this simple test.
 */
public class HelloActiviz
{
  // Does not work with ActiViz.NET-5.4.0.455-Linux-x86_64-Personal
/*
  static void ConnectSWIGToActiviz(Kitware.VTK.vtkImageExport imgin, Kitware.VTK.vtkImageImport imgout)
    {
    imgout.SetUpdateInformationCallback(imgin.GetUpdateInformationCallback());
    imgout.SetPipelineModifiedCallback(imgin.GetPipelineModifiedCallback());
    imgout.SetWholeExtentCallback(imgin.GetWholeExtentCallback());
    imgout.SetSpacingCallback(imgin.GetSpacingCallback());
    imgout.SetOriginCallback(imgin.GetOriginCallback());
    imgout.SetScalarTypeCallback(imgin.GetScalarTypeCallback());
    imgout.SetNumberOfComponentsCallback(imgin.GetNumberOfComponentsCallback());
    imgout.SetPropagateUpdateExtentCallback(imgin.GetPropagateUpdateExtentCallback());
    imgout.SetUpdateDataCallback(imgin.GetUpdateDataCallback());
    imgout.SetDataExtentCallback(imgin.GetDataExtentCallback());
    imgout.SetBufferPointerCallback(imgin.GetBufferPointerCallback());
    imgout.SetCallbackUserData(imgin.GetCallbackUserData());
    }
*/

  static Kitware.VTK.vtkImageData ConnectSWIGToActiviz(vtkgdcm.vtkImageData imgin)
    {
    HandleRef rawCppThis = imgin.GetCppThis();
    Kitware.VTK.vtkImageData imgout = new Kitware.VTK.vtkImageData( rawCppThis.Handle, false, false);
    return imgout;
    }

  static vtkgdcm.vtkImageData ConnectActivizToSWIG(Kitware.VTK.vtkImageData imgin)
    {
    HandleRef rawCppThis = imgin.GetCppThis();
    vtkgdcm.vtkImageData imgout = new vtkgdcm.vtkImageData( rawCppThis );
    return imgout;
    }


  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];

    // Step 1. Test SWIG -> Activiz
    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    reader.SetFileName( filename );
```

```
    //reader.Update(); // DO NOT call Update to check pipeline execution

    Kitware.VTK.vtkImageData imgout = ConnectSWIGToActiviz(reader.GetOutput());

    System.Console.WriteLine( imgout.ToString() ); // not initialized as expected

    vtkPNGWriter writer = new vtkPNGWriter();
    writer.SetInput( imgout );
    writer.SetFileName( outfilename );
    writer.Write();

    // Step 2. Test Activiz -> SWIG
    vtkPNGReader bmpreader = new vtkPNGReader();
    bmpreader.SetFileName( outfilename );
    //bmpreader.Update(); // DO NOT update to check pipeline execution

    System.Console.WriteLine( bmpreader.GetOutput().ToString() ); // not initialized as expected

    vtkgdcm.vtkImageData imgout2 = ConnectActivizToSWIG(bmpreader.GetOutput());

    System.Console.WriteLine( imgout2.ToString() ); // not initialized as expected


    Kitware.VTK.vtkMedicalImageProperties prop = new Kitware.VTK.vtkMedicalImageProperties();
    prop.SetModality( "MR" );

    string outfilename2 = args[2];
    vtkGDCMImageWriter writer2 = vtkGDCMImageWriter.New();
    writer2.SetMedicalImageProperties( prop.CastToActiviz() );
    writer2.SetFileName( outfilename2 );
    writer2.SetInput( imgout2 );
    writer2.Write();

    return 0;
    }
}
```

14.140 HelloActiviz2.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * Usage:
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz2.exe gdcmData/test.acr bla.png bla2.dcm
 */

/*
 * From the outside view, no-one can detect that object pass to/from
 * vtkGDCMImageWriter/vtkGDCMImageReader are not Activiz object.
 *
 * TODO: Test Command/Observer
 */
public class HelloActiviz2
{
  public static int Main(string[] args)
    {
    string filename = args[0];
    string outfilename = args[1];
    string outfilename2 = args[2];

    vtkGDCMImageReader reader = new Kitware.VTK.GDCM.vtkGDCMImageReader();
```

```
    reader.SetFileName( filename );

    // When calling multiple times creation of C# object from the same C++ object it triggers a:
//error: potential refcounting error: Duplicate rawCppThis - weak reference that is still alive. Attempting to
      add '0x00b2dc10' again.
//       Allowing new wrapped object to take over table key...
//       Original object should *not* have been destroyed while we still had it in our table without notifying
      us...
    //reader.GetOutput();
    //reader.GetOutput();

    System.Console.WriteLine( reader.ToString() ); // Test the ToString compat with Activiz

    vtkGDCMImageWriter writer = new vtkGDCMImageWriter();
    writer.SetInput( reader.GetOutput() );
    writer.SetFileName( outfilename2 );
    writer.Write();

    System.Console.WriteLine( reader.GetOutput().ToString() ); // Test the ToString compat with Activiz

    System.Console.WriteLine( writer.ToString() ); // Test the ToString compat with Activiz

    vtkPNGWriter pngwriter = new vtkPNGWriter();
    pngwriter.SetInput( reader.GetOutput() );
    pngwriter.SetFileName( outfilename );
    pngwriter.Write();

    // at that point the .Write() should have triggered an Update() on the reader:
    if( reader.GetImageFormat() == vtkgdcm.VTK_LUMINANCE ) // MONOCHROME2
      {
      System.Console.WriteLine( "Image is MONOCHROME2" ); //
      }

    vtkPNGReader bmpreader = new vtkPNGReader();
    bmpreader.SetFileName( outfilename );

    vtkMedicalImageProperties prop = new vtkMedicalImageProperties();
    prop.SetModality( "MR" );

    vtkMatrix4x4 dircos = reader.GetDirectionCosines();
    dircos.Invert();

    vtkGDCMImageWriter writer2 = new vtkGDCMImageWriter();
    writer2.SetFileName( outfilename2 );
    writer2.SetDirectionCosines( dircos );
    writer2.SetMedicalImageProperties( prop );
    writer2.SetInput( bmpreader.GetOutput() );
    writer2.Write();

    return 0;
    }
}
```

14.141 HelloActiviz3.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz3.exe ~/Creatis/gdcmData/test.acr
 */
public class HelloActiviz3
```

```
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    vtkStringArray array = vtkStringArray.New();
    array.InsertNextValue(filename);

    reader.SetFileNames(array);
    reader.Update();

    //System.Console.Write(reader.GetOutput());

    vtkRenderWindowInteractor iren = vtkRenderWindowInteractor.New();

    vtkImageViewer2 viewer = vtkImageViewer2.New();
    viewer.SetInput(reader.GetOutput());
    viewer.SetupInteractor(iren);
    viewer.SetSize(600, 600);
    viewer.Render();

    iren.Initialize();
    iren.Start();

    return 0;
    }
}
```

14.142 HelloActiviz4.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz4.exe ~/Creatis/gdcmData/test.acr
 */
public class HelloActiviz4
{
  public static int Main(string[] args)
    {
    string filename = args[0];

    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    vtkStringArray array = vtkStringArray.New();
    array.InsertNextValue(filename);

    reader.SetFileNames(array);
    reader.Update();

    //System.Console.Write(reader.GetOutput());

    vtkRenderWindowInteractor iren = vtkRenderWindowInteractor.New();

    vtkImageViewer viewer = vtkImageViewer.New();
    viewer.SetInput(reader.GetOutput());
    viewer.SetupInteractor(iren);
    viewer.SetSize(600, 600);
    viewer.Render();

    iren.Initialize();
```

```
    iren.Start();

    return 0;
    }
}
```

14.143 HelloActiviz5.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

// The command line arguments are:
// -I         => run in interactive mode; unless this is used, the program will
//               not allow interaction and exit
// -D <path> => path to the data; the data should be in <path>/Data/

/*
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/HelloActiviz5.exe -I
 */
public class HelloActiviz5
{
  public static int Main(string[] args)
    {
    vtkTesting testHelper = vtkTesting.New();
    for ( int cc = 0; cc < args.Length; cc++ )
      {
      //testHelper.AddArguments(argc,const_cast<const char **>(argv));
      //System.Console.Write( "args: " + args[cc] + "\n" );
      testHelper.AddArgument( args[cc] );
      }
    if ( testHelper.IsFlagSpecified("-D") != 0 )
      {
      string VTK_DATA_ROOT = vtkGDCMTesting.GetVTKDataRoot();
      if( VTK_DATA_ROOT != null )
        {
        //System.Console.Write( "VTK_DATA_ROOT: " + VTK_DATA_ROOT  + "\n" );
        testHelper.SetDataRoot(VTK_DATA_ROOT);
        testHelper.AddArgument("-D");
        testHelper.AddArgument(VTK_DATA_ROOT);
        }
      }

    string dataRoot = testHelper.GetDataRoot();
    string filename = dataRoot;
    filename += "/Data/mr.001";

    vtkDirectory dir = vtkDirectory.New();
    if( dir.FileIsDirectory( dataRoot ) == 0 )
      {
      filename = vtkGDCMTesting.GetGDCMDataRoot() + "/test.acr";
      }
    //System.Console.Write( "dataRoot: " + dataRoot + "\n" );
    System.Console.Write( "filename being used is: " + filename + "\n" );

    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    vtkStringArray array = vtkStringArray.New();
    array.InsertNextValue(filename);
    reader.SetFileNames(array);
```

```
    reader.Update();

    System.Console.Write(reader.GetOutput());

    vtkRenderWindowInteractor iren = vtkRenderWindowInteractor.New();

    vtkRenderer ren1 = vtkRenderer.New();
    vtkRenderWindow renWin = vtkRenderWindow.New();
    renWin.AddRenderer(ren1);

    vtkImageActor actor = vtkImageActor.New();

    vtkImageMapToWindowLevelColors coronalColors = vtkImageMapToWindowLevelColors.New();
    coronalColors.SetInput(reader.GetOutput());

    actor.SetInput(coronalColors.GetOutput());

    ren1.AddActor(actor);
    iren.SetRenderWindow(renWin);

    iren.Initialize();

    renWin.Render();

    int retVal = testHelper.IsInteractiveModeSpecified();

    if( retVal != 0 )
      {
      iren.Start();
      }

    return 0;
    }
}
```

14.144 HelloVTKWorld.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using vtkgdcm;

/*
 * This test only test the SWIG/VTK part, you do not need Activiz
 */
public class HelloVTKWorld
{
  public static int Main(string[] args)
    {
    string filename = args[0];
    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    reader.SetFileName( filename );
    reader.Update();

    vtkMedicalImageProperties prop = reader.GetMedicalImageProperties();
    System.Console.WriteLine( prop.GetPatientName() ); //

    if( reader.GetImageFormat() == vtkgdcm.vtkgdcm.VTK_LUMINANCE ) // MONOCHROME2
      {
      System.Console.WriteLine( "Image is MONOCHROME2" ); //
      }

    // Just for fun, invert the direction cosines, output should reflect that:
    vtkMatrix4x4 dircos = reader.GetDirectionCosines();
    dircos.Invert();

    string outfilename = args[1];
```

```
    vtkGDCMImageWriter writer = vtkGDCMImageWriter.New();
    writer.SetMedicalImageProperties( reader.GetMedicalImageProperties() );
    writer.SetDirectionCosines( dircos );
    writer.SetShift( reader.GetShift() );
    writer.SetScale( reader.GetScale() );
    writer.SetImageFormat( reader.GetImageFormat() );
    writer.SetFileName( outfilename );
    writer.SetInputConnection( reader.GetOutputPort() );
    writer.Write();

    return 0;
    }
}
```

14.145 HelloVTKWorld2.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using vtkgdcm;

/*
 * This test only test the SWIG/VTK part, you do not need Activiz
 */
public class HelloVTKWorld2
{
  public static int Main(string[] args)
    {
    string VTK_DATA_ROOT = vtkGDCMTesting.GetVTKDataRoot();

    vtkVolume16Reader reader = vtkVolume16Reader.New();
    reader.SetDataDimensions(64, 64);
    reader.SetDataByteOrderToLittleEndian();
    reader.SetFilePrefix(VTK_DATA_ROOT + "/Data/headsq/quarter");
    reader.SetImageRange(1, 93);
    reader.SetDataSpacing(3.2, 3.2, 1.5);

    vtkImageCast cast = vtkImageCast.New();
    cast.SetInputConnection( reader.GetOutputPort() );
    cast.SetOutputScalarTypeToUnsignedChar();

    // By default this is creating a Multiframe Grayscale Word Secondary Capture Image Storage
    vtkGDCMImageWriter writer = vtkGDCMImageWriter.New();
    writer.SetFileName( "headsq.dcm" );
    writer.SetInputConnection( reader.GetOutputPort() );
    // cast -> Multiframe Grayscale Byte Secondary Capture Image Storage
    // writer.SetInputConnection( cast.GetOutputPort() );
    writer.SetFileDimensionality( 3 );
    writer.Write();

    return 0;
    }
}
```

14.146 MetaImageMD5Activiz.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
```

```
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;
using gdcm;

/*
 * $ export MONO_PATH=/usr/lib/cli/ActiViz.NET/:/usr/lib/cli/Kitware.mummy.Runtime-1.0
 * $ mono ./bin/MetaImageMD5Activiz.exe gdcmData/012345.002.050.dcm
 */
public class MetaImageMD5Activiz
{
  public static int ProcessOneMHDMD5(string filename)
    {
    vtkGDCMImageReader reader = vtkGDCMImageReader.New();
    reader.FileLowerLeftOn();
    reader.DebugOff();
    int canread = reader.CanReadFile( filename );
    if( canread == 0 )
      {
      string refms = gdcm.Testing.GetMediaStorageFromFile(filename);
      if( gdcm.MediaStorage.IsImage( gdcm.MediaStorage.GetMSType(refms) ) )
        {
        System.Console.Write( "Problem with file: " + filename + "\n" );
        return 1;
        }
      // not an image
      return 0;
      }

    reader.SetFileName( filename );
    reader.Update();

    // System.Console.Write(reader.GetOutput());

    vtkMetaImageWriter writer = vtkMetaImageWriter.New();
    writer.SetCompression( false );
    writer.SetInput( reader.GetOutput() );
    string subdir = "MetaImageMD5Activiz";
    string tmpdir = gdcm.Testing.GetTempDirectory( subdir );
    if( !gdcm.PosixEmulation.FileIsDirectory( tmpdir ) )
      {
      gdcm.PosixEmulation.MakeDirectory( tmpdir );
      }
    string mhdfile = gdcm.Testing.GetTempFilename( filename, subdir );

    string rawfile = mhdfile;
    mhdfile += ".mhd";
    rawfile += ".raw";
    writer.SetFileName( mhdfile );
    writer.Write();

    string digestmhd = gdcm.Testing.ComputeFileMD5( mhdfile );
    string digestraw = gdcm.Testing.ComputeFileMD5( rawfile );

    string mhdref = vtkGDCMTesting.GetMHDMD5FromFile(filename);
    string rawref = vtkGDCMTesting.GetRAWMD5FromFile(filename);

    if( mhdref != digestmhd )
      {
      System.Console.Write( "Problem with mhd file: " + filename + "\n" );
      System.Console.Write( digestmhd );
      System.Console.Write( "\n" );
      System.Console.Write( mhdref );
      System.Console.Write( "\n" );
      return 1;
      }
    if( rawref != digestraw )
      {
      System.Console.Write( "Problem with raw file: " + filename + "\n" );
      System.Console.Write( digestraw );
      System.Console.Write( "\n" );
      System.Console.Write( rawref );
      System.Console.Write( "\n" );
      return 1;
```

```
      }

    return 0;
    }
  public static int Main(string[] args)
    {
    if ( args.Length  == 1 )
      {
      string filename = args[0];
      return ProcessOneMHDMD5( filename );
      }
    // Loop over all gdcmData
    gdcm.Trace.DebugOff();
    gdcm.Trace.WarningOff();
    gdcm.Trace.ErrorOff();

    uint n = gdcm.Testing.GetNumberOfFileNames();
    int ret = 0;
    for( uint i = 0; i < n; ++i )
      {
      string filename = gdcm.Testing.GetFileName( i );
      ret += ProcessOneMHDMD5( filename );
      }
    return ret;
    }
}
```

14.147 RefCounting.cs

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
using Kitware.VTK;
using Kitware.VTK.GDCM;

/*
 * this is not so much an example but simply a test to make sure cstor / dstor work as expected
 * and call the ::New and ->Delete() of VTK style.
 */
public class RefCounting
{
  public static int Main(string[] args)
    {
    vtkGDCMTesting testing1 = vtkGDCMTesting.New();
    vtkGDCMTesting testing2 = new vtkGDCMTesting(); // just in case people do not read STYLE documentation

    vtkGDCMImageReader reader1 = vtkGDCMImageReader.New();
    vtkGDCMImageReader reader2 = new vtkGDCMImageReader();

    vtkGDCMImageWriter writer1 = vtkGDCMImageWriter.New();
    vtkGDCMImageWriter writer2 = new vtkGDCMImageWriter();

    using (vtkGDCMTesting testing3 = new vtkGDCMTesting())
      {
      System.Console.Write( "GetReferenceCount: " + testing1.GetReferenceCount() + "\n");
      System.Console.Write( "GetReferenceCount: " + testing2.GetReferenceCount() + "\n");
      System.Console.Write( "GetReferenceCount: " + testing3.GetReferenceCount() + "\n");
      }

    using (vtkGDCMImageReader reader3 = new vtkGDCMImageReader())
      {
      System.Console.Write( "GetReferenceCount: " + reader3.GetReferenceCount() + "\n");
      }

    using (vtkGDCMImageWriter writer3 = vtkGDCMImageWriter.New())
      {
```

```
      System.Console.Write( "GetReferenceCount: " + writer3.GetReferenceCount() + "\n");
      }

    // C# destructor will call ->Delete on all C++ object as expected.
    return 0;
    }
}
```

14.148 Compute3DSpacing.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader2.h"
#include "vtkImageChangeInformation.h"
#include "vtkStringArray.h"
#include "vtkVersion.h"
#include "gdcmIPPSorter.h"

#ifndef vtkFloatingPointType
#define vtkFloatingPointType double
#endif

/*
 * Simple example to check computation of spacing within vtkGDCMImageReader2
 * This is a direct implementation of:
 *
 *
      http://gdcm.sourceforge.net/wiki/index.php/Using_GDCM_API#Automatic_ordering_of_slices_for_vtkGDCMImageReader.SetFileNames
 *
 * For more advanced information on how 3D spacing is being computed see:
 *
 *  - http://gdcm.sourceforge.net/html/classgdcm_1_1IPPSorter.html
 *
 * Usage:
 *
 * $ Compute3DSpacing SIEMENS_MAGNETOM-12-MONO2-FileSeq0.dcm \
 *     SIEMENS_MAGNETOM-12-MONO2-FileSeq1.dcm \
 *     SIEMENS_MAGNETOM-12-MONO2-FileSeq2.dcm \
 *     SIEMENS_MAGNETOM-12-MONO2-FileSeq3.dcm
 */

int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;

  std::vector<std::string> filenames;
  for( int  i = 1; i < argc; ++i )
    {
    filenames.push_back( argv[i] );
    }

  gdcm::IPPSorter s;
  s.SetComputeZSpacing( true );
  s.SetZSpacingTolerance( 1e-3 );
  bool b = s.Sort( filenames );
  if( !b )
    {
    std::cerr « "Failed to sort files" « std::endl;
    return 1;
    }
  std::cout « "Sorting succeeded:" « std::endl;
  //s.Print( std::cout );

  std::cout « "Found z-spacing:" « std::endl;
  std::cout « s.GetZSpacing() « std::endl;
```

```
  const double ippzspacing = s.GetZSpacing();

  const std::vector<std::string> & sorted = s.GetFilenames();
  vtkGDCMImageReader2 * reader = vtkGDCMImageReader2::New();
  vtkStringArray *files = vtkStringArray::New();
  std::vector< std::string >::const_iterator it = sorted.begin();
  for( ; it != sorted.end(); ++it)
    {
    const std::string &f = *it;
    files->InsertNextValue( f.c_str() );
    }
  reader->SetFileNames( files );
  reader->Update();

  const vtkFloatingPointType *spacing = reader->GetOutput()->GetSpacing();
  vtkImageChangeInformation *v16 = vtkImageChangeInformation::New();
#if (VTK_MAJOR_VERSION >= 6)
  v16->SetInputConnection( reader->GetOutputPort() );
#else
  v16->SetInput( reader->GetOutput() );
#endif
  v16->SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
  v16->Update();

  v16->GetOutput()->Print( std::cout );

  return 0;
}
```

14.149 Convert16BitsTo8Bits.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageCast.h"
#include "vtkVersion.h"

#include "gdcmTesting.h"
// The following file is 16/16/15 but the scalar range of the image is [0,192]
// it could be safely stored as 8bits instead:
// gdcmData/012345.002.050.dcm

int main(int, char *[])
{
  const char *directory = gdcm::Testing::GetDataRoot();
  if(!directory) return 1;
  std::string file = std::string(directory) + "/012345.002.050.dcm";
  std::cout << file << std::endl;

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( file.c_str() );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  vtkImageCast *cast = vtkImageCast::New();
#if (VTK_MAJOR_VERSION >= 6)
  cast->SetInputConnection( reader->GetOutputPort() );
#else
  cast->SetInput( reader->GetOutput() );
#endif
  cast->SetOutputScalarTypeToUnsignedChar();


  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
```

```
  writer->SetFileName( "/tmp/cast.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( cast->GetOutputPort() );
#else
  writer->SetInput( cast->GetOutput() );
#endif
  writer->SetImageFormat( reader->GetImageFormat() );
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetDirectionCosines( reader->GetDirectionCosines() );
  writer->SetShift( reader->GetShift() );
  writer->SetScale( reader->GetScale() );
  writer->Write();

  reader->Delete();
  cast->Delete();
  writer->Delete();

  return 0;
}
```

14.150 ConvertMultiFrameToSingleFrame.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkStringArray.h"
#include "vtkVersion.h"

#include "gdcmTesting.h"
#include "gdcmFilenameGenerator.h"

int main(int argc, char *argv[])
{
  std::string filename;
  if( argc <= 1 )
    {
    const char *directory = gdcm::Testing::GetDataRoot();
    if(!directory) return 1;
    std::string file = std::string(directory) + "/US-PAL-8-10x-echo.dcm";
    filename = file;
    }
  else
    {
    filename = argv[1];
    }
  std::cout « "file: " « filename « std::endl;

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( filename.c_str() );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  int dims[3];
  reader->GetOutput()->GetDimensions( dims );

  std::ostringstream os;
  os « "singleframe";
  os « "%04d.dcm";
  gdcm::FilenameGenerator fg;
  fg.SetPattern( os.str().c_str() );
  unsigned int nfiles = dims[2];
  fg.SetNumberOfFilenames( nfiles );
  bool b = fg.Generate();
```

```
  if( !b )
    {
    std::cerr « "FilenameGenerator::Generate() failed" « std::endl;
    return 1;
    }
  if( !fg.GetNumberOfFilenames() )
    {
    std::cerr « "FilenameGenerator::Generate() failed somehow..." « std::endl;
    return 1;
    }

  // By default write them as Secondary Capture (for portability)
  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  vtkStringArray *filenames = vtkStringArray::New();
  for(unsigned int i = 0; i < fg.GetNumberOfFilenames(); ++i)
    {
    filenames->InsertNextValue( fg.GetFilename(i) );
    }
  assert( filenames->GetNumberOfValues() == (int)fg.GetNumberOfFilenames() );
  writer->SetFileNames( filenames );
  filenames->Delete();
  writer->SetFileDimensionality( 2 );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( reader->GetOutputPort() );
#else
  writer->SetInput( reader->GetOutput() );
#endif
  writer->SetImageFormat( reader->GetImageFormat() );
  writer->Write();

  reader->Delete();
  writer->Delete();

  return 0;
}
```

14.151 ConvertRGBToLuminance.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageLuminance.h"
#include "vtkVersion.h"

#include "gdcmTesting.h"

// There is no such thing as MR Image Storage + Photometric Interpretation = RGB
// let's rewrite that into a proper single component image:
int main(int, char *[])
{
  const char *directory = gdcm::Testing::GetDataRoot();
  if(!directory) return 1;
  std::string file = std::string(directory) + "/SIEMENS-MR-RGB-16Bits.dcm";
  std::cout « file « std::endl;

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( file.c_str() );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  vtkImageLuminance *luminance = vtkImageLuminance::New();
#if (VTK_MAJOR_VERSION >= 6)
  luminance->SetInputConnection( reader->GetOutputPort() );
```

```
#else
  luminance->SetInput( reader->GetOutput() );
#endif


  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileName( "/tmp/bla.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( luminance->GetOutputPort() );
#else
  writer->SetInput( luminance->GetOutput() );
#endif
  //writer->SetImageFormat( reader->GetImageFormat() ); // Do NOT pass image format
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetDirectionCosines( reader->GetDirectionCosines() );
  writer->SetShift( reader->GetShift() );
  writer->SetScale( reader->GetScale() );
  writer->Write();

  // TODO:
  //vtkImageAppendComponents.h

  reader->Delete();
  luminance->Delete();
  writer->Delete();

  return 0;
}
```

14.152 ConvertSingleBitTo8Bits.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageCast.h"
#include "vtkPointData.h"
#include "vtkBitArray.h"
#include "vtkUnsignedCharArray.h"
#include "vtkVersion.h"

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    return 1;
    }
  const char *filename = argv[1];
  const char *outfilename = argv[2];

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( filename );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  vtkDataArray* array = reader->GetOutput()->GetPointData()->GetScalars();
  vtkBitArray *barray = vtkBitArray::SafeDownCast( array );
  if( !barray ) return false;
  vtkIdType nvalues = array->GetNumberOfTuples();
  vtkUnsignedCharArray *uarray = vtkUnsignedCharArray::New();
  uarray->SetNumberOfTuples( nvalues );
  for(vtkIdType i = 0; i < nvalues; ++i)
    {
    uarray->SetValue( i, (unsigned char)barray->GetValue(i) );
```

```
    }

  vtkImageData *copy = vtkImageData::New();
  // http://www.vtk.org/Wiki/VTK/VTK_6_Migration/Changes_to_Scalars_Manipulation_Functions#AllocateScalars.28.29
  copy->SetExtent( reader->GetOutput()->GetExtent() );
#if (VTK_MAJOR_VERSION >= 6)
  copy->AllocateScalars(VTK_UNSIGNED_CHAR, 3);
#else
  copy->SetScalarType( VTK_UNSIGNED_CHAR );
  copy->AllocateScalars();
#endif

  //uarray->Print( std::cout );
  //copy->GetPointData()->GetScalars()->Print( std::cout );
  copy->GetPointData()->SetScalars( uarray );
  uarray->Delete();

  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileName( outfilename );
  //writer->SetInput( cast->GetOutput() );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputData( copy );
#else
  writer->SetInput( copy );
#endif
  writer->SetImageFormat( reader->GetImageFormat() );
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetDirectionCosines( reader->GetDirectionCosines() );
  writer->SetShift( reader->GetShift() );
  writer->SetScale( reader->GetScale() );
  writer->SetFileDimensionality( reader->GetFileDimensionality( ) );
  writer->Write();

  reader->Delete();
  copy->Delete();
  writer->Delete();

  return 0;
}
```

14.153 CreateFakePET.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageWriter.h"
#include "vtkImageReader.h"
#include "vtkImageCast.h"
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkDataArray.h"
#include "vtkMedicalImageProperties.h"
#include "vtkStringArray.h"
#include "vtkVersion.h"

#include "gdcmTrace.h"
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"
#include "gdcmFilenameGenerator.h"

/*
 * Minimal example to create a fake RTDOSE file. The data contains a sphere
 * just for testing.
 * The vtkMedicalImageProperties is not properly filled, but only contains a
 * single field which is required to set the proper SOP Class
```

```
 */
int main(int, char *[])
{
  gdcm::Trace::DebugOn();

  const vtkIdType xSize = 512;
  const vtkIdType ySize = 512;
  const vtkIdType zSize = 512;

  // Create the filenames in advance to supply to the vtkGDCMImageWriter
  std::ostringstream os;
  os « "PT";
  os « "%03d.dcm";
  gdcm::FilenameGenerator fg;
  fg.SetPattern( os.str().c_str() );
  unsigned int nfiles = zSize;
  fg.SetNumberOfFilenames( nfiles );
  bool b = fg.Generate();
  if( !b )
    {
    std::cerr « "FilenameGenerator::Generate() failed" « std::endl;
    return 1;
    }
  if( !fg.GetNumberOfFilenames() )
    {
    std::cerr « "FilenameGenerator::Generate() failed somehow..." « std::endl;
    return 1;
    }

  vtkStringArray *filenames = vtkStringArray::New();
  for(unsigned int i = 0; i < fg.GetNumberOfFilenames(); ++i)
    {
    filenames->InsertNextValue( fg.GetFilename(i) );
    }

  vtkImageData *image = vtkImageData::New();
  image->SetDimensions(xSize,ySize,zSize);
  image->SetOrigin(-350.684,350.0,890.76);
  image->SetSpacing(5.4688,-5.4688,-3.27);
#if VTK_MAJOR_VERSION <= 5
  image->SetNumberOfScalarComponents(1);
  image->SetScalarTypeToDouble();
#else
  image->AllocateScalars(VTK_DOUBLE ,1);
#endif

  double pt[3];
  for( int z = 0; z < zSize; ++z )
    for( int y = 0; y < ySize; ++y )
      for( int x = 0; x < xSize; ++x )
        {
        pt[0] = x;
        pt[1] = y;
        pt[2] = z;
        pt[0] -= xSize / 2;
        pt[1] -= ySize / 2;
        pt[2] -= zSize / 2;
        pt[0] /= xSize / 2;
        pt[1] /= ySize / 2;
        pt[2] /= zSize / 2;
        const double unit = pt[0] * pt[0] + pt[1] * pt[1] + pt[2] * pt[2];
        const double inval = unit <= 1. ? (3 * unit + 7) : 0.; // just for fun => max == 10.
        double* pixel= static_cast<double*>(image->GetScalarPointer(x,y,z));
        pixel[0] = inval;
        }


  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileDimensionality( 2 );
  writer->SetFileNames(filenames);
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputData( image );
#else
  writer->SetInput( image );
#endif
  writer->GetMedicalImageProperties()->SetSliceThickness("1.5");
  writer->GetMedicalImageProperties()->SetModality( "PT" );
  writer->SetScale( 0.0042 ); // why not
  writer->Write();

  image->Delete();
```

```
  writer->Delete();

  return 0;
}
```

14.154 CreateFakeRTDOSE.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageWriter.h"
#include "vtkImageReader.h"
#include "vtkImageCast.h"
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkDataArray.h"
#include "vtkMedicalImageProperties.h"
#include "vtkVersion.h"

#include "gdcmTrace.h"
#include "gdcmReader.h"
#include "gdcmWriter.h"
#include "gdcmAttribute.h"

/*
 * Minimal example to create a fake RTDOSE file. The data contains a sphere
 * just for testing.
 * The vtkMedicalImageProperties is not properly filled, but only contains a
 * single field which is required to set the proper SOP Class
 */
int main(int, char *[])
{
  //gdcm::Trace::DebugOn();

  const vtkIdType xSize = 512;
  const vtkIdType ySize = 512;
  const vtkIdType zSize = 512;

  vtkImageData *image = vtkImageData::New();
  image->SetDimensions(xSize,ySize,zSize);
  image->SetOrigin(-350.684,350.0,890.76);
  image->SetSpacing(5.4688,-5.4688,-3.27);
#if VTK_MAJOR_VERSION <= 5
  image->SetNumberOfScalarComponents(1);
  image->SetScalarTypeToDouble();
#else
  image->AllocateScalars(VTK_DOUBLE ,1);
#endif

  double pt[3];
  for( int z = 0; z < zSize; ++z )
    for( int y = 0; y < ySize; ++y )
      for( int x = 0; x < xSize; ++x )
        {
        pt[0] = x;
        pt[1] = y;
        pt[2] = z;
        pt[0] -= xSize / 2;
        pt[1] -= ySize / 2;
        pt[2] -= zSize / 2;
        pt[0] /= xSize / 2;
        pt[1] /= ySize / 2;
        pt[2] /= zSize / 2;
        const double unit = pt[0] * pt[0] + pt[1] * pt[1] + pt[2] * pt[2];
        const double inval = unit <= 1. ? (3 * unit + 7) : 0.; // just for fun => max == 10.
        double* pixel= static_cast<double*>(image->GetScalarPointer(x,y,z));
```

```
        pixel[0] = inval;
        }


  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileDimensionality( 3 );
  writer->SetFileName( "rtdose.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputData( image );
#else
  writer->SetInput( image );
#endif
  writer->GetMedicalImageProperties()->SetSliceThickness("1.5");
  writer->GetMedicalImageProperties()->AddUserDefinedValue( "Dose Units", "GY");
  writer->GetMedicalImageProperties()->AddUserDefinedValue( "Dose Summation Type", "PLAN");
  writer->GetMedicalImageProperties()->AddUserDefinedValue( "Dose Type", "PHYSICAL");
  writer->GetMedicalImageProperties()->AddUserDefinedValue( "Frame of Reference UID",
      "1.3.12.2.1107.5.6.1.68100.30270111041215391275000000001");
  writer->GetMedicalImageProperties()->SetModality( "RTDOSE" );
  //writer->GetMedicalImageProperties()->SetModality( "PT" ); // debug
  writer->SetScale( 0.0042 ); // why not
  writer->Write();

  image->Delete();
  writer->Delete();


  // BEGIN HACK
  // In GDCM version 2.4.3 and before, the following tag was missing which caused issue with some RTDose
      software:

  // Open the DICOM file that was temporarily created. This will allows me to used
  // GDCM to append specific tags that allows the RTDOSE to be associated with the
  // relevant CT images.
  gdcm::Reader reader2;
  reader2.SetFileName("rtdose.dcm" );
  reader2.Read();
  gdcm::File &file = reader2.GetFile();
  gdcm::DataSet &ds = file.GetDataSet();

  // Required by some software and not automagically added by GDCM in old version
  gdcm::Attribute<0x0028,0x0009> framePointer;
  framePointer.SetNumberOfValues(1);
  framePointer.SetValue( gdcm::Tag(0x3004,0x000C) );
  ds.Replace( framePointer.GetAsDataElement() );

  gdcm::Writer writer2;
  writer2.CheckFileMetaInformationOff();
  writer2.SetFileName("rtdose2.dcm");
  writer2.SetFile( file );
  writer2.Write();
  // END HACK

  return 0;
}
```

14.155 GenerateRTSTRUCT.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMPolyDataWriter.h"
#include "vtkGDCMPolyDataReader.h"
#include "vtkPolyData.h"
#include "vtkPolyDataReader.h"
#include "vtkMedicalImageProperties.h"
```

```
#include "vtkRTStructSetProperties.h"
#include "vtkStringArray.h"
#include "vtkAppendPolyData.h"
#include "vtkPolyDataWriter.h"
#include "vtkPolyDataMapper.h"
#include "vtkPolyDataMapper2D.h"
#include "vtkActor2D.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkMedicalImageProperties.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkCamera.h"
#include "vtkProperty.h"
#include "vtkProperty2D.h"
#include "vtkImageData.h"
#include "vtkVersion.h"

#include <algorithm> //for std::find

#include "gdcmDirectoryHelper.h"

using namespace gdcm;

//view each organ independently of the others, to make sure that
//organ names correspond to actual segmentations.
void ShowOrgan(vtkPolyData* inData)
{
  // Now we'll look at it.
  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
#if (VTK_MAJOR_VERSION >= 6)
  cubeMapper->SetInputData( inData );
#else
  cubeMapper->SetInput( inData );
#endif
  cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();

  vtkRenderer *renderer = vtkRenderer::New();
  vtkRenderWindow *renWin = vtkRenderWindow::New();
  renWin->AddRenderer(renderer);

  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renWin);

  renderer->AddActor(cubeActor);
  renderer->ResetCamera();
  renderer->SetBackground(1,1,1);

  renWin->SetSize(300,300);

  renWin->Render();
  iren->Start();

  cubeMapper->Delete();
  cubeActor->Delete();
  renderer->Delete();
  renWin->Delete();
  iren->Delete();
}

/*
 * Full application which ... RTSTUCT
 */
int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " directory-with-rtstruct-and-ct-images\n";
    return 1;
    }
  std::string theDirName(argv[1]);
  Directory::FilenamesType theRTSeries =
    DirectoryHelper::GetRTStructSeriesUIDs(theDirName);

  gdcm::Directory theDir;
  theDir.Load(argv[1]);

  if (theRTSeries.empty())
```

```
    {
    std::cerr « "No RTStructs found for the test, ending." « std::endl;
    return 1;
    }

  for (size_t q = 0; q < theRTSeries.size(); q++)
    {
    Directory::FilenamesType theRTNames =
      DirectoryHelper::GetFilenamesFromSeriesUIDs(theDirName, theRTSeries[q]);

    if (theRTNames.empty()){
      std::cerr « "Unable to load RT Series " « theRTSeries[q] « ", continuing. " « std::endl;
      continue;
    }

    vtkGDCMPolyDataReader * reader = vtkGDCMPolyDataReader::New();
    reader->SetFileName( theRTNames[0].c_str() );
    reader->Update();

    //std::cout « reader->GetMedicalImageProperties()->GetStudyDate() « std::endl;

    vtkGDCMPolyDataWriter * writer = vtkGDCMPolyDataWriter::New();
    int numMasks = reader->GetNumberOfOutputPorts() + 1;//add a blank one in
    writer->SetNumberOfInputPorts( numMasks );
    std::string thePotentialName = theDirName + "/" + "GDCMTestRTStruct." +  theRTSeries[q] + ".dcm";
    gdcm::Directory::FilenamesType theFileNames = theDir.GetFilenames();
    //keep renaming the output until we get something that doesn't overwrite what was there already
    int count = 0;
    while (std::find(theFileNames.begin(), theFileNames.end(), thePotentialName) != theFileNames.end())
      {
        char buff[255];
        snprintf(buff,sizeof(buff),"%d",count);
        thePotentialName = theDirName + "/" + "GDCMTestRTStruct." + buff + "." + theRTSeries[q] + ".dcm";
      }
    writer->SetFileName( thePotentialName.c_str());
    writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
    //this line is cheating, we won't have the same stuff, and may not have a struct
    //to start with.
    //have to go back to the original data to reconstruct the RTStructureSetProperties
    //writer->SetRTStructSetProperties( reader->GetRTStructSetProperties() );
    //writer->Write();

    //loop through the outputs in order to write them out as if they had been created and appended
    vtkStringArray* roiNames = vtkStringArray::New();
    vtkStringArray* roiAlgorithms = vtkStringArray::New();
    vtkStringArray* roiTypes = vtkStringArray::New();
    roiNames->SetNumberOfValues(numMasks);
    roiAlgorithms->SetNumberOfValues(numMasks);
    roiTypes->SetNumberOfValues(numMasks);
    vtkAppendPolyData* append = vtkAppendPolyData::New();

    //ok, now we'll add a blank organ
    //the blank organ is to test to ensure that blank organs work; there have been crash reports
    //this code is added at the beginning to ensure that the blank organs are read
    //and preserved as individual organs.
    vtkPolyData* blank = vtkPolyData::New();
#if (VTK_MAJOR_VERSION >= 6)
    writer->SetInputData(0, blank);
#else
    writer->SetInput(0, blank);
#endif
    roiNames->InsertValue(0, "blank");
    roiAlgorithms->InsertValue(0, "blank");
    roiTypes->InsertValue(0, "ORGAN");

    //note the offsets used to place the blank rtstruct at the beginning of the newly generated RT.
    //the idea is to run the program twice; first to generate an rtstruct with a blank mask (making
    //sure that that functionality works), and then a second time to make sure that everything is
    //being read properly.  Multiple organs with the same name could cause some strangenesses.
    for (int i = 1; i < numMasks; ++i)
      {
#if (VTK_MAJOR_VERSION >= 6)
      writer->SetInputConnection(i, reader->GetOutputPort(i-1));
      append->AddInputConnection(reader->GetOutputPort(i-1));
#else
      writer->SetInput(i, reader->GetOutput(i-1));
      append->AddInput(reader->GetOutput(i-1));
#endif
      std::string theString = reader->GetRTStructSetProperties()->GetStructureSetROIName(i-1);
      roiNames->InsertValue(i, theString);
      theString = reader->GetRTStructSetProperties()->GetStructureSetROIGenerationAlgorithm(i-1);
```

```
      roiAlgorithms->InsertValue(i, theString);
      theString = reader->GetRTStructSetProperties()->GetStructureSetRTROIInterpretedType(i-1);
      roiTypes->InsertValue(i, theString);

      ShowOrgan(reader->GetOutput(i-1));
      }

    vtkRTStructSetProperties* theProperties = vtkRTStructSetProperties::New();
    writer->SetRTStructSetProperties(theProperties);
    writer->InitializeRTStructSet(theDirName,
      reader->GetRTStructSetProperties()->GetStructureSetLabel(),
      reader->GetRTStructSetProperties()->GetStructureSetName(),
      roiNames, roiAlgorithms, roiTypes);

    writer->SetRTStructSetProperties(theProperties);
    writer->Write();

    // print reader output:
    reader->Print( std::cout );
    // print first output:
    reader->GetOutput()->Print( std::cout );

    reader->Delete();
    append->Delete();
    roiNames->Delete();
    roiTypes->Delete();
    theProperties->Delete();
    roiAlgorithms->Delete();
    blank->Delete();

    writer->Delete();
  }
  return 0;
}
```

14.156 MagnifyFile.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkImageData.h"
#include "vtkImageMagnify.h"
#include "vtkImageCast.h"
#include "vtkVersion.h"

#include "gdcmTesting.h"
#include "gdcmSystem.h"

// This is a simple test to magnify an image that is known to give excellent
// compression ratio. This will be our test for those large image
int main(int, char *[])
{
  const char *directory = gdcm::Testing::GetDataRoot();
  if(!directory) return 1;
  std::string file = std::string(directory) + "/test.acr";
  std::cout << file << std::endl;
  if( !gdcm::System::FileExists( file.c_str() ) ) return 1;

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( file.c_str() );
  reader->Update();
  //reader->GetOutput()->Print( std::cout );

  vtkImageCast *cast = vtkImageCast::New();
```

```
#if (VTK_MAJOR_VERSION >= 6)
  cast->SetInputConnection( reader->GetOutputPort() );
#else
  cast->SetInput( reader->GetOutput() );
#endif
  cast->SetOutputScalarTypeToUnsignedShort();

  vtkImageMagnify *magnify = vtkImageMagnify::New();
#if (VTK_MAJOR_VERSION >= 6)
  magnify->SetInputConnection( cast->GetOutputPort() );
#else
  magnify->SetInput( cast->GetOutput() );
#endif
  magnify->SetInterpolate( 1 );
  magnify->SetInterpolate( 0 );
  int factor = 100;
  magnify->SetMagnificationFactors (factor, factor, 1);

  vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
  writer->SetFileName( "/tmp/bla.dcm" );
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( magnify->GetOutputPort() );
#else
  writer->SetInput( magnify->GetOutput() );
#endif
  writer->SetImageFormat( reader->GetImageFormat() );
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetDirectionCosines( reader->GetDirectionCosines() );
  writer->SetShift( reader->GetShift() );
  writer->SetScale( reader->GetScale() );
  writer->Write();

  // TODO:
  //vtkImageAppendComponents.h

  reader->Delete();
  magnify->Delete();
  writer->Delete();

  return 0;
}
```

14.157 gdcmorthoplanes.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/

#include "vtkActor.h"
#include "vtkCamera.h"
#include "vtkMatrix4x4.h"
#include "vtkTransform.h"
#include "vtkAssembly.h"
#include "vtkCellPicker.h"
#include "vtkCommand.h"
#include "vtkImageActor.h"
#include "vtkImageMapToColors.h"
#include "vtkImageOrthoPlanes.h"
#include "vtkImagePlaneWidget.h"
#include "vtkImageReader.h"
#include "vtkInteractorEventRecorder.h"
#include "vtkLookupTable.h"
#include "vtkOutlineFilter.h"
#include "vtkPolyDataMapper.h"
#include "vtkProperty.h"
#include "vtkRenderWindow.h"
```

```
#include "vtkRenderWindowInteractor.h"
#include "vtkRenderer.h"
#include "vtkVolume16Reader.h"
#include "vtkImageData.h"
#include "vtkImageChangeInformation.h"
#include "vtkOrientationMarkerWidget.h"
#include "vtkAnnotatedCubeActor.h"
#include "vtkAxesActor.h"
#include "vtkCaptionActor2D.h"
#include "vtkTextProperty.h"
#include "vtkPropAssembly.h"

#include "vtkGDCMImageReader.h"
#include "vtkGDCMImageWriter.h"
#include "vtkStringArray.h"
#include "vtkVersion.h"

#include "gdcmSystem.h"
#include "gdcmDirectory.h"
#include "gdcmIPPSorter.h"

#ifndef vtkFloatingPointType
#define vtkFloatingPointType double
#endif

//----------------------------------------------------------------------------
class vtkOrthoPlanesCallback : public vtkCommand
{
public:
  static vtkOrthoPlanesCallback *New()
  { return new vtkOrthoPlanesCallback; }

  void Execute( vtkObject *caller, unsigned long vtkNotUsed( event ),
                void *callData )
  {
    vtkImagePlaneWidget* self =
      reinterpret_cast< vtkImagePlaneWidget* >( caller );
    if(!self) return;

    double* wl = static_cast<double*>( callData );

    if ( self == this->WidgetX )
      {
      this->WidgetY->SetWindowLevel(wl[0],wl[1],1);
      this->WidgetZ->SetWindowLevel(wl[0],wl[1],1);
      }
    else if( self == this->WidgetY )
      {
      this->WidgetX->SetWindowLevel(wl[0],wl[1],1);
      this->WidgetZ->SetWindowLevel(wl[0],wl[1],1);
      }
    else if (self == this->WidgetZ)
      {
      this->WidgetX->SetWindowLevel(wl[0],wl[1],1);
      this->WidgetY->SetWindowLevel(wl[0],wl[1],1);
      }
  }

  vtkOrthoPlanesCallback():WidgetX( 0 ), WidgetY( 0 ), WidgetZ ( 0 ) {}

  vtkImagePlaneWidget* WidgetX;
  vtkImagePlaneWidget* WidgetY;
  vtkImagePlaneWidget* WidgetZ;
};

int main( int argc, char *argv[] )
{
  //char* fname = vtkTestUtilities::ExpandDataFileName(argc, argv, "Data/headsq/quarter");

  //vtkVolume16Reader* v16 =  vtkVolume16Reader::New();
  //  v16->SetDataDimensions( 64, 64);
  //  v16->SetDataByteOrderToLittleEndian();
  //  v16->SetImageRange( 1, 93);
  //  v16->SetDataSpacing( 3.2, 3.2, 1.5);
  //  v16->SetFilePrefix( fname );
  //  v16->SetDataMask( 0x7fff);
  //  v16->Update();
  std::vector<std::string> filenames;
  if( argc < 2 )
    {
    std::cerr « argv[0] « " filename1.dcm [filename2.dcm ...]\n";
```

```
  return 1;
  }
else
  {
  // Is it a single directory ? If so loop over all files contained in it:
  const char *filename = argv[1];
  if( argc == 2 && gdcm::System::FileIsDirectory( filename ) )
    {
    std::cout « "Loading directory: " « filename « std::endl;
    bool recursive = false;
    gdcm::Directory d;
    d.Load(filename, recursive);
    gdcm::Directory::FilenamesType const &files = d.GetFilenames();
    for( gdcm::Directory::FilenamesType::const_iterator it = files.begin(); it != files.end(); ++it )
      {
      filenames.push_back( it->c_str() );
      }
    }
  else // list of files passed directly on the cmd line:
     // discard non-existing or directory
    {
    for(int i=1; i < argc; ++i)
      {
      filename = argv[i];
      if( gdcm::System::FileExists( filename ) )
        {
        if( gdcm::System::FileIsDirectory( filename ) )
          {
          std::cerr « "Discarding directory: " « filename « std::endl;
          }
        else
          {
          filenames.push_back( filename );
          }
        }
      else
        {
        std::cerr « "Discarding non existing file: " « filename « std::endl;
        }
      }
    }
  //names->Print( std::cout );
  }

vtkGDCMImageReader * reader = vtkGDCMImageReader::New();
double ippzspacing;
if( filenames.size() > 1 )
  {
  //gdcm::Trace::DebugOn();
  //gdcm::Trace::WarningOn();
  gdcm::IPPSorter s;
  s.SetComputeZSpacing( true );
  s.SetZSpacingTolerance( 1e-3 );
  bool b = s.Sort( filenames );
  if( !b )
    {
    std::cerr « "Failed to sort files" « std::endl;
    return 1;
    }
  std::cout « "Sorting succeeded:" « std::endl;
  s.Print( std::cout );

  std::cout « "Found z-spacing:" « std::endl;
  std::cout « s.GetZSpacing() « std::endl;
  ippzspacing = s.GetZSpacing();

  const std::vector<std::string> & sorted = s.GetFilenames();
  vtkStringArray *files = vtkStringArray::New();
  std::vector< std::string >::const_iterator it = sorted.begin();
  for( ; it != sorted.end(); ++it)
    {
    const std::string &f = *it;
    files->InsertNextValue( f.c_str() );
    }
  reader->SetFileNames( files );
  //reader->SetFileLowerLeft( 1 );
  reader->Update(); // important
  files->Delete();
  }
else
  {
```

```
    reader->SetFileName( argv[1] );
    reader->Update(); // important
    ippzspacing = reader->GetOutput()->GetSpacing()[2];
    ippzspacing = 4;
    }

  //reader->GetOutput()->Print( std::cout );
  //vtkFloatingPointType range[2];
  //reader->GetOutput()->GetScalarRange(range);
  //std::cout « "Range: " « range[0] « " " « range[1] « std::endl;

  const vtkFloatingPointType *spacing = reader->GetOutput()->GetSpacing();

  vtkImageChangeInformation *v16 = vtkImageChangeInformation::New();
#if (VTK_MAJOR_VERSION >= 6)
  v16->SetInputConnection( reader->GetOutputPort() );
#else
  v16->SetInput( reader->GetOutput() );
#endif
  v16->SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
  v16->Update();

#if 0
    vtkGDCMImageWriter *writer = vtkGDCMImageWriter::New();
    writer->SetInput( v16->GetOutput() );
    writer->SetFileLowerLeft( reader->GetFileLowerLeft() );
    writer->SetDirectionCosines( reader->GetDirectionCosines() );
    writer->SetImageFormat( reader->GetImageFormat() );
    writer->SetFileDimensionality( 3); //reader->GetFileDimensionality() );
    writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
    writer->SetShift( reader->GetShift() );
    writer->SetScale( reader->GetScale() );
    writer->SetFileName( "out.dcm" );
    writer->Write();
#endif


  vtkOutlineFilter* outline = vtkOutlineFilter::New();
    outline->SetInputConnection(v16->GetOutputPort());

  vtkPolyDataMapper* outlineMapper = vtkPolyDataMapper::New();
    outlineMapper->SetInputConnection(outline->GetOutputPort());

  vtkActor* outlineActor =  vtkActor::New();
    outlineActor->SetMapper( outlineMapper);

  vtkRenderer* ren1 = vtkRenderer::New();
  vtkRenderer* ren2 = vtkRenderer::New();

  vtkRenderWindow* renWin = vtkRenderWindow::New();
    renWin->AddRenderer(ren2);
    renWin->AddRenderer(ren1);

  vtkRenderWindowInteractor* iren = vtkRenderWindowInteractor::New();
    iren->SetRenderWindow(renWin);

  vtkCellPicker* picker = vtkCellPicker::New();
    picker->SetTolerance(0.005);

  vtkProperty* ipwProp = vtkProperty::New();
   //assign default props to the ipw's texture plane actor

  vtkImagePlaneWidget* planeWidgetX = vtkImagePlaneWidget::New();
    planeWidgetX->SetInteractor( iren);
    planeWidgetX->SetKeyPressActivationValue('x');
    planeWidgetX->SetPicker(picker);
    planeWidgetX->RestrictPlaneToVolumeOn();
    planeWidgetX->GetPlaneProperty()->SetColor(1,0,0);
    planeWidgetX->SetTexturePlaneProperty(ipwProp);
    planeWidgetX->TextureInterpolateOff();
    planeWidgetX->SetResliceInterpolateToNearestNeighbour();
#if (VTK_MAJOR_VERSION >= 6)
    planeWidgetX->SetInputConnection(v16->GetOutputPort());
#else
    planeWidgetX->SetInput(v16->GetOutput());
#endif
    planeWidgetX->SetPlaneOrientationToXAxes();
    //planeWidgetX->SetSliceIndex(32);
    planeWidgetX->DisplayTextOn();
    planeWidgetX->On();
    planeWidgetX->InteractionOff();
```

```
    planeWidgetX->InteractionOn();

  vtkImagePlaneWidget* planeWidgetY = vtkImagePlaneWidget::New();
    planeWidgetY->SetInteractor( iren);
    planeWidgetY->SetKeyPressActivationValue('y');
    planeWidgetY->SetPicker(picker);
    planeWidgetY->GetPlaneProperty()->SetColor(1,1,0);
    planeWidgetY->SetTexturePlaneProperty(ipwProp);
    planeWidgetY->TextureInterpolateOn();
    planeWidgetY->SetResliceInterpolateToLinear();
#if (VTK_MAJOR_VERSION >= 6)
    planeWidgetY->SetInputConnection(v16->GetOutputPort());
#else
    planeWidgetY->SetInput(v16->GetOutput());
#endif
    planeWidgetY->SetPlaneOrientationToYAxes();
    //planeWidgetY->SetSlicePosition(102.4);
    planeWidgetY->SetLookupTable( planeWidgetX->GetLookupTable());
    planeWidgetY->DisplayTextOn();
    planeWidgetY->UpdatePlacement();
    planeWidgetY->On();

  vtkImagePlaneWidget* planeWidgetZ = vtkImagePlaneWidget::New();
    planeWidgetZ->SetInteractor( iren);
    planeWidgetZ->SetKeyPressActivationValue('z');
    planeWidgetZ->SetPicker(picker);
    planeWidgetZ->GetPlaneProperty()->SetColor(0,0,1);
    planeWidgetZ->SetTexturePlaneProperty(ipwProp);
    planeWidgetZ->TextureInterpolateOn();
    planeWidgetZ->SetResliceInterpolateToCubic();
#if (VTK_MAJOR_VERSION >= 6)
    planeWidgetZ->SetInputConnection(v16->GetOutputPort());
#else
    planeWidgetZ->SetInput(v16->GetOutput());
#endif
    planeWidgetZ->SetPlaneOrientationToZAxes();
    //planeWidgetZ->SetSliceIndex(25);
    planeWidgetZ->SetLookupTable( planeWidgetX->GetLookupTable());
    planeWidgetZ->DisplayTextOn();
    planeWidgetZ->On();

  vtkImageOrthoPlanes *orthoPlanes = vtkImageOrthoPlanes::New();
    orthoPlanes->SetPlane(0, planeWidgetX);
    orthoPlanes->SetPlane(1, planeWidgetY);
    orthoPlanes->SetPlane(2, planeWidgetZ);
    orthoPlanes->ResetPlanes();

   vtkOrthoPlanesCallback* cbk = vtkOrthoPlanesCallback::New();
   cbk->WidgetX = planeWidgetX;
   cbk->WidgetY = planeWidgetY;
   cbk->WidgetZ = planeWidgetZ;
   planeWidgetX->AddObserver( vtkCommand::EndWindowLevelEvent, cbk );
   planeWidgetY->AddObserver( vtkCommand::EndWindowLevelEvent, cbk );
   planeWidgetZ->AddObserver( vtkCommand::EndWindowLevelEvent, cbk );
   cbk->Delete();

  double wl[2];
  planeWidgetZ->GetWindowLevel(wl);

  // Add a 2D image to test the GetReslice method
  //
  vtkImageMapToColors* colorMap = vtkImageMapToColors::New();
    colorMap->PassAlphaToOutputOff();
    colorMap->SetActiveComponent(0);
    colorMap->SetOutputFormatToLuminance();
#if (VTK_MAJOR_VERSION >= 6)
    colorMap->SetInputData(planeWidgetZ->GetResliceOutput());
#else
    colorMap->SetInput(planeWidgetZ->GetResliceOutput());
#endif
    colorMap->SetLookupTable(planeWidgetX->GetLookupTable());

  vtkImageActor* imageActor = vtkImageActor::New();
    imageActor->PickableOff();
#if (VTK_MAJOR_VERSION >= 6)
    imageActor->SetInputData(colorMap->GetOutput());
#else
    imageActor->SetInput(colorMap->GetOutput());
#endif

  // Add the actors
```

```
//
ren1->AddActor( outlineActor);
ren2->AddActor( imageActor);

ren1->SetBackground( 0.1, 0.1, 0.2);
ren2->SetBackground( 0.2, 0.1, 0.2);

renWin->SetSize( 600, 350);

ren1->SetViewport(0,0,0.58333,1);
ren2->SetViewport(0.58333,0,1,1);

// Set the actors' positions
//
renWin->Render();
//iren->SetEventPosition( 175,175);
//iren->SetKeyCode('r');
//iren->InvokeEvent(vtkCommand::CharEvent,NULL);
//iren->SetEventPosition( 475,175);
//iren->SetKeyCode('r');
//iren->InvokeEvent(vtkCommand::CharEvent,NULL);
//renWin->Render();

//ren1->GetActiveCamera()->Elevation(110);
//ren1->GetActiveCamera()->SetViewUp(0, 0, -1);
//ren1->GetActiveCamera()->Azimuth(45);
//ren1->GetActiveCamera()->Dolly(1.15);
ren1->ResetCameraClippingRange();

vtkAnnotatedCubeActor* cube = vtkAnnotatedCubeActor::New();
cube->SetXPlusFaceText ( "R" );
cube->SetXMinusFaceText( "L" );
cube->SetYPlusFaceText ( "A" );
cube->SetYMinusFaceText( "P" );
cube->SetZPlusFaceText ( "H" );
cube->SetZMinusFaceText( "F" );
cube->SetFaceTextScale( 0.666667 );

vtkAxesActor* axes2 = vtkAxesActor::New();

vtkMatrix4x4 *invert = vtkMatrix4x4::New();
invert->DeepCopy( reader->GetDirectionCosines() );
invert->Invert();

// simulate a left-handed coordinate system
//
vtkTransform *transform = vtkTransform::New();
transform->Identity();
//transform->RotateY(90);
transform->Concatenate(invert);
axes2->SetShaftTypeToCylinder();
axes2->SetUserTransform( transform );
cube->GetAssembly()->SetUserTransform( transform );

axes2->SetTotalLength( 1.5, 1.5, 1.5 );
axes2->SetCylinderRadius( 0.500 * axes2->GetCylinderRadius() );
axes2->SetConeRadius    ( 1.025 * axes2->GetConeRadius() );
axes2->SetSphereRadius  ( 1.500 * axes2->GetSphereRadius() );

vtkTextProperty* tprop = axes2->GetXAxisCaptionActor2D()->
  GetCaptionTextProperty();
tprop->ItalicOn();
tprop->ShadowOn();
tprop->SetFontFamilyToTimes();

axes2->GetYAxisCaptionActor2D()->GetCaptionTextProperty()->ShallowCopy( tprop );
axes2->GetZAxisCaptionActor2D()->GetCaptionTextProperty()->ShallowCopy( tprop );

vtkPropAssembly* assembly = vtkPropAssembly::New();
assembly->AddPart( axes2 );
assembly->AddPart( cube );

vtkOrientationMarkerWidget* widget = vtkOrientationMarkerWidget::New();
widget->SetOutlineColor( 0.9300, 0.5700, 0.1300 );
widget->SetOrientationMarker( assembly );
widget->SetInteractor( iren );
widget->SetViewport( 0.0, 0.0, 0.4, 0.4 );
widget->SetEnabled( 1 );
widget->InteractiveOff();
```

```
  widget->InteractiveOn();

  // Playback recorded events
  //
  //vtkInteractorEventRecorder *recorder = vtkInteractorEventRecorder::New();
  //recorder->SetInteractor(iren);
  //recorder->ReadFromInputStringOn();
  //recorder->SetInputString(IOPeventLog);

  // Interact with data
  // Render the image
  //
  iren->Initialize();
  renWin->Render();

  // Test SetKeyPressActivationValue for one of the widgets
  //
  //iren->SetKeyCode('z');
  //iren->InvokeEvent(vtkCommand::CharEvent,NULL);
  //iren->SetKeyCode('z');
  //iren->InvokeEvent(vtkCommand::CharEvent,NULL);

  //int retVal = vtkRegressionTestImage( renWin );
  //
  //if ( retVal == vtkRegressionTester::DO_INTERACTOR)
    {
    iren->Start();
    }

  // Clean up
  //
  //recorder->Off();
  //recorder->Delete();

  ipwProp->Delete();
  orthoPlanes->Delete();
  planeWidgetX->Delete();
  planeWidgetY->Delete();
  planeWidgetZ->Delete();
  colorMap->Delete();
  imageActor->Delete();
  picker->Delete();
  outlineActor->Delete();
  outlineMapper->Delete();
  outline->Delete();
  iren->Delete();
  renWin->Delete();
  ren1->Delete();
  ren2->Delete();
  v16->Delete();
  reader->Delete();

  return 0;
}
```

14.158 gdcmreslice.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"

#include "vtkRenderer.h"
#include "vtkAssembly.h"
#include "vtkImageFlip.h"
#include "vtkImageReslice.h"
```

```
#include "vtkRenderWindow.h"
#include "vtkAnnotatedCubeActor.h"
#include "vtkTransform.h"
#include "vtkAxesActor.h"
#include "vtkTextProperty.h"
#include "vtkCaptionActor2D.h"
#include "vtkPropAssembly.h"
#include "vtkOrientationMarkerWidget.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkImageData.h"
#include "vtkLookupTable.h"
#include "vtkTexture.h"
#include "vtkPlaneSource.h"
#include "vtkVersion.h"

int main( int argc, char *argv[] )
{
  if( argc < 2 ) return 1;
  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( argv[1] );
  //reader->FileLowerLeftOn();
  reader->Update();

  vtkImageFlip *flip = vtkImageFlip::New();
#if (VTK_MAJOR_VERSION >= 6)
  flip->SetInputConnection(reader->GetOutputPort());
#else
  flip->SetInput(reader->GetOutput());
#endif
  flip->SetFilteredAxis(0);
  flip->Update();

  vtkImageReslice *reslice = vtkImageReslice::New();
  //reslice->SetInput(reader->GetOutput());
#if (VTK_MAJOR_VERSION >= 6)
  reslice->SetInputConnection(flip->GetOutputPort());
#else
  reslice->SetInput(flip->GetOutput());
#endif
  //reslice->SetResliceAxesDirectionCosines()
  reader->GetDirectionCosines()->Print(std::cout);
  vtkMatrix4x4 *invert = vtkMatrix4x4::New();
  invert->DeepCopy( reader->GetDirectionCosines() );
  invert->Invert();

  //reslice->SetResliceAxes( reader->GetDirectionCosines() );
  reslice->SetResliceAxes( invert );
  reslice->Update();
  vtkImageData* ima = reslice->GetOutput();

  vtkLookupTable* table = vtkLookupTable::New();
  table->SetNumberOfColors(1000);
  table->SetTableRange(0,1000);
  table->SetSaturationRange(0,0);
  table->SetHueRange(0,1);
  table->SetValueRange(0,1);
  table->SetAlphaRange(1,1);
  table->Build();

  // Texture
  vtkTexture* texture = vtkTexture::New();
#if (VTK_MAJOR_VERSION >= 6)
  texture->SetInputData(ima);
#else
  texture->SetInput(ima);
#endif
  texture->InterpolateOn();
  texture->SetLookupTable(table);

  // PlaneSource
  vtkPlaneSource* plane = vtkPlaneSource::New();

  // PolyDataMapper
  vtkPolyDataMapper *planeMapper = vtkPolyDataMapper::New();
#if (VTK_MAJOR_VERSION >= 6)
  planeMapper->SetInputConnection(plane->GetOutputPort());
#else
  planeMapper->SetInput(plane->GetOutput());
```

```
#endif

  // Actor
  vtkActor* planeActor = vtkActor::New();
  planeActor->SetTexture(texture);
  planeActor->SetMapper(planeMapper);
  planeActor->PickableOn();

  // Final rendering with simple interactor:
  vtkRenderer        *ren = vtkRenderer::New();
  vtkRenderWindow *renwin = vtkRenderWindow::New();
  renwin->AddRenderer(ren);
  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renwin);
  ren->AddActor(planeActor);
  ren->SetBackground(0,0,0.5);

  // DICOM is RAH:
  vtkAnnotatedCubeActor* cube = vtkAnnotatedCubeActor::New();
  cube->SetXPlusFaceText ( "R" );
  cube->SetXMinusFaceText( "L" );
  cube->SetYPlusFaceText ( "A" );
  cube->SetYMinusFaceText( "P" );
  cube->SetZPlusFaceText ( "H" );
  cube->SetZMinusFaceText( "F" );

  vtkAxesActor* axes2 = vtkAxesActor::New();

  vtkTransform *transform = vtkTransform::New();
  transform->Identity();
  //reader->GetDirectionCosines()->Print(std::cout);
  transform->Concatenate(invert);
  //axes2->SetShaftTypeToCylinder();
  axes2->SetUserTransform( transform );
  cube->GetAssembly()->SetUserTransform( transform ); // can't get it to work

  vtkPropAssembly* assembly = vtkPropAssembly::New();
  assembly->AddPart( axes2 );
  assembly->AddPart( cube );

  vtkOrientationMarkerWidget* widget = vtkOrientationMarkerWidget::New();
  widget->SetOrientationMarker( assembly );
  widget->SetInteractor( iren );
  widget->SetEnabled( 1 );
  widget->InteractiveOff();
  widget->InteractiveOn();

  renwin->Render();
  iren->Start();

  // Clean up:
  reader->Delete();
  table->Delete();
  texture->Delete();
  plane->Delete();
  planeMapper->Delete();
  planeActor->Delete();
  ren->Delete();
  renwin->Delete();
  iren->Delete();

  return 0;
}
```

14.159 gdcmrtionplan.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

```
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkPolyData.h"
#include "vtkProperty.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkRenderer.h"
#include "vtkCellArray.h"
#include "vtkPoints.h"
#include "vtkDoubleArray.h"
#include <vtkXMLImageDataWriter.h>
#include <vtkXMLPolyDataWriter.h>
#include <vtkRenderWindowInteractor.h>
#include <vtkImageColorViewer.h>
#include "vtkVersion.h"

#include "gdcmReader.h"
#include "gdcmAttribute.h"

/*
 This example is just for fun. We found a RT Ion Plan Storage and simply extracted the viz stuff for VTK

    RTIonPlanStorage, // 1.2.840.10008.5.1.4.1.1.481.8
*/
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " filename.dcm outfile.vti\n";
    return 1;
    }
  const char * filename = argv[1];
  const char * outfilename = argv[2];
  const char * outfilename2 = argv[3];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::MediaStorage ms;
  ms.SetFromFile( reader.GetFile() );
  if( ms != gdcm::MediaStorage::RTIonPlanStorage )
    {
    return 1;
    }

/*
(300a,03a2) SQ                                          # u/l,1 Ion Beam Sequence
  (fffe,e000) na (Item with undefined length)
    (0008,1040) LO [Test]                               # 4,1 Institutional Department Name
    (300a,00b2) SH (no value)                           # 0,1 Treatment Machine Name
    (300a,00b3) CS [MU]                                 # 2,1 Primary Dosimeter Unit
    (300a,00c0) IS [1 ]                                 # 2,1 Beam Number
    (300a,00c2) LO [1 ]                                 # 2,1 Beam Name
    (300a,00c4) CS [STATIC]                             # 6,1 Beam Type
    (300a,00c6) CS [PROTON]                             # 6,1 Radiation Type
    (300a,00ce) CS [TREATMENT ]                         # 10,1 Treatment Delivery Type
    (300a,00d0) IS [0 ]                                 # 2,1 Number of Wedges
    (300a,00e0) IS [1 ]                                 # 2,1 Number of Compensators
    (300a,00ed) IS [0 ]                                 # 2,1 Number of Boli
    (300a,00f0) IS [1 ]                                 # 2,1 Number of Blocks
    (300a,0110) IS [2 ]                                 # 2,1 Number of Control Points
    (300a,02ea) SQ                                      # u/l,1 Ion Range Compensator Sequence
      (fffe,e000) na (Item with undefined length)
        (300a,00e1) SH [lucite]                         # 6,1 Material ID
        (300a,00e4) IS [1 ]                             # 2,1 Compensator Number
        (300a,00e5) SH [75hdhe5 ]                       # 8,1 Compensator ID
        (300a,00e7) IS [35]                             # 2,1 Compensator Rows
        (300a,00e8) IS [37]                             # 2,1 Compensator Columns
        (300a,00e9) DS [3.679991\4.249288 ]             # 18,2 Compensator Pixel Spacing
        (300a,00ea) DS [-76.00\62.50]                   # 12,2 Compensator Position
        (300a,00ec) DS
      [52.13\52.13\52.13\53.18\54.04\54.04\47.11\40.06\40.06\38.79\34.87\33.28\33.28\33.28\33.28\35.43\35.43\34.54\34.54\34.71\36.
      # 7618,1-n Compensator Thickness Data
        (300a,02e0) CS [ABSENT]                         # 6,1 Compensator Divergence
```

```
        (300a,02e1) CS [SOURCE_SIDE ]                                # 12,1 Compensator Mounting Position
        (300a,02e4) FL 39.2                                          # 4,1 Isocenter to Compensator Tray Distance
        (300a,02e5) FL 2.12                                          # 4,1 Compensator Column Offset
        (300a,02e8) FL 4.76                                          # 4,1 Compensator Milling Tool Diameter
      (fffe,e00d)
*/
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();
  gdcm::Tag tbeamsq(0x300a,0x03a2);
  if( !ds.FindDataElement( tbeamsq ) )
    {
    return 1;
    }
  const gdcm::DataElement &beamsq = ds.GetDataElement( tbeamsq );
  //std::cout « beamsq « std::endl;
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = beamsq.GetValueAsSQ();
  if( !sqi || !sqi->GetNumberOfItems() )
    {
    return 1;
    }

  //for(unsigned int pd = 0; pd < sqi->GetNumberOfItems(); ++pd)
  //  {
    //const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
    const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds = item.GetNestedDataSet();
    //std::cout « nestedds « std::endl;
    gdcm::Tag tcompensatorsq(0x300a,0x02ea);
    if( !nestedds.FindDataElement( tcompensatorsq ) )
      {
      return 1;
      }
    const gdcm::DataElement &compensatorsq = nestedds.GetDataElement( tcompensatorsq );
    //std::cout « compensatorsq « std::endl;
    gdcm::SmartPointer<gdcm::SequenceOfItems> ssqi = compensatorsq.GetValueAsSQ();
    const gdcm::Item & item2 = ssqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds2 = item2.GetNestedDataSet();
    //std::cout « nestedds2 « std::endl;
    gdcm::Tag tcompensatorthicknessdata(0x300a,0x00ec);
    if( !nestedds2.FindDataElement( tcompensatorthicknessdata ) )
      {
      return 1;
      }
    const gdcm::DataElement &compensatorthicknessdata = nestedds2.GetDataElement( tcompensatorthicknessdata );
    //  std::cout « compensatorthicknessdata « std::endl;
    gdcm::Attribute<0x300a,0x00ec> at;
    at.SetFromDataElement( compensatorthicknessdata );
    const double* pts = at.GetValues();
    //        (300a,00e7) IS [35]                                    # 2,1 Compensator Rows
    gdcm::Attribute<0x300a,0x00e7> at1;
    const gdcm::DataElement &compensatorrows = nestedds2.GetDataElement( at1.GetTag() );
    at1.SetFromDataElement( compensatorrows );
    std::cout « at1.GetValue() « std::endl;
    //        (300a,00e8) IS [37]                                    # 2,1 Compensator Columns
    gdcm::Attribute<0x300a,0x00e8> at2;
    const gdcm::DataElement &compensatorcols = nestedds2.GetDataElement( at2.GetTag() );
    at2.SetFromDataElement( compensatorcols );
    std::cout « at2.GetValue() « std::endl;

        // (300a,00e9) DS [3.679991\4.249288 ]                      # 18,2 Compensator Pixel Spacing
    gdcm::Attribute<0x300a,0x00e9> at3;
    const gdcm::DataElement &compensatorpixelspacing = nestedds2.GetDataElement( at3.GetTag() );
    at3.SetFromDataElement( compensatorpixelspacing );
    std::cout « at3.GetValue(0) « std::endl;
        // (300a,00ea) DS [-76.00\62.50]                            # 12,2 Compensator Position
    gdcm::Attribute<0x300a,0x00ea> at4;
    const gdcm::DataElement &compensatorposition = nestedds2.GetDataElement( at4.GetTag() );
    at4.SetFromDataElement( compensatorposition );
    std::cout « at4.GetValue(0) « std::endl;

    vtkDoubleArray *d = vtkDoubleArray::New();
    d->SetArray( const_cast<double*>(pts) , at1.GetValue() * at2.GetValue() , 0 );

    vtkImageData *img = vtkImageData::New();
    img->Initialize();
    img->SetDimensions( at2.GetValue(), at1.GetValue(), 1 );
    //imgb->SetExtent(1, xdim, 1, ydim, 1, zdim);
#if (VTK_MAJOR_VERSION >= 6)
    assert(0);
#else
    img->SetScalarTypeToDouble();
#endif
```

```
    img->SetSpacing( at3.GetValue(1), at3.GetValue(0), 1); // FIXME image is upside down
    img->SetOrigin( at4.GetValue(0), at4.GetValue(1), 1);
#if (VTK_MAJOR_VERSION >= 6)
    assert(0);
#else
    img->SetNumberOfScalarComponents(1);
#endif
    img->GetPointData()->SetScalars(d);

#if (VTK_MAJOR_VERSION >= 6)
#else
    img->Update();
#endif
    img->Print(std::cout);

    vtkXMLImageDataWriter *writeb= vtkXMLImageDataWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
    writeb->SetInputData( img );
#else
    writeb->SetInput( img );
#endif
    writeb->SetFileName( outfilename );
    writeb->Write( );
/*
    (300a,03a6) SQ                                          # u/l,1 Ion Block Sequence
      (fffe,e000) na (Item with undefined length)
        (300a,00e1) SH [brass ]                             # 6,1 Material ID
        (300a,00f7) FL 95.03                                # 4,1 Isocenter to Block Tray Distance
        (300a,00f8) CS [APERTURE]                           # 8,1 Block Type
        (300a,00fa) CS [ABSENT]                             # 6,1 Block Divergence
        (300a,00fb) CS [SOURCE_SIDE ]                       # 12,1 Block Mounting Position
        (300a,00fc) IS [1 ]                                 # 2,1 Block Number
        (300a,0100) DS [50.00 ]                             # 6,1 Block Thickness
        (300a,0104) IS [179 ]                               # 4,1 Block Number of Points
        (300a,0106) DS
      [1.7\50.0\14.3\50.0\16.7\49.4\18.7\48.2\19.4\47.7\20.1\47.1\21.0\47.0\22.3\47.0\23.7\46.8\25.7\46.2\27.0\45.6\27.2\45.4\28.2
2\37.4\43.0\37.1\44.7\36] # 1934,2-2n Block Data
      (fffe,e00d)
    (fffe,e0dd)

*/
    gdcm::Tag tblocksq(0x300a,0x03a6);
    if( !nestedds.FindDataElement( tblocksq ) )
      {
      return 1;
      }
    const gdcm::DataElement &blocksq = nestedds.GetDataElement( tblocksq );
    //std::cout « blocksq « std::endl;
    gdcm::SmartPointer<gdcm::SequenceOfItems> sssqi = blocksq.GetValueAsSQ();
    const gdcm::Item & item3 = sssqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds3 = item3.GetNestedDataSet();

    gdcm::Tag tblockdata(0x300a,0x0106);
    if( !nestedds3.FindDataElement( tblockdata ) )
      {
      return 1;
      }
    const gdcm::DataElement &blockdata = nestedds3.GetDataElement( tblockdata );
    //  std::cout « blockdata « std::endl;
    gdcm::Attribute<0x300a,0x0106> at_;
    at_.SetFromDataElement( blockdata );

    vtkDoubleArray *scalars = vtkDoubleArray::New();
    scalars->SetNumberOfComponents(3);

    gdcm::Attribute<0x300a,0x0104> bnpts; //  IS [179 ]                                    # 4,1 Block Number
      of Points
    if( !nestedds3.FindDataElement( bnpts.GetTag() ) )
      {
      return 1;
      }
    const gdcm::DataElement &blocknpts = nestedds3.GetDataElement( bnpts.GetTag() );
    bnpts.SetFromDataElement(  blocknpts );
    //std::cout « bnpts.GetValue() « std::endl;

    vtkPolyData *output = vtkPolyData::New();
    vtkPoints *newPts = vtkPoints::New();
    vtkCellArray *polys = vtkCellArray::New();
    const double *ptr = at_.GetValues();
    //unsigned int npts = bnpts.GetNumberOfValues() / 2;
    unsigned int npts = bnpts.GetValue();
```

```
    vtkIdType *ptIds =  new vtkIdType[npts];
    for(unsigned int i = 0; i < npts; ++i)
      {
      float x[3] = {};
      x[0] = (float)ptr[2*i+0];
      x[1] = (float)ptr[2*i+1];
      //x[2] = pts[i+2];
      vtkIdType ptId = newPts->InsertNextPoint( x );
      //std::cout << x[0] << "," << x[1] << "," << x[2] << std::endl;
      ptIds[i ] = ptId;
      }
    vtkIdType cellId = polys->InsertNextCell(npts , ptIds);
    (void)cellId;
    delete[] ptIds;

    output->SetPoints(newPts);
    newPts->Delete();
    output->SetPolys(polys);
    polys->Delete();
    //output->GetCellData()->SetScalars(scalars);
    //scalars->Delete();
#if (VTK_MAJOR_VERSION >= 6)
#else
    output->Update();
#endif
    output->Print( std::cout );



  //  }

   vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();

   vtkImageColorViewer *viewer = vtkImageColorViewer::New();
#if (VTK_MAJOR_VERSION >= 6)
   viewer->SetInputData(img);
#else
   viewer->SetInput(img);
#endif
   viewer->SetupInteractor(iren);
   viewer->SetSize(600, 600);
   viewer->GetRenderer()->ResetCameraClippingRange();
   viewer->Render();
   viewer->GetRenderer()->ResetCameraClippingRange();

  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
  //vtkPolyDataMapper2D* cubeMapper = vtkPolyDataMapper2D::New();
#if (VTK_MAJOR_VERSION >= 6)
      cubeMapper->SetInputData( output );
#else
      cubeMapper->SetInput( output );
#endif
      cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  //vtkActor2D* cubeActor = vtkActor2D::New();
      cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();

viewer->GetRenderer()->AddActor( cubeActor );

    vtkXMLPolyDataWriter *writec= vtkXMLPolyDataWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
    writec->SetInputData( output );
#else
    writec->SetInput( output );
#endif
    writec->SetFileName( outfilename2 );
    writec->Write( );

   iren->Initialize();
   iren->Start();


  return 0;
}
```

14.160 gdcmrtplan.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkImageData.h"
#include "vtkPointData.h"
#include "vtkPolyData.h"
#include "vtkProperty.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkRenderer.h"
#include "vtkCellArray.h"
#include "vtkPoints.h"
#include "vtkDoubleArray.h"
#include <vtkXMLImageDataWriter.h>
#include <vtkRenderWindowInteractor.h>
#include <vtkImageColorViewer.h>
#include "vtkVersion.h"

#include "gdcmReader.h"
#include "gdcmAttribute.h"

/*
 This example is just for fun. We found a fake RT Ion Plan Storage and simply extracted the viz stuff for VTK
 but this is rather a RT Plan storage
*/
int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " filename.dcm outfile.vti\n";
    return 1;
    }
  const char * filename = argv[1];
  const char * outfilename = argv[2];

  gdcm::Reader reader;
  reader.SetFileName( filename );
  if( !reader.Read() )
    {
    return 1;
    }

  gdcm::MediaStorage ms;
  ms.SetFromFile( reader.GetFile() );
  if( ms != gdcm::MediaStorage::RTIonPlanStorage )
    {
    return 1;
    }

/*
(300a,00b0) SQ                                                  # u/l,1 Beam Sequence
  (fffe,e000) na (Item with undefined length)
    (300a,00b2) SH (no value)                                   # 0,1 Treatment Machine Name
    (300a,00c0) IS [1 ]                                         # 2,1 Beam Number
    (300a,00c2) LO [1 ]                                         # 2,1 Beam Name
    (300a,00c4) CS [STATIC]                                     # 6,1 Beam Type
    (300a,00c6) CS [PROTON]                                     # 6,1 Radiation Type
    (300a,00ce) CS [TREATMENT ]                                 # 10,1 Treatment Delivery Type
    (300a,00e0) IS [1 ]                                         # 2,1 Number of Compensators
    (300a,00e3) SQ                                              # u/l,1 Compensator Sequence
      (fffe,e000) na (Item with undefined length)
        (300a,00e1) SH [lucite]                                 # 6,1 Material ID
        (300a,00e4) IS [1 ]                                     # 2,1 Compensator Number
        (300a,00e5) SH [75hdhe5 ]                               # 8,1 Compensator ID
        (300a,00e7) IS [35]                                     # 2,1 Compensator Rows
        (300a,00e8) IS [37]                                     # 2,1 Compensator Columns
        (300a,00e9) DS [3.679991\4.249288 ]                     # 18,2 Compensator Pixel Spacing
        (300a,00ea) DS [-76.00\62.50]                           # 12,2 Compensator Position
```

```
        (300a,00ec) DS
      [52.13\52.13\52.13\53.18\54.04\54.04\47.11\40.06\40.06\38.79\34.87\33.28\33.28\33.28\33.28\35.43\35.43\34.54\34.54\34.71\36.
      # 7618,1-n Compensator Thickness Data
        (300a,02e0) CS [ABSENT]                                 # 6,1 Compensator Divergence
        (300a,02e1) CS [SOURCE_SIDE ]                           # 12,1 Compensator Mounting Position
      (fffe,e00d)
      (fffe,e000) na (Item with undefined length)
      (fffe,e00d)
    (fffe,e0dd)
*/
  const gdcm::DataSet& ds = reader.GetFile().GetDataSet();
  gdcm::Tag tbeamsq(0x300a,0x00b0);
  if( !ds.FindDataElement( tbeamsq ) )
    {
    return 1;
    }
  const gdcm::DataElement &beamsq = ds.GetDataElement( tbeamsq );
  //std::cout « beamsq « std::endl;
  gdcm::SmartPointer<gdcm::SequenceOfItems> sqi = beamsq.GetValueAsSQ();
  if( !sqi || !sqi->GetNumberOfItems() )
    {
    return 1;
    }

  //for(unsigned int pd = 0; pd < sqi->GetNumberOfItems(); ++pd)
  //  {
    //const gdcm::Item & item = sqi->GetItem(1); // Item start at #1
    const gdcm::Item & item = sqi->GetItem(2); // Item start at #1
    const gdcm::DataSet& nestedds = item.GetNestedDataSet();
    //std::cout « nestedds « std::endl;
    gdcm::Tag tcompensatorsq(0x300a,0x00e3);
    if( !nestedds.FindDataElement( tcompensatorsq ) )
      {
      return 1;
      }
    const gdcm::DataElement &compensatorsq = nestedds.GetDataElement( tcompensatorsq );
    //std::cout « compensatorsq « std::endl;
    gdcm::SmartPointer<gdcm::SequenceOfItems> ssqi = compensatorsq.GetValueAsSQ();
    const gdcm::Item & item2 = ssqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds2 = item2.GetNestedDataSet();
    //std::cout « nestedds2 « std::endl;
    gdcm::Tag tcompensatorthicknessdata(0x300a,0x00ec);
    if( !nestedds2.FindDataElement( tcompensatorthicknessdata ) )
      {
      return 1;
      }
    const gdcm::DataElement &compensatorthicknessdata = nestedds2.GetDataElement( tcompensatorthicknessdata );
    //  std::cout « compensatorthicknessdata « std::endl;
    gdcm::Attribute<0x300a,0x00ec> at;
    at.SetFromDataElement( compensatorthicknessdata );
    const double* pts = at.GetValues();
    //        (300a,00e7) IS [35]                                     # 2,1 Compensator Rows
    gdcm::Attribute<0x300a,0x00e7> at1;
    const gdcm::DataElement &compensatorrows = nestedds2.GetDataElement( at1.GetTag() );
    at1.SetFromDataElement( compensatorrows );
    std::cout « at1.GetValue() « std::endl;
    //        (300a,00e8) IS [37]                                     # 2,1 Compensator Columns
    gdcm::Attribute<0x300a,0x00e8> at2;
    const gdcm::DataElement &compensatorcols = nestedds2.GetDataElement( at2.GetTag() );
    at2.SetFromDataElement( compensatorcols );
    std::cout « at2.GetValue() « std::endl;

        // (300a,00e9) DS [3.679991\4.249288 ]                      # 18,2 Compensator Pixel Spacing
    gdcm::Attribute<0x300a,0x00e9> at3;
    const gdcm::DataElement &compensatorpixelspacing = nestedds2.GetDataElement( at3.GetTag() );
    at3.SetFromDataElement( compensatorpixelspacing );
    std::cout « at3.GetValue(0) « std::endl;
        // (300a,00ea) DS [-76.00\62.50]                            # 12,2 Compensator Position
    gdcm::Attribute<0x300a,0x00ea> at4;
    const gdcm::DataElement &compensatorposition = nestedds2.GetDataElement( at4.GetTag() );
    at4.SetFromDataElement( compensatorposition );
    std::cout « at4.GetValue(0) « std::endl;

    vtkDoubleArray *d = vtkDoubleArray::New();
    d->SetArray( const_cast<double*>(pts) , at1.GetValue() * at2.GetValue() , 0 );

    vtkImageData *img = vtkImageData::New();
    img->Initialize();
    img->SetDimensions( at2.GetValue(), at1.GetValue(), 1 );
    //imgb->SetExtent(1, xdim, 1, ydim, 1, zdim);
#if (VTK_MAJOR_VERSION >= 6)
```

```
    assert(0);
#else
    img->SetScalarTypeToDouble();
#endif
    img->SetSpacing( at3.GetValue(1), at3.GetValue(0), 1); // FIXME image is upside down
    img->SetOrigin( at4.GetValue(0), at4.GetValue(1), 1);
#if (VTK_MAJOR_VERSION >= 6)
    assert(0);
#else
    img->SetNumberOfScalarComponents(1);
#endif
    img->GetPointData()->SetScalars(d);

    vtkXMLImageDataWriter *writeb= vtkXMLImageDataWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
    writeb->SetInputData( img );
#else
    writeb->SetInput( img );
#endif
    writeb->SetFileName( outfilename );
    writeb->Write( );
/*
 (300a,00f4) SQ                                          # u/l,1 Block Sequence
      (fffe,e000) na (Item with undefined length)
        (300a,00e1) SH [brass ]                             # 6,1 Material ID
        (300a,00f8) CS [APERTURE]                           # 8,1 Block Type
        (300a,00fa) CS [ABSENT]                             # 6,1 Block Divergence
        (300a,00fb) CS [SOURCE_SIDE ]                       # 12,1 Block Mounting Position
        (300a,00fc) IS [1 ]                                 # 2,1 Block Number
        (300a,0100) DS [50.00 ]                             # 6,1 Block Thickness
        (300a,0104) IS [179 ]                               # 4,1 Block Number of Points
        (300a,0106) DS
      [1.7\50.0\14.3\50.0\16.7\49.4\18.7\48.2\19.4\47.7\20.1\47.1\21.0\47.0\22.3\47.0\23.7\46.8\25.7\46.2\27.0\45.6\27.2\45.4\28.2
      # 1934,2-2n Block Data
      (fffe,e00d)
      (fffe,e000) na (Item with undefined length)
      (fffe,e00d)
    (fffe,e0dd)
*/
    gdcm::Tag tblocksq(0x300a,0x00f4);
    if( !nestedds.FindDataElement( tblocksq ) )
      {
      return 1;
      }
    const gdcm::DataElement &blocksq = nestedds.GetDataElement( tblocksq );
    //std::cout « blocksq « std::endl;
    gdcm::SmartPointer<gdcm::SequenceOfItems> sssqi = blocksq.GetValueAsSQ();
    const gdcm::Item & item3 = sssqi->GetItem(1); // Item start at #1
    const gdcm::DataSet& nestedds3 = item3.GetNestedDataSet();

    gdcm::Tag tblockdata(0x300a,0x0106);
    if( !nestedds3.FindDataElement( tblockdata ) )
      {
      return 1;
      }
    const gdcm::DataElement &blockdata = nestedds3.GetDataElement( tblockdata );
    //  std::cout « blockdata « std::endl;
    gdcm::Attribute<0x300a,0x0106> at_;
    at_.SetFromDataElement( blockdata );

    vtkDoubleArray *scalars = vtkDoubleArray::New();
    scalars->SetNumberOfComponents(3);

    gdcm::Attribute<0x300a,0x0104> bnpts; //  IS [179 ] # 4,1 Block Number of Points
    if( !nestedds3.FindDataElement( bnpts.GetTag() ) )
      {
      return 1;
      }
    const gdcm::DataElement &blocknpts = nestedds3.GetDataElement( bnpts.GetTag() );
    bnpts.SetFromDataElement(  blocknpts );
    std::cout « bnpts.GetValue() « std::endl;

    vtkPolyData *output = vtkPolyData::New();
    vtkPoints *newPts = vtkPoints::New();
    vtkCellArray *polys = vtkCellArray::New();
    const double *ptr = at_.GetValues();
    //unsigned int npts = bnpts.GetNumberOfValues() / 2;
    unsigned int npts = bnpts.GetValue();
    vtkIdType *ptIds =  new vtkIdType[npts];
    for(unsigned int i = 0; i < npts; ++i)
      {
```

```
      float x[3] = {};
      x[0] = (float)ptr[2*i+0];
      x[1] = (float)ptr[2*i+1];
      //x[2] = pts[i+2];
      vtkIdType ptId = newPts->InsertNextPoint( x );
      //std::cout « x[0] « "," « x[1] « "," « x[2] « std::endl;
      ptIds[i ] = ptId;
      }
    vtkIdType cellId = polys->InsertNextCell(npts , ptIds);
    (void)cellId;
    delete[] ptIds;

    output->SetPoints(newPts);
    newPts->Delete();
    output->SetPolys(polys);
    polys->Delete();
    //output->GetCellData()->SetScalars(scalars);
    //scalars->Delete();
#if (VTK_MAJOR_VERSION >= 6)
#else
    output->Update();
#endif
    output->Print( std::cout );



  //  }

   vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();

   vtkImageColorViewer *viewer = vtkImageColorViewer::New();
#if (VTK_MAJOR_VERSION >= 6)
   viewer->SetInputData(img);
#else
   viewer->SetInput(img);
#endif
   viewer->SetupInteractor(iren);
   viewer->SetSize(600, 600);
   viewer->Render();

  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
  //vtkPolyDataMapper2D* cubeMapper = vtkPolyDataMapper2D::New();
#if (VTK_MAJOR_VERSION >= 6)
      cubeMapper->SetInputData( output );
#else
      cubeMapper->SetInput( output );
#endif
      cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  //vtkActor2D* cubeActor = vtkActor2D::New();
      cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();

  viewer->GetRenderer()->AddActor( cubeActor );

   iren->Initialize();
   iren->Start();


  return 0;
}
```

14.161 gdcmscene.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
```

```
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMPolyDataReader.h"
//#include "vtkGDCMPolyDataWriter.h"

#include "vtkAppendPolyData.h"
#include "vtkPolyDataWriter.h"
#include "vtkPolyDataMapper.h"
#include "vtkPolyDataMapper2D.h"
#include "vtkActor2D.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkCamera.h"
#include "vtkProperty.h"
#include "vtkProperty2D.h"
#include "vtkVersion.h"


// gdcmDataExtra/gdcmNonImageData/exRT_Structure_Set_Storage.dcm
// gdcmDataExtra/gdcmNonImageData/RTSTRUCT_1.3.6.1.4.1.22213.1.1396.2.dcm
// gdcmDataExtra/gdcmNonImageData/RT/RTStruct.dcm

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr « argv[0] « " filename1.dcm\n";
    return 1;
    }
  const char * filename = argv[1];

  vtkGDCMPolyDataReader * reader = vtkGDCMPolyDataReader::New();
  reader->SetFileName( filename );
  reader->Update();

//  vtkGDCMPolyDataWriter * writer2 = vtkGDCMPolyDataWriter::New();
//  for(int num = 0; num < reader->GetNumberOfOutputPorts(); ++num )
//    writer2->SetInput( num, reader->GetOutput(num) );
//  writer2->SetFileName( "rtstruct.dcm" );
//  writer2->Write();

  // print reader output:
  reader->Print( std::cout );
  // print first output:
  reader->GetOutput()->Print( std::cout );

  vtkAppendPolyData *append = vtkAppendPolyData::New();
  int n = reader->GetNumberOfOutputPorts();
  for(int i = 0; i < n; ++i)
    {
#if (VTK_MAJOR_VERSION >= 6)
    append->AddInputConnection( reader->GetOutputPort(i) );
#else
    append->AddInput( reader->GetOutput(i) );
#endif
    }

  vtkPolyDataWriter * writer = vtkPolyDataWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputConnection( reader->GetOutputPort() );
#else
  writer->SetInput( reader->GetOutput() );
#endif
  writer->SetFileName( "rtstruct.vtk" );
  //writer->Write();

  // Now we'll look at it.
  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
  //vtkPolyDataMapper2D* cubeMapper = vtkPolyDataMapper2D::New();
      //cubeMapper->SetInput( reader->GetOutput() );
#if (VTK_MAJOR_VERSION >= 6)
      cubeMapper->SetInputConnection( append->GetOutputPort() );
#else
      cubeMapper->SetInput( append->GetOutput() );
#endif
      cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  //vtkActor2D* cubeActor = vtkActor2D::New();
      cubeActor->SetMapper(cubeMapper);
```

```
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();
  //cubeActor->GetProperty()->SetColor(1, 0, 0);


  // The usual rendering stuff.
//  vtkCamera *camera = vtkCamera::New();
//      camera->SetPosition(1,1,1);
//      camera->SetFocalPoint(0,0,0);

  vtkRenderer *renderer = vtkRenderer::New();
  vtkRenderWindow *renWin = vtkRenderWindow::New();
    renWin->AddRenderer(renderer);

  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
    iren->SetRenderWindow(renWin);

  renderer->AddActor(cubeActor);
  //renderer->AddActor2D(cubeActor);
      //renderer->SetActiveCamera(camera);
      renderer->ResetCamera();
      renderer->SetBackground(1,1,1);

  renWin->SetSize(300,300);

  // interact with data
  renWin->Render();
  iren->Start();



  reader->Delete();
  append->Delete();
  cubeMapper->Delete();
  cubeActor->Delete();
//  camera->Delete();
  renderer->Delete();
  renWin->Delete();
  iren->Delete();

  writer->Delete();

  return 0;
}
```

14.162 gdcmtexture.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"

#include "vtkRenderer.h"
#include "vtkAssembly.h"
#include "vtkRenderWindow.h"
#include "vtkAnnotatedCubeActor.h"
#include "vtkTransform.h"
#include "vtkAxesActor.h"
#include "vtkTextProperty.h"
#include "vtkCaptionActor2D.h"
#include "vtkPropAssembly.h"
#include "vtkOrientationMarkerWidget.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkPolyDataMapper.h"
#include "vtkActor.h"
#include "vtkImageData.h"
```

```
#include "vtkLookupTable.h"
#include "vtkTexture.h"
#include "vtkPlaneSource.h"
#include "vtkVersion.h"

int main( int argc, char *argv[] )
{
  if( argc < 2 ) return 1;
  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( argv[1] );

  reader->Update();
  vtkImageData* ima = reader->GetOutput();

  vtkLookupTable* table = vtkLookupTable::New();
  table->SetNumberOfColors(1000);
  table->SetTableRange(0,1000);
  table->SetSaturationRange(0,0);
  table->SetHueRange(0,1);
  table->SetValueRange(0,1);
  table->SetAlphaRange(1,1);
  table->Build();

  // Texture
  vtkTexture* texture = vtkTexture::New();
#if (VTK_MAJOR_VERSION >= 6)
  texture->SetInputData(ima);
#else
  texture->SetInput(ima);
#endif
  texture->InterpolateOn();
  texture->SetLookupTable(table);

  // PlaneSource
  vtkPlaneSource* plane = vtkPlaneSource::New();
  plane->SetOrigin( -0.5, -0.5, 0.0);
  plane->SetPoint1(  0.5, -0.5, 0.0);
  plane->SetPoint2( -0.5,  0.5, 0.0);

  // PolyDataMapper
  vtkPolyDataMapper *planeMapper = vtkPolyDataMapper::New();
#if (VTK_MAJOR_VERSION >= 6)
  planeMapper->SetInputConnection(plane->GetOutputPort());
#else
  planeMapper->SetInput(plane->GetOutput());
#endif

  // Actor
  vtkActor* planeActor = vtkActor::New();
  planeActor->SetTexture(texture);
  planeActor->SetMapper(planeMapper);
  planeActor->PickableOn();

  // Final rendering with simple interactor:
  vtkRenderer        *ren = vtkRenderer::New();
  vtkRenderWindow *renwin = vtkRenderWindow::New();
  renwin->AddRenderer(ren);
  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renwin);
  ren->AddActor(planeActor);
  ren->SetBackground(0,0,0.5);

  vtkAnnotatedCubeActor* cube = vtkAnnotatedCubeActor::New();
  cube->SetXPlusFaceText ( "L" );
  cube->SetXMinusFaceText( "R" );
  cube->SetYPlusFaceText ( "A" );
  cube->SetYMinusFaceText( "P" );
  cube->SetZPlusFaceText ( "H" );
  cube->SetZMinusFaceText( "F" );

  vtkAxesActor* axes2 = vtkAxesActor::New();
  // simulate a left-handed coordinate system
  //
  vtkTransform *transform = vtkTransform::New();
  transform->Identity();
  //transform->RotateY(180);
  reader->GetDirectionCosines()->Print(std::cout);
  transform->Concatenate(reader->GetDirectionCosines());
  //axes2->SetShaftTypeToCylinder();
  axes2->SetUserTransform( transform );
  //cube->SetUserTransform( transform ); // can't get it to work
```

```
  cube->GetAssembly()->SetUserTransform( transform ); // can't get it to work

  vtkPropAssembly* assembly = vtkPropAssembly::New();
  assembly->AddPart( axes2 );
  assembly->AddPart( cube );

  vtkOrientationMarkerWidget* widget = vtkOrientationMarkerWidget::New();
  //widget->SetOutlineColor( 0.9300, 0.5700, 0.1300 );
  widget->SetOrientationMarker( assembly );
  widget->SetInteractor( iren );
  //widget->SetViewport( 0.0, 0.0, 0.4, 0.4 );
  widget->SetEnabled( 1 );
  widget->InteractiveOff();
  widget->InteractiveOn();

  renwin->Render();
  iren->Start();

  // Clean up:
  reader->Delete();
  table->Delete();
  texture->Delete();
  plane->Delete();
  planeMapper->Delete();
  planeActor->Delete();
  ren->Delete();
  renwin->Delete();
  iren->Delete();

  return 0;
}
```

14.163 gdcmvolume.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkVersion.h"
#include "vtkGDCMImageReader.h"
#include "vtkPiecewiseFunction.h"
#include "vtkColorTransferFunction.h"
#include "vtkVolume.h"
#include "vtkVolumeProperty.h"
#if VTK_MAJOR_VERSION < 7
#include "vtkVolumeTextureMapper3D.h"
#endif
#include "vtkFixedPointVolumeRayCastMapper.h"
#include "vtkInteractorStyleTrackballCamera.h"
#include "vtkRenderer.h"
#include "vtkRenderWindow.h"
#include "vtkImageClip.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkVersion.h"


// gdcmvolume gdcmData/GE_DLX-8-MONO2-Multiframe-Jpeg_Lossless.dcm
int main(int argc, char *argv[])
{
  if( argc < 2 ) return 1;
  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( argv[1] );
  reader->Update();

  // Create the renderers, render window, and interactor
  vtkRenderWindow *renWin = vtkRenderWindow::New();
  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
```

```
  iren->SetRenderWindow(renWin);
  vtkRenderer *ren = vtkRenderer::New();
  renWin->AddRenderer(ren);

  // Create a transfer function mapping scalar value to opacity
  vtkPiecewiseFunction *oTFun = vtkPiecewiseFunction::New();
  //oTFun->AddSegment(0, 1.0, 256, 0.1);
  oTFun->AddSegment(0, 1.0, 240, 0.1);

  vtkColorTransferFunction *cTFun = vtkColorTransferFunction::New();
  cTFun->AddRGBPoint(   0, 1.0, 1.0, 1.0 );
  //cTFun->AddRGBPoint( 255, 1.0, 1.0, 1.0 );
  cTFun->AddRGBPoint( 240, 1.0, 1.0, 1.0 );

  // Need to crop to actually see minimum intensity
  vtkImageClip *clip = vtkImageClip::New();
  clip->SetInputConnection( reader->GetOutputPort() );
  clip->SetOutputWholeExtent(0,66,0,66,30,37);
  clip->ClipDataOn();

  vtkVolumeProperty *property = vtkVolumeProperty::New();
  property->SetScalarOpacity(oTFun);
  property->SetColor(cTFun);
  property->SetInterpolationTypeToLinear();

  vtkFixedPointVolumeRayCastMapper *mapper = vtkFixedPointVolumeRayCastMapper::New();
  mapper->SetBlendModeToMinimumIntensity();
  mapper->SetInputConnection( reader->GetOutputPort() );

  vtkVolume *volume = vtkVolume::New();
  volume->SetMapper(mapper);
  volume->SetProperty(property);


  ren->AddViewProp(volume);

  renWin->Render();
    {
    iren->Start();
    }

  volume->Delete();
  mapper->Delete();
  property->Delete();
  clip->Delete();
  cTFun->Delete();
  oTFun->Delete();
  reader->Delete();
  renWin->Delete();
  iren->Delete();
  ren->Delete();


 return 0;
}
```

14.164 offscreenimage.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMImageReader.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkImageMapToWindowLevelColors.h"
#include "vtkImageActor.h"
```

```
#include "vtkPNGWriter.h"
#include "vtkWindowToImageFilter.h"
#include "vtkMedicalImageProperties.h"
#include "vtkVersion.h"

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    return 1;
    }
  const char *filename = argv[1];

  vtkGDCMImageReader *reader = vtkGDCMImageReader::New();
  reader->SetFileName( filename );
  reader->Update(); // important to read the window/level info

  vtkMedicalImageProperties *prop = reader->GetMedicalImageProperties();

  vtkRenderWindow *renWin = vtkRenderWindow::New();
  renWin->OffScreenRenderingOn();

  vtkRenderer *renderer = vtkRenderer::New();
  renWin->AddRenderer(renderer);

  vtkImageMapToWindowLevelColors *windowlevel = vtkImageMapToWindowLevelColors::New();
#if (VTK_MAJOR_VERSION >= 6)
  windowlevel->SetInputConnection( reader->GetOutputPort() );
#else
  windowlevel->SetInput( reader->GetOutput() );
#endif
  unsigned int n = prop->GetNumberOfWindowLevelPresets();
  if( n )
    {
    // Take the first one by default:
    const double *wl = prop->GetNthWindowLevelPreset(0);
    windowlevel->SetWindow( wl[0] );
    windowlevel->SetLevel( wl[1] );
    }

  vtkImageActor *actor = vtkImageActor::New();
#if (VTK_MAJOR_VERSION >= 6)
  actor->SetInputData( windowlevel->GetOutput() );
#else
  actor->SetInput( windowlevel->GetOutput() );
#endif

  renderer->AddActor( actor );

  renWin->Render();

  vtkWindowToImageFilter *w2if = vtkWindowToImageFilter::New();
  w2if->SetInput ( renWin );

  vtkPNGWriter *wr = vtkPNGWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
  wr->SetInputConnection( w2if->GetOutputPort() );
#else
  wr->SetInput( w2if->GetOutput() );
#endif
  wr->SetFileName ( "offscreenimage.png" );
  wr->Write();

  reader->Delete();
  renWin->Delete();
  renderer->Delete();
  windowlevel->Delete();
  actor->Delete();
  w2if->Delete();
  wr->Delete();

  return 0;
}
```

14.165 reslicesphere.cxx

```
/*=========================================================================
```

```
  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
//
// Load a DICOM series.
// Position a sphere within the volume.
// Allow the user to change between Axial, Sagittal, Coronal, and
//     Oblique view of the images and move through the slices.
// The display should show the resliced image and the cross section
// of the sphere intersecting that plane.
//


/*
from  Scott Johnson /Scott Johnson neuwave com/
to  VTK /vtkusers vtk.org/
date  Tue, May 11, 2010 at 7:01 PM
*/
#include <string>

#include <vtkDICOMImageReader.h>
#include <vtkStringArray.h>
#include <vtkDirectory.h>
#include <vtkImageThreshold.h>
#include <vtkImageShiftScale.h>
#include <vtkImageReslice.h>
#include <vtkRenderWindowInteractor.h>
#include <vtkImageViewer2.h>
#include <vtkSphereSource.h>
#include <vtkPolyDataMapper.h>
#include <vtkPlane.h>
#include <vtkCutter.h>
#include <vtkActor.h>
#include <vtkCommand.h>
#include <vtkSmartPointer.h>
#include <vtkMatrix4x4.h>
#include <vtkInteractorObserver.h>
#include <vtkProperty.h>
#include <vtkRenderer.h>
#include <vtkImageData.h>
#include <vtkImageActor.h>
#include "vtkTransformPolyDataFilter.h"
#include <vtkCamera.h>
#include <vtkMath.h>
#include <vtkTransform.h>
#include <vtkTextActor.h>
#include <vtkActor2D.h>
#include <vtkPolyDataMapper2D.h>
#include <vtkProperty2D.h>
#include <vtkGDCMImageReader.h>
#include <vtkImageChangeInformation.h>
#include <vtkVersion.h>

#include "gdcmDirectory.h"
#include "gdcmTesting.h"
#include "gdcmIPPSorter.h"

// Change to match the path to find Raw_0.vti or provide
// the parameter when starting ResliceSphere.

const double sphereCenter[3]={74, 219, 70};

// Angles (0, 0, 0)
const double AxialMatrix[]    = { 1.0,  0.0,  0.0,  0.0,
                                  0.0,  1.0,  0.0,  0.0,
                                  0.0,  0.0,  1.0,  0.0,
                                  0.0,  0.0,  0.0,  1.0 };
// Angles (0, 90, 0)
const double SagittalMatrix[] = { 0.0,  0.0,  1.0,  0.0,
                                  0.0,  1.0,  0.0,  0.0,
                                 -1.0,  0.0,  0.0,  0.0,
                                  0.0,  0.0,  0.0,  1.0 };
```

```
// Angles (-90, 0, 0)
const double CoronalMatrix[]  = { 1.0,  0.0,  0.0,  0.0,
                                  0.0,  0.0,  1.0,  0.0,
                                  0.0, -1.0,  0.0,  0.0,
                                  0.0,  0.0,  0.0,  1.0 };
// Angles (0, 90, 31)
const double ObliqueMatrix[] =  { 0.0, -0.515038, 0.857167, 0.0,
                                  0.0,  0.857167, 0.515038, 0.0,
                                 -1.0,  0.0,      0.0,      0.0,
                                  0.0,  0.0,      0.0,      1.0 };

class ResliceRender;

// Class to handle key press events.
class KeyCallback : public vtkCommand
{
public:
    static KeyCallback* New()
    {
        return new KeyCallback();
    }

    void Execute(vtkObject* caller, unsigned long eventId, void *calldata);
    void SetCallbackData(ResliceRender* reslice);

protected:
    ResliceRender* _reslice;
};

class ResliceRender
{
public:
    typedef enum _ORIENTATION
    {
        AXIAL = 0,
        SAGITTAL = 1,
        CORONAL = 2,
        OBLIQUE = 3
    } ORIENTATION;

    ResliceRender()
    {
        _orientation=AXIAL;
    }

    ~ResliceRender()
    {
        _transform->Delete();
        _reader->Delete();
        _reslice->Delete();
        _interactor->Delete();
        _imageViewer->Delete();

        _sphere->Delete();
        _sphereMapper->Delete();
        _sphereActor->Delete();

        _plane->Delete();
        _cutter->Delete();
        _polyTransform->Delete();
        _ROIMapper->Delete();
        _ROIActor->Delete();

        _annotation->Delete();
    }

    void CreatePipeline(const char* fileName)
    {
        vtkProperty2D* props;

        //_reader=vtkXMLImageDataReader::New();
        //_reader->SetFileName(fileName);
        //_reader->Update();

        //_reader=qzDICOMImageReader::New();
        _reader=vtkGDCMImageReader::New();

      //vtkDirectory *d = vtkDirectory::New();
      //d->Open(fileName);
      //d->Print( std::cout );
      gdcm::Directory d;
```

```
      d.Load(fileName);
      gdcm::Directory::FilenamesType const &files = d.GetFilenames();

  gdcm::IPPSorter s;
  s.SetComputeZSpacing( true );
  s.SetZSpacingTolerance( 1e-3 );
  bool b = s.Sort( files );
  if( !b )
    {
    std::cerr « "Failed to sort:" « fileName « std::endl;
    //return ;
    }
  //std::cout « "Sorting succeeded:" « std::endl;
  //s.Print( std::cout );

  //std::cout « "Found z-spacing:" « std::endl;
  //std::cout « s.GetZSpacing() « std::endl;
  double ippzspacing = s.GetZSpacing();

  const std::vector<std::string> & sorted = s.GetFilenames();
  vtkStringArray *vtkfiles = vtkStringArray::New();
  std::vector< std::string >::const_iterator it = sorted.begin();
  for( ; it != sorted.end(); ++it)
    {
    const std::string &f = *it;
    vtkfiles->InsertNextValue( f.c_str() );
    }

        //_reader->SetDirectoryName(fileName);
        //_reader->SetFileNames( d->GetFiles() );
        _reader->SetFileNames( vtkfiles );
        _reader->Update();

#ifndef vtkFloatingPointType
#define vtkFloatingPointType double
#endif
  const vtkFloatingPointType *spacing = _reader->GetOutput()->GetSpacing();

  vtkImageChangeInformation *v16 = vtkImageChangeInformation::New();
#if (VTK_MAJOR_VERSION >= 6)
  v16->SetInputConnection( _reader->GetOutputPort() );
#else
  v16->SetInput( _reader->GetOutput() );
#endif
  v16->SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
  v16->Update();


        _threshold=vtkImageThreshold::New();
        _threshold->ThresholdByUpper(-3024.0);
        _threshold->ReplaceOutOn();
        _threshold->SetOutValue(0.0);
        _threshold->SetInputConnection(v16->GetOutputPort());

        _shift=vtkImageShiftScale::New();
        _shift->SetShift(0);
        _shift->SetScale(1);
        _shift->SetInputConnection(_threshold->GetOutputPort());

        // Initialize the reslice with an axial orientation.
        vtkSmartPointer<vtkMatrix4x4> matrix =
            vtkSmartPointer<vtkMatrix4x4>::New();
        matrix->Identity();

        _transform = vtkTransform::New();
        _transform->SetMatrix(matrix);

        _reslice = vtkImageReslice::New();
        _reslice->SetOutputDimensionality(3);

        // PROBLEM:
        // The original intent was to connect the same transform
        // to the vtkImageReslice and vtkTransformPolyDataFilter,
        // but the resulting reslices appear different using the
        // vtkTransform as opposed to explicitly setting the
        // reslice axes via SetResliceAxes.  Also, if the vtkTransform
        // is connected and orientated other than axial, the extents
        // don't seem to update resulting in VTK believing the slice
        // is out of range.

        //_reslice->SetResliceTransform(_transform);
```

```
        _reslice->SetResliceAxes(matrix);
        //_reslice->SetInputConnection(_reader->GetOutputPort());
        _reslice->SetInputConnection(_shift->GetOutputPort());

        // Create the sphere target shape.
        _sphere=vtkSphereSource::New();
        _sphere->SetRadius(7.0);
        _sphere->SetThetaResolution(16);
        _sphere->SetPhiResolution(16);
        _sphere->SetCenter(sphereCenter[0], sphereCenter[1], sphereCenter[2]);

        _sphereMapper=vtkPolyDataMapper::New();
        _sphereMapper->SetInputConnection(_sphere->GetOutputPort());

        _sphereActor=vtkActor::New();
        _sphereActor->SetMapper(_sphereMapper);
        _sphereActor->PickableOff();
        _sphereActor->GetProperty()->SetColor(1.0, 0.0, 0.0);
        _sphereActor->GetProperty()->SetEdgeColor(1.0, 0.0, 0.0);
        _sphereActor->GetProperty()->SetDiffuseColor(1.0, 0.0, 0.0);
        _sphereActor->SetVisibility(true);

        // Create the cutting pipeline.
        // This plane will be positioned in the original image coordinate system.
        _plane = vtkPlane::New();
        _plane->SetNormal(0.0, 0.0, 1.0);

        _cutter = vtkCutter::New();
        _cutter->SetInputConnection(_sphere->GetOutputPort());
        _cutter->SetCutFunction(_plane);
        _cutter->GenerateCutScalarsOn();
        _cutter->SetValue(0, 0.5);

        // The transform attached to _polyTransform should move the cut
        // ROI into the resliced coordinate system, which should be the
        // same as the coordinate system of the resliced images.
        // PROBLEM:  It doesn't.
        _polyTransform = vtkTransformPolyDataFilter::New();
        _polyTransform->SetTransform(_transform);
        _polyTransform->SetInputConnection(_cutter->GetOutputPort());

        _ROIMapper = vtkPolyDataMapper2D::New();
        _ROIMapper->SetInputConnection(_polyTransform->GetOutputPort());

    vtkCoordinate* coordinate = vtkCoordinate::New();
    coordinate->SetCoordinateSystemToWorld();
    _ROIMapper->SetTransformCoordinate(coordinate);

        _ROIActor = vtkActor2D::New();
        _ROIActor->SetMapper(_ROIMapper);

        // Make sure the cut can be seen, especially the edges.
        props=_ROIActor->GetProperty();
        props->SetLineWidth(2);
        props->SetOpacity(1.0);
//        props->EdgeVisibilityOn();
//        props->SetDiffuse(0.8);
//        props->SetSpecular(0.3);
//        props->SetSpecularPower(20);
//        props->SetRepresentationToSurface();
//        props->SetDiffuseColor(1.0, 0.0, 0.0);
//        props->SetEdgeColor(1.0, 0.0, 0.0);
        props->SetColor(1.0, 0.0, 0.0);

        _interactor = vtkRenderWindowInteractor::New();

        // Create the image viewer and add the actor with the cut ROI.
        _imageViewer = vtkImageViewer2::New();
        _imageViewer->SetupInteractor(_interactor);
        _imageViewer->SetSize(400, 400);
        _imageViewer->SetColorWindow(1024);
        _imageViewer->SetColorLevel(800);
        _imageViewer->SetInputConnection(_reslice->GetOutputPort());
        _imageViewer->GetImageActor()->SetOpacity(0.5);

        _annotation = vtkTextActor::New();
        _annotation->SetTextScaleModeToViewport();
        _imageViewer->GetRenderer()->AddActor(_annotation);

        // Add the cut shape actor to the renderer.
```

```
        _imageViewer->GetRenderer()->AddActor(_ROIActor);

        // Set up the key handler.
        vtkSmartPointer<KeyCallback> callback = vtkSmartPointer<KeyCallback>::New();
        callback->SetCallbackData(this);
        _interactor->AddObserver(vtkCommand::KeyPressEvent, callback);

        _interactor->Initialize();
    }

    void Start()
    {
        _interactor->Start();
    }

    void ResetOrientation()
    {
        vtkSmartPointer<vtkMatrix4x4> matrix =
            vtkSmartPointer<vtkMatrix4x4>::New();
        matrix->Identity();

        SetOrientation(matrix);
    }

    // Make sure the orientation of the vtkImageReslice and
    // vtkTransform are in sync.
    void SetOrientation(vtkMatrix4x4* matrix)
    {
        _reslice->SetResliceAxes(matrix);
        _reslice->Update();

    vtkMatrix4x4* inverse = vtkMatrix4x4::New();
    vtkMatrix4x4::Invert(matrix, inverse);

        _transform->SetMatrix(inverse);
        _transform->Update();
    }

    // Set the current slice of the current view.
    void SetSlice(int slice)
    {
        std::stringstream posString;

        double    center[3];
        double    spacing[3];
        double    origin[3];
        double    point[4];
        double    newPoint[4];

        vtkImageData* imageData;
        int newSlice;

        // Try to make sure the extents of the reslice are updated.
        // PROBLEM:  It doesn't seem to work when changing the orientation.
        imageData=vtkImageData::SafeDownCast(_reslice->GetOutput());
#if (VTK_MAJOR_VERSION >= 6)
        assert(0);
#else
        imageData->UpdateInformation();
#endif

        // Let vtkImageViewer2 handle the slice limits.
        _imageViewer->SetSlice(slice);
        newSlice=GetSlice();

        imageData->GetCenter(center);
        imageData->GetSpacing(spacing);
        imageData->GetOrigin(origin);

        // Compute the position of the center of the slice based on the
        // spacing of the slices.  The resliced axis will always
        // be the "Z" axis.
        point[0]=center[0];
        point[1]=center[1];
        point[2]=(newSlice * spacing[2]) + origin[2];
        point[3]=1.0;

        // Convert the coordinate from the reslice coordinate system to the
        // original image coordinate system.
        // PROBLEM:  Logically this seems like it should have been multiplied
        // by the inverse to translate from the resliced coordinate system to
```

```
        // the original coordinate system.  However, multiplying by the inverse
        // sticks the plane in the wrong place completely.  Using the original
        // matrix at least gets the Z coordinate right.
        vtkMatrix4x4* matrix=_reslice->GetResliceAxes();
        vtkSmartPointer<vtkMatrix4x4> inverse =
            vtkSmartPointer<vtkMatrix4x4>::New();
        vtkMatrix4x4::Invert(matrix, inverse);

        matrix->MultiplyPoint(point, newPoint);
        _plane->SetOrigin(newPoint[0], newPoint[1], newPoint[2]);

        // Annotate the image.
        posString << "Position: (" << newPoint[0] << ", " << newPoint[1]
                  << ", " << newPoint[2] << ")  Slice: " << newSlice;
        _annotation->SetInput(posString.str().c_str());

        _imageViewer->Render();
    }

    int GetSlice()
    {
        return _imageViewer->GetSlice();
    }

    // Set the orientation of the view.
    void SetOrientation(ResliceRender::ORIENTATION orientation)
    {
        vtkCamera* camera=_imageViewer->GetRenderer()->GetActiveCamera();

        double spacing[3];
        double origin[3];
        double point[4];
        double newPoint[4];
        double initialPosition;
        double xDirCosine[3];
        double yDirCosine[3];
        double zDirCosine[3];
        double normal[3];

        vtkImageData* imageData;

        vtkSmartPointer<vtkMatrix4x4> matrix =
            vtkSmartPointer<vtkMatrix4x4>::New();

        _orientation=orientation;

        // Reset ViewUp
        camera->SetViewUp(0.0, 1.0, 0.0);

        // Compute the cut plane position to the input coordinate system.
        imageData=vtkImageData::SafeDownCast(_reslice->GetInput());
#if (VTK_MAJOR_VERSION >= 6)
        assert(0);
#else
        imageData->UpdateInformation();
#endif
        imageData->GetSpacing(spacing);
        imageData->GetOrigin(origin);

        point[0]=origin[0];
        point[1]=origin[1];
        point[2]=origin[2];
        point[3]=1.0;

        switch (_orientation)
        {
        case AXIAL:
            matrix->DeepCopy(AxialMatrix);
            initialPosition=sphereCenter[2];
            break;

        case CORONAL:
            matrix->DeepCopy(CoronalMatrix);
            initialPosition=sphereCenter[1];
            break;

        case SAGITTAL:
            matrix->DeepCopy(SagittalMatrix);
            initialPosition=sphereCenter[0];
```

```
            break;

        case OBLIQUE:
            matrix->DeepCopy(ObliqueMatrix);
            initialPosition=sphereCenter[2];
            break;
        }

        // Move the origin from the original image coordinate system to the
        // resliced image coordinate system.
        matrix->MultiplyPoint(point, newPoint);
        matrix->SetElement(0, 3, newPoint[0]);
        matrix->SetElement(1, 3, newPoint[1]);
        matrix->SetElement(2, 3, newPoint[2]);

        ResetOrientation();
        SetOrientation(matrix);

        // Compute the cutting plane normal and set it.
        // PROBLEM:  If the transformation is connected rather than
        // using SetResliceAxes, the Direction Cosines do not reflect
        // the orientation of the vtkImageReslice.
        _reslice->GetResliceAxesDirectionCosines(xDirCosine, yDirCosine,
                                                 zDirCosine);
        vtkMath::Cross(xDirCosine, yDirCosine, normal);
        _plane->SetNormal(normal);

        // Set the extents and spacing of the reslice to account for
        // all of the data.
        _reslice->SetOutputExtentToDefault();
        _reslice->SetOutputSpacing(spacing[0], spacing[0], spacing[0]);

        // Force the vtkImageViewer2 to update.
        // PROBLEM:  The whole extent does not seem to be set in time
        // for the first render.  This results in an error because the
        // slice is positioned outside the old bounds.
#if (VTK_MAJOR_VERSION >= 6)
        _imageViewer->SetInputData(NULL);
#else
        _imageViewer->SetInput(NULL);
#endif
        _imageViewer->SetInputConnection(_reslice->GetOutputPort());

        _imageViewer->GetRenderer()->ResetCameraClippingRange();
        _imageViewer->GetRenderer()->ResetCamera();

        // Set the initial slice to be at the center of the sphere.
        // Divide by the spacing because this will be undone in SetSlice.
        SetSlice( (int)(initialPosition / spacing[0]));
    }

    vtkRenderWindowInteractor* GetInteractor()
    {
        return _interactor;
    }

protected:
    ORIENTATION                 _orientation;

    //qzDICOMImageReader*        _reader;
    vtkGDCMImageReader*        _reader;
    vtkImageThreshold*          _threshold;
    vtkImageShiftScale*         _shift;
    vtkImageReslice*            _reslice;
    vtkRenderWindowInteractor*  _interactor;
    vtkImageViewer2*            _imageViewer;

    vtkSphereSource*            _sphere;
    vtkPolyDataMapper*          _sphereMapper;
    vtkActor*                   _sphereActor;

    vtkPlane*                   _plane;
    vtkCutter*                  _cutter;
    vtkTransform*               _transform;
    vtkTransformPolyDataFilter* _polyTransform;
    vtkPolyDataMapper2D*          _ROIMapper;
    vtkActor2D*                   _ROIActor;

    vtkTextActor*               _annotation;
```

```
};


// Catch KeyPress events.
// Up Arrow   - increases the slice
// Down Arrow - decreases the slice
// 'A'        - sets the view to Axial
// 'S'        - sets the view to Sagittal
// 'C'        - sets the view to Coronal
// 'O'        - set the view to Oblique

void KeyCallback::Execute(vtkObject* caller, unsigned long eventId, void *calldata)
{
  (void)caller;
  (void)eventId;
  (void)calldata;
    std::string sym=_reslice->GetInteractor()->GetKeySym();

    if (!sym.compare("Up"))
    {
        _reslice->SetSlice(_reslice->GetSlice() + 1);
    }
    else if (!sym.compare("Down"))
    {
        _reslice->SetSlice(_reslice->GetSlice() - 1);
    }
    else if ((!sym.compare("A")) || (!sym.compare("a")))
    {
        _reslice->SetOrientation(ResliceRender::AXIAL);
    }
    else if ((!sym.compare("C")) || (!sym.compare("c")))
    {
        _reslice->SetOrientation(ResliceRender::CORONAL);
    }
    else if ((!sym.compare("S")) || (!sym.compare("s")))
    {
        _reslice->SetOrientation(ResliceRender::SAGITTAL);
    }
    else if ((!sym.compare("O")) || (!sym.compare("o")))
    {
        _reslice->SetOrientation(ResliceRender::OBLIQUE);
    }
}

void KeyCallback::SetCallbackData(ResliceRender* reslice)
{
    _reslice=reslice;
}

// Usage:  ResliceSphere [fileName]
int main(int argc, char *argv[])
{
    ResliceRender render;

    if (argc == 1)
      {
      const char *root = gdcm::Testing::GetDataExtraRoot();
      std::string dir3 = root;
      dir3 += "/gdcmSampleData/ForSeriesTesting/Dentist/images/";
      render.CreatePipeline(dir3.c_str());
      }
    else
      {
      render.CreatePipeline(argv[1]);
      }

    render.SetOrientation(ResliceRender::AXIAL);
    render.Start();

    return EXIT_SUCCESS;
}
```

14.166 rtstructapp.cxx

```
/*=========================================================================
```

```
  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "vtkGDCMPolyDataReader.h"
#include "vtkGDCMPolyDataWriter.h"

#include "vtkPolyDataWriter.h"
#include "vtkPolyDataMapper.h"
#include "vtkPolyDataMapper2D.h"
#include "vtkActor2D.h"
#include "vtkRenderWindowInteractor.h"
#include "vtkMedicalImageProperties.h"
#include "vtkRenderWindow.h"
#include "vtkRenderer.h"
#include "vtkCamera.h"
#include "vtkProperty.h"
#include "vtkProperty2D.h"
#include "vtkAppendPolyData.h"
#include "vtkImageData.h"
#include "vtkVersion.h"

/*
 * Small example to read in a RTSTUCT and write it out (displays it too).
 */

// gdcmDataExtra/gdcmNonImageData/exRT_Structure_Set_Storage.dcm
// gdcmDataExtra/gdcmNonImageData/RTSTRUCT_1.3.6.1.4.1.22213.1.1396.2.dcm
// gdcmDataExtra/gdcmNonImageData/RT/RTStruct.dcm

int main(int argc, char *argv[])
{
  if( argc < 3 )
    {
    std::cerr « argv[0] « " input.dcm output.dcm\n";
    return 1;
    }
  const char * filename = argv[1];
  const char * outfilename = argv[2];
  vtkGDCMPolyDataReader * reader = vtkGDCMPolyDataReader::New();
  reader->SetFileName( filename );
  reader->Update();

  //std::cout « reader->GetMedicalImageProperties()->GetStudyDate() « std::endl;

  vtkGDCMPolyDataWriter * writer = vtkGDCMPolyDataWriter::New();
  writer->SetNumberOfInputPorts( reader->GetNumberOfOutputPorts() );
  writer->SetFileName( outfilename );
  for(int num = 0; num < reader->GetNumberOfOutputPorts(); ++num )
#if (VTK_MAJOR_VERSION >= 6)
    writer->SetInputConnection( num, reader->GetOutputPort(num) );
#else
    writer->SetInput( num, reader->GetOutput(num) );
#endif
  //doesn't look like the medical properties are actually written out
  writer->SetMedicalImageProperties( reader->GetMedicalImageProperties() );
  writer->SetRTStructSetProperties( reader->GetRTStructSetProperties() );
  writer->Write();

  // print reader output:
  reader->Print( std::cout );
  // print first output:
  reader->GetOutput()->Print( std::cout );

 vtkAppendPolyData *append = vtkAppendPolyData::New();

 int n = reader->GetNumberOfOutputPorts();
 for(int i = 0; i < n; ++i)
   {
#if (VTK_MAJOR_VERSION >= 6)
   append->AddInputConnection( reader->GetOutputPort(i) );
#else
   append->AddInput( reader->GetOutput(i) );
#endif
```

```
    }

  // Now we'll look at it.
  vtkPolyDataMapper *cubeMapper = vtkPolyDataMapper::New();
#if (VTK_MAJOR_VERSION >= 6)
  cubeMapper->SetInputConnection( append->GetOutputPort());
#else
  cubeMapper->SetInput( append->GetOutput());
#endif
  cubeMapper->SetScalarRange(0,7);
  vtkActor *cubeActor = vtkActor::New();
  cubeActor->SetMapper(cubeMapper);
  vtkProperty * property = cubeActor->GetProperty();
  property->SetRepresentationToWireframe();

  vtkRenderer *renderer = vtkRenderer::New();
  vtkRenderWindow *renWin = vtkRenderWindow::New();
  renWin->AddRenderer(renderer);

  vtkRenderWindowInteractor *iren = vtkRenderWindowInteractor::New();
  iren->SetRenderWindow(renWin);

  renderer->AddActor(cubeActor);
  renderer->ResetCamera();
  renderer->SetBackground(1,1,1);

  renWin->SetSize(300,300);

  renWin->Render();
  iren->Start();

  reader->Delete();
  append->Delete();
  cubeMapper->Delete();
  cubeActor->Delete();
  renderer->Delete();
  renWin->Delete();
  iren->Delete();
  writer->Delete();

  return 0;
}
```

14.167 threadgdcm.cxx

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
#include "gdcmReader.h"
#include "gdcmImageReader.h"
#include "gdcmDirectory.h"
#include "gdcmSystem.h"

#include "vtkImageData.h"
#include "vtkStructuredPointsWriter.h"
#include "vtkVersion.h"

#include <pthread.h>

struct threadparams
{
  const char **filenames;
  size_t nfiles;
  char *scalarpointer;
// TODO I should also pass in the dim of the reference image just in case
```

```
};

void *ReadFilesThread(void *voidparams)
{
  const threadparams *params = static_cast<const threadparams *> (voidparams);

  const size_t nfiles = params->nfiles;
  for(unsigned int file = 0; file < nfiles; ++file)
    {
    /*
    // TODO: update progress
    pthread_mutex_lock(&params->lock);
    //section critique
    ReadingProgress+=params->stepProgress;
    pthread_mutex_unlock(&params->lock);
    */
    const char *filename = params->filenames[file];
    //std::cerr « filename « std::endl;

    gdcm::ImageReader reader;
    reader.SetFileName( filename );
    try
      {
      if( !reader.Read() )
        {
        std::cerr « "Failed to read: " « filename « std::endl;
        break;
        }
      }
    catch( ... )
      {
      std::cerr « "Failed to read: " « filename « std::endl;
      break;
      }

    const gdcm::Image &image = reader.GetImage();
    unsigned long len = image.GetBufferLength();
    char * pointer = params->scalarpointer;
#if 0
    char *tempimage = new char[len];
    image.GetBuffer(tempimage);

    memcpy(pointer + file*len, tempimage, len);
    delete[] tempimage;
#else
    char *tempimage = pointer + file * len;
    image.GetBuffer(tempimage);
#endif
    }

  return voidparams;
}

void ShowFilenames(const threadparams &params)
{
  std::cout « "start" « std::endl;
  for(unsigned int i = 0; i < params.nfiles; ++i)
    {
    const char *filename = params.filenames[i];
    std::cout « filename « std::endl;
    }
  std::cout « "end" « std::endl;
}

void ReadFiles(size_t nfiles, const char *filenames[])
{
  // \precondition: nfiles > 0
  assert( nfiles > 0 );
  const char *reference= filenames[0]; // take the first image as reference

  gdcm::ImageReader reader;
  reader.SetFileName( reference );
  if( !reader.Read() )
    {
    // That would be very bad...
    assert(0);
    }

  const gdcm::Image &image = reader.GetImage();
  gdcm::PixelFormat pixeltype = image.GetPixelFormat();
  unsigned long len = image.GetBufferLength();
```

```
  const unsigned int *dims = image.GetDimensions();
  unsigned short pixelsize = pixeltype.GetPixelSize();
  (void)pixelsize;
  assert( image.GetNumberOfDimensions() == 2 );

  vtkImageData *output = vtkImageData::New();
  output->SetDimensions(dims[0], dims[1], (int)nfiles);

#if (VTK_MAJOR_VERSION >= 6)
  int numscal = pixeltype.GetSamplesPerPixel();
  switch( pixeltype )
    {
  case gdcm::PixelFormat::INT8:
    output->AllocateScalars( VTK_SIGNED_CHAR, numscal );
    break;
  case gdcm::PixelFormat::UINT8:
    output->AllocateScalars( VTK_UNSIGNED_CHAR, numscal );
    break;
  case gdcm::PixelFormat::INT16:
    output->AllocateScalars( VTK_SHORT, numscal );
    break;
  case gdcm::PixelFormat::UINT16:
    output->AllocateScalars( VTK_UNSIGNED_SHORT, numscal );
    break;
  case gdcm::PixelFormat::INT32:
    output->AllocateScalars( VTK_INT, numscal );
    break;
  case gdcm::PixelFormat::UINT32:
    output->AllocateScalars( VTK_UNSIGNED_INT, numscal );
    break;
  default:
    assert(0);
    }
#else
  switch( pixeltype )
    {
  case gdcm::PixelFormat::INT8:
#if (VTK_MAJOR_VERSION >= 5) || ( VTK_MAJOR_VERSION == 4 && VTK_MINOR_VERSION > 5 )
    output->SetScalarType ( VTK_SIGNED_CHAR );
#else
    output->SetScalarType ( VTK_CHAR );
#endif
    break;
  case gdcm::PixelFormat::UINT8:
    output->SetScalarType ( VTK_UNSIGNED_CHAR );
    break;
  case gdcm::PixelFormat::INT16:
    output->SetScalarType ( VTK_SHORT );
    break;
  case gdcm::PixelFormat::UINT16:
    output->SetScalarType ( VTK_UNSIGNED_SHORT );
    break;
  case gdcm::PixelFormat::INT32:
    output->SetScalarType ( VTK_INT );
    break;
  case gdcm::PixelFormat::UINT32:
    output->SetScalarType ( VTK_UNSIGNED_INT );
    break;
  default:
    assert(0);
    }
  output->SetNumberOfScalarComponents ( pixeltype.GetSamplesPerPixel() );
  output->AllocateScalars();
#endif
  char * scalarpointer = static_cast<char*>(output->GetScalarPointer());

  const unsigned int nthreads = 4;
  threadparams params[nthreads];

  //pthread_mutex_t lock;
  //pthread_mutex_init(&lock, NULL);

  pthread_t *pthread = new pthread_t[nthreads];

  // There is nfiles, and nThreads
  assert( nfiles > nthreads );
  const size_t partition = nfiles / nthreads;
  for (unsigned int thread=0; thread < nthreads; ++thread)
    {
    params[thread].filenames = filenames + thread * partition;
    params[thread].nfiles = partition;
```

```
    if( thread == nthreads - 1 )
      {
      // There is slightly more files to process in this thread:
      params[thread].nfiles += nfiles % nthreads;
      }
    assert( thread * partition < nfiles );
    params[thread].scalarpointer = scalarpointer + thread * partition * len;
    //assert( params[thread].scalarpointer < scalarpointer + 2 * dims[0] * dims[1] * dims[2] );
    // start thread:
    int res = pthread_create( &pthread[thread], NULL, ReadFilesThread, &params[thread]);
    if( res )
      {
      std::cerr << "Unable to start a new thread, pthread returned: " << res << std::endl;
      assert(0);
      }
    //ShowFilenames(params[thread]);
    }
// DEBUG
  size_t total = 0;
  for (unsigned int thread=0; thread < nthreads; ++thread)
    {
    total += params[thread].nfiles;
    }
  assert( total == nfiles );
// END DEBUG

  for (unsigned int thread=0;thread<nthreads;thread++)
    {
    pthread_join( pthread[thread], NULL);
    }
  delete[] pthread;

  //pthread_mutex_destroy(&lock);

  // For some reason writing down the file is painfully slow...
  vtkStructuredPointsWriter *writer = vtkStructuredPointsWriter::New();
#if (VTK_MAJOR_VERSION >= 6)
  writer->SetInputData( output );
#else
  writer->SetInput( output );
#endif
  writer->SetFileName( "/tmp/threadgdcm.vtk" );
  writer->SetFileTypeToBinary();
  //writer->Write();
  writer->Delete();

  //output->Print( std::cout );
  output->Delete();
}

int main(int argc, char *argv[])
{
  if( argc < 2 )
    {
    std::cerr << argv[0] << " [directory|list of filenames]\n";
    return 1;
    }

  // Check if user pass in a single directory
  if( argc == 2 && gdcm::System::FileIsDirectory( argv[1] ) )
    {
    gdcm::Directory d;
    d.Load( argv[1] );
    gdcm::Directory::FilenamesType l = d.GetFilenames();
    const size_t nfiles = l.size();
    const char **filenames = new const char* [ nfiles ];
    for(unsigned int i = 0; i < nfiles; ++i)
      {
      filenames[i] = l[i].c_str();
      }
    ReadFiles(nfiles, filenames);
    delete[] filenames;
    }
  else
    {
    // Simply copy all filenames into the vector:
    const char **filenames = const_cast<const char**>(argv+1);
    const size_t nfiles = argc - 1;
    ReadFiles(nfiles, filenames);
```

```
    }

  return 0;
}
```

14.168 AWTMedical3.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
package examples;

import vtk.*;
//import gdcm.*;

import vtk.util.VtkPanelContainer;
import vtk.util.VtkPanelUtil;
import vtk.util.VtkUtil;

import java.util.ArrayList;


import javax.swing.*;
import java.awt.*;
import java.io.File;

public class AWTMedical3  extends JComponent implements VtkPanelContainer {

  private vtkPanel renWin;

    vtkImageData ReadDataFile(File inSelectedFile){

        vtkImageData outImageData = null;
        Directory theDir = new Directory();

        String theInputDirectory = inSelectedFile.getPath();
        theDir.Load(theInputDirectory);

        Scanner theScanner = new Scanner();
        Tag theStudyTag = new Tag(0x0020,0x000d);
        Tag theSeriesTag = new Tag(0x0020,0x000e);
        theScanner.AddTag(theStudyTag);//get studies,
        theScanner.AddTag(theSeriesTag);//get studies,
        theScanner.Scan(theDir.GetFilenames());

        FilenamesType theStudyValues = theScanner.GetOrderedValues(theStudyTag);
        long theNumStudies = theStudyValues.size();
        //for now, take the first study, and nothing else.
        //and the return is actually not FilenamesType, just a
        //vector of strings
        if (theNumStudies != 1)
            return outImageData;
        String theStudyVal = theStudyValues.get(0);
        //now, get all the values from the scanner that are in that
        //study, then from that get their different series
        FilenamesType theFilenames =
                theScanner.GetAllFilenamesFromTagToValue(theStudyTag, theStudyVal);

        //from that set of filenames, isolate individual series
        //conclude that singleton series = RT struct (can do further
        //checking for things like MIPs and the like)
        //and multiple series entries = volumetric data
        theScanner.Scan(theFilenames);
        FilenamesType theSeriesValues = theScanner.GetOrderedValues(theSeriesTag);
        String studyUID = theScanner.GetValue(theScanner.GetFilenames().get(0), theStudyTag);
```

```
        long theNumSeries = theSeriesValues.size();
        for (int i = 0; i < theNumSeries; i++) {
            FilenamesType theSeriesFiles =
                theScanner.GetAllFilenamesFromTagToValue(theSeriesTag, theSeriesValues.get(i));
            long theNumFilesInSeries = theSeriesFiles.size();
            if (theNumFilesInSeries > 1) {//assume it's CT or volumetric data
                //for now, assume a single volume
                //could have multiples, like PET and CT

                IPPSorter sorter = new IPPSorter();
                sorter.SetComputeZSpacing(true);
                sorter.SetZSpacingTolerance(0.001);
                Boolean sorted = sorter.Sort(theSeriesFiles);
                if (!sorted){
                    //need some better way to handle failures here
                    return outImageData;
                }

                FilenamesType sortedFT = sorter.GetFilenames();
                long theSize = sortedFT.size();
                vtkStringArray sa = new vtkStringArray();
                ArrayList<String> theStrings = new ArrayList<String>();

                vtkGDCMImageReader gdcmReader = new vtkGDCMImageReader();
                for (int j = 0; j < theSize; j++) {
                    String theFileName = sortedFT.get(j);
                    if (gdcmReader.CanReadFile(theFileName) > 0){
                        theStrings.add(theFileName);
                        sa.InsertNextValue(theFileName);
                    } else {
                        //this is a busted series
                        //need some more appropriate error here
                        return outImageData;
                    }
                }

                gdcmReader.SetFileNames(sa);

                gdcmReader.Update();

                outImageData = gdcmReader.GetOutput();//the zeroth output should be the image
            }
        }
        String theImageInfo = "";
        if (outImageData != null){
            theImageInfo = outImageData.Print();
        }
        return outImageData;
    }

    //this function is a rewrite of Medical3 to see if data can
    //be loaded via gdcm easily
  public AWTMedical3(File inFile) {
    // Create the buttons.
    renWin = new vtkPanel();

    vtkImageData theImageData = ReadDataFile(inFile);

    // An isosurface, or contour value of 500 is known to correspond to the
    // skin of the patient. Once generated, a vtkPolyDataNormals filter is
    // is used to create normals for smooth surface shading during rendering.
    // The triangle stripper is used to create triangle strips from the
    // isosurface these render much faster on some systems.
    vtkContourFilter skinExtractor = new vtkContourFilter();
    skinExtractor.SetInput(theImageData);
    skinExtractor.SetValue(0, 500);
    vtkPolyDataNormals skinNormals = new vtkPolyDataNormals();
    skinNormals.SetInput(skinExtractor.GetOutput());
    skinNormals.SetFeatureAngle(60.0);
//        vtkStripper skinStripper = new vtkStripper();
//        skinStripper.SetInput(skinNormals.GetOutput());
    vtkPolyDataMapper skinMapper = new vtkPolyDataMapper();
    skinMapper.SetInput(skinNormals.GetOutput());
    skinMapper.ScalarVisibilityOff();
    vtkActor skin = new vtkActor();
    skin.SetMapper(skinMapper);
    skin.GetProperty().SetDiffuseColor(1, .49, .25);
    skin.GetProperty().SetSpecular(.3);
    skin.GetProperty().SetSpecularPower(20);

    // An isosurface, or contour value of 1150 is known to correspond to the
```

```
// skin of the patient. Once generated, a vtkPolyDataNormals filter is
// is used to create normals for smooth surface shading during rendering.
// The triangle stripper is used to create triangle strips from the
// isosurface these render much faster on some systems.
vtkContourFilter boneExtractor = new vtkContourFilter();
boneExtractor.SetInput(theImageData);
boneExtractor.SetValue(0, 1150);
vtkPolyDataNormals boneNormals = new vtkPolyDataNormals();
boneNormals.SetInput(boneExtractor.GetOutput());
boneNormals.SetFeatureAngle(60.0);
vtkStripper boneStripper = new vtkStripper();
boneStripper.SetInput(boneNormals.GetOutput());
vtkPolyDataMapper boneMapper = new vtkPolyDataMapper();
boneMapper.SetInput(boneStripper.GetOutput());
boneMapper.ScalarVisibilityOff();
vtkActor bone = new vtkActor();
bone.SetMapper(boneMapper);
bone.GetProperty().SetDiffuseColor(1, 1, .9412);

// An outline provides context around the data.
vtkOutlineFilter outlineData = new vtkOutlineFilter();
outlineData.SetInput(theImageData);
vtkPolyDataMapper mapOutline = new vtkPolyDataMapper();
mapOutline.SetInput(outlineData.GetOutput());
vtkActor outline = new vtkActor();
outline.SetMapper(mapOutline);
outline.GetProperty().SetColor(0, 0, 0);

// Now we are creating three orthogonal planes passing through the
// volume. Each plane uses a different texture map and therefore has
// different coloration.

// Start by creating a black/white lookup table.
vtkLookupTable bwLut = new vtkLookupTable();
bwLut.SetTableRange(0, 2000);
bwLut.SetSaturationRange(0, 0);
bwLut.SetHueRange(0, 0);
bwLut.SetValueRange(0, 1);
bwLut.Build();

// Now create a lookup table that consists of the full hue circle (from
// HSV);.
vtkLookupTable hueLut = new vtkLookupTable();
hueLut.SetTableRange(0, 2000);
hueLut.SetHueRange(0, 1);
hueLut.SetSaturationRange(1, 1);
hueLut.SetValueRange(1, 1);
hueLut.Build();

// Finally, create a lookup table with a single hue but having a range
// in the saturation of the hue.
vtkLookupTable satLut = new vtkLookupTable();
satLut.SetTableRange(0, 2000);
satLut.SetHueRange(.6, .6);
satLut.SetSaturationRange(0, 1);
satLut.SetValueRange(1, 1);
satLut.Build();

// Create the first of the three planes. The filter vtkImageMapToColors
// maps the data through the corresponding lookup table created above.
// The vtkImageActor is a type of vtkProp and conveniently displays an
// image on a single quadrilateral plane. It does this using texture
// mapping and as a result is quite fast. (Note: the input image has to
// be unsigned char values, which the vtkImageMapToColors produces.);
// Note also that by specifying the DisplayExtent, the pipeline
// requests data of this extent and the vtkImageMapToColors only
// processes a slice of data.
vtkImageMapToColors sagittalColors = new vtkImageMapToColors();
sagittalColors.SetInput(theImageData);
sagittalColors.SetLookupTable(bwLut);
vtkImageActor sagittal = new vtkImageActor();
sagittal.SetInput(sagittalColors.GetOutput());
sagittal.SetDisplayExtent(32, 32, 0, 63, 0, 92);

// Create the second (axial); plane of the three planes. We use the same
// approach as before except that the extent differs.
vtkImageMapToColors axialColors = new vtkImageMapToColors();
axialColors.SetInput(theImageData);
axialColors.SetLookupTable(hueLut);
vtkImageActor axial = new vtkImageActor();
axial.SetInput(axialColors.GetOutput());
```

```
    axial.SetDisplayExtent(0, 63, 0, 63, 46, 46);

    // Create the third (coronal); plane of the three planes. We use the same
    // approach as before except that the extent differs.
    vtkImageMapToColors coronalColors = new vtkImageMapToColors();
    coronalColors.SetInput(theImageData);
    coronalColors.SetLookupTable(satLut);
    vtkImageActor coronal = new vtkImageActor();
    coronal.SetInput(coronalColors.GetOutput());
    coronal.SetDisplayExtent(0, 63, 32, 32, 0, 92);

    // It is convenient to create an initial view of the data. The FocalPoint
    // and Position form a vector direction. Later on (ResetCamera() method)
    // this vector is used to position the camera to look at the data in
    // this direction.
    vtkCamera aCamera = new vtkCamera();
    aCamera.SetViewUp(0, 0, -1);
    aCamera.SetPosition(0, 1, 0);
    aCamera.SetFocalPoint(0, 0, 0);
    aCamera.ComputeViewPlaneNormal();

    // Actors are added to the renderer. An initial camera view is created.
    // The Dolly() method moves the camera towards the FocalPoint,
    // thereby enlarging the image.
    renWin.GetRenderer().AddActor(sagittal);
    renWin.GetRenderer().AddActor(axial);
    renWin.GetRenderer().AddActor(coronal);
    renWin.GetRenderer().AddActor(outline);
    renWin.GetRenderer().AddActor(skin);
    renWin.GetRenderer().AddActor(bone);

    // Turn off bone for this example.
    bone.VisibilityOff();

    // Set skin to semi-transparent.
    skin.GetProperty().SetOpacity(0.5);

    // An initial camera view is created.  The Dolly() method moves
    // the camera towards the FocalPoint, thereby enlarging the image.
    renWin.GetRenderer().SetActiveCamera(aCamera);
    renWin.GetRenderer().ResetCamera();
    aCamera.Dolly(1.5);

    // Set a background color for the renderer and set the size of the
    // render window (expressed in pixels).
    renWin.GetRenderer().SetBackground(1, 1, 1);
    VtkPanelUtil.setSize(renWin, 640, 480);

    // Note that when camera movement occurs (as it does in the Dolly()
    // method), the clipping planes often need adjusting. Clipping planes
    // consist of two planes: near and far along the view direction. The
    // near plane clips out objects in front of the plane the far plane
    // clips out objects behind the plane. This way only what is drawn
    // between the planes is actually rendered.
    renWin.GetRenderer().ResetCameraClippingRange();

    // Setup panel
    setLayout(new BorderLayout());
    add(renWin, BorderLayout.CENTER);
  }


  public vtkPanel getRenWin() {
    return renWin;
  }


  public static void main(String s[]) {
    if (s.length == 0){
      return; //need a filename here
    }
    File theFile = new File(s[0]);
    //File theFile = new
      File("/Users/mmroden/Documents/MVSDownloadDirectory/Documents/1.2.840.113704.1.111.3384.1271766367.5/");
    AWTMedical3 panel = new AWTMedical3(theFile);

    JFrame frame = new JFrame("AWTMedical3");
    frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    frame.getContentPane().add("Center", panel);
    frame.pack();
```

```
    frame.setVisible(true);
  }

}
```

14.169 HelloVTKWorld.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// We are required to call the package 'vtk' even though I (MM) would have preferred
// an import statement along the line of:
// import vtkgdcm.*;
import vtk.*;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac HelloVTKWorld.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:.
      CLASSPATH=/usr/share/java/vtk.jar:vtkgdcm.jar:gdcm.jar:. java HelloVTKWorld gdcmData/012345.002.050.dcm
      bla.dcm
 *
 */
public class HelloVTKWorld
{
  static {
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkgdcmJava");
    try {
      System.loadLibrary("vtkRenderingJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkHybrid, skipping...");
    }
    try {
      System.loadLibrary("vtkHybridJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkHybrid, skipping...");
    }
    try {
      System.loadLibrary("vtkVolumeRenderingJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkVolumeRendering, skipping...");
    }
  }

  public static void main(String[] args)
    {
    String filename = args[0];
    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileName( filename );
    reader.Update();

    vtkMedicalImageProperties prop = reader.GetMedicalImageProperties();
    System.out.println( prop.GetPatientName() ); //

//    if( reader.GetImageFormat() == vtkgdcm.vtkgdcm.VTK_LUMINANCE ) // MONOCHROME2
//      {
//      System.out.println( "Image is MONOCHROME2" ); //
//      }

    // Just for fun, invert the direction cosines, output should reflect that:
```

```
    vtkMatrix4x4 dircos = reader.GetDirectionCosines();
    dircos.Invert();

    // We need to maintain in sync information stored in vtkMedicalImageProperties:
    double[] cosines = new double[6];
    cosines[0] = dircos.GetElement(0,0);
    cosines[1] = dircos.GetElement(1,0);
    cosines[2] = dircos.GetElement(2,0);
    cosines[3] = dircos.GetElement(0,1);
    cosines[4] = dircos.GetElement(1,1);
    cosines[5] = dircos.GetElement(2,1);
    reader.GetMedicalImageProperties().SetDirectionCosine( cosines );

    String outfilename = args[1];
    vtkGDCMImageWriter writer = new vtkGDCMImageWriter();
    writer.SetMedicalImageProperties( reader.GetMedicalImageProperties() );
    writer.SetDirectionCosines( dircos );
    writer.SetShift( reader.GetShift() );
    writer.SetScale( reader.GetScale() );
    writer.SetImageFormat( reader.GetImageFormat() );
    writer.SetFileName( outfilename );
    writer.SetInputConnection( reader.GetOutputPort() ); // new
    //writer.SetInput( reader.GetOutput() ); // old
    writer.Write();

    System.out.println("Success reading: " + filename );
    }
}
```

14.170 MIPViewer.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
import vtk.*;
import gdcm.*;
import java.io.File;
import java.awt.Canvas;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac MIPViewer.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:.
      CLASSPATH=/usr/share/java/vtk.jar:vtkgdcm.jar:gdcm.jar:. java MIPViewer BRAINX
 *
 */
public class MIPViewer extends Canvas
{
  static {
    // VTK
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkRenderingJava");
    System.loadLibrary("vtkVolumeRenderingJava"); // vtkSmartVolumeMapper
    System.loadLibrary("vtkWidgetsJava"); // vtkBoxWidget
    // VTK-GDCM
    System.loadLibrary("vtkgdcmJava");
```

```
}

static FilenamesType fns = new FilenamesType();

protected native int Lock();

protected native int UnLock();

public static void process(String path)
  {
  fns.add( path );
  }

// Process only files under dir
public static void visitAllFiles(File dir)
  {
  if (dir.isDirectory())
    {
    String[] children = dir.list();
    for (int i=0; i<children.length; i++)
      {
      visitAllFiles(new File(dir, children[i]));
      }
    }
  else
    {
    process(dir.getPath());
    }
  }

public static void main(String[] args) throws Exception
  {
  String dirname = args[0];
  if( !PosixEmulation.FileIsDirectory( dirname ) )
    {
    return;
    }

  File dir = new File(dirname);
  visitAllFiles(dir);

  IPPSorter ipp = new IPPSorter();
  ipp.SetComputeZSpacing( true );
  ipp.SetZSpacingTolerance( 1e-3 );
  boolean b = ipp.Sort( fns );
  if(!b)
    {
    throw new Exception("Could not scan");
    }
  double ippzspacing = ipp.GetZSpacing();

  FilenamesType sorted = ipp.GetFilenames();
  vtkStringArray files = new vtkStringArray();
  long nfiles = sorted.size();
  //for( String f : sorted )
  for (int i = 0; i < nfiles; i++) {
    String f = sorted.get(i);
    files.InsertNextValue( f );
    }
  vtkGDCMImageReader reader = new vtkGDCMImageReader();
  reader.SetFileNames( files );
  reader.Update(); // get spacing value

  double[] spacing = reader.GetOutput().GetSpacing();

  vtkImageChangeInformation change = new vtkImageChangeInformation();
  change.SetInputConnection( reader.GetOutputPort() );
  change.SetOutputSpacing( spacing[0], spacing[1], ippzspacing );

  // Create our volume and mapper
  vtkVolume volume = new vtkVolume();
  vtkSmartVolumeMapper mapper = new vtkSmartVolumeMapper();

  vtkRenderWindowInteractor iren = new vtkRenderWindowInteractor();

  // Add a box widget if the clip option was selected
  vtkBoxWidget box = new vtkBoxWidget();
  box.SetInteractor(iren);
  box.SetPlaceFactor(1.01);
```

```
    box.SetInputConnection(change.GetOutputPort());

    //box.SetDefaultRenderer(renderer);
    box.InsideOutOn();
    box.PlaceWidget();
    //vtkBoxWidgetCallback callback = vtkBoxWidgetCallback::New();
    //callback.SetMapper(mapper);
    //box.AddObserver(vtkCommand::InteractionEvent, callback);
    //callback.Delete();
//    Lock();
//    box.EnabledOn();
//    UnLock();
    box.GetSelectedFaceProperty().SetOpacity(0.0);

    mapper.SetInputConnection( change.GetOutputPort() );

    // Create our transfer function
    vtkColorTransferFunction colorFun = new vtkColorTransferFunction();
    vtkPiecewiseFunction opacityFun = new vtkPiecewiseFunction();

    // Create the property and attach the transfer functions
    vtkVolumeProperty property = new vtkVolumeProperty();
    property.IndependentComponentsOn();
    property.SetColor( colorFun );
    property.SetScalarOpacity( opacityFun );
    property.SetInterpolationTypeToLinear();

    // connect up the volume to the property and the mapper
    volume.SetProperty( property );
    volume.SetMapper( mapper );

    vtkMedicalImageProperties medprop = reader.GetMedicalImageProperties();
    int n = medprop.GetNumberOfWindowLevelPresets();
    double opacityWindow = 4096;
    double opacityLevel = 2048;

    // Override default with value from DICOM files:
    for( int i = 0; i < n; ++i )
      {
      double wl[] = medprop.GetNthWindowLevelPreset(i);
      //System.out.println( "W/L: " + wl[0] + " " + wl[1] );
      opacityWindow = wl[0];
      opacityLevel  = wl[1];
      }

    colorFun.AddRGBSegment(0.0, 1.0, 1.0, 1.0, 255.0, 1.0, 1.0, 1.0 );
    opacityFun.AddSegment( opacityLevel - 0.5*opacityWindow, 0.0,
      opacityLevel + 0.5*opacityWindow, 1.0 );
    mapper.SetBlendModeToMaximumIntensity();

    // Create the RenderWindow, Renderer
    vtkRenderer ren1 = new vtkRenderer();
    vtkRenderWindow renWin = new vtkRenderWindow();
    renWin.AddRenderer(ren1);

    // Set the default window size
    renWin.SetSize(600,600);

    // Add the volume to the scene
    ren1.AddVolume( volume );
    ren1.ResetCamera();

    iren.SetRenderWindow( renWin );

    // interact with data
    renWin.Render();

    iren.Start();
    }
}
```

14.171 MPRViewer.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library
```

```
  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
import vtk.*;
import gdcm.*;
import java.io.File;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac MPRViewer.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:.
      CLASSPATH=/usr/share/java/vtk.jar:vtkgdcm.jar:gdcm.jar:. java MPRViewer BRAINX
 *
 */
public class MPRViewer
{
  static {
    // VTK
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkRenderingJava");
    // VTK-GDCM
    System.loadLibrary("vtkgdcmJava");
  }

  static FilenamesType fns = new FilenamesType();

  public static void process(String path)
    {
    fns.add( path );
    }

  // Process only files under dir
  public static void visitAllFiles(File dir)
    {
    if (dir.isDirectory())
      {
      String[] children = dir.list();
      for (int i=0; i<children.length; i++)
        {
        visitAllFiles(new File(dir, children[i]));
        }
      }
    else
      {
      process(dir.getPath());
      }
    }

  public static void main(String[] args) throws Exception
    {
    String dirname = args[0];
    if( !PosixEmulation.FileIsDirectory( dirname ) )
      {
      return;
      }

    File dir = new File(dirname);
    visitAllFiles(dir);

    IPPSorter ipp = new IPPSorter();
    ipp.SetComputeZSpacing( true );
    ipp.SetZSpacingTolerance( 1e-3 );
    boolean b = ipp.Sort( fns );
    if(!b)
      {
      throw new Exception("Could not scan");
      }
```

```
    double ippzspacing = ipp.GetZSpacing();

    FilenamesType sorted = ipp.GetFilenames();
    vtkStringArray files = new vtkStringArray();
    long nfiles = sorted.size();
    //for( String f : sorted )
    for (int i = 0; i < nfiles; i++) {
      String f = sorted.get(i);
      files.InsertNextValue( f );
      }
    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileNames( files );
    reader.Update(); // get spacing value

    double[] spacing = reader.GetOutput().GetSpacing();

    vtkImageChangeInformation change = new vtkImageChangeInformation();
    change.SetInputConnection( reader.GetOutputPort() );
    change.SetOutputSpacing( spacing[0], spacing[1], ippzspacing );

    // A simple vtkInteractorStyleImage example for
    // 3D image viewing with the vtkImageResliceMapper.
    //
    // Drag Left mouse button to window/level
    // Shift-Left drag to rotate (oblique slice)
    // Shift-Middle drag to slice through image
    // OR Ctrl-Right drag to slice through image

    // Create the RenderWindow, Renderer
    vtkRenderer ren1 = new vtkRenderer();
    vtkRenderWindow renWin = new vtkRenderWindow();
    renWin.AddRenderer(ren1);

    vtkImageResliceMapper im = new vtkImageResliceMapper();
    im.SetInputConnection(change.GetOutputPort());
    im.SliceFacesCameraOn();
    im.SliceAtFocalPointOn();
    im.BorderOff();

    vtkImageProperty ip = new vtkImageProperty();
    ip.SetColorWindow(2000);
    ip.SetColorLevel(1000);
    ip.SetAmbient(0.0);
    ip.SetDiffuse(1.0);
    ip.SetOpacity(1.0);
    ip.SetInterpolationTypeToLinear();

    vtkImageSlice ia = new vtkImageSlice();
    ia.SetMapper(im);
    ia.SetProperty(ip);

    ren1.AddViewProp(ia);
    ren1.SetBackground(0.1,0.2,0.4);
    renWin.SetSize(300,300);

    vtkRenderWindowInteractor iren = new vtkRenderWindowInteractor();
    vtkInteractorStyleImage style = new vtkInteractorStyleImage();
    style.SetInteractionModeToImage3D();
    iren.SetInteractorStyle(style);
    renWin.SetInteractor(iren);

    // render the image
    renWin.Render();
    vtkCamera cam1 = ren1.GetActiveCamera();
    cam1.ParallelProjectionOn();
    ren1.ResetCameraClippingRange();
    renWin.Render();

    iren.Start();
    }
}
```

14.172 MPRViewer2.java

```
/*=========================================================================
```

```
  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
import vtk.*;
import gdcm.*;
import java.io.File;

/*
 * Compilation:
 * CLASSPATH=vtkgdcm.jar:/usr/share/java/vtk.jar javac MPRViewer2.java
 *
 * Usage:
 * LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:/usr/lib/jni:.
      CLASSPATH=/usr/share/java/vtk.jar:vtkgdcm.jar:gdcm.jar:. java MPRViewer2 BRAINX
 *
 */
public class MPRViewer2
{
  static {
    // VTK
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkRenderingJava");
    System.loadLibrary("vtkHybridJava");
    System.loadLibrary("vtkWidgetsJava");
    // VTK-GDCM
    System.loadLibrary("vtkgdcmJava");
  }

  static FilenamesType fns = new FilenamesType();

  public static void process(String path)
    {
    fns.add( path );
    }

  // Process only files under dir
  public static void visitAllFiles(File dir)
    {
    if (dir.isDirectory())
      {
      String[] children = dir.list();
      for (int i=0; i<children.length; i++)
        {
        visitAllFiles(new File(dir, children[i]));
        }
      }
    else
      {
      process(dir.getPath());
      }
    }

  public void dointer(vtkImagePlaneWidget  current_widget)
    {
    int cstat = current_widget.GetCursorDataStatus();
    double[] v = current_widget.GetCurrentCursorPosition();
    //System.out.println( cstat );
    //System.out.println( v[0] );
    //System.out.println( v[1] );
    //System.out.println( v[2] );
    planeWidgetX.SetSliceIndex( (int)v[0] );
    planeWidgetY.SetSliceIndex( (int)v[1] );
    planeWidgetZ.SetSliceIndex( (int)v[2] );
    planeWidgetX.GetCurrentRenderer().ResetCameraClippingRange();
    planeWidgetY.GetCurrentRenderer().ResetCameraClippingRange();
    planeWidgetZ.GetCurrentRenderer().ResetCameraClippingRange();
    }
  public void startinterX()
    {
```

```
    dointer( planeWidgetX );
    }
  public void interX()
    {
    dointer( planeWidgetX );
    }
  public void endinterX()
    {
    }
  public void startinterY()
    {
    dointer( planeWidgetY );
    }
  public void interY()
    {
    dointer( planeWidgetY );
    }
  public void endinterY()
    {
    }
  public void startinterZ()
    {
    dointer( planeWidgetZ );
    }
  public void interZ()
    {
    dointer( planeWidgetZ );
    }
  public void endinterZ()
    {
    //System.out.println( "endinter" );
    }

  public static void AlignCamera(int slice_number, vtkImagePlaneWidget current_widget)
    {
    vtkImageData image = (vtkImageData)current_widget.GetInput();
    vtkRenderer ren = current_widget.GetCurrentRenderer();
    double[] origin = image.GetOrigin();
    double ox = origin[0];
    double oy = origin[1];
    double oz = origin[2];

    int dims[] = image.GetDimensions();
    int xMin = 0;
    int xMax = 1;
    int yMin = 2;
    int yMax = dims[0]-1;
    int zMin = dims[1]-1;
    int zMax = dims[2]-1;

    double[] spacing = image.GetSpacing();
    double sx = spacing[0];
    double sy = spacing[1];
    double sz = spacing[2];

    double cx = ox+(0.5*(xMax-xMin))*sx;
    double cy = oy+(0.5*(yMax-yMin))*sy;
    double cz = oy+(0.5*(zMax-zMin))*sz;
    double vx = 0, vy = 0, vz = 0;
    double nx = 0, ny = 0, nz = 0;
    int iaxis = current_widget.GetPlaneOrientation();
    if ( iaxis == 0 ) {
      vz = -1;
      nx = ox + xMax*sx;
      cx = ox + slice_number*sx;
      }
    else if ( iaxis == 1 ) {
      vz = -1;
      ny = oy+yMax*sy;
      cy = oy+slice_number*sy;
      }
    else {
      vy = 1;
      nz = oz+zMax*sz;
      cz = oz+slice_number*sz;
    }
    double px = cx+nx*2;
    double py = cy+ny*2;
    double pz = cz+nz*3;

    vtkCamera camera = ren.GetActiveCamera();
```

```
    camera.SetViewUp(vx, vy, vz);
    camera.SetFocalPoint(cx, cy, cz);
    camera.SetPosition(px, py, pz);
    camera.OrthogonalizeViewUp();
    ren.ResetCameraClippingRange();
    }

  private vtkImagePlaneWidget planeWidgetX = new vtkImagePlaneWidget();
  private vtkImagePlaneWidget planeWidgetY = new vtkImagePlaneWidget();
  private vtkImagePlaneWidget planeWidgetZ = new vtkImagePlaneWidget();

  public void config()
    {
    //System.out.println( "config" );
    planeWidgetX.GetCurrentRenderer().ResetCamera();
    planeWidgetY.GetCurrentRenderer().ResetCamera();
    planeWidgetZ.GetCurrentRenderer().ResetCamera();
    }

  public void Run(String dirname)
    {
    File dir = new File(dirname);
    visitAllFiles(dir);

    IPPSorter ipp = new IPPSorter();
    ipp.SetComputeZSpacing( true );
    ipp.SetZSpacingTolerance( 1e-3 );
    boolean b = ipp.Sort( fns );
    if(!b)
      {
      //throw new Exception("Could not scan");
      }
    double ippzspacing = ipp.GetZSpacing();

    FilenamesType sorted = ipp.GetFilenames();
    vtkStringArray files = new vtkStringArray();
    long nfiles = sorted.size();
    //for( String f : sorted )
    for (int i = 0; i < nfiles; i++) {
      String f = sorted.get(i);
      files.InsertNextValue( f );
      }
    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileNames( files );
    reader.Update(); // get spacing value

    double[] spacing = reader.GetOutput().GetSpacing();

    vtkImageChangeInformation change = new vtkImageChangeInformation();
    change.SetInputConnection( reader.GetOutputPort() );
    change.SetOutputSpacing( spacing[0], spacing[1], ippzspacing );
    change.Update();

    System.out.println( change.GetOutput().toString() );

    vtkRenderer ren1 = new vtkRenderer();
    ren1.SetViewport(0., 0., 0.333, 1);
    ren1.SetBackground(0.1,0.2,0.4);
    vtkRenderer ren2 = new vtkRenderer();
    ren2.SetViewport(0.333, 0., 0.667, 1);
    ren2.SetBackground(0.1,0.2,0.4);
    vtkRenderer ren3 = new vtkRenderer();
    ren3.SetViewport(0.667, 0., 1., 1.);
    ren3.SetBackground(0.1,0.2,0.4);

    vtkRenderWindow renWin = new vtkRenderWindow();
    renWin.AddRenderer(ren1);
    renWin.AddRenderer(ren2);
    renWin.AddRenderer(ren3);

    vtkRenderWindowInteractor iren = new vtkRenderWindowInteractor();
    iren.SetRenderWindow(renWin);

    vtkInteractorStyleImage style = new vtkInteractorStyleImage();
    iren.SetInteractorStyle( style );

    vtkCellPicker picker = new vtkCellPicker();
```

```
picker.SetTolerance(0.005);

vtkProperty ipwProp = new vtkProperty();

//vtkImagePlaneWidget planeWidgetX = new vtkImagePlaneWidget();
planeWidgetX.SetInteractor(iren);
planeWidgetX.SetCurrentRenderer(ren1);
planeWidgetX.SetDefaultRenderer(ren1);
planeWidgetX.RestrictPlaneToVolumeOn();
planeWidgetX.SetTexturePlaneProperty(ipwProp);
//planeWidgetX.GetPlaneProperty().SetColor(1,0,0);
//planeWidgetX.TextureInterpolateOff();
//planeWidgetX.SetResliceInterpolateToNearestNeighbour();
planeWidgetX.SetInputConnection(change.GetOutputPort());
planeWidgetX.SetPlaneOrientationToXAxes();
planeWidgetX.SetSliceIndex(62);
planeWidgetX.SetPicker(picker);
planeWidgetX.SetKeyPressActivationValue('x');
planeWidgetX.On();
planeWidgetX.InteractionOn();

//vtkImagePlaneWidget planeWidgetY = new vtkImagePlaneWidget();
planeWidgetY.SetInteractor(iren);
planeWidgetY.SetCurrentRenderer(ren2);
planeWidgetY.SetDefaultRenderer(ren2);
planeWidgetY.RestrictPlaneToVolumeOn();
planeWidgetY.SetTexturePlaneProperty(ipwProp);
//planeWidgetY.GetPlaneProperty().SetColor(1,0,0);
//planeWidgetY.TextureInterpolateOff();
//planeWidgetY.SetResliceInterpolateToNearestNeighbour();
planeWidgetY.SetInputConnection(change.GetOutputPort());
planeWidgetY.SetLookupTable( planeWidgetX.GetLookupTable() );
planeWidgetY.SetPlaneOrientationToYAxes();
planeWidgetY.SetSliceIndex(32);
planeWidgetY.SetPicker(picker);
planeWidgetY.SetKeyPressActivationValue('y');
planeWidgetY.On();


//vtkImagePlaneWidget planeWidgetZ = new vtkImagePlaneWidget();
planeWidgetZ.SetInteractor(iren);
planeWidgetZ.SetCurrentRenderer(ren3);
planeWidgetZ.SetDefaultRenderer(ren3);
planeWidgetZ.RestrictPlaneToVolumeOn();
planeWidgetZ.SetTexturePlaneProperty(ipwProp);
//planeWidgetZ.GetPlaneProperty().SetColor(1,0,0);
//planeWidgetZ.TextureInterpolateOff();
//planeWidgetZ.SetResliceInterpolateToNearestNeighbour();
planeWidgetZ.SetInputConnection(change.GetOutputPort());
planeWidgetZ.SetLookupTable( planeWidgetX.GetLookupTable() );
planeWidgetZ.SetPlaneOrientationToZAxes();
planeWidgetZ.SetSliceIndex(32);
planeWidgetZ.SetPicker(picker);
planeWidgetZ.SetKeyPressActivationValue('z');
planeWidgetZ.On();

iren.Initialize();

renWin.Render();
AlignCamera(52, planeWidgetX);
AlignCamera(32, planeWidgetY);
AlignCamera(32, planeWidgetZ);

planeWidgetX.GetCurrentRenderer().ResetCamera();
planeWidgetY.GetCurrentRenderer().ResetCamera();
planeWidgetZ.GetCurrentRenderer().ResetCamera();

renWin.Render();

planeWidgetX.AddObserver("StartInteractionEvent", this,"startinterX");
planeWidgetX.AddObserver("InteractionEvent", this,"interX");
planeWidgetX.AddObserver("EndInteractionEvent", this,"endinterX");
planeWidgetY.AddObserver("StartInteractionEvent", this,"startinterY");
planeWidgetY.AddObserver("InteractionEvent", this,"interY");
planeWidgetY.AddObserver("EndInteractionEvent", this,"endinterY");
planeWidgetZ.AddObserver("StartInteractionEvent", this,"startinterZ");
planeWidgetZ.AddObserver("InteractionEvent", this,"interZ");
```

```
    planeWidgetZ.AddObserver("EndInteractionEvent", this,"endinterZ");

    iren.AddObserver("ConfigureEvent", this,"config");

    iren.Start();
    }

  public static void main(String[] args) throws Exception
    {
    String dirname = args[0];
    if( !PosixEmulation.FileIsDirectory( dirname ) )
      {
      return;
      }

    MPRViewer2 me = new MPRViewer2();
    me.Run( dirname );
    }
}
```

14.173 ReadSeriesIntoVTK.java

```
/*=========================================================================

  Program: GDCM (Grassroots DICOM). A DICOM library

  Copyright (c) 2006-2011 Mathieu Malaterre
  All rights reserved.
  See Copyright.txt or http://gdcm.sourceforge.net/Copyright.html for details.

     This software is distributed WITHOUT ANY WARRANTY; without even
     the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR
     PURPOSE.  See the above copyright notice for more information.

=========================================================================*/
// We are required to call the package 'vtk' even though I (MM) would have preferred
// an import statement along the line of:
// import vtkgdcm.*;
import vtk.*;

/*
 * Usage:
 * export LD_LIBRARY_PATH=/usr/lib/jvm/java-6-openjdk/jre/lib/amd64/xawt:.
 * java -classpath `pwd`/vtkgdcm.jar:/usr/share/java/vtk.jar:. ReadSeriesIntoVTK
 */
public class ReadSeriesIntoVTK
{
  static {
    System.loadLibrary("vtkCommonJava");
    System.loadLibrary("vtkFilteringJava");
    System.loadLibrary("vtkIOJava");
    System.loadLibrary("vtkImagingJava");
    System.loadLibrary("vtkGraphicsJava");
    System.loadLibrary("vtkgdcmJava");
    try {
      System.loadLibrary("vtkRenderingJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkHybrid, skipping...");
    }
    try {
      System.loadLibrary("vtkHybridJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkHybrid, skipping...");
    }
    try {
      System.loadLibrary("vtkVolumeRenderingJava");
    } catch (Throwable e) {
      System.out.println("cannot load vtkVolumeRendering, skipping...");
    }
  }

  public static void main(String[] args)
    {
    vtkFileOutputWindow outWin = new vtkFileOutputWindow();
    outWin.SetInstance(outWin);
```

```
    outWin.SetFileName("MVSVTKViewer.log");

    // See: http://review.source.kitware.com/#change,888
    // vtkWrapJava does not handle static keyword
    // String directory = vtkGDCMTesting.GetGDCMDataRoot();
    vtkGDCMTesting t = new vtkGDCMTesting();
    String directory = t.GetGDCMDataRoot();
    String file0 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq0.dcm";
    String file1 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq1.dcm";
    String file2 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq2.dcm";
    String file3 = directory + "/SIEMENS_MAGNETOM-12-MONO2-FileSeq3.dcm";

    vtkStringArray s = new vtkStringArray();
    System.out.println("adding : " + file0 );
    s.InsertNextValue( file0 );
    s.InsertNextValue( file1 );
    s.InsertNextValue( file2 );
    s.InsertNextValue( file3 );

    vtkGDCMImageReader reader = new vtkGDCMImageReader();
    reader.SetFileNames( s );
    reader.Update();

    System.out.println("Success reading: " + file0 );

    vtkMetaImageWriter writer = new vtkMetaImageWriter();
    writer.DebugOn();
    writer.SetCompression( false );
    writer.SetInputConnection( reader.GetOutputPort() );
    writer.SetFileName( "ReadSeriesIntoVTK.mhd" );
    writer.Write();

    System.out.println("Success writing: " + writer.GetFileName() );
    }
}
```

14.174 CastConvertPhilips.py

```
"""
Usage:

 python --public /path/to/directory/
or
 python --private /path/to/directory/

 python --public --extension bak /path/to/directory/

rename -f 's/\.bak$//' *.bak

TODO:
http://docs.python.org/library/optparse.html#module-optparse
"""

import vtkgdcm
import vtk
import sys
import gdcm

def ProcessOneFilePublic(filename, outfilename, tmpfile):
  gdcm.ImageHelper.SetForceRescaleInterceptSlope(True)
  vtkreader = vtkgdcm.vtkGDCMImageReader()
  vtkreader.SetFileName( filename )
  vtkreader.Update()

  cast = vtk.vtkImageCast()
  cast.SetInput( vtkreader.GetOutput() )
  cast.SetOutputScalarTypeToUnsignedShort()

  # vtkGDCMImageWriter does not support Sequence, so let's write a tmp file first:
  # Some operation will actually be discarded (we simply need a temp storage)
  vtkwriter = vtkgdcm.vtkGDCMImageWriter()
  vtkwriter.SetFileName( tmpfile )
  vtkwriter.SetMedicalImageProperties( vtkreader.GetMedicalImageProperties() )
  vtkwriter.SetDirectionCosines( vtkreader.GetDirectionCosines() )
```

```
  print "Format:",vtkreader.GetImageFormat()
  vtkwriter.SetImageFormat( vtkreader.GetImageFormat() )
  vtkwriter.SetInput( cast.GetOutput() )
  #vtkwriter.Update()
  vtkwriter.Write()

  # ok now rewrite the exact same file as the original (keep all info)
  # but use the Pixel Data Element from the written file
  tmpreader = gdcm.ImageReader()
  tmpreader.SetFileName( tmpfile )
  if not tmpreader.Read():
    sys.exit(1)

  reader = gdcm.Reader()
  reader.SetFileName( filename )
  if not reader.Read():
    sys.exit(1)

  # Make sure to remove Slope/Rescale to avoid re-execution
  ds = reader.GetFile().GetDataSet()
  tags = [
    gdcm.Tag(0x0028,0x1052),
    gdcm.Tag(0x0028,0x1053),
    gdcm.Tag(0x0028,0x1053),
  ]
  for tag in tags:
    ds.Remove( tag )

  writer = gdcm.ImageWriter()
  writer.SetFileName( outfilename )
  # Pass image from vtk written file
  writer.SetImage( tmpreader.GetImage() )
  # pass dataset from initial 'reader'
  writer.SetFile( reader.GetFile() )
  if not writer.Write():
    sys.exit(1)

def ProcessOneFilePrivate(filename, outfilename, tmpfile):
  vtkreader = vtkgdcm.vtkGDCMImageReader()
  vtkreader.SetFileName( filename )
  vtkreader.Update()


  # (2005,1409)     DS      4       0.0
  # (2005,140a)     DS      16      1.52283272283272

  # (2005,0014)     LO      26      Philips MR Imaging DD 005
  tag1 = gdcm.PrivateTag(0x2005,0x09,"Philips MR Imaging DD 005")
  tag2 = gdcm.PrivateTag(0x2005,0x0a,"Philips MR Imaging DD 005")



  # Need to access some private tags, reread the file (for now):
  reader = gdcm.Reader()
  reader.SetFileName( filename )
  if not reader.Read():
    sys.exit(1)

  ds = reader.GetFile().GetDataSet()

  el1 = ds.GetDataElement( tag1 )
  el2 = ds.GetDataElement( tag2 )


  #pf = gdcm.PythonFilter()
  #pf.SetFile( reader.GetFile() )
  #print el1.GetTag()

  print el1.GetByteValue()
  v1 = eval(el1.GetByteValue().GetBuffer())
  print el2.GetByteValue()
  v2 = eval(el2.GetByteValue().GetBuffer())

  print v1
  shift = v1
  print v2
  scale = v2

  ss = vtk.vtkImageShiftScale()
  ss.SetInput( vtkreader.GetOutput() )
  # because VTK image shift / scale convention is inverted from DICOM make sure shift is 0
```

```
  assert shift == 0
  ss.SetShift( shift )
  ss.SetScale( scale )
  ss.SetOutputScalarTypeToUnsignedShort ()
  ss.Update()

  # vtkGDCMImageWriter does not support Sequence, so let's write a tmp file first:
  # Some operation will actually be discarded (we simply need a temp storage)
  vtkwriter = vtkgdcm.vtkGDCMImageWriter()
  vtkwriter.SetFileName( tmpfile )
  vtkwriter.SetMedicalImageProperties( vtkreader.GetMedicalImageProperties() )
  vtkwriter.SetDirectionCosines( vtkreader.GetDirectionCosines() )
  vtkwriter.SetImageFormat( reader.GetImageFormat() )
  # do not pass shift/scale again
  vtkwriter.SetInput( ss.GetOutput() )
  #vtkwriter.Update()
  vtkwriter.Write()

  # ok now rewrite the exact same file as the original (keep all info)
  # but use the Pixel Data Element from the written file
  tmpreader = gdcm.ImageReader()
  tmpreader.SetFileName( tmpfile )
  if not tmpreader.Read():
    sys.exit(1)

  writer = gdcm.ImageWriter()
  writer.SetFileName( outfilename )
  # Pass image from vtk written file
  writer.SetImage( tmpreader.GetImage() )
  # pass dataset from initial 'reader'
  writer.SetFile( reader.GetFile() )
  if not writer.Write():
    sys.exit(1)

if __name__ == "__main__":

  gdcm.Trace.DebugOff()
  gdcm.Trace.WarningOff()
  #filename = sys.argv[1]
  #outfilename = sys.argv[2]
  tmpfile = "/tmp/philips_rescaled.dcm"
  #ProcessOneFile( filename, outfilename, tmpfile )
  rescaletype = sys.argv[1]
  assert rescaletype == "--public" or rescaletype == "--private"
  dirname = sys.argv[2]
  d = gdcm.Directory()
  d.Load( dirname )

  for f in d.GetFilenames():
    #print f
    ProcessOneFilePublic( f, f + ".bak", tmpfile )


print "success"
```

14.175 headsq2dcm.py

```
"""
Usage:
 python headsq2dcm.py -D /path/to/VTKData
"""

import vtk
import vtkgdcm
from vtk.util.misc import vtkGetDataRoot
VTK_DATA_ROOT = vtkGetDataRoot()

reader = vtk.vtkVolume16Reader()
reader.SetDataDimensions(64, 64)
reader.SetDataByteOrderToLittleEndian()
reader.SetFilePrefix(VTK_DATA_ROOT + "/Data/headsq/quarter")
reader.SetImageRange(1, 93)
reader.SetDataSpacing(3.2, 3.2, 1.5)

cast = vtk.vtkImageCast()
```

```
cast.SetInput( reader.GetOutput() )
cast.SetOutputScalarTypeToUnsignedChar()

# By default this is creating a Multiframe Grayscale Word Secondary Capture Image Storage
writer = vtkgdcm.vtkGDCMImageWriter()
writer.SetFileName( "headsq.dcm" )
writer.SetInput( reader.GetOutput() )
# cast -> Multiframe Grayscale Byte Secondary Capture Image Storage
#writer.SetInput( cast.GetOutput() )
writer.SetFileDimensionality( 3 )
writer.Write()
```

Index

~ASN1
gdcm::ASN1, 156
~AnonymizeEvent
gdcm::AnonymizeEvent, 133
~Anonymizer
gdcm::Anonymizer, 139
~Attribute
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 190
~AudioCodec
gdcm::AudioCodec, 221
~BaseCompositeMessage
gdcm::network::BaseCompositeMessage, 227
~BaseNormalizedMessage
gdcm::network::BaseNormalizedMessage, 229
~BasePDU
gdcm::network::BasePDU, 231
~BaseQuery
gdcm::BaseQuery, 234
~BaseRootQuery
gdcm::BaseRootQuery, 239
~Bitmap
gdcm::Bitmap, 253
~BitmapToBitmapFilter
gdcm::BitmapToBitmapFilter, 266
~BoxRegion
gdcm::BoxRegion, 269
~ByteSwapFilter
gdcm::ByteSwapFilter, 275
~ByteValue
gdcm::ByteValue, 279
~CAPICryptographicMessageSyntax
gdcm::CAPICryptographicMessageSyntax, 288
~CSAHeader
gdcm::CSAHeader, 352
~Cleaner
gdcm::Cleaner, 301
~Coder
gdcm::Coder, 312
~Command
gdcm::Command, 319
~CommandDataSet
gdcm::CommandDataSet, 323
~CryptoFactory
gdcm::CryptoFactory, 338
~CryptographicMessageSyntax
gdcm::CryptographicMessageSyntax, 339
~Curve
gdcm::Curve, 367
~DICOMDIRGenerator
gdcm::DICOMDIRGenerator, 419
~DPath
gdcm::DPath, 453
~DataEvent
gdcm::DataEvent, 387
~DataSetEvent
gdcm::DataSetEvent, 404
~Decoder
gdcm::Decoder, 407
~Defs
gdcm::Defs, 410
~DeltaEncodingCodec
gdcm::DeltaEncodingCodec, 416
~DictConverter
gdcm::DictConverter, 427
~DictPrinter
gdcm::DictPrinter, 436
~Dicts
gdcm::Dicts, 438
~DirectionCosines
gdcm::DirectionCosines, 444
~Directory
gdcm::Directory, 448
~Dumper
gdcm::Dumper, 458
~Element
gdcm::Element< TVR, VM::VM1_n >, 471
~EmptyMaskGenerator
gdcm::EmptyMaskGenerator, 523
~Event
gdcm::Event, 535
~Exception
gdcm::Exception, 538
~File
gdcm::File, 551
~FileAnonymizer
gdcm::FileAnonymizer, 556
~FileChangeTransferSyntax
gdcm::FileChangeTransferSyntax, 560
~FileDecompressLookupTable

gdcm::FileDecompressLookupTable, 564
~FileDerivation
gdcm::FileDerivation, 566
~FileExplicitFilter
gdcm::FileExplicitFilter, 570
~FileMetaInformation
gdcm::FileMetaInformation, 576
~FileNameEvent
gdcm::FileNameEvent, 587
~FileStreamer
gdcm::FileStreamer, 597
~FilenameGenerator
gdcm::FilenameGenerator, 590
~Global
gdcm::Global, 618
~GroupDict
gdcm::GroupDict, 621
~IconImageFilter
gdcm::IconImageFilter, 624
~IconImageGenerator
gdcm::IconImageGenerator, 627
~Image
gdcm::Image, 635
~ImageApplyLookupTable
gdcm::ImageApplyLookupTable, 641
~ImageChangePhotometricInterpretation
gdcm::ImageChangePhotometricInterpretation, 645
~ImageChangePlanarConfiguration
gdcm::ImageChangePlanarConfiguration, 650
~ImageChangeTransferSyntax
gdcm::ImageChangeTransferSyntax, 655
~ImageCodec
gdcm::ImageCodec, 661
~ImageConverter
gdcm::ImageConverter, 671
~ImageFragmentSplitter
gdcm::ImageFragmentSplitter, 674
~ImageReader
gdcm::ImageReader, 685
~ImageRegionReader
gdcm::ImageRegionReader, 690
~ImageToImageFilter
gdcm::ImageToImageFilter, 694
~ImageWriter
gdcm::ImageWriter, 698
~JPEG12Codec
gdcm::JPEG12Codec, 734
~JPEG16Codec
gdcm::JPEG16Codec, 739
~JPEG2000Codec
gdcm::JPEG2000Codec, 743
~JPEG8Codec
gdcm::JPEG8Codec, 752
~JPEGCodec
gdcm::JPEGCodec, 757
~JPEGLSCodec
gdcm::JPEGLSCodec, 765
~JPEGTurboCodec
gdcm::JPEGTurboCodec, 773
~JSON
gdcm::JSON, 775
~KAKADUCodec
gdcm::KAKADUCodec, 779
~LookupTable
gdcm::LookupTable, 787
~MemberCommand
gdcm::MemberCommand< T >, 817
~MeshPrimitive
gdcm::MeshPrimitive, 823
~ModuleEntry
gdcm::ModuleEntry, 839
~MrProtocol
gdcm::MrProtocol, 852
~Object
gdcm::Object, 881
~OpenSSLCryptographicMessageSyntax
gdcm::OpenSSLCryptographicMessageSyntax, 887
~OpenSSLP7CryptographicMessageSyntax
gdcm::OpenSSLP7CryptographicMessageSyntax, 892
~Orientation
gdcm::Orientation, 895
~Overlay
gdcm::Overlay, 900
~PDBHeader
gdcm::PDBHeader, 921
~PDFCodec
gdcm::PDFCodec, 924
~PGXCodec
gdcm::PGXCodec, 934
~PNMCodec
gdcm::PNMCodec, 970
~PVRGCodec
gdcm::PVRGCodec, 1011
~ParseException
gdcm::ParseException, 908
~Parser
gdcm::Parser, 911
~Pixmap
gdcm::Pixmap, 952
~PixmapReader
gdcm::PixmapReader, 958
~PixmapToPixmapFilter
gdcm::PixmapToPixmapFilter, 961
~PixmapWriter
gdcm::PixmapWriter, 965
~Preamble
gdcm::Preamble, 973

~Printer
gdcm::Printer, 994
~PrivateDict
gdcm::PrivateDict, 997
~ProgressEvent
gdcm::ProgressEvent, 1006
~PythonFilter
gdcm::PythonFilter, 1013
~QueryBase
gdcm::QueryBase, 1015
~RAWCodec
gdcm::RAWCodec, 1031
~RLECodec
gdcm::RLECodec, 1051
~Reader
gdcm::Reader, 1036
~Region
gdcm::Region, 1042
~Rescaler
gdcm::Rescaler, 1045
~SHA1
gdcm::SHA1, 1132
~Scanner
gdcm::Scanner, 1061
~Scanner2
gdcm::Scanner2, 1071
~Segment
gdcm::Segment, 1080
~SegmentReader
gdcm::SegmentReader, 1092
~SegmentWriter
gdcm::SegmentWriter, 1097
~SegmentedPaletteColorLookupTable
gdcm::SegmentedPaletteColorLookupTable, 1088
~SerieHelper
gdcm::SerieHelper, 1118
~ServiceClassUser
gdcm::ServiceClassUser, 1126
~SimpleMemberCommand
gdcm::SimpleMemberCommand< T >, 1136
~SimpleSubjectWatcher
gdcm::SimpleSubjectWatcher, 1139
~SmartPointer
gdcm::SmartPointer< ObjectType >, 1145
~Sorter
gdcm::Sorter, 1152
~Spacing
gdcm::Spacing, 1156
~SplitGridFilter
gdcm::SplitGridFilter, 1159
~SplitMosaicFilter
gdcm::SplitMosaicFilter, 1162
~StreamImageReader
gdcm::StreamImageReader, 1169
~StreamImageWriter
gdcm::StreamImageWriter, 1173
~StrictScanner
gdcm::StrictScanner, 1182
~StrictScanner2
gdcm::StrictScanner2, 1192
~StringFilter
gdcm::StringFilter, 1203
~Subject
gdcm::Subject, 1208
~Surface
gdcm::Surface, 1214
~SurfaceReader
gdcm::SurfaceReader, 1229
~SurfaceWriter
gdcm::SurfaceWriter, 1234
~Table
gdcm::Table, 1248
~TableEntry
gdcm::TableEntry, 1250
~TableReader
gdcm::TableReader, 1252
~TableRow
gdcm::network::TableRow, 1255
~TagPath
gdcm::TagPath, 1267
~Testing
gdcm::Testing, 1270
~Trace
gdcm::Trace, 1276
~Transition
gdcm::network::Transition, 1289
~ULAction
gdcm::network::ULAction, 1315
~ULBasicCallback
gdcm::network::ULBasicCallback, 1356
~ULConnection
gdcm::network::ULConnection, 1358
~ULConnectionCallback
gdcm::network::ULConnectionCallback, 1363
~ULConnectionManager
gdcm::network::ULConnectionManager, 1369
~ULEvent
gdcm::network::ULEvent, 1374
~ULWritingCallback
gdcm::network::ULWritingCallback, 1378
~UserInformation
gdcm::network::UserInformation, 1393
~Validate
gdcm::Validate, 1396
~Value
gdcm::Value, 1399
~Version
gdcm::Version, 1403

~Writer
gdcm::Writer, 1547
~XMLDictReader
gdcm::XMLDictReader, 1551
~XMLPrinter
gdcm::XMLPrinter, 1554
~XMLPrivateDictReader
gdcm::XMLPrivateDictReader, 1558
~vtkGDCMImageReader
vtkGDCMImageReader, 1432
~vtkGDCMImageReader2
vtkGDCMImageReader2, 1447
~vtkGDCMImageWriter
vtkGDCMImageWriter, 1461
~vtkGDCMMedicalImageProperties
vtkGDCMMedicalImageProperties, 1468
~vtkGDCMPolyDataReader
vtkGDCMPolyDataReader, 1472
~vtkGDCMPolyDataWriter
vtkGDCMPolyDataWriter, 1477
~vtkGDCMTesting
vtkGDCMTesting, 1481
~vtkGDCMThreadedImageReader
vtkGDCMThreadedImageReader, 1486
~vtkGDCMThreadedImageReader2
vtkGDCMThreadedImageReader2, 1490
~vtkImageColorViewer
vtkImageColorViewer, 1499
~vtkImageMapToColors16
vtkImageMapToColors16, 1510
~vtkImageMapToWindowLevelColors2
vtkImageMapToWindowLevelColors2, 1516
~vtkImagePlanarComponentsToComponents
vtkImagePlanarComponentsToComponents, 1519
~vtkImageRGBToYBR
vtkImageRGBToYBR, 1522
~vtkImageYBRToRGB
vtkImageYBRToRGB, 1524
~vtkLookupTable16
vtkLookupTable16, 1526
~vtkRTStructSetProperties
vtkRTStructSetProperties, 1531

AAbortPDU
gdcm::network::AAbortPDU, 114
AAssociateACPDU
gdcm::network::AAssociateACPDU, 117
gdcm::network::AAssociateRQPDU, 127
AAssociateRJPDU
gdcm::network::AAssociateRJPDU, 121
AAssociateRQPDU
gdcm::network::AAssociateACPDU, 119
gdcm::network::AAssociateRQPDU, 124
AbstractSyntax
gdcm::network::AbstractSyntax, 129
gdcm::PresentationContext, 979
ActiveComponent
vtkImageMapToColors16, 1513
Add
gdcm::GroupDict, 622
add1
gdcm, 91
AddAcceptedPresentationContext
gdcm::network::ULConnection, 1358
AddContourReferencedFrameOfReference
vtkRTStructSetProperties, 1531
AddCSAHeaderDictEntry
gdcm::CSAHeaderDict, 357
AddDerivationDescription
gdcm::FileDerivation, 567
AddDictEntry
gdcm::Dict, 423
gdcm::PrivateDict, 997
AddFile
gdcm::FileSet, 594
gdcm::SerieHelper, 1118
AddFileName
gdcm::SerieHelper, 1118
AddFragment
gdcm::SequenceOfFragments, 1102
AddFromFile
gdcm::PresentationContextGenerator, 983
AddGroupLength
gdcm::DictConverter, 427
AddImageDirectoryRecord
gdcm::DICOMDIRGenerator, 419
AddInput
vtkImageColorViewer, 1499
AddInputConnection
vtkImageColorViewer, 1499
AddIOD
gdcm::IODs, 716
AddIODEntry
gdcm::IOD, 710
AddItem
gdcm::SequenceOfItems, 1110
AddMacro
gdcm::Macros, 798
gdcm::Module, 835
AddMacroEntry
gdcm::Macro, 796
AddModule
gdcm::Modules, 843
AddModuleEntry
gdcm::Module, 835
gdcm::NestedModuleEntries, 865
AddNewUndefinedLengthItem
gdcm::SequenceOfItems, 1110

AddObserver
gdcm::Subject, 1209
AddPatientDirectoryRecord
gdcm::DICOMDIRGenerator, 419
AddPresentationContext
gdcm::network::AAssociateRQPDU, 124
gdcm::PresentationContextGenerator, 983
AddPresentationContextAC
gdcm::network::AAssociateACPDU, 118
AddPresentationDataValue
gdcm::network::PDataTFPDU, 915
AddPrimitiveData
gdcm::MeshPrimitive, 823
AddPrivateTag
gdcm::Scanner, 1061
gdcm::Scanner2, 1071
gdcm::StrictScanner, 1182
gdcm::StrictScanner2, 1192
AddPublicTag
gdcm::Scanner2, 1071
gdcm::StrictScanner2, 1192
AddPurposeOfReferenceCodeSequence
gdcm::FileDerivation, 567
AddQueryDataSet
gdcm::BaseQuery, 234
AddReference
gdcm::FileDerivation, 567
AddReferencedFrameOfReference
vtkRTStructSetProperties, 1531
AddRestriction
gdcm::SerieHelper, 1118
AddRoleSelectionSub
gdcm::network::UserInformation, 1393
AddSegment
gdcm::SegmentWriter, 1097
AddSelect
gdcm::Sorter, 1152
AddSeriesDirectoryRecord
gdcm::DICOMDIRGenerator, 419
AddSkipTag
gdcm::Scanner, 1061
gdcm::Scanner2, 1071
gdcm::StrictScanner, 1182
gdcm::StrictScanner2, 1192
AddSOPClassExtendedNegociationSub
gdcm::network::UserInformation, 1393
AddSourceImageSequence
gdcm::FileDerivation, 567
AddStructureSetROI
vtkRTStructSetProperties, 1531
AddStructureSetROIObservation
vtkRTStructSetProperties, 1532
AddStudyDirectoryRecord
gdcm::DICOMDIRGenerator, 419
AddSurface
gdcm::Segment, 1080
AddTag
gdcm::Scanner, 1061
gdcm::StrictScanner, 1183
AddTransferSyntax
gdcm::network::PresentationContextRQ, 986
gdcm::PresentationContext, 978
AE
gdcm::VR, 1416
AEComp
gdcm, 86
AES128_CIPHER
gdcm::CryptographicMessageSyntax, 339
AES192_CIPHER
gdcm::CryptographicMessageSyntax, 339
AES256_CIPHER
gdcm::CryptographicMessageSyntax, 339
AffectedSOPClassUID
gdcm::network::CEchoRQ, 292
AGFA
gdcm::EquipmentManufacturer, 533
ALGOType
gdcm::Segment, 1080
ALGOType_END
gdcm::Segment, 1080
Allocate
gdcm::LookupTable, 788
AmbulatoryECGWaveformStorage
gdcm::MediaStorage, 807
AnatomicRegion
gdcm::Segment, 1084
AnatomicRegionModifiers
gdcm::Segment, 1084
AnonymizeEvent
gdcm::AnonymizeEvent, 133
Anonymizer
gdcm::Anonymizer, 139
Append
gdcm::ByteValue, 280
gdcm::Global, 618
AppendFrameEncode
gdcm::ImageCodec, 661
gdcm::JPEG2000Codec, 743
gdcm::JPEGCodec, 757
gdcm::JPEGLSCodec, 766
gdcm::RLECodec, 1052
AppendImplementationClassUID
gdcm::FileMetaInformation, 577
AppendRowEncode
gdcm::ImageCodec, 661
gdcm::JPEG2000Codec, 743
gdcm::JPEGCodec, 757
gdcm::JPEGLSCodec, 766

gdcm::RLECodec, 1052
AppendToDataElement
gdcm::FileStreamer, 598
AppendToGroupDataElement
gdcm::FileStreamer, 598
ApplicationContext
gdcm::network::ApplicationContext, 146
Apply
gdcm::ImageApplyLookupTable, 642
ApplyInverseVideo
vtkGDCMImageReader, 1441
vtkGDCMImageReader2, 1456
ApplyLookupTable
vtkGDCMImageReader, 1441
vtkGDCMImageReader2, 1456
ApplyPlanarConfiguration
vtkGDCMImageReader, 1441
vtkGDCMImageReader2, 1456
ApplyShiftScale
vtkGDCMImageReader, 1441
vtkGDCMImageReader2, 1456
ApplyYBRToRGB
vtkGDCMImageReader, 1441
vtkGDCMImageReader2, 1456
Area
gdcm::BoxRegion, 269
gdcm::Region, 1042
AReleaseRPPDU
gdcm::network::AReleaseRPPDU, 150
AReleaseRQPDU
gdcm::network::AReleaseRQPDU, 153
AreOverlaysInPixelData
gdcm::Bitmap, 253
gdcm::Pixmap, 952
ARGB
gdcm::PhotometricInterpretation, 937
ArrayIncludeMacrosType
gdcm::Macro, 795
gdcm::Module, 835
ArrayType
gdcm::Attribute< Group, Element, TVR, TVM >, 160
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 170
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 178
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 183
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 189
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 198
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 204
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 210
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 216
ARTIMTimer
gdcm::network::ARTIMTimer, 154
AS
gdcm::VR, 1416
ASComp
gdcm, 86
ASN1
gdcm::ASN1, 156
AsynchronousOperationsWindowSub
gdcm::network::AsynchronousOperationsWindowSub, 157
AT
gdcm::VR, 1416
Attribute
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 190
gdcm::terminal, 110
Audio
gdcm::MediaStorage, 810
AudioCodec
gdcm::AudioCodec, 221
AUTOMATIC
gdcm::Segment, 1080
AutoPixelMinMax
gdcm::IconImageGenerator, 627
AXIAL
gdcm::Orientation, 895

backslash
gdcm, 91
BadBigEndian
gdcm::SwapCode, 1237
BadLittleEndian
gdcm::SwapCode, 1237
BALCPProtect
gdcm::Anonymizer, 139
Base64
gdcm::Base64, 223
BaseQuery
gdcm::BaseQuery, 234
BaseRootQuery
gdcm::BaseRootQuery, 239
BasicApplicationLevelConfidentialityProfile
gdcm::Anonymizer, 139
BasicCodedEntry
gdcm::SegmentHelper::BasicCodedEntry, 244
BasicCodedEntryVector
gdcm::Segment, 1079
BasicOffsetTable
gdcm::BasicOffsetTable, 249

BasicTextSR
gdcm::MediaStorage, 808
BasicVoiceAudioWaveformStorage
gdcm::MediaStorage, 807
Begin
gdcm::CSAHeaderDict, 357
gdcm::DataSet, 393
gdcm::Dict, 423
gdcm::IODs, 716
gdcm::Scanner, 1062
gdcm::Scanner2, 1071
gdcm::SequenceOfFragments, 1102
gdcm::SequenceOfItems, 1110, 1111
gdcm::StrictScanner, 1183
gdcm::StrictScanner2, 1192
BigEndian
gdcm::SwapCode, 1237
Bitmap
gdcm::Bitmap, 253
gdcm::JPEG2000Codec, 747
gdcm::PixelFormat, 947
BitmapToBitmapFilter
gdcm::BitmapToBitmapFilter, 266
BitSample
gdcm::JPEGCodec, 762
gdcm::LookupTable, 792
black
gdcm::terminal, 110
blink
gdcm::terminal, 110
BLUE
gdcm::LookupTable, 787
blue
gdcm::terminal, 110
BOOL_FUNCTION_PFILE_PFILE_POINTER
gdcm, 86
BoundingBox
gdcm::BoxRegion, 269
BoxRegion
gdcm::BoxRegion, 269
BreakConnection
gdcm::network::ULConnectionManager, 1369
BreakConnectionNow
gdcm::network::ULConnectionManager, 1369
BreastProjectionXRayImageStorageForPresentation
gdcm::MediaStorage, 809
BreastProjectionXRayImageStorageForProcessing
gdcm::MediaStorage, 809
BreastTomosynthesisImageStorage
gdcm::MediaStorage, 809
bright
gdcm::terminal, 110
Bug List, 7
Build
vtkLookupTable16, 1527
ByteBuffer
gdcm::ByteBuffer, 272
bytes
gdcm::Tag, 1265
ByteSwap
gdcm::ByteSwapFilter, 276
ByteSwapFilter
gdcm::ByteSwapFilter, 275, 276
ByteValue
gdcm::ByteValue, 279

C_CANCEL_RQ
gdcm::network::DIMSE, 442
C_ECHO_RQ
gdcm::network::DIMSE, 442
C_ECHO_RSP
gdcm::network::DIMSE, 442
C_FIND_RQ
gdcm::network::DIMSE, 442
C_FIND_RSP
gdcm::network::DIMSE, 442
C_GET_RQ
gdcm::network::DIMSE, 442
C_GET_RSP
gdcm::network::DIMSE, 442
C_MOVE_RQ
gdcm::network::DIMSE, 442
C_MOVE_RSP
gdcm::network::DIMSE, 442
C_STORE_RQ
gdcm::network::DIMSE, 442
C_STORE_RSP
gdcm::network::DIMSE, 442
CALIBRATED
gdcm::Spacing, 1156
CanCode
gdcm::AudioCodec, 222
gdcm::Coder, 312
gdcm::ImageCodec, 662
gdcm::JPEG2000Codec, 744
gdcm::JPEGCodec, 757
gdcm::JPEGLSCodec, 766
gdcm::KAKADUCodec, 780
gdcm::PDFCodec, 924
gdcm::PGXCodec, 934
gdcm::PNMCodec, 970
gdcm::PVRGCodec, 1011
gdcm::RAWCodec, 1031
gdcm::RLECodec, 1052
CanDecode
gdcm::AudioCodec, 222
gdcm::Decoder, 407
gdcm::DeltaEncodingCodec, 416

gdcm::ImageCodec, 662
gdcm::JPEG2000Codec, 744
gdcm::JPEGCodec, 757
gdcm::JPEGLSCodec, 766
gdcm::KAKADUCodec, 780
gdcm::PDFCodec, 924
gdcm::PGXCodec, 934
gdcm::PNMCodec, 970
gdcm::PVRGCodec, 1011
gdcm::RAWCodec, 1031
gdcm::RLECodec, 1052
CanDisplay
gdcm::VR, 1418
CanEmptyTag
gdcm::Anonymizer, 139
CanRead
gdcm::Reader, 1036
CanReadFile
vtkGDCMImageReader, 1432
vtkGDCMImageReader2, 1447
CanReadImage
gdcm::StreamImageReader, 1169
CanStoreLossy
gdcm::TransferSyntax, 1284
CanWriteFile
gdcm::StreamImageWriter, 1174
CAPI
gdcm::CryptoFactory, 337
CAPICryptoFactory
gdcm::CAPICryptoFactory, 286
CAPICryptographicMessageSyntax
gdcm::CAPICryptographicMessageSyntax, 288
CardiacElectrophysiologyWaveformStorage
gdcm::MediaStorage, 807
CEcho
gdcm::CompositeNetworkFunctions, 328
CFind
gdcm::CompositeNetworkFunctions, 328
Change
gdcm::FileChangeTransferSyntax, 561
gdcm::FileDecompressLookupTable, 564
gdcm::FileExplicitFilter, 570
gdcm::ImageChangePhotometricInterpretation, 645
gdcm::ImageChangePlanarConfiguration, 650
gdcm::ImageChangeTransferSyntax, 655
ChangeFMI
gdcm::FileExplicitFilter, 570
ChangeMonochrome
gdcm::ImageChangePhotometricInterpretation, 645
ChangeRGB2YBR
gdcm::ImageChangePhotometricInterpretation, 645
ChangeYBR2RGB
gdcm::ImageChangePhotometricInterpretation, 645
CharacterDataHandler
gdcm::TableReader, 1252
gdcm::XMLDictReader, 1552
gdcm::XMLPrivateDictReader, 1558
CheckDataElement
gdcm::FileStreamer, 598
CheckEvent
gdcm::AnonymizeEvent, 134
gdcm::DataEvent, 388
gdcm::DataSetEvent, 404
gdcm::Event, 535
gdcm::FileNameEvent, 588
gdcm::ProgressEvent, 1007
CheckFileMetaInformationOff
gdcm::Writer, 1547
CheckFileMetaInformationOn
gdcm::Writer, 1547
CheckTemplateFileName
gdcm::FileStreamer, 598
CipherTypes
gdcm::CryptographicMessageSyntax, 339
Clamp
gdcm, 91
Clean
gdcm::Cleaner, 301
clean
gdcm, 91
Cleaner
gdcm::Cleaner, 301
CleanupUnusedBits
gdcm::ImageCodec, 662
Clear
gdcm::Anonymizer, 139
gdcm::Bitmap, 253
gdcm::ByteValue, 280
gdcm::DataElement, 374
gdcm::DataSet, 393
gdcm::IOD, 710
gdcm::IODs, 716
gdcm::Item, 726
gdcm::LookupTable, 788
gdcm::Macro, 796
gdcm::Macros, 798
gdcm::Module, 836
gdcm::Modules, 843
gdcm::Preamble, 973
gdcm::SequenceOfFragments, 1102
gdcm::SequenceOfItems, 1111
gdcm::SerieHelper, 1118
gdcm::Value, 1400
vtkGDCMMedicalImageProperties, 1469
vtkRTStructSetProperties, 1532
ClearInternalUIDs
gdcm::Anonymizer, 140
ClearPrivateTags

gdcm::Scanner2, 1071
gdcm::StrictScanner2, 1192
ClearPublicTags
gdcm::Scanner2, 1072
gdcm::StrictScanner2, 1193
ClearSkipTags
gdcm::Scanner, 1062
gdcm::Scanner2, 1072
gdcm::StrictScanner, 1183
gdcm::StrictScanner2, 1193
ClearTags
gdcm::Scanner, 1062
gdcm::StrictScanner, 1183
Clone
gdcm::BoxRegion, 269
gdcm::ImageCodec, 662
gdcm::JPEG2000Codec, 744
gdcm::JPEGCodec, 758
gdcm::JPEGLSCodec, 766
gdcm::KAKADUCodec, 780
gdcm::PGXCodec, 934
gdcm::PNMCodec, 971
gdcm::PVRGCodec, 1011
gdcm::RAWCodec, 1031
gdcm::Region, 1042
gdcm::RLECodec, 1052
CM
gdcm::SegmentHelper::BasicCodedEntry, 245
cMaxEventID
gdcm::network, 108
cMaxStateID
gdcm::network, 108
CMove
gdcm::CompositeNetworkFunctions, 329
CMYK
gdcm::PhotometricInterpretation, 937
Code
gdcm::Coder, 312
gdcm::JPEG2000Codec, 744
gdcm::JPEGCodec, 758
gdcm::JPEGLSCodec, 767
gdcm::JSON, 775
gdcm::KAKADUCodec, 780
gdcm::PVRGCodec, 1012
gdcm::RAWCodec, 1032
gdcm::RLECodec, 1052
CodedEntryData
gdcm::Cleaner, 301
CodeMeaning
gdcm::RealWorldValueMappingContent, 1041
CodeString
gdcm::CodeString, 315, 316
CodeValue
gdcm::RealWorldValueMappingContent, 1041
Color
gdcm::terminal, 110
ColorArray
gdcm::SurfaceHelper, 1223
Command
gdcm::Command, 319
CommandDataSet
gdcm::CommandDataSet, 323
CommandTypes
gdcm::network::DIMSE, 442
Common Directory Reference, 57
Compatible
gdcm::VM, 1412
gdcm::VR, 1418
Component
gdcm::PersonName, 930
CompOperators
gdcm, 89
ComprehensiveSR
gdcm::MediaStorage, 808
CompressionTypes
vtkGDCMImageWriter, 1461
Compute
gdcm::EquipmentManufacturer, 533
gdcm::MD5, 801
gdcm::SHA1, 1132
ComputeBoundingBox
gdcm::BoxRegion, 270
gdcm::Region, 1043
ComputeBufferLength
gdcm::ImageRegionReader, 691
ComputeByteLength
gdcm::SequenceOfFragments, 1102
ComputeCSAImageHeaderInfo
gdcm::SplitMosaicFilter, 1162
ComputeCSASeriesHeaderInfo
gdcm::SplitMosaicFilter, 1162
ComputeDataElement
gdcm::DataSet, 393
ComputeDataSetMediaStorageSOPClass
gdcm::FileMetaInformation, 577
ComputeDataSetTransferSyntax
gdcm::FileMetaInformation, 577
ComputeDistAlongNormal
gdcm::DirectionCosines, 444
ComputedRadiographyImageStorage
gdcm::MediaStorage, 807
ComputeFile
gdcm::MD5, 801
gdcm::SHA1, 1132
ComputeFileMD5
gdcm::Testing, 1270
ComputeGRIDDimensions
gdcm::SplitGridFilter, 1159

ComputeGRIDImagePositionPatient
gdcm::SplitGridFilter, 1159
ComputeGRIDSliceNormal
gdcm::SplitGridFilter, 1159
ComputeGroupLength
gdcm::DataSet, 393
ComputeInterceptSlopePixelType
gdcm::Rescaler, 1045
ComputeLength
gdcm::ByteValue, 280
gdcm::Fragment, 615
gdcm::SequenceOfFragments, 1103
gdcm::SequenceOfItems, 1111
ComputeLossyFlag
gdcm::Bitmap, 253
ComputeMD5
gdcm::Testing, 1270
ComputeMediaStorageFromModality
gdcm::ImageHelper, 677
ComputeMOSAICDimensions
gdcm::SplitMosaicFilter, 1162
ComputeMOSAICImagePositionPatient
gdcm::SplitMosaicFilter, 1163
ComputeMOSAICSliceNormal
gdcm::SplitMosaicFilter, 1163
ComputeMOSAICSlicePosition
gdcm::SplitMosaicFilter, 1163
ComputeNumberOfSurfaces
gdcm::SurfaceWriter, 1234
ComputeOffsetTable
gdcm::JPEGCodec, 758
ComputePixelAspectRatioFromPixelSpacing
gdcm::Spacing, 1157
ComputePixelTypeFromMinMax
gdcm::Rescaler, 1045
ComputeSpacingFromImagePositionPatient
gdcm::ImageHelper, 677
ComputeTargetMediaStorage
gdcm::ImageWriter, 698
ComputeVR
gdcm::DataSetHelper, 406
ComputeZSpacing
gdcm::IPPSorter, 722
ConcatenatePDVBlobs
gdcm::network::PresentationDataValue, 989
ConcatenatePDVBlobsAsExplicit
gdcm::network::PresentationDataValue, 989
CONDENSED_STYLE
gdcm::Printer, 994
Conditional
gdcm::Usage, 1389
CONSOLE
gdcm::terminal, 110
const
gdcm::SOPClassUIDToIOD, 1149
const_iterator
gdcm::CodeString, 314
gdcm::LO, 782
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1199
const_reference
gdcm::CodeString, 314
gdcm::LO, 782
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1199
const_reverse_iterator
gdcm::CodeString, 314
gdcm::LO, 782
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1200
ConstCharWrapper
gdcm::ConstCharWrapper, 332
ConstIterator
gdcm::CSAHeaderDict, 356
gdcm::DataSet, 392
gdcm::Dict, 422
gdcm::Scanner, 1060
gdcm::SequenceOfFragments, 1101
gdcm::SequenceOfItems, 1109
gdcm::StrictScanner, 1181
Construct
gdcm::BaseRootQuery, 240
ConstructAbortPDU
gdcm::network::PDUFactory, 926
ConstructCEchoRQ
gdcm::network::CompositeMessageFactory, 326
ConstructCFindRQ
gdcm::network::CompositeMessageFactory, 326
ConstructCMoveRQ
gdcm::network::CompositeMessageFactory, 326
ConstructCStoreRQ
gdcm::network::CompositeMessageFactory, 326
ConstructCStoreRSP
gdcm::network::CompositeMessageFactory, 326
ConstructFromString
gdcm::DPath, 453
gdcm::TagPath, 1267
ConstructFromTagList
gdcm::TagPath, 1267
ConstructNAction
gdcm::network::NormalizedMessageFactory, 873
ConstructNCreate
gdcm::network::NormalizedMessageFactory, 873
ConstructNDelete
gdcm::network::NormalizedMessageFactory, 874
ConstructNEventReport
gdcm::network::NormalizedMessageFactory, 874
ConstructNGet

gdcm::network::NormalizedMessageFactory, 874
ConstructNSet
gdcm::network::NormalizedMessageFactory, 874
ConstructorType
gdcm::Dicts, 438
ConstructPDU
gdcm::network::PDUFactory, 926
ConstructPDV
gdcm::network::BaseCompositeMessage, 227
gdcm::network::BaseNormalizedMessage, 229
gdcm::network::CEchoRQ, 292
gdcm::network::CFindRQ, 296
gdcm::network::CMoveRQ, 308
gdcm::network::CStoreRQ, 364
gdcm::network::CStoreRSP, 365
gdcm::network::NActionRQ, 855
gdcm::network::NCreateRQ, 858
gdcm::network::NDeleteRQ, 861
gdcm::network::NEventReportRQ, 867
gdcm::network::NGetRQ, 870
gdcm::network::NSetRQ, 878
ConstructPDVByDataSet
gdcm::network::CEchoRSP, 293
gdcm::network::CFindCancelRQ, 295
gdcm::network::CFindRSP, 298
gdcm::network::CMoveCancelRq, 306
gdcm::network::CMoveRSP, 309
gdcm::network::NActionRSP, 856
gdcm::network::NCreateRSP, 859
gdcm::network::NDeleteRSP, 862
gdcm::network::NEventReportRSP, 869
gdcm::network::NGetRSP, 872
gdcm::network::NSetRSP, 879
ConstructQuery
gdcm::CompositeNetworkFunctions, 329, 330
gdcm::NormalizedNetworkFunctions, 875
ConstructReleasePDU
gdcm::network::PDUFactory, 926
Convert
gdcm::DictConverter, 427
gdcm::ImageConverter, 671
ConvertRGBToPaletteColor
gdcm::IconImageGenerator, 627
ConvertToCXX
gdcm::DictConverter, 427
ConvertToUNC
gdcm::System, 1241
ConvertToXML
gdcm::DictConverter, 427
CORONAL
gdcm::Orientation, 895
Create
gdcm::Preamble, 973
CreateCEchoPDU
gdcm::network::PDUFactory, 926
CreateCFindPDU
gdcm::network::PDUFactory, 926
CreateCMovePDU
gdcm::network::PDUFactory, 926
CreateCMSProvider
gdcm::CAPICryptoFactory, 287
gdcm::CryptoFactory, 338
gdcm::OpenSSLCryptoFactory, 885
gdcm::OpenSSLP7CryptoFactory, 890
CreateCStoreRQPDU
gdcm::network::PDUFactory, 926
CreateCStoreRSPPDU
gdcm::network::PDUFactory, 927
CreateDefaultUniqueSeriesIdentifier
gdcm::SerieHelper, 1119
CreateNActionPDU
gdcm::network::PDUFactory, 927
CreateNCreatePDU
gdcm::network::PDUFactory, 927
CreateNDeletePDU
gdcm::network::PDUFactory, 927
CreateNEventReportPDU
gdcm::network::PDUFactory, 927
CreateNGetPDU
gdcm::network::PDUFactory, 927
CreateNSetPDU
gdcm::network::PDUFactory, 927
CreateUniqueSeriesIdentifier
gdcm::SerieHelper, 1119
Cross
gdcm::DirectionCosines, 444
CrossDot
gdcm::DirectionCosines, 444
CryptoFactory
gdcm::CryptoFactory, 337
CryptographicMessageSyntax
gdcm::CryptographicMessageSyntax, 339, 340
CryptoLib
gdcm::CryptoFactory, 337
CS
gdcm::VR, 1416
CSAElement
gdcm::CSAElement, 344
CSAHeader
gdcm::CSAHeader, 352
gdcm::DataSet, 401
CSAHeaderDict
gdcm::CSAHeaderDict, 356
CSAHeaderDictEntry
gdcm::CSAHeaderDictEntry, 360
CSAHeaderType
gdcm::CSAHeader, 352
CSANonImageStorage

gdcm::MediaStorage, 808
CSComp
gdcm, 86
CSD
gdcm::SegmentHelper::BasicCodedEntry, 245
CStore
gdcm::CompositeNetworkFunctions, 330
CSV
gdcm::SegmentHelper::BasicCodedEntry, 245
CT_private_ELE
gdcm::TransferSyntax, 1283
CTImageStorage
gdcm::MediaStorage, 807
Curve
gdcm::Curve, 367
vtkGDCMImageReader, 1441
vtkGDCMImageReader2, 1456
Curves
gdcm::Pixmap, 954
CV
gdcm::SegmentHelper::BasicCodedEntry, 245
CXX
gdcm::Printer, 994
cyan
gdcm::terminal, 110

DA
gdcm::VR, 1417
DAComp
gdcm, 86
DataDictionary Directory Reference, 59
DataElement
gdcm::DataElement, 374
gdcm::Value, 1401
DataElementSet
gdcm::DataSet, 392
DataElementType
gdcm::ModuleEntry, 841
DataEvent
gdcm::DataEvent, 387, 388
DataField
gdcm::CSAElement, 349
DataPtr
gdcm::CSAElement, 344
DATASET_FORMAT
gdcm::CSAHeader, 352
DataSetEvent
gdcm::DataSetEvent, 404
DataSetHandled
gdcm::network::ULConnectionCallback, 1363
DataSetHandles
gdcm::network::ULConnectionCallback, 1363
DataSetMS
gdcm::FileMetaInformation, 582
DataSetTS
gdcm::FileMetaInformation, 582
DataStructureAndEncodingDefinition Directory Reference, 60
DataWasPassed
vtkImageMapToColors16, 1513
dCor
gdcm::MrProtocol::Vector3, 1402
DebugOff
gdcm::Trace, 1276
DebugOn
gdcm::Trace, 1276
Decode
gdcm::AudioCodec, 222
gdcm::Base64, 223
gdcm::Curve, 368
gdcm::Decoder, 407
gdcm::DeltaEncodingCodec, 416
gdcm::ImageCodec, 662
gdcm::JPEG2000Codec, 744
gdcm::JPEGCodec, 758
gdcm::JPEGLSCodec, 767
gdcm::JSON, 775
gdcm::KAKADUCodec, 780
gdcm::LookupTable, 788
gdcm::PDFCodec, 925
gdcm::PVRGCodec, 1012
gdcm::RAWCodec, 1032
gdcm::RLECodec, 1053
Decode8
gdcm::LookupTable, 788
DecodeByStreams
gdcm::Decoder, 407
gdcm::ImageCodec, 663
gdcm::JPEG12Codec, 734
gdcm::JPEG16Codec, 739
gdcm::JPEG2000Codec, 745
gdcm::JPEG8Codec, 752
gdcm::JPEGCodec, 758
gdcm::JPEGTurboCodec, 773
gdcm::RAWCodec, 1032
gdcm::RLECodec, 1053
DecodeBytes
gdcm::RAWCodec, 1032
DecodeExtent
gdcm::JPEG2000Codec, 745
gdcm::JPEGCodec, 759
gdcm::JPEGLSCodec, 767
gdcm::RLECodec, 1053
Decompress
gdcm::Overlay, 901
Decrypt
gdcm::CAPICryptographicMessageSyntax, 289
gdcm::CryptographicMessageSyntax, 340

gdcm::OpenSSLCryptographicMessageSyntax, 887
gdcm::OpenSSLP7CryptographicMessageSyntax, 892
DeepCopy
vtkRTStructSetProperties, 1532
DEFAULT
gdcm::CryptoFactory, 337
Default
gdcm::FileMetaInformation, 577
DefinedTerms
gdcm::DefinedTerms, 408
DefinePixelExtent
gdcm::StreamImageReader, 1169
gdcm::StreamImageWriter, 1174
DefineProperBufferLength
gdcm::StreamImageReader, 1169
gdcm::StreamImageWriter, 1174
DeflatedExplicitVRLittleEndian
gdcm::TransferSyntax, 1282
DeflatedImageFrameCompression
gdcm::TransferSyntax, 1283
Defs
gdcm::Defs, 410
DeleteDirectory
gdcm::System, 1241
DeltaEncodingCodec
gdcm::DeltaEncodingCodec, 416
Deprecated List, 5
Derive
gdcm::FileDerivation, 567
DES3_CIPHER
gdcm::CryptographicMessageSyntax, 339
Description
gdcm::ModuleEntry, 839
DescriptionField
gdcm::ModuleEntry, 841
DetachedPatientManagementSOPClass
gdcm::MediaStorage, 808
DetachedStudyManagementSOPClass
gdcm::MediaStorage, 808
DetachedVisitManagementSOPClass
gdcm::MediaStorage, 808
DETECTOR
gdcm::Spacing, 1156
DetermineEventByPDU
gdcm::network::PDUFactory, 928
DICOMDIR
gdcm::DICOMDIR, 417
DICOMDIRGenerator
gdcm::DICOMDIRGenerator, 419
Dict
gdcm::Dict, 422
gdcm::DictEntry, 433
DICT_DEBUG
gdcm::DictConverter, 427
DICT_DEFAULT
gdcm::DictConverter, 427
DICT_XML
gdcm::DictConverter, 427
DictConverter
gdcm::DictConverter, 427
DictEntry
gdcm::DictEntry, 431
DictPrinter
gdcm::DictPrinter, 436
Dicts
gdcm::CSAHeaderDict, 358
gdcm::Dict, 425
gdcm::Dicts, 438
gdcm::PrivateDict, 998
difference_type
gdcm::CodeString, 314
gdcm::LO, 782
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1200
DigitalIntraoralXrayImageStorageForPresentation
gdcm::MediaStorage, 807
DigitalIntraoralXRayImageStorageForProcessing
gdcm::MediaStorage, 807
DigitalMammographyImageStorageForPresentation
gdcm::MediaStorage, 807
DigitalMammographyImageStorageForProcessing
gdcm::MediaStorage, 807
DigitalXRayImageStorageForPresentation
gdcm::MediaStorage, 807
DigitalXRayImageStorageForProcessing
gdcm::MediaStorage, 807
dim
gdcm::terminal, 110
Dimensions
gdcm::Bitmap, 263
gdcm::ImageCodec, 669
DirCosTolerance
gdcm::IPPSorter, 722
DirectionCosines
gdcm::DirectionCosines, 444
vtkGDCMImageReader, 1441
vtkGDCMImageReader2, 1456
Directory
gdcm::Directory, 448
Distance
gdcm::DirectionCosines, 444
DoByteSwap
gdcm::ImageCodec, 663
DoIconImage
gdcm::PixmapWriter, 965
DoInvertMonochrome
gdcm::ImageCodec, 663

DoOverlayCleanup
gdcm::ImageCodec, 663
DoPaddedCompositePixelCode
gdcm::ImageCodec, 663
DoPlanarConfiguration
gdcm::ImageCodec, 663
doround
gdcm, 92
DoSimpleCopy
gdcm::ImageCodec, 664
Dot
gdcm::DirectionCosines, 445
DoYBR
gdcm::ImageCodec, 664
DoYBRFull422
gdcm::ImageCodec, 664
DPath
gdcm::DPath, 453
DropDuplicatePositions
gdcm::IPPSorter, 722
DS
gdcm::VR, 1417
dSag
gdcm::MrProtocol::Vector3, 1402
DT
gdcm::VR, 1417
DTComp
gdcm, 87
dTra
gdcm::MrProtocol::Vector3, 1402
Dumper
gdcm::Dumper, 458
DuplicateAttributeError
gdcm::Parser, 911

eAABORTPDUReceivedOpen
gdcm::network, 107
eAABORTRequest
gdcm::network, 107
eAASSOCIATE_RQPDUreceived
gdcm::network, 107
eAASSOCIATERequestLocalUser
gdcm::network, 107
eAASSOCIATEresponseAccept
gdcm::network, 107
eAASSOCIATEresponseReject
gdcm::network, 107
eArabic
gdcm, 89
eARELEASE_RPPDUReceived
gdcm::network, 107
eARELEASE_RQPDUReceivedOpen
gdcm::network, 107
eARELEASERequest
gdcm::network, 107
eARELEASEResponse
gdcm::network, 107
eARTIMTimerExpired
gdcm::network, 107
eASSOCIATE_ACPDUreceived
gdcm::network, 107
eASSOCIATE_RJPDUreceived
gdcm::network, 107
ECharSet
gdcm, 89
eCreateMMPS
gdcm, 90
eCyrillic
gdcm, 89
EDGE
gdcm::MeshPrimitive, 823
eEventDoesNotExist
gdcm::network, 107
EEventID
gdcm::network, 107
eFind
gdcm, 90
eGB18030
gdcm, 89
eGreek
gdcm, 89
eHebrew
gdcm, 89
eImage
gdcm, 90
eJapanese
gdcm, 89
eJapaneseKanjiMultibyte
gdcm, 89
eJapaneseSupplementaryKanjiMultibyte
gdcm, 89
eKoreanHangulHanjaMultibyte
gdcm, 89
eLatin1
gdcm, 89
eLatin2
gdcm, 89
eLatin3
gdcm, 89
eLatin4
gdcm, 89
eLatin5
gdcm, 89
Element
gdcm::Element< TVR, VM::VM1_n >, 471
eMove
gdcm, 90
Empty

gdcm::Anonymizer, 140
gdcm::BoxRegion, 270
gdcm::Cleaner, 301, 302
gdcm::DataElement, 374
gdcm::FileAnonymizer, 556
gdcm::Region, 1043
EmptyMaskGenerator
gdcm::EmptyMaskGenerator, 523
EmptyWhenScrubFails
gdcm::Cleaner, 302
EncapsulatedCDAStorage
gdcm::MediaStorage, 808
EncapsulatedDocument
gdcm::EncapsulatedDocument, 525
EncapsulatedPDFStorage
gdcm::MediaStorage, 808
Encode
gdcm::Base64, 224
EncodeBuffer
gdcm::JPEG12Codec, 734
gdcm::JPEG16Codec, 739
gdcm::JPEG8Codec, 752
gdcm::JPEGCodec, 759
gdcm::JPEGTurboCodec, 773
EncodeBytes
gdcm::System, 1242
Encrypt
gdcm::CAPICryptographicMessageSyntax, 289
gdcm::CryptographicMessageSyntax, 340
gdcm::OpenSSLCryptographicMessageSyntax, 887
gdcm::OpenSSLP7CryptographicMessageSyntax, 892
End
gdcm::CSAHeaderDict, 357
gdcm::DataSet, 393
gdcm::Dict, 423
gdcm::IODs, 716
gdcm::Scanner, 1062
gdcm::Scanner2, 1072
gdcm::SequenceOfFragments, 1103
gdcm::SequenceOfItems, 1111
gdcm::StrictScanner, 1183
gdcm::StrictScanner2, 1193
EndElement
gdcm::TableReader, 1252
gdcm::XMLDictReader, 1552
gdcm::XMLPrivateDictReader, 1558
EndElementHandler
gdcm::Parser, 910
EndFilter
gdcm::SimpleSubjectWatcher, 1139
EndWith
gdcm::Filename, 583
EnhancedCTImageStorage
gdcm::MediaStorage, 807
EnhancedMRColorImageStorage
gdcm::MediaStorage, 809
EnhancedMRImageStorage
gdcm::MediaStorage, 807
EnhancedPETImageStorage
gdcm::MediaStorage, 809
EnhancedSR
gdcm::MediaStorage, 808
EnhancedUSVolumeStorage
gdcm::MediaStorage, 809
EnhancedXAImageStorage
gdcm::MediaStorage, 808
ENQueryType
gdcm, 89
EnumeratedValues
gdcm::EnumeratedValues, 532
ePatient
gdcm, 90
ePatientRootType
gdcm, 90
ePDATArequest
gdcm::network, 107
ePDATATFPDU
gdcm::network, 107
EQueryLevel
gdcm, 90
EQueryType
gdcm, 90
ERootType
gdcm, 90
ErrorOff
gdcm::Trace, 1277
ErrorOn
gdcm::Trace, 1277
ErrorType
gdcm::Parser, 911
eSeries
gdcm, 90
eSetMMPS
gdcm, 90
eSta10ReleaseCollisionAc
gdcm::network, 108
eSta11ReleaseCollisionRq
gdcm::network, 108
eSta12ReleaseCollisionAcLocal
gdcm::network, 108
eSta13AwaitingClose
gdcm::network, 108
eSta1Idle
gdcm::network, 108
eSta2Open
gdcm::network, 108
eSta3WaitLocalAssoc

gdcm::network, 108
eSta4LocalAssocDone
gdcm::network, 108
eSta5WaitRemoteAssoc
gdcm::network, 108
eSta6TransferReady
gdcm::network, 108
eSta7WaitRelease
gdcm::network, 108
eSta8WaitLocalRelease
gdcm::network, 108
eSta9ReleaseCollisionRqLocal
gdcm::network, 108
EstablishConnection
gdcm::network::ULConnectionManager, 1369
EstablishConnectionMove
gdcm::network::ULConnectionManager, 1370
eStaDoesNotExist
gdcm::network, 107
EStateID
gdcm::network, 107
eStudy
gdcm, 90
eStudyRootType
gdcm, 90
eThai
gdcm, 89
eTransportConnConfirmLocal
gdcm::network, 107
eTransportConnectionClosed
gdcm::network, 107
eTransportConnIndicLocal
gdcm::network, 107
eUnrecognizedPDUReceived
gdcm::network, 107
eUTF8
gdcm, 89
Event
gdcm::Event, 535
eWLMFind
gdcm, 90
Exception
gdcm::Exception, 538
Execute
gdcm::Command, 320
gdcm::EmptyMaskGenerator, 523
gdcm::MemberCommand< T >, 818
gdcm::SimpleMemberCommand< T >, 1137
ExecuteData
vtkGDCMImageReader, 1432
vtkGDCMThreadedImageReader, 1486
ExecuteInformation
vtkGDCMImageReader, 1433
vtkGDCMThreadedImageReader, 1486
ExecuteQuery
gdcm::StringFilter, 1204
Explicit
gdcm::TransferSyntax, 1282
ExplicitVRBigEndian
gdcm::TransferSyntax, 1282
ExplicitVRLittleEndian
gdcm::TransferSyntax, 1282
Explore
gdcm::Directory, 448
Extract
gdcm::IconImageFilter, 625
ExtractIconImages
gdcm::IconImageFilter, 625
ExtractVeproIconImages
gdcm::IconImageFilter, 625

F
gdcm::Printer, 996
gdcm::Reader, 1040
gdcm::Validate, 1397
gdcm::XMLPrinter, 1556
FACET
gdcm::MeshPrimitive, 823
FD
gdcm::VR, 1417
Fiducials
gdcm::Fiducials, 549
File
gdcm::File, 551
FileAnonymizer
gdcm::FileAnonymizer, 556
FileChangeTransferSyntax
gdcm::FileChangeTransferSyntax, 560
gdcm::ImageCodec, 668
FileDecompressLookupTable
gdcm::FileDecompressLookupTable, 564
FileDerivation
gdcm::FileDerivation, 566
FileExists
gdcm::System, 1242
FileExplicitFilter
gdcm::FileExplicitFilter, 570
FileIsDirectory
gdcm::System, 1242
FileIsSymlink
gdcm::System, 1242
FileList
gdcm, 87
FileMetaInformation
gdcm::FileMetaInformation, 576, 577
FileName
vtkGDCMPolyDataReader, 1474
Filename

gdcm::Filename, 583
filename
gdcm::FileWithName, 603
FileNameEvent
gdcm::FileNameEvent, 587
FilenameGenerator
gdcm::FilenameGenerator, 590
FileNameOrdering
gdcm::SerieHelper, 1119
FileNames
vtkGDCMImageReader, 1442
Filenames
gdcm::Sorter, 1154
FilenamesType
gdcm::DICOMDIRGenerator, 419
gdcm::Directory, 448
gdcm::FilenameGenerator, 590
FilenameType
gdcm::DICOMDIRGenerator, 419
gdcm::Directory, 448
gdcm::FilenameGenerator, 590
FileSet
gdcm::FileSet, 593
FileSize
gdcm::System, 1242
FileStreamer
gdcm::FileStreamer, 597
FilesType
gdcm::FileSet, 593
FileTime
gdcm::System, 1243
FileType
gdcm::FileSet, 593
FileWithName
gdcm::FileWithName, 603
Fill
gdcm::ByteValue, 280
FillFromDataSet
gdcm::FileMetaInformation, 577
FillMedicalImageInformation
vtkGDCMImageReader, 1433
vtkGDCMImageReader2, 1447
vtkGDCMPolyDataReader, 1472
FindContext
gdcm::network::ULConnection, 1358
FindCSAElementByName
gdcm::CSAHeader, 352
FindDataElement
gdcm::DataSet, 394
gdcm::Item, 726
gdcm::SequenceOfItems, 1111
FindDictEntry
gdcm::PrivateDict, 997
FindMacroEntry
gdcm::Macro, 796
FindModuleEntryInMacros
gdcm::Module, 836
FindMrProtocolByName
gdcm::MrProtocol, 853
FindNextDataElement
gdcm::DataSet, 394
FindPatientRootQuery
gdcm::FindPatientRootQuery, 606
FindPDBElementByName
gdcm::PDBHeader, 921
FindStudyRootQuery
gdcm::FindStudyRootQuery, 610
FirstRender
vtkImageColorViewer, 1507
FL
gdcm::VR, 1417
FLOAT16
gdcm::PixelFormat, 942
FLOAT32
gdcm::PixelFormat, 942
FLOAT64
gdcm::PixelFormat, 942
ForceRescale
vtkGDCMImageReader, 1442
vtkGDCMImageReader2, 1457
FormatDateTime
gdcm::System, 1243
Fragment
gdcm::Fragment, 615
FragmentVector
gdcm::SequenceOfFragments, 1101
FromString
gdcm::StringFilter, 1204
FUJI
gdcm::EquipmentManufacturer, 533
FujiPrivateCRImageStorage
gdcm::MediaStorage, 809
FujiPrivateMammoCRImageStorage
gdcm::MediaStorage, 809

gdcm, 71
add1, 91
AEComp, 86
ASComp, 86
backslash, 91
BOOL_FUNCTION_PFILE_PFILE_POINTER, 86
Clamp, 91
clean, 91
CompOperators, 89
CSComp, 86
DAComp, 86
doround, 92
DTComp, 87

eArabic, 89
ECharSet, 89
eCreateMMPS, 90
eCyrillic, 89
eFind, 90
eGB18030, 89
eGreek, 89
eHebrew, 89
eImage, 90
eJapanese, 89
eJapaneseKanjiMultibyte, 89
eJapaneseSupplementaryKanjiMultibyte, 89
eKoreanHangulHanjaMultibyte, 89
eLatin1, 89
eLatin2, 89
eLatin3, 89
eLatin4, 89
eLatin5, 89
eMove, 90
ENQueryType, 89
ePatient, 90
ePatientRootType, 90
EQueryLevel, 90
EQueryType, 90
ERootType, 90
eSeries, 90
eSetMMPS, 90
eStudy, 90
eStudyRootType, 90
eThai, 89
eUTF8, 89
eWLMFind, 90
FileList, 87
GDCM_DIFFERENT, 89
GDCM_EQUAL, 89
GDCM_GREATER, 89
GDCM_GREATEROREQUAL, 89
GDCM_LESS, 89
GDCM_LESSOREQUAL, 89
GetVRFromTag, 92
GlobalInstance, 102
IconImage, 87
LD_ALL, 91
LD_NOSEQ, 91
LD_NOSHADOW, 91
LD_NOSHADOWSEQ, 91
LOComp, 87
LodModeType, 90
LTComp, 87
MacroEntry, 87
NestedMacroEntries, 87
operator!=, 92
operator<<, 92–101
operator>>, 101
operator==, 101
PNComp, 87
Round, 101
roundat, 101
SHComp, 88
STComp, 88
TMComp, 88
UCComp, 88
UIComp, 88
URComp, 88
UTComp, 88
x16printf, 102
GDCM Documentation, 1
gdcm::AbortEvent, 128
gdcm::AnonymizeEvent, 131
~AnonymizeEvent, 133
AnonymizeEvent, 133
CheckEvent, 134
GetEventName, 134
GetTag, 134
MakeObject, 134
operator=, 134
Self, 133
SetTag, 134
Superclass, 133
gdcm::Anonymizer, 135
~Anonymizer, 139
Anonymizer, 139
BALCPProtect, 139
BasicApplicationLevelConfidentialityProfile, 139
CanEmptyTag, 139
Clear, 139
ClearInternalUIDs, 140
Empty, 140
GetBasicApplicationLevelConfidentialityProfileAttributes, 140
GetCryptographicMessageSyntax, 140
GetFile, 141
New, 141
RecurseDataSet, 141
Remove, 141
RemoveGroupLength, 141
RemovePrivateTags, 142
RemoveRetired, 142
Replace, 142, 143
SetCryptographicMessageSyntax, 143
SetFile, 143
gdcm::AnyEvent, 144
gdcm::ApplicationEntity, 147
Internal, 149
IsValid, 148
MaxLength, 149
MaxNumberOfComponents, 149
Padding, 149

Print, 148
Separator, 149
SetBlob, 148
Squeeze, 148
gdcm::ASN1, 155
~ASN1, 156
ASN1, 156
operator=, 156
ParseDump, 156
ParseDumpFile, 156
TestPBKDF2, 157
gdcm::Attribute< Group, Element, TVR, TVM >, 158
ArrayType, 160
GDCM_STATIC_ASSERT, 161
GetAsDataElement, 161
GetDictVM, 162
GetDictVR, 162
GetNumberOfValues, 162
GetTag, 162
GetValue, 163
GetValues, 163
GetVM, 163
GetVR, 164
Internal, 167
operator!=, 164
operator<, 164
operator==, 164
operator[], 164, 165
Print, 165
Set, 165
SetByteValue, 165
SetByteValueNoSwap, 165
SetFromDataElement, 166
SetFromDataSet, 166
SetValue, 166
SetValues, 167
VMType, 161
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 168
ArrayType, 170
GDCM_STATIC_ASSERT, 171
GetAsDataElement, 171
GetDictVM, 172
GetDictVR, 172
GetNumberOfValues, 172
GetTag, 172
GetValue, 172
GetValues, 172
GetVM, 173
GetVR, 173
Internal, 175
operator!=, 173
operator<, 173
operator==, 173
operator[], 173
Print, 174
Set, 174
SetByteValue, 174
SetByteValueNoSwap, 174
SetFromDataElement, 174
SetFromDataSet, 175
SetValue, 175
SetValues, 175
VMType, 171
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 176
ArrayType, 178
GDCM_STATIC_ASSERT, 178
GetAsDataElement, 178
GetDictVM, 178
GetDictVR, 178
GetNumberOfValues, 179
GetTag, 179
GetValue, 179
GetValues, 179
GetVM, 179
GetVR, 179
Internal, 181
operator!=, 179
operator<, 179
operator==, 179
operator[], 180
Print, 180
Set, 180
SetByteValue, 180
SetByteValueNoSwap, 180
SetFromDataElement, 180
SetFromDataSet, 180
SetValue, 180
SetValues, 181
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 181
ArrayType, 183
GDCM_STATIC_ASSERT, 184
GetAsDataElement, 184
GetDictVM, 184
GetDictVR, 184
GetNumberOfValues, 184
GetTag, 184
GetValue, 184
GetValues, 184
GetVM, 185
GetVR, 185
Internal, 187
operator!=, 185
operator<, 185
operator==, 185
operator[], 185
Print, 185

Set, 185
SetByteValue, 186
SetByteValueNoSwap, 186
SetFromDataElement, 186
SetFromDataSet, 186
SetValue, 186
SetValues, 186
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 187
~Attribute, 190
ArrayType, 189
Attribute, 190
GDCM_STATIC_ASSERT, 190
GetAsDataElement, 190
GetDictVM, 190
GetDictVR, 191
GetNumberOfValues, 191
GetTag, 191
GetValue, 191
GetValues, 191
GetVM, 192
GetVR, 192
operator!=, 192
operator<, 192
operator==, 192
operator[], 192
Print, 193
Set, 193
SetByteValue, 193
SetByteValueNoSwap, 193
SetFromDataElement, 193
SetFromDataSet, 193
SetNumberOfValues, 194
SetValue, 194
SetValues, 194
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 195
ArrayType, 198
GDCM_STATIC_ASSERT, 198
GetAsDataElement, 198
GetDictVM, 199
GetDictVR, 199
GetNumberOfValues, 199
GetTag, 199
GetValue, 199
GetValues, 199
GetVM, 199
GetVR, 199
Internal, 201
operator!=, 199
operator<, 200
operator==, 200
operator[], 200
Print, 200
Set, 200
SetByteValue, 200
SetByteValueNoSwap, 200
SetFromDataElement, 200
SetFromDataSet, 201
SetValue, 201
SetValues, 201
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 202
ArrayType, 204
GDCM_STATIC_ASSERT, 204
GetAsDataElement, 204
GetDictVM, 204
GetDictVR, 204
GetNumberOfValues, 205
GetTag, 205
GetValue, 205
GetValues, 205
GetVM, 205
GetVR, 205
Internal, 207
operator!=, 205
operator<, 205
operator==, 205
operator[], 206
Print, 206
Set, 206
SetByteValue, 206
SetByteValueNoSwap, 206
SetFromDataElement, 206
SetFromDataSet, 206
SetValue, 206
SetValues, 207
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 207
ArrayType, 210
GDCM_STATIC_ASSERT, 211
GetAsDataElement, 211
GetDictVM, 211
GetDictVR, 211
GetNumberOfValues, 211
GetTag, 211
GetValue, 211
GetValues, 211
GetVM, 212
GetVR, 212
Internal, 214
operator!=, 212
operator<, 212
operator==, 212
operator[], 212
Print, 212
Set, 212
SetByteValue, 213

SetByteValueNoSwap, 213
SetFromDataElement, 213
SetFromDataSet, 213
SetValue, 213
SetValues, 213
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 214
ArrayType, 216
GDCM_STATIC_ASSERT, 217
GetAsDataElement, 217
GetDictVM, 217
GetDictVR, 217
GetNumberOfValues, 217
GetTag, 217
GetValue, 217
GetValues, 217
GetVM, 217
GetVR, 218
Internal, 219
operator!=, 218
operator<, 218
operator==, 218
operator[], 218
Print, 218
Set, 218
SetByteValue, 218
SetByteValueNoSwap, 219
SetFromDataElement, 219
SetFromDataSet, 219
SetValue, 219
SetValues, 219
gdcm::AudioCodec, 220
~AudioCodec, 221
AudioCodec, 221
CanCode, 222
CanDecode, 222
Decode, 222
gdcm::Base64, 222
Base64, 223
Decode, 223
Encode, 224
GetDecodeLength, 224
GetEncodeLength, 224
operator=, 225
gdcm::BaseQuery, 232
~BaseQuery, 234
AddQueryDataSet, 234
BaseQuery, 234
GetAbstractSyntaxUID, 234
GetQueryDataSet, 235
GetSOPInstanceUID, 235
mDataSet, 237
mSopInstanceUID, 237
Print, 235
QueryFactory, 236
SetSearchParameter, 235
SetSOPInstanceUID, 236
ValidateQuery, 236
ValidDataSet, 236
WriteHelpFile, 236
WriteQuery, 236
gdcm::BaseRootQuery, 237
~BaseRootQuery, 239
BaseRootQuery, 239
Construct, 240
GetQueryLevelFromQueryRoot, 240
GetQueryLevelFromString, 240
GetQueryLevelString, 240
GetTagListByLevel, 240
InitializeDataSet, 240
mHelpDescription, 241
mImage, 241
mPatient, 242
mRootType, 242
mSeries, 242
mStudy, 242
QueryFactory, 241
ValidateQuery, 241
gdcm::BasicOffsetTable, 246
BasicOffsetTable, 249
operator<<, 249
Read, 249
gdcm::Bitmap, 250
~Bitmap, 253
AreOverlaysInPixelData, 253
Bitmap, 253
Clear, 253
ComputeLossyFlag, 253
Dimensions, 263
GetBuffer, 254
GetBuffer2, 254
GetBufferLength, 254
GetColumns, 254
GetDataElement, 254
GetDimension, 255
GetDimensions, 255
GetLUT, 255
GetNeedByteSwap, 255
GetNumberOfDimensions, 256
GetPhotometricInterpretation, 256
GetPixelFormat, 256
GetPlanarConfiguration, 256
GetRows, 257
GetTransferSyntax, 257
ImageChangeTransferSyntax, 262
IsEmpty, 257
IsLossy, 257
IsTransferSyntaxCompatible, 257

LossyFlag, 263
LUT, 263
LUTPtr, 253
NeedByteSwap, 263
NumberOfDimensions, 263
PF, 263
PI, 263
PixelData, 264
PixmapReader, 262
PlanarConfiguration, 264
Print, 257
SetColumns, 258
SetDataElement, 258
SetDimension, 258
SetDimensions, 258
SetLossyFlag, 259
SetLUT, 259
SetNeedByteSwap, 259
SetNumberOfDimensions, 259
SetPhotometricInterpretation, 259
SetPixelFormat, 260
SetPlanarConfiguration, 260
SetRows, 260
SetTransferSyntax, 260
TryJPEG2000Codec, 261
TryJPEG2000Codec2, 261
TryJPEGCodec, 261
TryJPEGCodec2, 261
TryJPEGLSCodec, 261
TryKAKADUCodec, 261
TryPVRGCodec, 262
TryRAWCodec, 262
TryRLECodec, 262
TS, 264
UnusedBitsPresentInPixelData, 262
gdcm::BitmapToBitmapFilter, 264
~BitmapToBitmapFilter, 266
BitmapToBitmapFilter, 266
GetOutput, 266
GetOutputAsBitmap, 266
Input, 266
Output, 266
SetInput, 266
gdcm::BoxRegion, 267
~BoxRegion, 269
Area, 269
BoundingBox, 269
BoxRegion, 269
Clone, 269
ComputeBoundingBox, 270
Empty, 270
GetXMax, 270
GetXMin, 270
GetYMax, 270
GetYMin, 270
GetZMax, 270
GetZMin, 271
IsValid, 271
operator=, 271
Print, 271
SetDomain, 271
gdcm::ByteBuffer, 272
ByteBuffer, 272
Get, 272
GetStart, 272
ShiftEnd, 272
UpdatePosition, 273
gdcm::ByteSwap< T >, 273
Swap, 273
SwapFromSwapCodeIntoSystem, 273
SwapRange, 274
SwapRangeFromSwapCodeIntoSystem, 274
SystemIsBigEndian, 274
SystemIsLittleEndian, 274
gdcm::ByteSwapFilter, 275
~ByteSwapFilter, 275
ByteSwap, 276
ByteSwapFilter, 275, 276
operator=, 276
SetByteSwapTag, 276
gdcm::ByteValue, 277
~ByteValue, 279
Append, 280
ByteValue, 279
Clear, 280
ComputeLength, 280
Fill, 280
GetBuffer, 280
GetLength, 280
GetPointer, 281
GetVoidPointer, 281
IsEmpty, 281
IsPrintable, 282
operator const std::vector< char > &, 282
operator=, 282
operator==, 282
Print, 282
PrintASCII, 283
PrintASCIIXML, 283
PrintGroupLength, 283
PrintHex, 283
PrintHexXML, 283
PrintPNXML, 283
Read, 283, 284
SetLength, 284
SetLengthOnly, 284
Write, 284
WriteBuffer, 285

gdcm::CAPICryptoFactory, 285
CAPICryptoFactory, 286
CreateCMSProvider, 287
gdcm::CAPICryptographicMessageSyntax, 287
~CAPICryptographicMessageSyntax, 288
CAPICryptographicMessageSyntax, 288
Decrypt, 289
Encrypt, 289
GetCipherType, 289
GetInitialized, 289
ParseCertificateFile, 289
ParseKeyFile, 289
SetCipherType, 290
SetPassword, 290
gdcm::Cleaner, 298
~Cleaner, 301
Clean, 301
Cleaner, 301
CodedEntryData, 301
Empty, 301, 302
EmptyWhenScrubFails, 302
GetFile, 302
New, 302
Preserve, 303
Remove, 303
RemoveAllGroupLength, 303
RemoveAllIllegal, 304
RemoveAllMissingPrivateCreator, 304
RemoveMissingPrivateCreator, 304
ReplaceCodeMeaning, 304
Scrub, 304, 305
SetFile, 305
gdcm::Codec, 310
gdcm::Coder, 311
~Coder, 312
CanCode, 312
Code, 312
InternalCode, 312
gdcm::CodeString, 313
CodeString, 315, 316
const_iterator, 314
const_reference, 314
const_reverse_iterator, 314
difference_type, 314
GetAsString, 316
IsValid, 316
iterator, 315
operator!=, 317
operator<<, 317
operator==, 317
pointer, 315
reference, 315
reverse_iterator, 315
Size, 316
size_type, 315
TrimInternal, 316
value_type, 315
gdcm::Command, 317
~Command, 319
Command, 319
Execute, 320
operator=, 320
gdcm::CommandDataSet, 321
~CommandDataSet, 323
CommandDataSet, 323
Insert, 324
operator<<, 325
Read, 324
Replace, 324
Write, 324
gdcm::CompositeNetworkFunctions, 326
CEcho, 328
CFind, 328
CMove, 329
ConstructQuery, 329, 330
CStore, 330
KeyValuePairArrayType, 327
KeyValuePairType, 327
gdcm::ConstCharWrapper, 331
ConstCharWrapper, 332
operator const char *, 332
gdcm::CP246ExplicitDataElement, 332
GetLength, 335
Read, 335
ReadPreValue, 335
ReadValue, 335
ReadWithLength, 335
gdcm::CryptoFactory, 336
~CryptoFactory, 338
CAPI, 337
CreateCMSProvider, 338
CryptoFactory, 337
CryptoLib, 337
DEFAULT, 337
GetFactoryInstance, 338
OPENSSL, 337
OPENSSLP7, 337
gdcm::CryptographicMessageSyntax, 338
~CryptographicMessageSyntax, 339
AES128_CIPHER, 339
AES192_CIPHER, 339
AES256_CIPHER, 339
CipherTypes, 339
CryptographicMessageSyntax, 339, 340
Decrypt, 340
DES3_CIPHER, 339
Encrypt, 340
GetCipherType, 340

operator=, 340
ParseCertificateFile, 341
ParseKeyFile, 341
SetCipherType, 341
SetPassword, 341
gdcm::CSAElement, 342
CSAElement, 344
DataField, 349
DataPtr, 344
GetByteValue, 344
GetKey, 344
GetName, 345
GetNoOfItems, 345
GetSyngoDT, 345
GetValue, 345
GetVM, 346
GetVR, 346
IsEmpty, 346
KeyField, 349
NameField, 349
NoOfItemsField, 349
operator<, 346
operator<<, 348
operator=, 346
operator==, 347
SetByteValue, 347
SetKey, 347
SetName, 347
SetNoOfItems, 347
SetSyngoDT, 347
SetValue, 348
SetVM, 348
SetVR, 348
SyngoDTField, 349
ValueMultiplicityField, 349
VRField, 349
gdcm::CSAHeader, 350
~CSAHeader, 352
CSAHeader, 352
CSAHeaderType, 352
DATASET_FORMAT, 352
FindCSAElementByName, 352
GetCSADataInfo, 352
GetCSAEEnd, 353
GetCSAElementByName, 353
GetCSAImageHeaderInfoTag, 353
GetCSASeriesHeaderInfoTag, 353
GetDataSet, 353
GetFormat, 354
GetInterfile, 354
GetMrProtocol, 354
INTERFILE, 352
LoadFromDataElement, 354
NOMAGIC, 352
operator<<, 355
Print, 354
SV10, 352
UNKNOWN, 352
ZEROED_OUT, 352
gdcm::CSAHeaderDict, 355
AddCSAHeaderDictEntry, 357
Begin, 357
ConstIterator, 356
CSAHeaderDict, 356
Dicts, 358
End, 357
GetCSAHeaderDictEntry, 357
IsEmpty, 357
Iterator, 356
LoadDefault, 357
MapCSAHeaderDictEntry, 356
operator<<, 358
operator=, 357
gdcm::CSAHeaderDictEntry, 358
CSAHeaderDictEntry, 360
GetDescription, 360
GetName, 360
GetVM, 360
GetVR, 360
operator<, 360
operator<<, 361
SetDescription, 361
SetName, 361
SetVM, 361
SetVR, 361
gdcm::CSAHeaderDictException, 362
gdcm::Curve, 365
~Curve, 367
Curve, 367
Decode, 368
GetAsPoints, 368
GetCurveDataDescriptor, 368
GetDataValueRepresentation, 368
GetDimensions, 368
GetGroup, 368
GetNumberOfCurves, 368
GetNumberOfPoints, 368
GetTypeOfData, 368
GetTypeOfDataDescription, 369
IsEmpty, 369
Print, 369
SetCoordinateStartValue, 369
SetCoordinateStepValue, 369
SetCurve, 369
SetCurveDataDescriptor, 369
SetCurveDescription, 369
SetDataValueRepresentation, 370
SetDimensions, 370

SetGroup, 370
SetNumberOfPoints, 370
SetTypeOfData, 370
Update, 370
gdcm::DataElement, 371
Clear, 374
DataElement, 374
Empty, 374
GetByteValue, 374
GetLength, 375
GetSequenceOfFragments, 375
GetTag, 375, 376
GetValue, 376
GetValueAsSQ, 376
GetVL, 377
GetVR, 377
IsEmpty, 378
IsUndefinedLength, 378
operator<, 378
operator<<, 383
operator=, 379
operator==, 379
Read, 379
ReadOrSkip, 379
ReadPreValue, 379
ReadValue, 380
ReadValueWithLength, 380
ReadWithLength, 380
SetByteValue, 380
SetTag, 381
SetValue, 381
SetValueFieldLength, 382
SetVL, 382
SetVLToUndefined, 382
SetVR, 382
TagField, 384
ValueField, 384
ValueLengthField, 384
ValuePtr, 374
VRField, 384
Write, 383
gdcm::DataElementException, 385
gdcm::DataEvent, 385
∼DataEvent, 387
CheckEvent, 388
DataEvent, 387, 388
GetData, 388
GetDataLength, 388
GetEventName, 388
MakeObject, 388
operator=, 388
Self, 387
SetData, 389
Superclass, 387
gdcm::DataSet, 389
Begin, 393
Clear, 393
ComputeDataElement, 393
ComputeGroupLength, 393
ConstIterator, 392
CSAHeader, 401
DataElementSet, 392
End, 393
FindDataElement, 394
FindNextDataElement, 394
GetDataElement, 394, 395
GetDEEnd, 395
GetDES, 395
GetLength, 396
GetMediaStorage, 396
GetPrivateCreator, 396
GetPrivateTag, 396
Insert, 396
InsertDataElement, 397
IsEmpty, 397
Iterator, 392
operator<<, 401
operator(), 397
operator=, 397
operator[], 398
Print, 398
Read, 398
ReadNested, 398
ReadSelectedPrivateTags, 398
ReadSelectedPrivateTagsWithLength, 398
ReadSelectedTags, 399
ReadSelectedTagsWithLength, 399
ReadUpToTag, 399
ReadUpToTagWithLength, 399
ReadWithLength, 399
Remove, 400
Replace, 400
ReplaceEmpty, 400
Size, 400
SizeType, 392
Write, 401
gdcm::DataSetEvent, 402
∼DataSetEvent, 404
CheckEvent, 404
DataSetEvent, 404
GetDataSet, 404
GetEventName, 404
m_DataSet, 405
MakeObject, 404
operator=, 405
Self, 403
Superclass, 403
gdcm::DataSetHelper, 405

ComputeVR, 406
gdcm::Decoder, 406
~Decoder, 407
CanDecode, 407
Decode, 407
DecodeByStreams, 407
gdcm::DefinedTerms, 408
DefinedTerms, 408
gdcm::Defs, 409
~Defs, 410
Defs, 410
GetIODFromFile, 410
GetIODNameFromMediaStorage, 410
GetIODs, 410
GetMacros, 411
GetModules, 411
GetTypeFromTag, 411
Global, 412
IsEmpty, 411
LoadDefaults, 412
LoadFromFile, 412
operator=, 412
Verify, 412
gdcm::DeltaEncodingCodec, 413
~DeltaEncodingCodec, 416
CanDecode, 416
Decode, 416
DeltaEncodingCodec, 416
gdcm::DICOMDIR, 416
DICOMDIR, 417
gdcm::DICOMDIRGenerator, 417
~DICOMDIRGenerator, 419
AddImageDirectoryRecord, 419
AddPatientDirectoryRecord, 419
AddSeriesDirectoryRecord, 419
AddStudyDirectoryRecord, 419
DICOMDIRGenerator, 419
FilenamesType, 419
FilenameType, 419
Generate, 419
GetFile, 420
GetScanner, 420
SetDescriptor, 420
SetFile, 420
SetFilenames, 420
SetRootDirectory, 421
gdcm::Dict, 421
AddDictEntry, 423
Begin, 423
ConstIterator, 422
Dict, 422
Dicts, 425
End, 423
GetDictEntry, 423
GetDictEntryByKeyword, 423
GetDictEntryByName, 424
GetKeywordFromTag, 424
IsEmpty, 424
Iterator, 422
LoadDefault, 424
MapDictEntry, 422
operator<<, 425
operator=, 424
gdcm::DictConverter, 425
~DictConverter, 427
AddGroupLength, 427
Convert, 427
ConvertToCXX, 427
ConvertToXML, 427
DICT_DEBUG, 427
DICT_DEFAULT, 427
DICT_XML, 427
DictConverter, 427
GetDictName, 428
GetInputFilename, 428
GetOutputFilename, 428
GetOutputType, 428
OutputTypes, 427
Readuint16, 428
ReadVM, 428
ReadVR, 428
SetDictName, 428
SetInputFileName, 429
SetOutputFileName, 429
SetOutputType, 429
WriteFooter, 429
WriteHeader, 429
gdcm::DictEntry, 429
Dict, 433
DictEntry, 431
GetKeyword, 431
GetName, 431
GetRetired, 431
GetVM, 431
GetVR, 431
IsUnique, 432
operator<<, 433
SetElementXX, 432
SetGroupXX, 432
SetKeyword, 432
SetName, 432
SetRetired, 432
SetVM, 433
SetVR, 433
gdcm::DictPrinter, 434
~DictPrinter, 436
DictPrinter, 436
Print, 436

PrintDataElement2, 436
PrintDataSet2, 436
gdcm::Dicts, 437
~Dicts, 438
ConstructorType, 438
Dicts, 438
GEMS, 438
GetConstructorString, 439
GetCSAHeaderDict, 439
GetDictEntry, 439
GetPrivateDict, 439
GetPublicDict, 440
Global, 440
IsEmpty, 440
LoadDefaults, 440
operator<<, 440
operator=, 440
PHILIPS, 438
SIEMENS, 438
gdcm::DirectionCosines, 442
~DirectionCosines, 444
ComputeDistAlongNormal, 444
Cross, 444
CrossDot, 444
DirectionCosines, 444
Distance, 444
Dot, 445
IsValid, 445
Norm, 445
Normalize, 445
operator const double *, 446
Print, 446
SetFromString, 446
gdcm::Directory, 446
~Directory, 448
Directory, 448
Explore, 448
FilenamesType, 448
FilenameType, 448
GetDirectories, 448
GetFilenames, 448
GetToplevel, 449
Load, 449
operator<<, 450
Print, 449
gdcm::DirectoryHelper, 450
GetCTImageSeriesUIDs, 451
GetFilenamesFromSeriesUIDs, 451
GetFrameOfReference, 451
GetMRImageSeriesUIDs, 451
GetRTStructSeriesUIDs, 451
GetSeriesUIDsBySOPClassUID, 451
GetSOPClassUID, 451
GetStringValueFromTag, 452
LoadImageFromFiles, 452
RetrieveSOPInstanceUIDFromIndex, 452
RetrieveSOPInstanceUIDFromZPosition, 452
gdcm::DPath, 452
~DPath, 453
ConstructFromString, 453
DPath, 453
IsValid, 453
Match, 454
operator<, 454
operator<<, 454
Print, 454
gdcm::DummyValueGenerator, 455
Generate, 455
gdcm::Dumper, 456
~Dumper, 458
Dumper, 458
gdcm::Element< TVR, TVM >, 458
GetAsDataElement, 460
GetLength, 460
GetValue, 461
GetValues, 461
GetVM, 461
GetVR, 461
Internal, 464
operator[], 462
Print, 462
Read, 462
Set, 462
SetFromDataElement, 462
SetNoSwap, 463
SetValue, 463
Type, 460
Write, 463
gdcm::Element< TVR, VM::VM1_2 >, 464
GetAsDataElement, 467
GetLength, 467
GetValue, 467
GetValues, 467
GetVM, 467
GetVR, 468
Internal, 469
operator[], 468
Parent, 467
Print, 468
Read, 468
Set, 468
SetFromDataElement, 468
SetLength, 468
SetNoSwap, 468
SetValue, 469
Type, 467
Write, 469
gdcm::Element< TVR, VM::VM1_n >, 469

~Element, 471
Element, 471
GetAsDataElement, 472
GetLength, 472
GetValue, 472
GetValues, 472
GetVM, 472
GetVR, 472
operator=, 473
operator[], 473
Print, 473
Read, 473
Set, 473
SetArray, 474
SetFromDataElement, 474
SetLength, 474
SetNoSwap, 474
SetValue, 475
Type, 471
Write, 475
WriteASCII, 475
gdcm::Element< TVR, VM::VM2_2n >, 476
GetAsDataElement, 480
GetLength, 480
GetValue, 480
GetValues, 480
GetVM, 480
GetVR, 480
Internal, 482
operator[], 480
Parent, 479
Print, 480
Read, 480
Set, 481
SetFromDataElement, 481
SetLength, 481
SetNoSwap, 481
SetValue, 481
Type, 479
Write, 481
gdcm::Element< TVR, VM::VM2_n >, 482
GetAsDataElement, 485
GetLength, 485
GetValue, 485
GetValues, 485
GetVM, 485
GetVR, 486
Internal, 487
operator[], 486
Parent, 485
Print, 486
Read, 486
Set, 486
SetFromDataElement, 486
SetLength, 486
SetNoSwap, 486
SetValue, 487
Type, 485
Write, 487
gdcm::Element< TVR, VM::VM3_3n >, 487
GetAsDataElement, 492
GetLength, 492
GetValue, 492
GetValues, 492
GetVM, 492
GetVR, 492
Internal, 494
operator[], 492
Parent, 491
Print, 492
Read, 492
Set, 493
SetFromDataElement, 493
SetLength, 493
SetNoSwap, 493
SetValue, 493
Type, 491
Write, 493
gdcm::Element< TVR, VM::VM3_4 >, 494
GetAsDataElement, 497
GetLength, 497
GetValue, 497
GetValues, 497
GetVM, 497
GetVR, 498
Internal, 499
operator[], 498
Parent, 497
Print, 498
Read, 498
Set, 498
SetFromDataElement, 498
SetLength, 498
SetNoSwap, 498
SetValue, 499
Type, 497
Write, 499
gdcm::Element< TVR, VM::VM3_n >, 499
GetAsDataElement, 503
GetLength, 503
GetValue, 503
GetValues, 503
GetVM, 503
GetVR, 504
Internal, 505
operator[], 504
Parent, 503
Print, 504

Read, 504
Set, 504
SetFromDataElement, 504
SetLength, 504
SetNoSwap, 504
SetValue, 505
Type, 503
Write, 505
gdcm::Element< VR::AS, VM::VM5 >, 505
GetAsDataElement, 507
GetLength, 507
GetValue, 507
GetValues, 507
GetVM, 507
GetVR, 508
Internal, 509
operator[], 508
Print, 508
Read, 508
Set, 508
SetFromDataElement, 508
SetNoSwap, 508
SetValue, 508
Type, 507
Write, 509
gdcm::Element< VR::OB, VM::VM1 >, 509
GetAsDataElement, 512
GetLength, 512
GetValue, 512
GetValues, 512
GetVM, 512
GetVR, 512
Internal, 514
operator[], 512
Print, 513
Read, 513
Set, 513
SetFromDataElement, 513
SetNoSwap, 513
SetValue, 513
Type, 512
Write, 513
gdcm::Element< VR::OW, VM::VM1 >, 514
GetAsDataElement, 517
GetLength, 517
GetValue, 517
GetValues, 517
GetVM, 517
GetVR, 517
Internal, 519
operator[], 517
Print, 518
Read, 518
Set, 518
SetFromDataElement, 518
SetNoSwap, 518
SetValue, 518
Type, 517
Write, 518
gdcm::ElementDisableCombinations< TVR, TVM >, 519
gdcm::ElementDisableCombinations< VR::OB, VM::VM1_n >, 520
gdcm::ElementDisableCombinations< VR::OW, VM::VM1_n >, 521
gdcm::EmptyMaskGenerator, 522
~EmptyMaskGenerator, 523
EmptyMaskGenerator, 523
Execute, 523
SetInputDirectory, 523
SetOutputDirectory, 523
SetSOPClassUIDMode, 524
SOPClassUIDMode, 523
UseGrayscaleSecondaryImageStorage, 523
UseOriginalSOPClassUID, 523
gdcm::EncapsulatedDocument, 524
EncapsulatedDocument, 525
gdcm::EncodingImplementation< T >, 525
gdcm::EncodingImplementation< VR::VRASCII >, 526
Read, 527
ReadComputeLength, 527
ReadNoSwap, 527
Write, 527, 528
gdcm::EncodingImplementation< VR::VRBINARY >, 528
Read, 529
ReadComputeLength, 529
ReadNoSwap, 529
Write, 530
gdcm::EndEvent, 530
gdcm::EnumeratedValues, 531
EnumeratedValues, 532
gdcm::EquipmentManufacturer, 532
AGFA, 533
Compute, 533
FUJI, 533
GEMS, 533
HITACHI, 533
KODAK, 533
MARCONI, 533
PMS, 533
SAMSUNG, 533
SIEMENS, 533
TOSHIBA, 533
Type, 533
TypeToString, 533
UIH, 533
UNKNOWN, 533
gdcm::Event, 534
~Event, 535

CheckEvent, 535
Event, 535
GetEventName, 535
MakeObject, 536
operator=, 536
Print, 536
gdcm::Exception, 537
~Exception, 538
Exception, 538
GetDescription, 538
what, 538
gdcm::ExitEvent, 539
gdcm::ExplicitDataElement, 540
GetLength, 543
Read, 543
ReadPreValue, 543
ReadValue, 544
ReadWithLength, 544
Write, 544
gdcm::ExplicitImplicitDataElement, 544
GetLength, 547
Read, 547
ReadPreValue, 547
ReadValue, 548
ReadWithLength, 548
gdcm::Fiducials, 548
Fiducials, 549
gdcm::File, 549
~File, 551
File, 551
GetDataSet, 551
GetHeader, 552
operator<<, 553
Read, 552
SetDataSet, 552
SetHeader, 553
Write, 553
gdcm::FileAnonymizer, 554
~FileAnonymizer, 556
Empty, 556
FileAnonymizer, 556
Remove, 556
Replace, 557
SetInputFileName, 557
SetOutputFileName, 557
Write, 558
gdcm::FileChangeTransferSyntax, 558
~FileChangeTransferSyntax, 560
Change, 561
FileChangeTransferSyntax, 560
GetCodec, 561
New, 561
SetInputFileName, 561
SetOutputFileName, 561
SetTransferSyntax, 562
gdcm::FileDecompressLookupTable, 562
~FileDecompressLookupTable, 564
Change, 564
FileDecompressLookupTable, 564
GetFile, 564
GetPixmap, 565
SetFile, 565
SetPixmap, 565
gdcm::FileDerivation, 565
~FileDerivation, 566
AddDerivationDescription, 567
AddPurposeOfReferenceCodeSequence, 567
AddReference, 567
AddSourceImageSequence, 567
Derive, 567
FileDerivation, 566
GetFile, 567, 568
SetAppendDerivationHistory, 568
SetDerivationCodeSequenceCodeValue, 568
SetDerivationDescription, 568
SetFile, 568
SetPurposeOfReferenceCodeSequenceCodeValue, 569
gdcm::FileExplicitFilter, 569
~FileExplicitFilter, 570
Change, 570
ChangeFMI, 570
FileExplicitFilter, 570
GetFile, 571
ProcessDataSet, 571
SetChangePrivateTags, 571
SetFile, 571
SetRecomputeItemLength, 571
SetRecomputeSequenceLength, 572
SetUseVRUN, 572
gdcm::FileMetaInformation, 572
~FileMetaInformation, 576
AppendImplementationClassUID, 577
ComputeDataSetMediaStorageSOPClass, 577
ComputeDataSetTransferSyntax, 577
DataSetMS, 582
DataSetTS, 582
Default, 577
FileMetaInformation, 576, 577
FillFromDataSet, 577
GetDataSetTransferSyntax, 577
GetFileMetaInformationVersion, 578
GetFullLength, 578
GetGDCMImplementationClassUID, 578
GetGDCMImplementationVersionName, 578
GetGDCMSourceApplicationEntityTitle, 578
GetImplementationClassUID, 578
GetImplementationVersionName, 578

GetMediaStorage, 578
GetMediaStorageAsString, 579
GetMetaInformationTS, 579
GetPreamble, 579
GetSourceApplicationEntityTitle, 579
Insert, 579
IsValid, 579
MetaInformationTS, 582
operator<<, 581
operator=, 579
Read, 580
ReadCompat, 580
ReadCompatInternal, 580
Replace, 580
SetDataSetTransferSyntax, 580
SetImplementationClassUID, 580
SetImplementationVersionName, 581
SetPreamble, 581
SetSourceApplicationEntityTitle, 581
Write, 581
gdcm::Filename, 582
EndWith, 583
Filename, 583
GetExtension, 583
GetFileName, 583
GetName, 583
GetPath, 584
IsEmpty, 584
IsIdentical, 584
Join, 584
operator const char *, 584
ToUnixSlashes, 584
ToWindowsSlashes, 585
gdcm::FileNameEvent, 585
~FileNameEvent, 587
CheckEvent, 588
FileNameEvent, 587
GetEventName, 588
GetFileName, 588
MakeObject, 588
operator=, 588
Self, 587
SetFileName, 588
Superclass, 587
gdcm::FilenameGenerator, 589
~FilenameGenerator, 590
FilenameGenerator, 590
FilenamesType, 590
FilenameType, 590
Generate, 591
GetFilename, 591
GetFilenames, 591
GetNumberOfFilenames, 591
GetPattern, 591
GetPrefix, 591
SetNumberOfFilenames, 592
SetPattern, 592
SetPrefix, 592
SizeType, 590
gdcm::FileSet, 592
AddFile, 594
FileSet, 593
FilesType, 593
FileType, 593
GetFiles, 594
operator<<, 594
SetFiles, 594
gdcm::FileStreamer, 595
~FileStreamer, 597
AppendToDataElement, 598
AppendToGroupDataElement, 598
CheckDataElement, 598
CheckTemplateFileName, 598
FileStreamer, 597
New, 598
ReserveDataElement, 599
ReserveGroupDataElement, 599
SetOutputFileName, 599
SetTemplateFileName, 599
StartDataElement, 599
StartGroupDataElement, 600
StopDataElement, 600
StopGroupDataElement, 600
gdcm::FileWithName, 601
filename, 603
FileWithName, 603
gdcm::FindPatientRootQuery, 603
FindPatientRootQuery, 606
GetAbstractSyntaxUID, 606
GetTagListByLevel, 606
InitializeDataSet, 607
QueryFactory, 607
ValidateQuery, 607
gdcm::FindStudyRootQuery, 608
FindStudyRootQuery, 610
GetAbstractSyntaxUID, 610
GetTagListByLevel, 610
InitializeDataSet, 611
QueryFactory, 611
ValidateQuery, 611
gdcm::Fragment, 612
ComputeLength, 615
Fragment, 615
GetLength, 615
operator<<, 616
Read, 615
ReadBacktrack, 615
ReadPreValue, 615

ReadValue, 616
Write, 616
gdcm::Global, 617
~Global, 618
Append, 618
GetDefs, 618
GetDicts, 618, 619
GetInstance, 619
Global, 618
LoadResourcesFiles, 619
Locate, 619
operator<<, 620
operator=, 620
Prepend, 620
gdcm::GroupDict, 620
~GroupDict, 621
Add, 622
GetAbbreviation, 622
GetName, 622
GroupDict, 621
GroupStringVector, 621
Insert, 622
operator<<, 623
Size, 622
gdcm::IconImageFilter, 623
~IconImageFilter, 624
Extract, 625
ExtractIconImages, 625
ExtractVeproIconImages, 625
GetFile, 625
GetIconImage, 625
GetNumberOfIconImages, 625
IconImageFilter, 624
SetFile, 626
gdcm::IconImageGenerator, 626
~IconImageGenerator, 627
AutoPixelMinMax, 627
ConvertRGBToPaletteColor, 627
Generate, 628
GetIconImage, 628
GetPixmap, 628
IconImageGenerator, 627
SetOutputDimensions, 628
SetOutsideValuePixel, 628
SetPixelMinMax, 629
SetPixmap, 629
gdcm::ignore_char, 629
ignore_char, 630
m_char, 630
gdcm::Image, 630
~Image, 635
GetDirectionCosines, 636
GetIntercept, 636
GetOrigin, 636
GetSlope, 636
GetSpacing, 636
Image, 635
Print, 637
SetDirectionCosines, 637
SetIntercept, 637
SetOrigin, 637, 638
SetSlope, 638
SetSpacing, 638
gdcm::ImageApplyLookupTable, 639
~ImageApplyLookupTable, 641
Apply, 642
ImageApplyLookupTable, 641
SetRGB8, 642
gdcm::ImageChangePhotometricInterpretation, 642
~ImageChangePhotometricInterpretation, 645
Change, 645
ChangeMonochrome, 645
ChangeRGB2YBR, 645
ChangeYBR2RGB, 645
GetPhotometricInterpretation, 645
ImageChangePhotometricInterpretation, 645
RGB2YBR, 646
SetPhotometricInterpretation, 646
YBR2RGB, 646
gdcm::ImageChangePlanarConfiguration, 647
~ImageChangePlanarConfiguration, 650
Change, 650
GetPlanarConfiguration, 650
ImageChangePlanarConfiguration, 650
RGBPixelsToRGBPlanes, 650
RGBPlanesToRGBPixels, 650
SetPlanarConfiguration, 651
gdcm::ImageChangeTransferSyntax, 651
~ImageChangeTransferSyntax, 655
Change, 655
GetTransferSyntax, 655
ImageChangeTransferSyntax, 655
SetCompressIconImage, 656
SetForce, 656
SetTransferSyntax, 656
SetUserCodec, 656
TryJPEG2000Codec, 657
TryJPEGCodec, 657
TryJPEGLSCodec, 657
TryRAWCodec, 657
TryRLECodec, 657
gdcm::ImageCodec, 658
~ImageCodec, 661
AppendFrameEncode, 661
AppendRowEncode, 661
CanCode, 662
CanDecode, 662
CleanupUnusedBits, 662

Clone, 662
Decode, 662
DecodeByStreams, 663
Dimensions, 669
DoByteSwap, 663
DoInvertMonochrome, 663
DoOverlayCleanup, 663
DoPaddedCompositePixelCode, 663
DoPlanarConfiguration, 663
DoSimpleCopy, 664
DoYBR, 664
DoYBRFull422, 664
FileChangeTransferSyntax, 668
GetDimensions, 664
GetHeaderInfo, 664
GetLossyFlag, 664
GetLUT, 664
GetNeedByteSwap, 665
GetNumberOfDimensions, 665
GetPhotometricInterpretation, 665
GetPixelFormat, 665
GetPlanarConfiguration, 665
ImageChangePhotometricInterpretation, 668
ImageCodec, 661
IsFrameEncoder, 665
IsLossy, 666
IsRowEncoder, 666
IsValid, 666
LossyFlag, 669
LUT, 669
LUTPtr, 661
NeedByteSwap, 669
NeedOverlayCleanup, 669
NumberOfDimensions, 669
PF, 669
PI, 670
PlanarConfiguration, 670
RequestPaddedCompositePixelCode, 670
RequestPlanarConfiguration, 670
SetDimensions, 666
SetLossyFlag, 666
SetLUT, 666
SetNeedByteSwap, 667
SetNeedOverlayCleanup, 667
SetNumberOfDimensions, 667
SetPhotometricInterpretation, 667
SetPixelFormat, 667
SetPlanarConfiguration, 668
StartEncode, 668
StopEncode, 668
gdcm::ImageConverter, 670
~ImageConverter, 671
Convert, 671
GetOuput, 671
ImageConverter, 671
SetInput, 671
gdcm::ImageFragmentSplitter, 672
~ImageFragmentSplitter, 674
GetFragmentSizeMax, 675
ImageFragmentSplitter, 674
SetForce, 675
SetFragmentSizeMax, 675
Split, 675
gdcm::ImageHelper, 675
ComputeMediaStorageFromModality, 677
ComputeSpacingFromImagePositionPatient, 677
GetDimensionsValue, 677
GetDirectionCosinesFromDataSet, 677
GetDirectionCosinesValue, 678
GetForcePixelSpacing, 678
GetForceRescaleInterceptSlope, 678
GetLUT, 678
GetOriginValue, 678
GetPhotometricInterpretationValue, 678
GetPixelFormatValue, 678
GetPlanarConfigurationValue, 679
GetPMSRescaleInterceptSlope, 679
GetPointerFromElement, 679
GetRealWorldValueMappingContent, 679
GetRescaleInterceptSlopeValue, 679
GetSecondaryCaptureImagePlaneModule, 679
GetSpacingTagFromMediaStorage, 680
GetSpacingValue, 680
GetZSpacingTagFromMediaStorage, 680
SetDimensionsValue, 680
SetDirectionCosinesValue, 680
SetForcePixelSpacing, 680
SetForceRescaleInterceptSlope, 680
SetOriginValue, 681
SetPMSRescaleInterceptSlope, 681
SetRescaleInterceptSlopeValue, 681
SetSecondaryCaptureImagePlaneModule, 681
SetSpacingValue, 681
gdcm::ImageReader, 682
~ImageReader, 685
GetImage, 685
ImageReader, 685
Read, 686
ReadACRNEMAImage, 686
ReadImage, 686
gdcm::ImageRegionReader, 687
~ImageRegionReader, 690
ComputeBufferLength, 691
GetRegion, 691
ImageRegionReader, 690
Read, 691
ReadInformation, 691
ReadIntoBuffer, 691

SetRegion, 692
gdcm::ImageToImageFilter, 692
~ImageToImageFilter, 694
GetInput, 694
GetOutput, 694
ImageToImageFilter, 694
gdcm::ImageWriter, 695
~ImageWriter, 698
ComputeTargetMediaStorage, 698
GetImage, 698, 699
ImageWriter, 698
Write, 699
gdcm::ImplicitDataElement, 703
GetLength, 706
Read, 706
ReadPreValue, 706
ReadValue, 706
ReadValueWithLength, 706
ReadWithLength, 706
Write, 706
gdcm::InitializeEvent, 707
gdcm::IOD, 708
AddIODEntry, 710
Clear, 710
GetIODEntry, 710
GetNumberOfIODs, 710
GetTypeFromTag, 710
IOD, 710
MapIODEntry, 709
operator<<, 711
SizeType, 709
gdcm::IODEntry, 711
GetIE, 712
GetName, 712
GetRef, 713
GetUsage, 713
GetUsageType, 713
IODEntry, 712
operator<<, 714
SetIE, 713
SetName, 713
SetRef, 713
SetUsage, 713
gdcm::IODs, 714
AddIOD, 716
Begin, 716
Clear, 716
End, 716
GetIOD, 716
IODMapType, 715
IODMapTypeConstIterator, 715
IODName, 715
IODs, 715
operator<<, 716
gdcm::IPPSorter, 717
ComputeZSpacing, 722
DirCosTolerance, 722
DropDuplicatePositions, 722
GetDirectionCosinesTolerance, 719
GetZSpacing, 719
GetZSpacingTolerance, 720
IPPSorter, 719
SetComputeZSpacing, 720
SetDirectionCosinesTolerance, 720
SetDropDuplicatePositions, 721
SetZSpacingTolerance, 721
Sort, 721
ZSpacing, 722
ZTolerance, 722
gdcm::Item, 723
Clear, 726
FindDataElement, 726
GetDataElement, 727
GetLength, 727
GetNestedDataSet, 727
InsertDataElement, 727
Item, 726
operator<<, 728
Read, 727
SetNestedDataSet, 728
Write, 728
gdcm::IterationEvent, 729
gdcm::JPEG12Codec, 730
~JPEG12Codec, 734
DecodeByStreams, 734
EncodeBuffer, 734
GetHeaderInfo, 734
InternalCode, 734
IsStateSuspension, 734
JPEG12Codec, 734
gdcm::JPEG16Codec, 735
~JPEG16Codec, 739
DecodeByStreams, 739
EncodeBuffer, 739
GetHeaderInfo, 739
InternalCode, 739
IsStateSuspension, 739
JPEG16Codec, 739
gdcm::JPEG2000Codec, 740
~JPEG2000Codec, 743
AppendFrameEncode, 743
AppendRowEncode, 743
Bitmap, 747
CanCode, 744
CanDecode, 744
Clone, 744
Code, 744
Decode, 744

DecodeByStreams, 745
DecodeExtent, 745
GetHeaderInfo, 745
GetQuality, 745
GetRate, 745
ImageRegionReader, 747
IsFrameEncoder, 746
IsRowEncoder, 746
JPEG2000Codec, 743
SetMCT, 746
SetNumberOfResolutions, 746
SetNumberOfThreadsForDecompression, 746
SetQuality, 746
SetRate, 746
SetReversible, 747
SetTileSize, 747
StartEncode, 747
StopEncode, 747
gdcm::JPEG8Codec, 748
~JPEG8Codec, 752
DecodeByStreams, 752
EncodeBuffer, 752
GetHeaderInfo, 752
InternalCode, 752
IsStateSuspension, 752
JPEG8Codec, 752
gdcm::JPEGCodec, 753
~JPEGCodec, 757
AppendFrameEncode, 757
AppendRowEncode, 757
BitSample, 762
CanCode, 757
CanDecode, 757
Clone, 758
Code, 758
ComputeOffsetTable, 758
Decode, 758
DecodeByStreams, 758
DecodeExtent, 759
EncodeBuffer, 759
GetHeaderInfo, 759
GetLossless, 759
GetQuality, 760
ImageRegionReader, 762
IsFrameEncoder, 760
IsRowEncoder, 760
IsStateSuspension, 760
IsValid, 760
JPEGCodec, 757
Quality, 762
SetBitSample, 760
SetLossless, 760
SetPixelFormat, 761
SetQuality, 761
StartEncode, 761
StopEncode, 761
gdcm::JPEGLSCodec, 762
~JPEGLSCodec, 765
AppendFrameEncode, 766
AppendRowEncode, 766
CanCode, 766
CanDecode, 766
Clone, 766
Code, 767
Decode, 767
DecodeExtent, 767
GetBufferLength, 767
GetHeaderInfo, 768
GetLossless, 768
ImageRegionReader, 769
IsFrameEncoder, 768
IsRowEncoder, 768
JPEGLSCodec, 765
SetBufferLength, 768
SetLossless, 768
SetLossyError, 768
StartEncode, 768
StopEncode, 769
gdcm::JPEGTurboCodec, 769
~JPEGTurboCodec, 773
DecodeByStreams, 773
EncodeBuffer, 773
GetHeaderInfo, 774
InternalCode, 774
IsStateSuspension, 774
JPEGTurboCodec, 773
gdcm::JSON, 774
~JSON, 775
Code, 775
Decode, 775
GetPrettyPrint, 776
JSON, 775
PrettyPrintOff, 776
PrettyPrintOn, 776
SetPrettyPrint, 776
gdcm::KAKADUCodec, 777
~KAKADUCodec, 779
CanCode, 780
CanDecode, 780
Clone, 780
Code, 780
Decode, 780
KAKADUCodec, 779
gdcm::LO, 781
const_iterator, 782
const_reference, 782
const_reverse_iterator, 782
difference_type, 782

IsValid, 784
iterator, 783
LO, 783, 784
pointer, 783
reference, 783
reverse_iterator, 783
size_type, 783
Superclass, 783
value_type, 783
gdcm::LookupTable, 784
~LookupTable, 787
Allocate, 788
BitSample, 792
BLUE, 787
Clear, 788
Decode, 788
Decode8, 788
GetBitSample, 789
GetBufferAsRGBA, 789
GetLUT, 789
GetLUTDescriptor, 789
GetLUTLength, 789
GetPointer, 789
GRAY, 787
GREEN, 787
IncompleteLUT, 792
InitializeBlueLUT, 790
Initialized, 790
InitializeGreenLUT, 790
InitializeLUT, 790
InitializeRedLUT, 790
Internal, 792
IsRGB8, 790
LookupTable, 787, 788
LookupTableType, 787
Print, 791
RED, 787
SetBlueLUT, 791
SetGreenLUT, 791
SetLUT, 791
SetRedLUT, 791
UNKNOWN, 787
WriteBufferAsRGBA, 791
gdcm::Macro, 795
AddMacroEntry, 796
ArrayIncludeMacrosType, 795
Clear, 796
FindMacroEntry, 796
GetMacroEntry, 796
GetName, 796
Macro, 796
MapModuleEntry, 795
operator<<, 797
SetName, 796
Verify, 797
gdcm::Macros, 797
AddMacro, 798
Clear, 798
GetMacro, 799
IsEmpty, 799
Macros, 798
ModuleMapType, 798
operator<<, 799
gdcm::MD5, 801
Compute, 801
ComputeFile, 801
gdcm::MEC_MR3, 802
GetCanonMECMR3Tag, 802
GetPMTFInformationDataTag, 802
GetToshibaMECMR3Tag, 802
Print, 803
gdcm::MediaStorage, 803
AmbulatoryECGWaveformStorage, 807
Audio, 810
BasicTextSR, 808
BasicVoiceAudioWaveformStorage, 807
BreastProjectionXRayImageStorageForPresentation, 809
BreastProjectionXRayImageStorageForProcessing, 809
BreastTomosynthesisImageStorage, 809
CardiacElectrophysiologyWaveformStorage, 807
ComprehensiveSR, 808
ComputedRadiographyImageStorage, 807
CSANonImageStorage, 808
CTImageStorage, 807
DetachedPatientManagementSOPClass, 808
DetachedStudyManagementSOPClass, 808
DetachedVisitManagementSOPClass, 808
DigitalIntraoralXrayImageStorageForPresentation, 807
DigitalIntraoralXRayImageStorageForProcessing, 807
DigitalMammographyImageStorageForPresentation, 807
DigitalMammographyImageStorageForProcessing, 807
DigitalXRayImageStorageForPresentation, 807
DigitalXRayImageStorageForProcessing, 807
EncapsulatedCDAStorage, 808
EncapsulatedPDFStorage, 808
EnhancedCTImageStorage, 807
EnhancedMRColorImageStorage, 809
EnhancedMRImageStorage, 807
EnhancedPETImageStorage, 809
EnhancedSR, 808
EnhancedUSVolumeStorage, 809
EnhancedXAImageStorage, 808

FujiPrivateCRImageStorage, 809
FujiPrivateMammoCRImageStorage, 809
GeneralECGWaveformStorage, 807
GeneralElectricMagneticResonanceImageStorage, 808
GEPrivate3DModelStorage, 808
GetModality, 810
GetModalityDimension, 810
GetMSString, 810
GetMSType, 810
GetNumberOfModality, 811
GetNumberOfMSString, 811
GetNumberOfMSType, 811
GetString, 811
GrayscaleSoftcopyPresentationStateStorageSOPClass, 808
GuessFromModality, 811
HangingProtocolStorage, 808
HardcopyColorImageStorage, 809
HardcopyGrayscaleImageStorage, 808
HemodynamicWaveformStorage, 807
IsImage, 811
IsUndefined, 812
IVOCTForPresentation, 809
IVOCTForProcessing, 809
KeyObjectSelectionDocument, 808
LeadECGWaveformStorage, 807
LegacyConvertedEnhancedCTImageStorage, 809
LegacyConvertedEnhancedMRImageStorage, 809
LegacyConvertedEnhancedPETImageStorage, 809
MammographyCADSR, 808
MediaStorage, 810
MediaStorageDirectoryStorage, 807
ModalityPerformedProcedureStepSOPClass, 808
MRImageStorage, 807
MRSpectroscopyStorage, 807
MS_END, 809
MSType, 807
MultiframeGrayscaleByteSecondaryCaptureImageStorage, 807
MultiframeGrayscaleWordSecondaryCaptureImageStorage, 807
MultiframeSingleBitSecondaryCaptureImageStorage, 807
MultiframeTrueColorSecondaryCaptureImageStorage, 807
NoObject, 809
NuclearMedicineImageStorage, 808
NuclearMedicineImageStorageRetired, 807
ObjectEnd, 810
ObjectType, 809
operator MSType, 812
operator<<, 813
OphthalmicPhotography16BitImageStorage, 809
OphthalmicPhotography8BitImageStorage, 809
OphthalmicTomographyImageStorage, 809
PDF, 810
PETImageStorage, 808
Philips3D, 808
PhilipsPrivateMRSyntheticImageStorage, 808
RawDataStorage, 808
RTDoseStorage, 808
RTImageStorage, 808
RTIonBeamsTreatmentRecordStorage, 809
RTIonPlanStorage, 808
RTPlanStorage, 808
RTStructureSetStorage, 808
RTTreatmentSummaryRecordStorage, 809
SecondaryCaptureImageStorage, 807
Segmentation, 810
SegmentationStorage, 808
SetFromDataSet, 812
SetFromFile, 812
SetFromHeader, 812
SetFromModality, 813
SetFromSourceImageSequence, 813
SpacialFiducialsStorage, 808
SpacialRegistrationStorage, 808
StandaloneCurveStorage, 807
StandaloneModalityLUTStorage, 807
StandaloneOverlayStorage, 807
StandaloneVOILUTStorage, 807
StudyComponentManagementSOPClass, 808
SurfaceSegmentationStorage, 809
ToshibaPrivateDataStorage, 808
UltrasoundImageStorage, 807
UltrasoundImageStorageRetired, 807
UltrasoundMultiFrameImageStorage, 807
UltrasoundMultiFrameImageStorageRetired, 807
URI, 810
Video, 810
VideoEndoscopicImageStorage, 808
VideoMicroscopicImageStorage, 809
VideoPhotographicImageStorage, 809
VLEndoscopicImageStorage, 809
VLMicroscopicImageStorage, 809
VLPhotographicImageStorage, 808
VLWholeSlideMicroscopyImageStorage, 809
Waveform, 810
XRay3DAngiographicImageStorage, 808
XRay3DCraniofacialImageStorage, 809
XRayAngiographicBiPlaneImageStorageRetired, 808
XRayAngiographicImageStorage, 808
XRayRadiationDoseSR, 809
XRayRadiofluoroscopingImageStorage, 808
gdcm::MemberCommand< T >, 813
~MemberCommand, 817
Execute, 818

m_ConstMemberFunction, 819
m_MemberFunction, 819
m_This, 819
MemberCommand, 817
New, 818
operator=, 818
Self, 817
SetCallbackFunction, 818, 819
TConstMemberFunctionPointer, 817
TMemberFunctionPointer, 817
gdcm::MeshPrimitive, 820
~MeshPrimitive, 823
AddPrimitiveData, 823
EDGE, 823
FACET, 823
GetMPType, 823
GetMPTypeString, 823
GetNumberOfPrimitivesData, 823
GetPrimitiveData, 824
GetPrimitivesData, 824
GetPrimitiveType, 824
LINE, 823
MeshPrimitive, 823
MPType, 822
MPType_END, 823
PrimitiveData, 825
PrimitivesData, 822
PrimitiveType, 825
SetPrimitiveData, 824
SetPrimitivesData, 825
SetPrimitiveType, 825
TRIANGLE, 823
TRIANGLE_FAN, 823
TRIANGLE_STRIP, 823
VERTEX, 823
gdcm::ModalityPerformedProcedureStepCreateQuery, 825
GetAbstractSyntaxUID, 828
GetRequiredDataSet, 828
ModalityPerformedProcedureStepCreateQuery, 828
QueryFactory, 829
ValidateQuery, 828
gdcm::ModalityPerformedProcedureStepSetQuery, 829
GetAbstractSyntaxUID, 832
GetRequiredDataSet, 832
ModalityPerformedProcedureStepSetQuery, 831
QueryFactory, 832
ValidateQuery, 832
gdcm::ModifiedEvent, 833
gdcm::Module, 834
AddMacro, 835
AddModuleEntry, 835
ArrayIncludeMacrosType, 835
Clear, 836
FindModuleEntryInMacros, 836
GetModuleEntryInMacros, 836
GetName, 836
MapModuleEntry, 835
Module, 835
operator<<, 837
SetName, 836
Verify, 836
gdcm::ModuleEntry, 837
~ModuleEntry, 839
DataElementType, 841
Description, 839
DescriptionField, 841
GetDescription, 840
GetName, 840
GetType, 840
ModuleEntry, 839
Name, 841
operator<<, 841
SetDescription, 840
SetName, 840
SetType, 840
gdcm::Modules, 841
AddModule, 843
Clear, 843
GetModule, 843
IsEmpty, 843
ModuleMapType, 842
Modules, 842
operator<<, 843
gdcm::MovePatientRootQuery, 844
GetAbstractSyntaxUID, 846
GetTagListByLevel, 846
InitializeDataSet, 847
MovePatientRootQuery, 846
QueryFactory, 847
ValidateQuery, 847
gdcm::MoveStudyRootQuery, 848
GetAbstractSyntaxUID, 850
GetTagListByLevel, 850
InitializeDataSet, 851
MoveStudyRootQuery, 850
QueryFactory, 851
ValidateQuery, 851
gdcm::MrProtocol, 852
~MrProtocol, 852
FindMrProtocolByName, 853
GetMrProtocolByName, 853
GetSliceArray, 853
GetVersion, 853
Load, 853
MrProtocol, 852
operator<<, 854
Print, 853

gdcm::MrProtocol::Slice, 1141
Normal, 1142
Position, 1142
gdcm::MrProtocol::SliceArray, 1142
Slices, 1143
gdcm::MrProtocol::Vector3, 1402
dCor, 1402
dSag, 1402
dTra, 1402
gdcm::NestedModuleEntries, 863
AddModuleEntry, 865
GetModuleEntry, 865
GetNumberOfModuleEntries, 866
NestedModuleEntries, 865
operator<<, 866
SizeType, 865
gdcm::network, 102
cMaxEventID, 108
cMaxStateID, 108
eAABORTPDUReceivedOpen, 107
eAABORTRequest, 107
eAASSOCIATE_RQPDUreceived, 107
eAASSOCIATERequestLocalUser, 107
eAASSOCIATEresponseAccept, 107
eAASSOCIATEresponseReject, 107
eARELEASE_RPPDUReceived, 107
eARELEASE_RQPDUReceivedOpen, 107
eARELEASERequest, 107
eARELEASEResponse, 107
eARTIMTimerExpired, 107
eASSOCIATE_ACPDUreceived, 107
eASSOCIATE_RJPDUreceived, 107
eEventDoesNotExist, 107
EEventID, 107
ePDATArequest, 107
ePDATATFPDU, 107
eSta10ReleaseCollisionAc, 108
eSta11ReleaseCollisionRq, 108
eSta12ReleaseCollisionAcLocal, 108
eSta13AwaitingClose, 108
eSta1Idle, 108
eSta2Open, 108
eSta3WaitLocalAssoc, 108
eSta4LocalAssocDone, 108
eSta5WaitRemoteAssoc, 108
eSta6TransferReady, 108
eSta7WaitRelease, 108
eSta8WaitLocalRelease, 108
eSta9ReleaseCollisionRqLocal, 108
eStaDoesNotExist, 107
EStateID, 107
eTransportConnConfirmLocal, 107
eTransportConnectionClosed, 107
eTransportConnIndicLocal, 107
eUnrecognizedPDUReceived, 107
GetStateIndex, 108
gdcm::network::AAbortPDU, 113
AAbortPDU, 114
IsLastFragment, 114
Print, 114
Read, 114
SetReason, 115
SetSource, 115
Size, 115
Write, 115
gdcm::network::AAssociateACPDU, 116
AAssociateACPDU, 117
AAssociateRQPDU, 119
AddPresentationContextAC, 118
GetNumberOfPresentationContextAC, 118
GetPresentationContextAC, 118
GetUserInformation, 118
InitFromRQ, 118
IsLastFragment, 118
Print, 118
Read, 118
SetCalledAETitle, 119
SetCallingAETitle, 119
Size, 119
SizeType, 117
Write, 119
gdcm::network::AAssociateRJPDU, 120
AAssociateRJPDU, 121
IsLastFragment, 121
Print, 121
Read, 121
Size, 121
Write, 121
gdcm::network::AAssociateRQPDU, 122
AAssociateACPDU, 127
AAssociateRQPDU, 124
AddPresentationContext, 124
GetCalledAETitle, 124
GetCallingAETitle, 124
GetNumberOfPresentationContext, 125
GetPresentationContext, 125
GetPresentationContextByAbstractSyntax, 125
GetPresentationContextByID, 125
GetPresentationContexts, 125
GetReserved43_74, 125
GetUserInformation, 125
IsAETitleValid, 125
IsLastFragment, 126
PresentationContextArrayType, 124
Print, 126
Read, 126
SetCalledAETitle, 126
SetCallingAETitle, 126

SetUserInformation, 126
Size, 127
SizeType, 124
Write, 127
gdcm::network::AbstractSyntax, 129
AbstractSyntax, 129
GetAsDataElement, 130
GetName, 130
operator==, 130
Print, 130
Read, 130
SetName, 130
SetNameFromUID, 130
Size, 130
Write, 130
gdcm::network::ApplicationContext, 145
ApplicationContext, 146
GetName, 146
Print, 146
Read, 146
SetName, 146
Size, 146
Write, 146
gdcm::network::AReleaseRPPDU, 149
AReleaseRPPDU, 150
IsLastFragment, 150
Print, 150
Read, 151
Size, 151
Write, 151
gdcm::network::AReleaseRQPDU, 151
AReleaseRQPDU, 153
IsLastFragment, 153
Print, 153
Read, 153
Size, 153
Write, 153
gdcm::network::ARTIMTimer, 154
ARTIMTimer, 154
GetElapsedTime, 154
GetHasExpired, 154
GetTimeout, 155
SetTimeout, 155
Start, 155
Stop, 155
gdcm::network::AsynchronousOperationsWindowSub, 157
AsynchronousOperationsWindowSub, 157
Print, 158
Read, 158
Size, 158
Write, 158
gdcm::network::BaseCompositeMessage, 225
∼BaseCompositeMessage, 227
ConstructPDV, 227
gdcm::network::BaseNormalizedMessage, 227
∼BaseNormalizedMessage, 229
ConstructPDV, 229
gdcm::network::BasePDU, 230
∼BasePDU, 231
IsLastFragment, 231
Print, 231
Read, 231
Size, 231
Write, 232
gdcm::network::CEchoRQ, 290
AffectedSOPClassUID, 292
ConstructPDV, 292
MessageID, 292
gdcm::network::CEchoRSP, 292
ConstructPDVByDataSet, 293
gdcm::network::CFind, 293
gdcm::network::CFindCancelRQ, 294
ConstructPDVByDataSet, 295
gdcm::network::CFindRQ, 295
ConstructPDV, 296
gdcm::network::CFindRSP, 297
ConstructPDVByDataSet, 298
gdcm::network::CMoveCancelRq, 305
ConstructPDVByDataSet, 306
gdcm::network::CMoveRQ, 307
ConstructPDV, 308
gdcm::network::CMoveRSP, 308
ConstructPDVByDataSet, 309
gdcm::network::CompositeMessageFactory, 325
ConstructCEchoRQ, 326
ConstructCFindRQ, 326
ConstructCMoveRQ, 326
ConstructCStoreRQ, 326
ConstructCStoreRSP, 326
gdcm::network::CStoreRQ, 362
ConstructPDV, 364
gdcm::network::CStoreRSP, 364
ConstructPDV, 365
gdcm::network::DIMSE, 441
C_CANCEL_RQ, 442
C_ECHO_RQ, 442
C_ECHO_RSP, 442
C_FIND_RQ, 442
C_FIND_RSP, 442
C_GET_RQ, 442
C_GET_RSP, 442
C_MOVE_RQ, 442
C_MOVE_RSP, 442
C_STORE_RQ, 442
C_STORE_RSP, 442
CommandTypes, 442
N_ACTION_RQ, 442

N_ACTION_RSP, 442
N_CREATE_RQ, 442
N_CREATE_RSP, 442
N_DELETE_RQ, 442
N_DELETE_RSP, 442
N_EVENT_REPORT_RQ, 442
N_EVENT_REPORT_RSP, 442
N_GET_RQ, 442
N_GET_RSP, 442
N_SET_RQ, 442
N_SET_RSP, 442
gdcm::network::ImplementationClassUIDSub, 699
ImplementationClassUIDSub, 700
Print, 700
Read, 700
Size, 700
Write, 700
gdcm::network::ImplementationUIDSub, 701
ImplementationUIDSub, 701
Write, 701
gdcm::network::ImplementationVersionNameSub, 701
ImplementationVersionNameSub, 702
Print, 702
Read, 702
Size, 702
Write, 702
gdcm::network::MaximumLengthSub, 799
GetMaximumLength, 800
MaximumLengthSub, 800
Print, 800
Read, 800
SetMaximumLength, 800
Size, 800
Write, 800
gdcm::network::NActionRQ, 854
ConstructPDV, 855
gdcm::network::NActionRSP, 855
ConstructPDVByDataSet, 856
gdcm::network::NCreateRQ, 857
ConstructPDV, 858
gdcm::network::NCreateRSP, 858
ConstructPDVByDataSet, 859
gdcm::network::NDeleteRQ, 860
ConstructPDV, 861
gdcm::network::NDeleteRSP, 861
ConstructPDVByDataSet, 862
gdcm::network::NEventReportRQ, 866
ConstructPDV, 867
gdcm::network::NEventReportRSP, 868
ConstructPDVByDataSet, 869
gdcm::network::NGetRQ, 869
ConstructPDV, 870
gdcm::network::NGetRSP, 871
ConstructPDVByDataSet, 872
gdcm::network::NormalizedMessageFactory, 873
ConstructNAction, 873
ConstructNCreate, 873
ConstructNDelete, 874
ConstructNEventReport, 874
ConstructNGet, 874
ConstructNSet, 874
gdcm::network::NSetRQ, 877
ConstructPDV, 878
gdcm::network::NSetRSP, 878
ConstructPDVByDataSet, 879
gdcm::network::PDataTFPDU, 913
AddPresentationDataValue, 915
GetNumberOfPresentationDataValues, 915
GetPresentationDataValue, 915
IsLastFragment, 915
PDataTFPDU, 915
Print, 915
Read, 916
ReadInto, 916
Size, 916
SizeType, 915
Write, 916
gdcm::network::PDUFactory, 925
ConstructAbortPDU, 926
ConstructPDU, 926
ConstructReleasePDU, 926
CreateCEchoPDU, 926
CreateCFindPDU, 926
CreateCMovePDU, 926
CreateCStoreRQPDU, 926
CreateCStoreRSPPDU, 927
CreateNActionPDU, 927
CreateNCreatePDU, 927
CreateNDeletePDU, 927
CreateNEventReportPDU, 927
CreateNGetPDU, 927
CreateNSetPDU, 927
DetermineEventByPDU, 928
GetPDVs, 928
gdcm::network::PresentationContextAC, 979
GetPresentationContextID, 980
GetReason, 980
GetTransferSyntax, 980
PresentationContextAC, 980
Print, 980
Read, 981
SetPresentationContextID, 981
SetReason, 981
SetTransferSyntax, 981
Size, 981
Write, 981
gdcm::network::PresentationContextRQ, 985
AddTransferSyntax, 986

GetAbstractSyntax, 986
GetNumberOfTransferSyntaxes, 986
GetPresentationContextID, 986
GetTransferSyntax, 987
GetTransferSyntaxes, 987
operator==, 987
PresentationContextRQ, 986
Print, 987
Read, 987
SetAbstractSyntax, 987
SetPresentationContextID, 987
Size, 988
SizeType, 985
Write, 988
gdcm::network::PresentationDataValue, 988
ConcatenatePDVBlobs, 989
ConcatenatePDVBlobsAsExplicit, 989
GetBlob, 989
GetIsCommand, 989
GetIsLastFragment, 989
GetMessageHeader, 990
GetPresentationContextID, 990
PresentationDataValue, 989
Print, 990
Read, 990
ReadInto, 990
SetBlob, 990
SetCommand, 990
SetDataSet, 990
SetLastFragment, 991
SetMessageHeader, 991
SetPresentationContextID, 991
Size, 991
Write, 991
gdcm::network::RoleSelectionSub, 1055
Print, 1056
Read, 1056
RoleSelectionSub, 1055
SetTuple, 1056
Size, 1056
Write, 1056
gdcm::network::ServiceClassApplicationInformation, 1121
Print, 1122
Read, 1122
ServiceClassApplicationInformation, 1121
SetTuple, 1122
Size, 1122
Write, 1122
gdcm::network::SOPClassExtendedNegociationSub, 1147
Print, 1147
Read, 1147
SetTuple, 1147
Size, 1148
SOPClassExtendedNegociationSub, 1147
Write, 1148
gdcm::network::TableRow, 1254
~TableRow, 1255
TableRow, 1255
transitions, 1255
gdcm::network::TransferSyntaxSub, 1286
GetName, 1287
operator==, 1287
Print, 1287
Read, 1287
SetName, 1287
SetNameFromUID, 1287
Size, 1287
TransferSyntaxSub, 1287
Write, 1288
gdcm::network::Transition, 1288
~Transition, 1289
mAction, 1289
MakeNew, 1289
mEnd, 1289
Transition, 1289
gdcm::network::ULAction, 1314
~ULAction, 1315
operator=, 1316
PerformAction, 1316
ULAction, 1315, 1316
gdcm::network::ULActionAA1, 1317
PerformAction, 1318
gdcm::network::ULActionAA2, 1318
PerformAction, 1319
gdcm::network::ULActionAA3, 1319
PerformAction, 1320
gdcm::network::ULActionAA4, 1321
PerformAction, 1322
gdcm::network::ULActionAA5, 1322
PerformAction, 1323
gdcm::network::ULActionAA6, 1323
PerformAction, 1324
gdcm::network::ULActionAA7, 1325
PerformAction, 1326
gdcm::network::ULActionAA8, 1326
PerformAction, 1327
gdcm::network::ULActionAE1, 1327
PerformAction, 1328
gdcm::network::ULActionAE2, 1329
PerformAction, 1330
gdcm::network::ULActionAE3, 1330
PerformAction, 1331
gdcm::network::ULActionAE4, 1331
PerformAction, 1332
gdcm::network::ULActionAE5, 1333
PerformAction, 1334
gdcm::network::ULActionAE6, 1334

PerformAction, 1335
gdcm::network::ULActionAE7, 1335
PerformAction, 1336
gdcm::network::ULActionAE8, 1337
PerformAction, 1338
gdcm::network::ULActionAR1, 1338
PerformAction, 1339
gdcm::network::ULActionAR10, 1339
PerformAction, 1340
gdcm::network::ULActionAR2, 1341
PerformAction, 1342
gdcm::network::ULActionAR3, 1342
PerformAction, 1343
gdcm::network::ULActionAR4, 1343
PerformAction, 1344
gdcm::network::ULActionAR5, 1345
PerformAction, 1346
gdcm::network::ULActionAR6, 1346
PerformAction, 1347
gdcm::network::ULActionAR7, 1347
PerformAction, 1348
gdcm::network::ULActionAR8, 1349
PerformAction, 1350
gdcm::network::ULActionAR9, 1350
PerformAction, 1351
gdcm::network::ULActionDT1, 1351
PerformAction, 1352
gdcm::network::ULActionDT2, 1353
PerformAction, 1354
gdcm::network::ULBasicCallback, 1354
~ULBasicCallback, 1356
GetDataSets, 1356
GetResponses, 1356
HandleDataSet, 1356
HandleResponse, 1356
ULBasicCallback, 1356
gdcm::network::ULConnection, 1357
~ULConnection, 1358
AddAcceptedPresentationContext, 1358
FindContext, 1358
GetAcceptedPresentationContexts, 1359
GetConnectionInfo, 1359
GetMaxPDUSize, 1359
GetPresentationContextACByID, 1359
GetPresentationContextIDFromPresentationContext, 1359
GetPresentationContextRQByID, 1359
GetPresentationContexts, 1359
GetProtocol, 1360
GetState, 1360
GetTimer, 1360
InitializeConnection, 1360
InitializeIncomingConnection, 1360
operator=, 1360
SetMaxPDUSize, 1360
SetPresentationContexts, 1360, 1361
SetState, 1361
StopProtocol, 1361
ULActionAE6, 1361
ULConnection, 1358
ULConnectionManager, 1361
gdcm::network::ULConnectionCallback, 1362
~ULConnectionCallback, 1363
DataSetHandled, 1363
DataSetHandles, 1363
HandleDataSet, 1363
HandleResponse, 1363
mImplicit, 1364
ResetHandledDataSet, 1363
SetImplicitFlag, 1363
ULConnectionCallback, 1363
gdcm::network::ULConnectionInfo, 1364
GetCalledAETitle, 1365
GetCalledComputerName, 1365
GetCalledIPAddress, 1365
GetCalledIPPort, 1365
GetCallingAETitle, 1365
GetMaxPDULength, 1365
Initialize, 1365
SetMaxPDULength, 1365
ULConnectionInfo, 1365
gdcm::network::ULConnectionManager, 1366
~ULConnectionManager, 1369
BreakConnection, 1369
BreakConnectionNow, 1369
EstablishConnection, 1369
EstablishConnectionMove, 1370
mConnection, 1373
mSecondaryConnection, 1373
mTransitions, 1373
RunEventLoop, 1370
RunMoveEventLoop, 1370
SendEcho, 1370
SendFind, 1370, 1371
SendMove, 1371
SendNAction, 1371
SendNCreate, 1371
SendNDelete, 1372
SendNEventReport, 1372
SendNGet, 1372
SendNSet, 1372
SendStore, 1373
ULConnectionManager, 1369
gdcm::network::ULEvent, 1374
~ULEvent, 1374
GetDataSetPos, 1375
GetEvent, 1375
GetIStream, 1375

GetPDUs, 1375
SetEvent, 1375
SetPDU, 1375
ULEvent, 1374
gdcm::network::ULTransitionTable, 1375
HandleEvent, 1376
PrintTable, 1376
ULTransitionTable, 1376
gdcm::network::ULWritingCallback, 1377
~ULWritingCallback, 1378
HandleDataSet, 1378
HandleResponse, 1378
SetDirectory, 1378
ULWritingCallback, 1378
gdcm::network::UserInformation, 1392
~UserInformation, 1393
AddRoleSelectionSub, 1393
AddSOPClassExtendedNegociationSub, 1393
GetMaximumLengthSub, 1393
operator=, 1393
Print, 1394
Read, 1394
Size, 1394
UserInformation, 1393
Write, 1394
gdcm::NoEvent, 872
gdcm::NormalizedNetworkFunctions, 874
ConstructQuery, 875
NAction, 875
NCreate, 876
NDelete, 876
NEventReport, 876
NGet, 876
NSet, 876
gdcm::Object, 880
~Object, 881
Object, 881
operator<<, 882
operator=, 882
Print, 882
Register, 882
SmartPointer, 882
UnRegister, 882
gdcm::OpenSSLCryptoFactory, 883
CreateCMSProvider, 885
InitOpenSSL, 885
OpenSSLCryptoFactory, 884
gdcm::OpenSSLCryptographicMessageSyntax, 885
~OpenSSLCryptographicMessageSyntax, 887
Decrypt, 887
Encrypt, 887
GetCipherType, 887
OpenSSLCryptographicMessageSyntax, 887
ParseCertificateFile, 887
ParseKeyFile, 888
SetCipherType, 888
SetPassword, 888
gdcm::OpenSSLP7CryptoFactory, 889
CreateCMSProvider, 890
OpenSSLP7CryptoFactory, 890
gdcm::OpenSSLP7CryptographicMessageSyntax, 891
~OpenSSLP7CryptographicMessageSyntax, 892
Decrypt, 892
Encrypt, 892
GetCipherType, 893
OpenSSLP7CryptographicMessageSyntax, 892
ParseCertificateFile, 893
ParseKeyFile, 893
SetCipherType, 893
SetPassword, 893
gdcm::Orientation, 894
~Orientation, 895
AXIAL, 895
CORONAL, 895
GetLabel, 896
GetMajorAxisFromPatientRelativeDirectionCosine, 896
GetObliquityThresholdCosineValue, 896
GetType, 896
OBLIQUE, 895
operator<<, 897
Orientation, 895
OrientationType, 895
Print, 896
SAGITTAL, 895
SetObliquityThresholdCosineValue, 896
UNKNOWN, 895
gdcm::Overlay, 897
~Overlay, 900
Decompress, 901
GetBitPosition, 901
GetBitsAllocated, 901
GetColumns, 901
GetDescription, 901
GetGroup, 901
GetOrigin, 902
GetOverlayData, 902
GetOverlayTypeAsString, 902
GetOverlayTypeFromString, 902
GetRows, 902
GetType, 902
GetTypeAsEnum, 902
GetUnpackBuffer, 903
GetUnpackBufferLength, 903
GrabOverlayFromPixelData, 903
Graphics, 900
Invalid, 900
IsEmpty, 903

IsInPixelData, 903
IsZero, 904
operator=, 904
Overlay, 900, 901
OverlayType, 900
Print, 904
ROI, 900
SetBitPosition, 904
SetBitsAllocated, 904
SetColumns, 904
SetDescription, 905
SetFrameOrigin, 905
SetGroup, 905
SetNumberOfFrames, 905
SetOrigin, 905
SetOverlay, 905
SetRows, 906
SetType, 906
Update, 906
gdcm::ParseException, 907
~ParseException, 908
GetLastElement, 909
operator=, 909
ParseException, 908
SetLastElement, 909
gdcm::Parser, 909
~Parser, 911
DuplicateAttributeError, 911
EndElementHandler, 910
ErrorType, 911
GetBuffer, 911
GetCurrentByteIndex, 911
GetErrorCode, 911
GetErrorString, 912
GetUserData, 912
JunkAfterDocElementError, 911
NoElementsError, 911
NoError, 911
NoMemoryError, 911
Parse, 912
ParseBuffer, 912
Parser, 911
Process, 912
SetElementHandler, 912
SetUserData, 912
StartElementHandler, 910
SyntaxError, 911
TagMismatchError, 911
UndefinedEntityError, 911
UnexpectedStateError, 911
gdcm::Patient, 913
Patient, 913
gdcm::PDBElement, 917
GetName, 918
GetValue, 918
NameField, 919
operator<<, 919
operator==, 918
PDBElement, 918
SetName, 918
SetValue, 919
ValueField, 919
gdcm::PDBHeader, 920
~PDBHeader, 921
FindPDBElementByName, 921
GetPDBEEnd, 921
GetPDBElementByName, 921
GetPDBInfoTag, 921
LoadFromDataElement, 921
operator<<, 922
PDBHeader, 921
Print, 922
gdcm::PDFCodec, 922
~PDFCodec, 924
CanCode, 924
CanDecode, 924
Decode, 925
PDFCodec, 924
gdcm::PersonName, 928
Component, 930
GetMaxLength, 929
GetNumberOfComponents, 929
MaxLength, 930
MaxNumberOfComponents, 930
Padding, 930
Print, 929
Separator, 930
SetBlob, 929
SetComponents, 929, 930
gdcm::PGXCodec, 931
~PGXCodec, 934
CanCode, 934
CanDecode, 934
Clone, 934
GetHeaderInfo, 934
PGXCodec, 934
Read, 935
Write, 935
gdcm::PhotometricInterpretation, 935
ARGB, 937
CMYK, 937
GetPIString, 937
GetPIType, 937
GetSamplesPerPixel, 937
GetString, 938
GetType, 938
HSV, 937
IsLossless, 938

IsLossy, 938
IsRetired, 938
IsSameColorSpace, 938
MONOCHROME1, 936
MONOCHROME2, 936
operator PIType, 938
operator<<, 939
PALETTE_COLOR, 937
PhotometricInterpretation, 937
PI_END, 937
PIType, 936
RGB, 937
UNKNOWN, 936
YBR_FULL, 937
YBR_FULL_422, 937
YBR_ICT, 937
YBR_PARTIAL_420, 937
YBR_PARTIAL_422, 937
YBR_RCT, 937
gdcm::PixelFormat, 939
Bitmap, 947
FLOAT16, 942
FLOAT32, 942
FLOAT64, 942
GetBitsAllocated, 942
GetBitsStored, 942
GetHighBit, 943
GetMax, 943
GetMin, 943
GetPixelRepresentation, 943
GetPixelSize, 943
GetSamplesPerPixel, 944
GetScalarType, 944
GetScalarTypeAsString, 944
INT12, 941
INT16, 941
INT32, 941
INT64, 942
INT8, 941
IsCompatible, 944
IsValid, 945
operator ScalarType, 945
operator!=, 945
operator<<, 947
operator==, 945
PixelFormat, 942
Print, 945
ScalarType, 941
SetBitsAllocated, 946
SetBitsStored, 946
SetHighBit, 946
SetPixelRepresentation, 946
SetSamplesPerPixel, 946
SetScalarType, 946
SINGLEBIT, 942
UINT12, 941
UINT16, 941
UINT32, 941
UINT64, 941
UINT8, 941
UNKNOWN, 942
Validate, 947
gdcm::Pixmap, 948
~Pixmap, 952
AreOverlaysInPixelData, 952
Curves, 954
GetCurve, 952
GetIconImage, 952
GetNumberOfCurves, 953
GetNumberOfOverlays, 953
GetOverlay, 953
Icon, 954
Overlays, 955
Pixmap, 952
Print, 953
RemoveOverlay, 953
SetIconImage, 954
SetNumberOfCurves, 954
SetNumberOfOverlays, 954
UnusedBitsPresentInPixelData, 954
gdcm::PixmapReader, 955
~PixmapReader, 958
GetPixmap, 958
PixelData, 959
PixmapReader, 958
Read, 958
ReadACRNEMAImage, 958
ReadImage, 959
ReadImageInternal, 959
gdcm::PixmapToPixmapFilter, 959
~PixmapToPixmapFilter, 961
GetInput, 961
GetOutput, 961
GetOutputAsPixmap, 961
PixmapToPixmapFilter, 961
gdcm::PixmapWriter, 962
~PixmapWriter, 965
DoIconImage, 965
GetImage, 965
GetPixmap, 965
PixelData, 967
PixmapWriter, 965
PrepareWrite, 966
SetImage, 966
SetPixmap, 966
Write, 966
gdcm::PNMCodec, 967
~PNMCodec, 970

CanCode, 970
CanDecode, 970
Clone, 971
GetBufferLength, 971
GetHeaderInfo, 971
PNMCodec, 970
Read, 971
SetBufferLength, 971
Write, 971
gdcm::Preamble, 972
~Preamble, 973
Clear, 973
Create, 973
GetInternal, 974
GetLength, 974
IsEmpty, 974
IsValid, 974
operator<<, 975
operator=, 974
Preamble, 973
Print, 974
Read, 974
Remove, 975
Valid, 975
Write, 975
gdcm::PresentationContext, 976
AbstractSyntax, 979
AddTransferSyntax, 978
GetAbstractSyntax, 978
GetNumberOfTransferSyntaxes, 978
GetPresentationContextID, 978
GetTransferSyntax, 978
ID, 979
operator==, 978
PresentationContext, 977
Print, 978
SetAbstractSyntax, 978
SetPresentationContextID, 979
SizeType, 977
TransferSyntaxArrayType, 977
TransferSyntaxes, 979
gdcm::PresentationContextGenerator, 982
AddFromFile, 983
AddPresentationContext, 983
GenerateFromFilenames, 983
GenerateFromUID, 983
GetDefaultTransferSyntax, 984
GetPresentationContexts, 984
PresentationContextArrayType, 983
PresentationContextGenerator, 983
SetDefaultTransferSyntax, 984
SetMergeModeToAbstractSyntax, 984
SetMergeModeToTransferSyntax, 984
SizeType, 983
gdcm::Printer, 992
~Printer, 994
CONDENSED_STYLE, 994
CXX, 994
F, 996
GetPrintStyle, 994
MaxPrintLength, 996
Print, 994
PrintDataElement, 994
PrintDataSet, 995
Printer, 994
PrintSQ, 995
PrintStyle, 996
PrintStyles, 994
SetColor, 995
SetFile, 995
SetStyle, 995
VERBOSE_STYLE, 994
XML, 994
gdcm::PrivateDict, 996
~PrivateDict, 997
AddDictEntry, 997
Dicts, 998
FindDictEntry, 997
GetDictEntry, 997
IsEmpty, 998
LoadDefault, 998
operator<<, 998
PrintXML, 998
PrivateDict, 997
RemoveDictEntry, 998
gdcm::PrivateTag, 999
GetAsDataElement, 1002
GetOwner, 1002
operator!=, 1002
operator<, 1003
operator<<, 1004
operator=, 1003
operator==, 1003
PrivateTag, 1002
ReadFromCommaSeparatedString, 1003
SetOwner, 1003
gdcm::ProgressEvent, 1004
~ProgressEvent, 1006
CheckEvent, 1007
GetEventName, 1007
GetProgress, 1007
MakeObject, 1007
operator=, 1007
ProgressEvent, 1006
Self, 1006
SetProgress, 1007
Superclass, 1006
gdcm::PVRGCodec, 1008

~PVRGCodec, 1011
CanCode, 1011
CanDecode, 1011
Clone, 1011
Code, 1012
Decode, 1012
PVRGCodec, 1011
SetLossyFlag, 1012
gdcm::PythonFilter, 1012
~PythonFilter, 1013
GetFile, 1013
PythonFilter, 1013
SetDicts, 1013
SetFile, 1013
ToPyObject, 1014
UseDictAlways, 1014
gdcm::QueryBase, 1014
~QueryBase, 1015
GetAllRequiredTags, 1015
GetAllTags, 1015
GetHierachicalSearchTags, 1015
GetName, 1016
GetOptionalTags, 1016
GetQueryLevel, 1016
GetRequiredTags, 1016
GetUniqueTags, 1016
gdcm::QueryFactory, 1017
GetCharacterFromCurrentLocale, 1017
ListCharSets, 1017
ProduceCharacterSetDataElement, 1017
ProduceQuery, 1018
gdcm::QueryImage, 1018
GetHierachicalSearchTags, 1019
GetName, 1019
GetOptionalTags, 1020
GetQueryLevel, 1020
GetRequiredTags, 1020
GetUniqueTags, 1020
gdcm::QueryPatient, 1021
GetHierachicalSearchTags, 1022
GetName, 1022
GetOptionalTags, 1022
GetQueryLevel, 1022
GetRequiredTags, 1022
GetUniqueTags, 1023
gdcm::QuerySeries, 1023
GetHierachicalSearchTags, 1024
GetName, 1024
GetOptionalTags, 1025
GetQueryLevel, 1025
GetRequiredTags, 1025
GetUniqueTags, 1025
gdcm::QueryStudy, 1026
GetHierachicalSearchTags, 1027
GetName, 1027
GetOptionalTags, 1027
GetQueryLevel, 1027
GetRequiredTags, 1027
GetUniqueTags, 1028
gdcm::RAWCodec, 1028
~RAWCodec, 1031
CanCode, 1031
CanDecode, 1031
Clone, 1031
Code, 1032
Decode, 1032
DecodeByStreams, 1032
DecodeBytes, 1032
GetHeaderInfo, 1032
RAWCodec, 1031
gdcm::Reader, 1033
~Reader, 1036
CanRead, 1036
F, 1040
GetFile, 1036
GetStreamCurrentPosition, 1036
GetStreamPtr, 1037
Read, 1037
ReadDataSet, 1037
Reader, 1036
ReadMetaInformation, 1037
ReadPreamble, 1037
ReadSelectedPrivateTags, 1038
ReadSelectedTags, 1038
ReadUpToTag, 1038
SetFile, 1038
SetFileName, 1038
SetStream, 1039
StreamImageReader, 1039
gdcm::RealWorldValueMappingContent, 1040
CodeMeaning, 1041
CodeValue, 1041
RealWorldValueIntercept, 1041
RealWorldValueSlope, 1041
gdcm::Region, 1041
~Region, 1042
Area, 1042
Clone, 1042
ComputeBoundingBox, 1043
Empty, 1043
IsValid, 1043
Print, 1043
Region, 1042
gdcm::Rescaler, 1044
~Rescaler, 1045
ComputeInterceptSlopePixelType, 1045
ComputePixelTypeFromMinMax, 1045
GetIntercept, 1046

GetSlope, 1046
InverseRescale, 1046
InverseRescaleFunctionIntoBestFit, 1046
Rescale, 1046
RescaleFunctionIntoBestFit, 1046
Rescaler, 1045
SetIntercept, 1047
SetMinMaxForPixelType, 1047
SetPixelFormat, 1047
SetSlope, 1047
SetTargetPixelType, 1047
SetUseTargetPixelType, 1048
gdcm::RLECodec, 1048
~RLECodec, 1051
AppendFrameEncode, 1052
AppendRowEncode, 1052
CanCode, 1052
CanDecode, 1052
Clone, 1052
Code, 1052
Decode, 1053
DecodeByStreams, 1053
DecodeExtent, 1053
GetBufferLength, 1053
GetHeaderInfo, 1053
ImageRegionReader, 1055
IsFrameEncoder, 1054
IsRowEncoder, 1054
RLECodec, 1051
SetBufferLength, 1054
SetLength, 1054
StartEncode, 1054
StopEncode, 1054
gdcm::Scanner, 1057
~Scanner, 1061
AddPrivateTag, 1061
AddSkipTag, 1061
AddTag, 1061
Begin, 1062
ClearSkipTags, 1062
ClearTags, 1062
ConstIterator, 1060
End, 1062
GetAllFilenamesFromTagToValue, 1062
GetFilenameFromTagToValue, 1062
GetFilenames, 1062
GetKeys, 1063
GetMapping, 1063
GetMappingFromTagToValue, 1063
GetMappings, 1063
GetOrderedValues, 1063
GetValue, 1063
GetValues, 1064
IsKey, 1064
MappingType, 1060
New, 1064
operator<<, 1066
Print, 1065
PrintTable, 1065
ProcessPublicTag, 1065
Scan, 1065
Scanner, 1061
TagToValue, 1060
TagToValueValueType, 1060
ValuesType, 1061
gdcm::Scanner2, 1066
~Scanner2, 1071
AddPrivateTag, 1071
AddPublicTag, 1071
AddSkipTag, 1071
Begin, 1071
ClearPrivateTags, 1071
ClearPublicTags, 1072
ClearSkipTags, 1072
End, 1072
GetAllFilenamesFromPrivateTagToValue, 1072
GetAllFilenamesFromPublicTagToValue, 1072
GetFilenameFromPrivateTagToValue, 1072
GetFilenameFromPublicTagToValue, 1072
GetFilenames, 1072
GetKeys, 1073
GetMappingFromPrivateTagToValue, 1073
GetMappingFromPublicTagToValue, 1073
GetPrivateMapping, 1073
GetPrivateMappings, 1073
GetPrivateOrderedValues, 1073
GetPrivateValue, 1073
GetPrivateValues, 1074
GetPublicMapping, 1074
GetPublicMappings, 1074
GetPublicOrderedValues, 1074
GetPublicValue, 1074
GetPublicValues, 1074
GetValues, 1075
IsKey, 1075
New, 1075
operator<<, 1076
Print, 1075
PrintTable, 1075
PrivateBegin, 1075
PrivateConstIterator, 1070
PrivateEnd, 1076
PrivateMappingType, 1070
PrivateTagToValue, 1070
PrivateTagToValueValueType, 1070
ProcessPrivateTag, 1076
ProcessPublicTag, 1076
PublicConstIterator, 1070

PublicMappingType, 1070
PublicTagToValue, 1070
PublicTagToValueValueType, 1070
Scan, 1076
Scanner2, 1071
ValuesType, 1070
gdcm::Scanner2::ltstr, 792
operator(), 793
gdcm::Scanner::ltstr, 793
operator(), 793
gdcm::Segment, 1077
~Segment, 1080
AddSurface, 1080
ALGOType, 1080
ALGOType_END, 1080
AnatomicRegion, 1084
AnatomicRegionModifiers, 1084
AUTOMATIC, 1080
BasicCodedEntryVector, 1079
GetALGOType, 1080
GetALGOTypeString, 1080
GetAnatomicRegion, 1080, 1081
GetAnatomicRegionModifiers, 1081
GetPropertyCategory, 1081
GetPropertyType, 1081
GetPropertyTypeModifiers, 1081
GetSegmentAlgorithmName, 1081
GetSegmentAlgorithmType, 1082
GetSegmentDescription, 1082
GetSegmentLabel, 1082
GetSegmentNumber, 1082
GetSurface, 1082
GetSurfaceCount, 1082
GetSurfaces, 1082
MANUAL, 1080
PropertyCategory, 1084
PropertyType, 1084
PropertyTypeModifiers, 1084
Segment, 1080
SegmentAlgorithmName, 1085
SegmentAlgorithmType, 1085
SegmentDescription, 1085
SegmentLabel, 1085
SegmentNumber, 1085
SEMIAUTOMATIC, 1080
SetAnatomicRegion, 1082
SetAnatomicRegionModifiers, 1083
SetPropertyCategory, 1083
SetPropertyType, 1083
SetPropertyTypeModifiers, 1083
SetSegmentAlgorithmName, 1083
SetSegmentAlgorithmType, 1083
SetSegmentDescription, 1083
SetSegmentLabel, 1084
SetSegmentNumber, 1084
SetSurfaceCount, 1084
SurfaceCount, 1085
Surfaces, 1085
SurfaceVector, 1079
gdcm::SegmentedPaletteColorLookupTable, 1086
~SegmentedPaletteColorLookupTable, 1088
Print, 1089
SegmentedPaletteColorLookupTable, 1088
SetLUT, 1089
gdcm::SegmentHelper, 109
gdcm::SegmentHelper::BasicCodedEntry, 242
BasicCodedEntry, 244
CM, 245
CSD, 245
CSV, 245
CV, 245
IsEmpty, 245
gdcm::SegmentReader, 1089
~SegmentReader, 1092
GetSegments, 1092
Read, 1092
ReadSegment, 1093
ReadSegments, 1093
SegmentMap, 1092
SegmentReader, 1092
Segments, 1093
SegmentVector, 1092
gdcm::SegmentWriter, 1093
~SegmentWriter, 1097
AddSegment, 1097
GetNumberOfSegments, 1097
GetSegment, 1097
GetSegments, 1097
PrepareWrite, 1097
Segments, 1098
SegmentVector, 1097
SegmentWriter, 1097
SetNumberOfSegments, 1098
SetSegments, 1098
Write, 1098
gdcm::SequenceOfFragments, 1099
AddFragment, 1102
Begin, 1102
Clear, 1102
ComputeByteLength, 1102
ComputeLength, 1103
ConstIterator, 1101
End, 1103
FragmentVector, 1101
GetBuffer, 1103
GetFragBuffer, 1103
GetFragment, 1103
GetLength, 1103

GetNumberOfFragments, 1104
GetTable, 1104
Iterator, 1101
New, 1104
operator==, 1104
Print, 1104
Read, 1105
ReadPreValue, 1105
ReadValue, 1105
SequenceOfFragments, 1102
SetLength, 1105
SizeType, 1101
Write, 1105
WriteBuffer, 1106
gdcm::SequenceOfItems, 1106
AddItem, 1110
AddNewUndefinedLengthItem, 1110
Begin, 1110, 1111
Clear, 1111
ComputeLength, 1111
ConstIterator, 1109
End, 1111
FindDataElement, 1111
GetItem, 1111, 1112
GetLength, 1112
GetNumberOfItems, 1112
IsEmpty, 1112
IsUndefinedLength, 1112
Items, 1115
ItemVector, 1109
Iterator, 1109
New, 1113
operator=, 1113
operator==, 1113
Print, 1113
Read, 1113
RemoveItemByIndex, 1114
SequenceLengthField, 1115
SequenceOfItems, 1110
SetLength, 1114
SetLengthToUndefined, 1114
SetNumberOfItems, 1114
SizeType, 1110
Write, 1114
gdcm::SerieHelper, 1115
~SerieHelper, 1118
AddFile, 1118
AddFileName, 1118
AddRestriction, 1118
Clear, 1118
CreateDefaultUniqueSeriesIdentifier, 1119
CreateUniqueSeriesIdentifier, 1119
FileNameOrdering, 1119
GetFirstSingleSerieUIDFileSet, 1119
GetNextSingleSerieUIDFileSet, 1119
ImageNumberOrdering, 1119
ImagePositionPatientOrdering, 1119
ItFileSetHt, 1120
OrderFileList, 1119
Rule, 1117
SerieHelper, 1118
SerieRestrictions, 1117
SetDirectory, 1119
SetLoadMode, 1120
SetUseSeriesDetails, 1120
SingleSerieUIDFileSetHT, 1120
SingleSerieUIDFileSetmap, 1117
UserOrdering, 1120
gdcm::Series, 1120
Series, 1121
gdcm::ServiceClassUser, 1123
~ServiceClassUser, 1126
GetAETitle, 1126
GetCalledAETitle, 1126
GetTimeout, 1126
InitializeConnection, 1126
IsPresentationContextAccepted, 1127
New, 1127
operator=, 1127
SendEcho, 1127
SendFind, 1127
SendMove, 1127, 1128
SendStore, 1128
ServiceClassUser, 1126
SetAETitle, 1129
SetCalledAETitle, 1129
SetHostname, 1129
SetPort, 1129
SetPortSCP, 1129
SetPresentationContexts, 1130
SetTimeout, 1130
StartAssociation, 1130
StopAssociation, 1130
gdcm::SHA1, 1131
~SHA1, 1132
Compute, 1132
ComputeFile, 1132
operator=, 1132
SHA1, 1132
gdcm::SimpleMemberCommand< T >, 1133
~SimpleMemberCommand, 1136
Execute, 1137
m_MemberFunction, 1138
m_This, 1138
New, 1137
operator=, 1137
Self, 1136
SetCallbackFunction, 1137

SimpleMemberCommand, 1136
TMemberFunctionPointer, 1136
gdcm::SimpleSubjectWatcher, 1138
~SimpleSubjectWatcher, 1139
EndFilter, 1139
operator=, 1139
ShowAbort, 1139
ShowAnonymization, 1140
ShowData, 1140
ShowDataSet, 1140
ShowFileName, 1140
ShowIteration, 1140
ShowProgress, 1140
SimpleSubjectWatcher, 1139
StartFilter, 1140
TestAbortOff, 1141
TestAbortOn, 1141
gdcm::SmartPointer< ObjectType >, 1143
~SmartPointer, 1145
GetPointer, 1145
operator ObjectType *, 1145
operator->, 1146
operator=, 1146
operator*, 1146
SmartPointer, 1145
gdcm::SOPClassUIDToIOD, 1148
const, 1149
GetIOD, 1149
GetIODFromSOPClassUID, 1149
GetNumberOfSOPClassToIOD, 1149
GetSOPClassUIDFromIOD, 1149
GetSOPClassUIDToIOD, 1149
GetSOPClassUIDToIODs, 1150
gdcm::Sorter, 1150
~Sorter, 1152
AddSelect, 1152
Filenames, 1154
GetFilenames, 1152
operator<<, 1154
Print, 1152
Selection, 1154
SelectionMap, 1152
SetSortFunction, 1153
SetTagsToRead, 1153
Sort, 1153
Sorter, 1152
SortFunc, 1154
SortFunction, 1152
StableSort, 1153
TagsToRead, 1154
gdcm::Spacing, 1155
~Spacing, 1156
CALIBRATED, 1156
ComputePixelAspectRatioFromPixelSpacing, 1157
DETECTOR, 1156
MAGNIFIED, 1156
Spacing, 1156
SpacingType, 1156
UNKNOWN, 1156
gdcm::Spectroscopy, 1157
Spectroscopy, 1157
gdcm::SplitGridFilter, 1158
~SplitGridFilter, 1159
ComputeGRIDDimensions, 1159
ComputeGRIDImagePositionPatient, 1159
ComputeGRIDSliceNormal, 1159
GetAcquisitionSize, 1159
GetFile, 1159, 1160
GetGRIDSlicePosition, 1160
GetImage, 1160
GetNumberOfImagesInGrid, 1160
SetFile, 1160
SetImage, 1160
Split, 1160
SplitGridFilter, 1159
gdcm::SplitMosaicFilter, 1161
~SplitMosaicFilter, 1162
ComputeCSAImageHeaderInfo, 1162
ComputeCSASeriesHeaderInfo, 1162
ComputeMOSAICDimensions, 1162
ComputeMOSAICImagePositionPatient, 1163
ComputeMOSAICSliceNormal, 1163
ComputeMOSAICSlicePosition, 1163
GetAcquisitionSize, 1163
GetFile, 1163, 1164
GetImage, 1164
GetNumberOfImagesInMosaic, 1164
SetFile, 1164
SetImage, 1164
Split, 1164
SplitMosaicFilter, 1162
gdcm::StartEvent, 1165
gdcm::static_assert_test< x >, 1166
gdcm::STATIC_ASSERTION_FAILURE< true >, 1167
value, 1168
gdcm::STATIC_ASSERTION_FAILURE< x >, 1166
gdcm::StreamImageReader, 1168
~StreamImageReader, 1169
CanReadImage, 1169
DefinePixelExtent, 1169
DefineProperBufferLength, 1169
GetDimensionsValueForResolution, 1170
GetFile, 1170
Read, 1170
ReadImageInformation, 1170
SetFileName, 1171
SetStream, 1171
StreamImageReader, 1169

gdcm::StreamImageWriter, 1171
~StreamImageWriter, 1173
CanWriteFile, 1174
DefinePixelExtent, 1174
DefineProperBufferLength, 1174
mElementOffsets, 1176
mElementOffsets1, 1176
mspFile, 1176
mWriter, 1177
mXMax, 1177
mXMin, 1177
mYMax, 1177
mYMin, 1177
mZMax, 1177
mZMin, 1177
SetFile, 1174
SetFileName, 1175
SetStream, 1175
StreamImageWriter, 1173
Write, 1175
WriteImageInformation, 1175
WriteImageSubregionRAW, 1176
WriteRawHeader, 1176
gdcm::StrictScanner, 1178
~StrictScanner, 1182
AddPrivateTag, 1182
AddSkipTag, 1182
AddTag, 1183
Begin, 1183
ClearSkipTags, 1183
ClearTags, 1183
ConstIterator, 1181
End, 1183
GetAllFilenamesFromTagToValue, 1183
GetFilenameFromTagToValue, 1183
GetFilenames, 1184
GetKeys, 1184
GetMapping, 1184
GetMappingFromTagToValue, 1184
GetMappings, 1184
GetOrderedValues, 1184
GetValue, 1185
GetValues, 1185
IsKey, 1185
MappingType, 1181
New, 1185
operator<<, 1187
Print, 1186
PrintTable, 1186
ProcessPublicTag, 1186
Scan, 1186
StrictScanner, 1182
TagToValue, 1181
TagToValueValueType, 1182
ValuesType, 1182
gdcm::StrictScanner2, 1187
~StrictScanner2, 1192
AddPrivateTag, 1192
AddPublicTag, 1192
AddSkipTag, 1192
Begin, 1192
ClearPrivateTags, 1192
ClearPublicTags, 1193
ClearSkipTags, 1193
End, 1193
GetAllFilenamesFromPrivateTagToValue, 1193
GetAllFilenamesFromPublicTagToValue, 1193
GetFilenameFromPrivateTagToValue, 1193
GetFilenameFromPublicTagToValue, 1193
GetFilenames, 1193
GetKeys, 1194
GetMappingFromPrivateTagToValue, 1194
GetMappingFromPublicTagToValue, 1194
GetPrivateMapping, 1194
GetPrivateMappings, 1194
GetPrivateOrderedValues, 1194
GetPrivateValue, 1194
GetPrivateValues, 1195
GetPublicMapping, 1195
GetPublicMappings, 1195
GetPublicOrderedValues, 1195
GetPublicValue, 1195
GetPublicValues, 1195
GetValues, 1196
IsKey, 1196
New, 1196
operator<<, 1197
Print, 1196
PrintTable, 1196
PrivateBegin, 1196
PrivateConstIterator, 1191
PrivateEnd, 1197
PrivateMappingType, 1191
PrivateTagToValue, 1191
PrivateTagToValueValueType, 1191
ProcessPrivateTag, 1197
ProcessPublicTag, 1197
PublicConstIterator, 1191
PublicMappingType, 1191
PublicTagToValue, 1191
PublicTagToValueValueType, 1191
Scan, 1197
StrictScanner2, 1192
ValuesType, 1191
gdcm::StrictScanner2::ltstr, 793
operator(), 794
gdcm::StrictScanner::ltstr, 794
operator(), 794

gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1198
const_iterator, 1199
const_reference, 1199
const_reverse_iterator, 1200
difference_type, 1200
IsValid, 1201
iterator, 1200
operator const char *, 1201
pointer, 1200
reference, 1200
reverse_iterator, 1200
size_type, 1200
String, 1201
Trim, 1202
Truncate, 1202
value_type, 1200
gdcm::StringFilter, 1202
~StringFilter, 1203
ExecuteQuery, 1204
FromString, 1204
GetFile, 1204
SetDicts, 1204
SetFile, 1204
StringFilter, 1203
ToString, 1205
ToStringPair, 1205, 1206
UseDictAlways, 1206
gdcm::Study, 1206
Study, 1206
gdcm::Subject, 1207
~Subject, 1208
AddObserver, 1209
GetCommand, 1209
HasObserver, 1209
InvokeEvent, 1209
RemoveAllObservers, 1210
RemoveObserver, 1210
Subject, 1208
gdcm::Surface, 1210
~Surface, 1214
GetAlgorithmFamily, 1214
GetAlgorithmName, 1214
GetAlgorithmVersion, 1215
GetAxisOfRotation, 1215
GetCenterOfRotation, 1215
GetFiniteVolume, 1215
GetManifold, 1215
GetMaximumPointDistance, 1215
GetMeanPointDistance, 1215
GetMeshPrimitive, 1215, 1216
GetNumberOfSurfacePoints, 1216
GetNumberOfVectors, 1216
GetPointCoordinatesData, 1216
GetPointPositionAccuracy, 1216
GetPointsBoundingBoxCoordinates, 1216
GetProcessingAlgorithm, 1216, 1217
GetRecommendedDisplayCIELabValue, 1217
GetRecommendedDisplayGrayscaleValue, 1217
GetRecommendedPresentationOpacity, 1217
GetRecommendedPresentationType, 1217
GetSTATES, 1217
GetSTATESString, 1217
GetSurfaceComments, 1217
GetSurfaceNumber, 1218
GetSurfaceProcessing, 1218
GetSurfaceProcessingDescription, 1218
GetSurfaceProcessingRatio, 1218
GetVectorAccuracy, 1218
GetVectorCoordinateData, 1218
GetVectorDimensionality, 1218
GetVIEWType, 1218
GetVIEWTypeString, 1219
NO, 1213
POINTS, 1214
SetAlgorithmFamily, 1219
SetAlgorithmName, 1219
SetAlgorithmVersion, 1219
SetAxisOfRotation, 1219
SetCenterOfRotation, 1219
SetFiniteVolume, 1219
SetManifold, 1219
SetMaximumPointDistance, 1220
SetMeanPointDistance, 1220
SetMeshPrimitive, 1220
SetNumberOfSurfacePoints, 1220
SetNumberOfVectors, 1220
SetPointCoordinatesData, 1220
SetPointPositionAccuracy, 1220
SetPointsBoundingBoxCoordinates, 1220
SetProcessingAlgorithm, 1221
SetRecommendedDisplayCIELabValue, 1221
SetRecommendedDisplayGrayscaleValue, 1221
SetRecommendedPresentationOpacity, 1221
SetRecommendedPresentationType, 1221
SetSurfaceComments, 1221
SetSurfaceNumber, 1222
SetSurfaceProcessing, 1222
SetSurfaceProcessingDescription, 1222
SetSurfaceProcessingRatio, 1222
SetVectorAccuracy, 1222
SetVectorCoordinateData, 1222
SetVectorDimensionality, 1222
STATES, 1213
STATES_END, 1214
SURFACE, 1214
Surface, 1214
UNKNOWN, 1214

VIEWType, 1214
VIEWType_END, 1214
WIREFRAME, 1214
YES, 1214
gdcm::SurfaceHelper, 1223
ColorArray, 1223
RecommendedDisplayCIELabToRGB, 1224
RGBToRecommendedDisplayCIELab, 1225
RGBToRecommendedDisplayGrayscale, 1225
gdcm::SurfaceReader, 1226
∼SurfaceReader, 1229
GetNumberOfSurfaces, 1229
Read, 1229
ReadPointMacro, 1230
ReadSurface, 1230
ReadSurfaces, 1230
SurfaceReader, 1229
gdcm::SurfaceWriter, 1230
∼SurfaceWriter, 1234
ComputeNumberOfSurfaces, 1234
GetNumberOfSurfaces, 1234
NumberOfSurfaces, 1235
PrepareWrite, 1235
PrepareWritePointMacro, 1235
SetNumberOfSurfaces, 1235
SurfaceWriter, 1234
Write, 1235
gdcm::SwapCode, 1235
BadBigEndian, 1237
BadLittleEndian, 1237
BigEndian, 1237
GetIndex, 1237
GetSwapCodeString, 1237
LittleEndian, 1237
operator SwapCode::SwapCodeType, 1237
operator<<, 1238
SwapCode, 1237
SwapCodeType, 1237
Unknown, 1237
gdcm::SwapperDoOp, 1238
Swap, 1238
SwapArray, 1238
gdcm::SwapperNoOp, 1239
Swap, 1239
SwapArray, 1239
gdcm::System, 1240
ConvertToUNC, 1241
DeleteDirectory, 1241
EncodeBytes, 1242
FileExists, 1242
FileIsDirectory, 1242
FileIsSymlink, 1242
FileSize, 1242
FileTime, 1243
FormatDateTime, 1243
GetCurrentDateTime, 1243
GetCurrentModuleFileName, 1243
GetCurrentProcessFileName, 1244
GetCurrentResourcesDirectory, 1244
GetCWD, 1244
GetHostName, 1244
GetLastSystemError, 1244
GetLocaleCharset, 1244
GetPermissions, 1244
GetTimezoneOffsetFromUTC, 1245
MakeDirectory, 1245
ParseDateTime, 1245
RemoveFile, 1245
SetPermissions, 1246
StrCaseCmp, 1246
StrNCaseCmp, 1246
StrSep, 1246
StrTokR, 1246
gdcm::Table, 1247
∼Table, 1248
GetTableEntry, 1249
InsertEntry, 1249
MapTableEntry, 1248
operator<<, 1249
operator=, 1249
Table, 1248
TableInternal, 1250
gdcm::TableEntry, 1250
∼TableEntry, 1250
TableEntry, 1250
gdcm::TableReader, 1251
∼TableReader, 1252
CharacterDataHandler, 1252
EndElement, 1252
GetDefs, 1252
GetFilename, 1252
HandleIOD, 1252
HandleIODEntry, 1252
HandleMacro, 1253
HandleMacroEntry, 1253
HandleMacroEntryDescription, 1253
HandleModule, 1253
HandleModuleEntry, 1253
HandleModuleEntryDescription, 1253
HandleModuleInclude, 1253
Read, 1253
SetFilename, 1254
StartElement, 1254
TableReader, 1252
gdcm::Tag, 1256
bytes, 1265
GetElement, 1259
GetElementTag, 1259

GetGroup, 1259
GetLength, 1259
GetPrivateCreator, 1259
IsGroupLength, 1260
IsGroupXX, 1260
IsIllegal, 1260
IsPrivate, 1260
IsPrivateCreator, 1260
IsPublic, 1261
operator!=, 1261
operator<, 1261
operator<<, 1265
operator<=, 1261
operator>>, 1265
operator=, 1261
operator==, 1262
operator[], 1262
PrintAsContinuousString, 1262
PrintAsContinuousUpperCaseString, 1262
PrintAsPipeSeparatedString, 1262
Read, 1263
ReadFromCommaSeparatedString, 1263
ReadFromContinuousString, 1263
ReadFromPipeSeparatedString, 1263
SetElement, 1263
SetElementTag, 1264
SetGroup, 1264
SetPrivateCreator, 1264
Tag, 1258
tag, 1265
tags, 1266
Write, 1265
gdcm::TagPath, 1266
~TagPath, 1267
ConstructFromString, 1267
ConstructFromTagList, 1267
IsValid, 1267
Print, 1267
Push, 1267, 1268
TagPath, 1267
gdcm::terminal, 109
Attribute, 110
black, 110
blink, 110
blue, 110
bright, 110
Color, 110
CONSOLE, 110
cyan, 110
dim, 110
green, 110
hidden, 110
magenta, 110
Mode, 110
red, 110
reset, 110
reverse, 110
setattribute, 111
setbgcolor, 111
setfgcolor, 111
setmode, 111
underline, 110
VT100, 110
white, 110
yellow, 110
gdcm::Testing, 1268
~Testing, 1270
ComputeFileMD5, 1270
ComputeMD5, 1270
GetDataExtraRoot, 1270
GetDataRoot, 1271
GetFileName, 1271
GetFileNames, 1271
GetLossyFlagFromFile, 1271
GetMD5DataImage, 1271
GetMD5DataImages, 1272
GetMD5FromBrokenFile, 1272
GetMD5FromFile, 1272
GetMediaStorageDataFile, 1272
GetMediaStorageDataFiles, 1272
GetMediaStorageFromFile, 1272
GetNumberOfFileNames, 1272
GetNumberOfMD5DataImages, 1273
GetNumberOfMediaStorageDataFiles, 1273
GetPixelSpacingDataRoot, 1273
GetSelectedPrivateGroupOffsetFromFile, 1273
GetSelectedTagsOffsetFromFile, 1273
GetSourceDirectory, 1273
GetStreamOffsetFromFile, 1273
GetTempDirectory, 1274
GetTempDirectoryW, 1274
GetTempFilename, 1274
GetTempFilenameW, 1274
MD5DataImagesType, 1270
MediaStorageDataFilesType, 1270
Print, 1274
Testing, 1270
gdcm::Trace, 1275
~Trace, 1276
DebugOff, 1276
DebugOn, 1276
ErrorOff, 1277
ErrorOn, 1277
GetDebugFlag, 1277
GetDebugStream, 1277
GetErrorFlag, 1277
GetErrorStream, 1277
GetStream, 1277

GetWarningFlag, 1277
GetWarningStream, 1278
SetDebug, 1278
SetDebugStream, 1278
SetError, 1278
SetErrorStream, 1278
SetStream, 1278
SetStreamToFile, 1279
SetWarning, 1279
SetWarningStream, 1279
Trace, 1276
WarningOff, 1279
WarningOn, 1279
gdcm::TransferSyntax, 1280
CanStoreLossy, 1284
CT_private_ELE, 1283
DeflatedExplicitVRLittleEndian, 1282
DeflatedImageFrameCompression, 1283
Explicit, 1282
ExplicitVRBigEndian, 1282
ExplicitVRLittleEndian, 1282
GetNegociatedType, 1284
GetString, 1284
GetSwapCode, 1284
GetTSString, 1284
GetTSType, 1284
HTJ2K, 1283
HTJ2KLossless, 1283
HTJ2KRPCLLossless, 1283
Implicit, 1282
ImplicitVRBigEndianACRNEMA, 1283
ImplicitVRBigEndianPrivateGE, 1282
ImplicitVRLittleEndian, 1282
IsEncapsulated, 1284
IsEncoded, 1285
IsExplicit, 1285
IsImplicit, 1285
IsLossless, 1285
IsLossy, 1285
IsValid, 1285
JPEG2000, 1283
JPEG2000Lossless, 1283
JPEG2000Part2, 1283
JPEG2000Part2Lossless, 1283
JPEGBaselineProcess1, 1282
JPEGExtendedProcess2_4, 1282
JPEGExtendedProcess3_5, 1282
JPEGFullProgressionProcess10_12, 1282
JPEGLosslessProcess14, 1282
JPEGLosslessProcess14_1, 1283
JPEGLSLossless, 1283
JPEGLSNearLossless, 1283
JPEGSpectralSelectionProcess6_8, 1282
JPIPReferenced, 1283
MPEG2MainProfile, 1283
MPEG2MainProfileHighLevel, 1283
MPEG4AVCH264BDcompatibleHighProfileLevel4_1, 1283
MPEG4AVCH264HighProfileLevel4_1, 1283
NegociatedType, 1282
operator TSType, 1285
operator<<, 1286
RLELossless, 1283
TransferSyntax, 1283
TS_END, 1283
TSType, 1282
Unknown, 1282
WeirdPapryus, 1283
gdcm::Type, 1290
GetTypeString, 1292
GetTypeType, 1292
operator TypeType, 1292
operator<<, 1292
T1, 1291
T1C, 1291
T2, 1291
T2C, 1291
T3, 1291
Type, 1291
TypeType, 1291
UNKNOWN, 1291
gdcm::UI, 1292
Internal, 1293
operator<<, 1293
gdcm::UIDGenerator, 1293
Generate, 1294
GenerateUUID, 1294
GetGDCMUID, 1294
GetRoot, 1295
IsValid, 1295
SetRoot, 1295
UIDGenerator, 1294
gdcm::UIDs, 1296
GetName, 1312
GetNumberOfTransferSyntaxStrings, 1312
GetString, 1312
GetTransferSyntaxString, 1313
GetTransferSyntaxStrings, 1313
GetUIDName, 1313
GetUIDString, 1313
operator TSType, 1313
SetFromUID, 1313
TransferSyntaxStringsType, 1312
TSName, 1312
TSType, 1312
UIDs, 1312
gdcm::UNExplicitDataElement, 1379
GetLength, 1382

Read, 1382
ReadPreValue, 1382
ReadValue, 1382
ReadWithLength, 1382
gdcm::UNExplicitImplicitDataElement, 1383
GetLength, 1386
Read, 1386
ReadPreValue, 1386
ReadValue, 1386
gdcm::Unpacker12Bits, 1387
Pack, 1387
Unpack, 1387
gdcm::Usage, 1388
Conditional, 1389
GetUsageString, 1390
GetUsageType, 1390
Invalid, 1389
Mandatory, 1389
operator UsageType, 1390
operator<<, 1390
Usage, 1389
UsageType, 1389
UserOption, 1389
gdcm::UserEvent, 1391
gdcm::UUIDGenerator, 1394
Generate, 1395
IsValid, 1395
gdcm::Validate, 1395
~Validate, 1396
F, 1397
GetValidatedFile, 1397
SetFile, 1397
V, 1397
Validate, 1396
Validation, 1397
gdcm::Value, 1398
~Value, 1399
Clear, 1400
DataElement, 1401
GetLength, 1400
operator==, 1400
SetLength, 1400
SetLengthOnly, 1400
Value, 1399
gdcm::ValueIO< TDE, TSwap, TType >, 1401
Read, 1401
Write, 1401
gdcm::Version, 1403
~Version, 1403
GetBuildVersion, 1404
GetMajorVersion, 1404
GetMinorVersion, 1404
GetVersion, 1404
operator<<, 1404
Print, 1404
Version, 1403
gdcm::VL, 1405
GetLength, 1406
GetVL16Max, 1406
GetVL32Max, 1407
IsOdd, 1407
IsUndefined, 1407
operator uint32_t, 1407
operator<<, 1409
operator++, 1407
operator+=, 1407
Read, 1408
Read16, 1408
SetToUndefined, 1408
Type, 1406
VL, 1406
Write, 1408
Write16, 1408
gdcm::VM, 1409
Compatible, 1412
GetIndex, 1412
GetLength, 1412
GetNumberOfElementsFromArray, 1413
GetVMString, 1413
GetVMType, 1413
GetVMTypeFromLength, 1413
IsValid, 1413
operator VMType, 1413
operator<<, 1414
VM, 1412
VM0, 1411
VM1, 1411
VM10, 1411
VM12, 1411
VM16, 1411
VM18, 1411
VM1_2, 1411
VM1_3, 1411
VM1_32, 1411
VM1_4, 1411
VM1_5, 1411
VM1_8, 1411
VM1_99, 1411
VM1_n, 1411
VM2, 1411
VM24, 1411
VM256, 1411
VM28, 1411
VM2_2n, 1411
VM2_n, 1412
VM3, 1411
VM30_30n, 1412
VM32, 1411

VM35, 1411
VM3_3n, 1412
VM3_4, 1412
VM3_n, 1412
VM4, 1411
VM47_47n, 1412
VM4_4n, 1412
VM5, 1411
VM6, 1411
VM6_6n, 1412
VM6_n, 1412
VM7_7n, 1412
VM8, 1411
VM9, 1411
VM99, 1411
VM_END, 1412
VMType, 1411
gdcm::VMToLength< T >, 1414
gdcm::VR, 1414
AE, 1416
AS, 1416
AT, 1416
CanDisplay, 1418
Compatible, 1418
CS, 1416
DA, 1417
DS, 1417
DT, 1417
FD, 1417
FL, 1417
GetLength, 1418
GetSize, 1419
GetSizeof, 1419
GetVRString, 1419
GetVRStringFromFile, 1419
GetVRType, 1419
GetVRTypeFromFile, 1419
INVALID, 1416
IS, 1417
IsASCII, 1419
IsASCII2, 1420
IsBinary, 1420
IsBinary2, 1420
IsDual, 1420
IsSwap, 1420
IsValid, 1420
IsVRFile, 1420
LO, 1417
LT, 1417
OB, 1417
OB_OW, 1417
OD, 1417
OF, 1417
OL, 1417
operator VRType, 1421
operator<<, 1421
OV, 1417
OW, 1417
PN, 1417
Read, 1421
SH, 1417
SL, 1417
SQ, 1417
SS, 1417
ST, 1417
SV, 1417
TM, 1417
UC, 1417
UI, 1417
UL, 1417
UN, 1417
UR, 1417
US, 1417
US_OW, 1417
US_SS, 1417
US_SS_OW, 1417
UT, 1417
UV, 1417
VL16, 1417
VL32, 1417
VR, 1418
VR_END, 1418
VR_VM1, 1417
VRALL, 1418
VRASCII, 1417
VRBINARY, 1417
VRType, 1416
Write, 1421
gdcm::VR16ExplicitDataElement, 1422
GetLength, 1424
Read, 1424
ReadPreValue, 1425
ReadValue, 1425
ReadWithLength, 1425
gdcm::VRToEncoding< T >, 1425
gdcm::VRToType< T >, 1426
gdcm::VRVLSize< 0 >, 1427
Read, 1427
Write, 1427
gdcm::VRVLSize< 1 >, 1428
Read, 1429
Write, 1429
gdcm::VRVLSize< T >, 1426
gdcm::Waveform, 1539
Waveform, 1540
gdcm::WLMFindQuery, 1540
GetAbstractSyntaxUID, 1543
GetTagListByLevel, 1543

GetValidDataSet, 1543
InitializeDataSet, 1543
QueryFactory, 1544
ValidateQuery, 1543
WLMFindQuery, 1543
gdcm::Writer, 1544
~Writer, 1547
CheckFileMetaInformationOff, 1547
CheckFileMetaInformationOn, 1547
GetCheckFileMetaInformation, 1547
GetFile, 1547
GetStreamPtr, 1547
Ofstream, 1549
SetCheckFileMetaInformation, 1548
SetFile, 1548
SetFileName, 1548
SetStream, 1548
SetWriteDataSetOnly, 1549
Stream, 1549
StreamImageWriter, 1549
Write, 1549
Writer, 1547
gdcm::XMLDictReader, 1550
~XMLDictReader, 1551
CharacterDataHandler, 1552
EndElement, 1552
GetDict, 1552
HandleDescription, 1552
HandleEntry, 1552
StartElement, 1552
XMLDictReader, 1551
gdcm::XMLPrinter, 1553
~XMLPrinter, 1554
F, 1556
GetPrintStyle, 1554
HandleBulkData, 1554
LOADBULKDATA, 1554
OnlyUUID, 1554
Print, 1554
PrintDataElement, 1555
PrintDataSet, 1555
PrintSQ, 1555
PrintStyle, 1556
PrintStyles, 1554
SetFile, 1555
SetStyle, 1555
XMLPrinter, 1554
gdcm::XMLPrivateDictReader, 1556
~XMLPrivateDictReader, 1558
CharacterDataHandler, 1558
EndElement, 1558
GetPrivateDict, 1558
HandleDescription, 1558
HandleEntry, 1559
StartElement, 1559
XMLPrivateDictReader, 1558
gdcm_assert
gdcmException.h, 1588
gdcm_debug_assert
gdcmException.h, 1589
GDCM_DIFFERENT
gdcm, 89
GDCM_DO_JOIN
gdcmStaticAssert.h, 1617
GDCM_DO_JOIN2
gdcmStaticAssert.h, 1617
GDCM_EQUAL
gdcm, 89
GDCM_EXPORT
gdcmWin32.h, 1645
gdcm_forced_assert
gdcmException.h, 1589
GDCM_FUNCTION
gdcmTrace.h, 1636
GDCM_GREATER
gdcm, 89
GDCM_GREATEROREQUAL
gdcm, 89
GDCM_JOIN
gdcmStaticAssert.h, 1617
GDCM_LEGACY
gdcmLegacyMacro.h, 1596
GDCM_LEGACY_BODY
gdcmLegacyMacro.h, 1596
GDCM_LEGACY_REPLACED_BODY
gdcmLegacyMacro.h, 1596
GDCM_LESS
gdcm, 89
GDCM_LESSOREQUAL
gdcm, 89
GDCM_NOOP_STATEMENT
gdcmLegacyMacro.h, 1597
GDCM_STATIC_ASSERT
gdcm::Attribute< Group, Element, TVR, TVM >, 161
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 171
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 178
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 184
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 190
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 198
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 204
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 211

gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 217
gdcmStaticAssert.h, 1617
gdcmAAbortPDU.h, 2070, 2071
gdcmAAssociateACPDU.h, 2071, 2072
gdcmAAssociateRJPDU.h, 2074
gdcmAAssociateRQPDU.h, 2075, 2076
gdcmAbstractSyntax.h, 2078, 2079
gdcmAnonymizeEvent.h, 1874, 1876
gdcmAnonymizer.h, 1876, 1877
gdcmApplicationContext.h, 2080, 2081
gdcmApplicationEntity.h, 1879
gdcmAReleaseRPPDU.h, 2081, 2082
gdcmAReleaseRQPDU.h, 2083, 2084
gdcmARTIMTimer.h, 2084, 2085
gdcmASN1.h, 1561, 1562
gdcmAssertAlwaysMacro
gdcmTrace.h, 1636
gdcmAssertMacro
gdcmTrace.h, 1636
gdcmAsynchronousOperationsWindowSub.h, 2086
gdcmAttribute.h, 1683, 1684
gdcmAudioCodec.h, 1880, 1881
gdcmBase64.h, 1563
gdcmBaseCompositeMessage.h, 2087, 2088
gdcmBaseNormalizedMessage.h, 2089, 2090
gdcmBasePDU.h, 2090, 2091
gdcmBaseQuery.h, 2092, 2093
gdcmBaseRootQuery.h, 2094, 2095
gdcmBasicOffsetTable.h, 1697, 1698
gdcmBitmap.h, 1881, 1882
gdcmBitmapToBitmapFilter.h, 1885
gdcmBoxRegion.h, 1564, 1565
gdcmByteBuffer.h, 1700, 1701
gdcmByteSwap.h, 1565, 1566
gdcmByteSwapFilter.h, 1703
gdcmByteValue.h, 1704, 1705
gdcmCAPICryptoFactory.h, 1567, 1568
gdcmCAPICryptographicMessageSyntax.h, 1568, 1569
gdcmCEchoMessages.h, 2096, 2097
gdcmCFindMessages.h, 2097, 2098
gdcmCleaner.h, 1886, 1887
gdcmCMoveMessages.h, 2099, 2100
gdcmCodec.h, 1888, 1889
gdcmCoder.h, 1889, 1890
gdcmCodeString.h, 1708, 1709
gdcmCommand.h, 1571, 1572
gdcmCommandDataSet.h, 2100, 2101
gdcmCompositeMessageFactory.h, 2102, 2103
gdcmCompositeNetworkFunctions.h, 2103, 2104
gdcmConstCharWrapper.h, 1891
gdcmCP246ExplicitDataElement.h, 1710, 1711
gdcmCryptoFactory.h, 1574, 1575
gdcmCryptographicMessageSyntax.h, 1576, 1577
gdcmCSAElement.h, 1711, 1713
gdcmCSAHeader.h, 1715
gdcmCSAHeaderDict.h, 1646, 1647
gdcmCSAHeaderDictEntry.h, 1649, 1650
gdcmCStoreMessages.h, 2105, 2106
gdcmCurve.h, 1892, 1893
gdcmDataElement.h, 1717, 1718
gdcmDataEvent.h, 1578, 1579
gdcmDataSet.h, 1721, 1722
gdcmDataSetEvent.h, 1725, 1726
gdcmDataSetHelper.h, 1894, 1895
gdcmDebugMacro
gdcmTrace.h, 1637
gdcmDecoder.h, 1895, 1896
gdcmDefinedTerms.h, 1823, 1824
gdcmDeflateStream.h, 1580
gdcmDefs.h, 1824, 1826
gdcmDeltaEncodingCodec.h, 1897, 1898
gdcmDICOMDIR.h, 1898, 1899
gdcmDICOMDIRGenerator.h, 1900, 1901
gdcmDict.h, 1652, 1653
gdcmDictConverter.h, 1657, 1658
gdcmDictEntry.h, 1659, 1660
gdcmDictPrinter.h, 1902
gdcmDicts.h, 1662, 1663
gdcmDIMSE.h, 2107
gdcmDirectionCosines.h, 1903, 1904
gdcmDirectory.h, 1580, 1581
gdcmDirectoryHelper.h, 1904, 1905
gdcmDPath.h, 1906, 1907
gdcmDummyValueGenerator.h, 1583
gdcmDumper.h, 1908, 1909
gdcmElement.h, 1727, 1728
gdcmEmptyMaskGenerator.h, 1910
gdcmEncapsulatedDocument.h, 1911, 1912
gdcmEnumeratedValues.h, 1827
gdcmEquipmentManufacturer.h, 1912, 1913
gdcmErrorMacro
gdcmTrace.h, 1637
gdcmEvent.h, 1584, 1586
gdcmEventMacro, 1585
gdcmEventMacro
gdcmEvent.h, 1585
gdcmException.h, 1587, 1589
gdcm_assert, 1588
gdcm_debug_assert, 1589
gdcm_forced_assert, 1589
gdcmExplicitDataElement.h, 1739, 1740
gdcmExplicitImplicitDataElement.h, 1741, 1742
gdcmFiducials.h, 1914
gdcmFile.h, 1743, 1744
gdcmFileAnonymizer.h, 1915, 1916
gdcmFileChangeTransferSyntax.h, 1916, 1917
gdcmFileDecompressLookupTable.h, 1918, 1919

gdcmFileDerivation.h, 1920
gdcmFileExplicitFilter.h, 1921, 1922
gdcmFileMetaInformation.h, 1744, 1746
gdcmFilename.h, 1591
gdcmFileNameEvent.h, 1592, 1593
gdcmFilenameGenerator.h, 1594, 1595
gdcmFileSet.h, 1747, 1749
gdcmFileStreamer.h, 1923
gdcmFindPatientRootQuery.h, 2109, 2110
gdcmFindStudyRootQuery.h, 2111
gdcmFragment.h, 1749, 1751
gdcmGlobal.h, 1664, 1665
gdcmGroupDict.h, 1666, 1667
gdcmIconImage.h, 1924, 1925
gdcmIconImageFilter.h, 1926, 1927
gdcmIconImageGenerator.h, 1928, 1929
gdcmImage.h, 1929, 1930
gdcmImageApplyLookupTable.h, 1932
gdcmImageChangePhotometricInterpretation.h, 1933, 1934
gdcmImageChangePlanarConfiguration.h, 1936
gdcmImageChangeTransferSyntax.h, 1937, 1938
gdcmImageCodec.h, 1939, 1940
gdcmImageConverter.h, 1942, 1943
gdcmImageFragmentSplitter.h, 1944
gdcmImageHelper.h, 1945, 1946
gdcmImageReader.h, 1947, 1948
gdcmImageRegionReader.h, 1949, 1950
gdcmImageToImageFilter.h, 1951
gdcmImageWriter.h, 1952, 1953
gdcmImplementationClassUIDSub.h, 2112, 2113
gdcmImplementationUIDSub.h, 2114
gdcmImplementationVersionNameSub.h, 2115, 2116
gdcmImplicitDataElement.h, 1754
gdcmIOD.h, 1828, 1829
gdcmIODEntry.h, 1831, 1833
gdcmIODs.h, 1833, 1835
gdcmIPPSorter.h, 1953, 1954
gdcmItem.h, 1755, 1756
gdcmJPEG12Codec.h, 1955, 1956
gdcmJPEG16Codec.h, 1957
gdcmJPEG2000Codec.h, 1958, 1959
gdcmJPEG8Codec.h, 1960, 1961
gdcmJPEGCodec.h, 1962, 1963
gdcmJPEGLSCodec.h, 1964, 1965
gdcmJPEGTurboCodec.h, 1966, 1967
gdcmJSON.h, 1967, 1968
gdcmKAKADUCodec.h, 1969, 1970
gdcmLegacyMacro.h, 1595, 1597
  GDCM_LEGACY, 1596
  GDCM_LEGACY_BODY, 1596
  GDCM_LEGACY_REPLACED_BODY, 1596
  GDCM_NOOP_STATEMENT, 1597
gdcmLO.h, 1761
gdcmLookupTable.h, 1970, 1971
gdcmMacro.h, 1836, 1837
gdcmMacroEntry.h, 1839, 1841
  GDCMMACROENTRY_H, 1840
GDCMMACROENTRY_H
  gdcmMacroEntry.h, 1840
gdcmMacros.h, 1842, 1843
gdcmMaximumLengthSub.h, 2117, 2118
gdcmMD5.h, 1598, 1599
gdcmMEC_MR3.h, 1973
gdcmMediaStorage.h, 1762, 1763
gdcmMeshPrimitive.h, 1974, 1975
gdcmModalityPerformedProcedureStepCreateQuery.h, 2119
gdcmModalityPerformedProcedureStepSetQuery.h, 2120, 2121
gdcmModule.h, 1844, 1846
gdcmModuleEntry.h, 1847, 1849
gdcmModules.h, 1850, 1851
gdcmMovePatientRootQuery.h, 2121, 2122
gdcmMoveStudyRootQuery.h, 2123
gdcmMrProtocol.h, 1766, 1767
gdcmNActionMessages.h, 2124, 2125
gdcmNCreateMessages.h, 2125, 2126
gdcmNDeleteMessages.h, 2127
gdcmNestedModuleEntries.h, 1852, 1854
gdcmNetworkEvents.h, 2128, 2129
gdcmNetworkStateID.h, 2130, 2131
gdcmNEventReportMessages.h, 2132, 2133
gdcmNGetMessages.h, 2133, 2134
gdcmNormalizedMessageFactory.h, 2134, 2135
gdcmNormalizedNetworkFunctions.h, 2136, 2137
gdcmNSetMessages.h, 2138
gdcmObject.h, 1599, 1600
gdcmOpenSSLCryptoFactory.h, 1602, 1603
gdcmOpenSSLCryptographicMessageSyntax.h, 1603, 1605
gdcmOpenSSLP7CryptoFactory.h, 1605, 1606
gdcmOpenSSLP7CryptographicMessageSyntax.h, 1607, 1608
gdcmOrientation.h, 1977
gdcmOverlay.h, 1978, 1979
gdcmParseException.h, 1768, 1769
gdcmParser.h, 1770, 1771
gdcmPatient.h, 1854, 1855
gdcmPDataTFPDU.h, 2139, 2140
gdcmPDBElement.h, 1773, 1774
gdcmPDBHeader.h, 1775, 1776
gdcmPDFCodec.h, 1981
gdcmPDUFactory.h, 2141
gdcmPersonName.h, 1982, 1983
gdcmPGXCodec.h, 1984, 1985
gdcmPhotometricInterpretation.h, 1985, 1986
gdcmPixelFormat.h, 1987, 1989

gdcmPixmap.h, 1991, 1992
gdcmPixmapReader.h, 1993, 1995
gdcmPixmapToPixmapFilter.h, 1996
gdcmPixmapWriter.h, 1997, 1998
gdcmPNMCodec.h, 1999, 2000
gdcmPreamble.h, 1777, 1778
gdcmPresentationContext.h, 2142, 2144
gdcmPresentationContextAC.h, 2144, 2146
gdcmPresentationContextGenerator.h, 2146, 2147
gdcmPresentationContextRQ.h, 2148, 2149
gdcmPresentationDataValue.h, 2150, 2151
gdcmPrinter.h, 2000, 2002
gdcmPrivateTag.h, 1779, 1780
gdcmProgressEvent.h, 1609, 1610
gdcmPVRGCodec.h, 2003, 2004
gdcmPythonFilter.h, 2246, 2247
gdcmQueryBase.h, 2152, 2154
gdcmQueryFactory.h, 2155, 2156
gdcmQueryImage.h, 2156, 2157
gdcmQueryPatient.h, 2158, 2159
gdcmQuerySeries.h, 2160, 2161
gdcmQueryStudy.h, 2162, 2163
gdcmRAWCodec.h, 2005
gdcmReader.h, 1781, 1782
gdcmRegion.h, 1610, 1612
gdcmRescaler.h, 2006, 2007
gdcmRLECodec.h, 2008
gdcmRoleSelectionSub.h, 2163, 2164
gdcmScanner.h, 2009, 2010
gdcmScanner2.h, 2012, 2013
gdcmSegment.h, 2015, 2017
gdcmSegmentedPaletteColorLookupTable.h, 2019
gdcmSegmentHelper.h, 2020, 2021
gdcmSegmentReader.h, 2022, 2024
gdcmSegmentWriter.h, 2024, 2026
gdcmSequenceOfFragments.h, 1783, 1784
gdcmSequenceOfItems.h, 1788, 1789
gdcmSerieHelper.h, 2026, 2028
gdcmSeries.h, 1856, 1857
gdcmServiceClassApplicationInformation.h, 2165, 2166
gdcmServiceClassUser.h, 2166, 2167
gdcmSHA1.h, 1613
gdcmSimpleSubjectWatcher.h, 2029, 2030
gdcmSmartPointer.h, 1614, 1615
gdcmSOPClassExtendedNegociationSub.h, 2169
gdcmSOPClassUIDToIOD.h, 1668
gdcmSorter.h, 2031, 2033
gdcmSpacing.h, 2034
gdcmSpectroscopy.h, 2035, 2036
gdcmSplitGridFilter.h, 2036, 2037
gdcmSplitMosaicFilter.h, 2038, 2039
gdcmStaticAssert.h, 1616, 1618
  GDCM_DO_JOIN, 1617
  GDCM_DO_JOIN2, 1617
  GDCM_JOIN, 1617
  GDCM_STATIC_ASSERT, 1617
gdcmStreamImageReader.h, 2040
gdcmStreamImageWriter.h, 2041, 2042
gdcmStrictScanner.h, 2043, 2044
gdcmStrictScanner2.h, 2046, 2047
gdcmString.h, 1618, 1620
gdcmStringFilter.h, 2049, 2050
gdcmStudy.h, 1857, 1859
gdcmSubject.h, 1622
gdcmSurface.h, 2050, 2052
gdcmSurfaceHelper.h, 2055
gdcmSurfaceReader.h, 2057, 2058
gdcmSurfaceWriter.h, 2059, 2060
gdcmSwapCode.h, 1623, 1624
gdcmSwapper.h, 1625, 1626
gdcmSystem.h, 1628
gdcmTable.h, 1859, 1860
gdcmTableEntry.h, 1861, 1863
gdcmTableReader.h, 1863, 1865
gdcmTag.h, 1792, 1794
gdcmTagPath.h, 2060, 2061
gdcmTagToVR.h, 1797
gdcmTerminal.h, 1630, 1631
gdcmTestDriver.h, 1632
gdcmTesting.h, 1633
gdcmTrace.h, 1635, 1639
  GDCM_FUNCTION, 1636
  gdcmAssertAlwaysMacro, 1636
  gdcmAssertMacro, 1636
  gdcmDebugMacro, 1637
  gdcmErrorMacro, 1637
  gdcmWarningMacro, 1638
gdcmTransferSyntax.h, 1798, 1799
gdcmTransferSyntaxSub.h, 2170, 2172
gdcmType.h, 1866, 1867
gdcmTypes.h, 1641
gdcmUIDGenerator.h, 2062, 2063
gdcmUIDs.h, 1669, 1670
gdcmULAction.h, 2172, 2173
gdcmULActionAA.h, 2174, 2175
gdcmULActionAE.h, 2176, 2177
gdcmULActionAR.h, 2178, 2179
gdcmULActionDT.h, 2181
gdcmULBasicCallback.h, 2182, 2183
gdcmULConnection.h, 2183, 2184
gdcmULConnectionCallback.h, 2186, 2187
gdcmULConnectionInfo.h, 2187, 2189
gdcmULConnectionManager.h, 2189, 2190
gdcmULEvent.h, 2192, 2193
gdcmULTransitionTable.h, 2194, 2195
gdcmULWritingCallback.h, 2197
gdcmUNExplicitDataElement.h, 1800, 1801
gdcmUNExplicitImplicitDataElement.h, 1802, 1803

gdcmUnpacker12Bits.h, 1642, 1643
gdcmUsage.h, 1868, 1871
gdcmUserInformation.h, 2198, 2199
gdcmUUIDGenerator.h, 2064
gdcmValidate.h, 2065, 2066
gdcmValue.h, 1803, 1804
gdcmValueIO.h, 1805, 1806
gdcmVersion.h, 1643, 1644
gdcmVL.h, 1806, 1807
gdcmVM.h, 1809, 1811
    TYPETOLENGTH, 1810
gdcmVR.h, 1812, 1815
    TYPETOENCODING, 1814
    VRTypeTemplateCase, 1814
gdcmVR16ExplicitDataElement.h, 1819, 1820
gdcmWarningMacro
    gdcmTrace.h, 1638
gdcmWaveform.h, 2066, 2067
gdcmWin32.h, 1644, 1645
    GDCM_EXPORT, 1645
gdcmWLMFindQuery.h, 2200, 2201
gdcmWriter.h, 1821, 1822
gdcmXMLDictReader.h, 1871, 1872
gdcmXMLPrinter.h, 2067, 2068
gdcmXMLPrivateDictReader.h, 1873
GEMS
    gdcm::Dicts, 438
    gdcm::EquipmentManufacturer, 533
GeneralECGWaveformStorage
    gdcm::MediaStorage, 807
GeneralElectricMagneticResonanceImageStorage
    gdcm::MediaStorage, 808
Generate
    gdcm::DICOMDIRGenerator, 419
    gdcm::DummyValueGenerator, 455
    gdcm::FilenameGenerator, 591
    gdcm::IconImageGenerator, 628
    gdcm::UIDGenerator, 1294
    gdcm::UUIDGenerator, 1395
GenerateFromFilenames
    gdcm::PresentationContextGenerator, 983
GenerateFromUID
    gdcm::PresentationContextGenerator, 983
GenerateUUID
    gdcm::UIDGenerator, 1294
GEPrivate3DModelStorage
    gdcm::MediaStorage, 808
Get
    gdcm::ByteBuffer, 272
GetAbbreviation
    gdcm::GroupDict, 622
GetAbstractSyntax
    gdcm::network::PresentationContextRQ, 986
    gdcm::PresentationContext, 978
GetAbstractSyntaxUID
    gdcm::BaseQuery, 234
    gdcm::FindPatientRootQuery, 606
    gdcm::FindStudyRootQuery, 610
    gdcm::ModalityPerformedProcedureStepCreateQuery, 828
    gdcm::ModalityPerformedProcedureStepSetQuery, 832
    gdcm::MovePatientRootQuery, 846
    gdcm::MoveStudyRootQuery, 850
    gdcm::WLMFindQuery, 1543
GetAcceptedPresentationContexts
    gdcm::network::ULConnection, 1359
GetAcquisitionSize
    gdcm::SplitGridFilter, 1159
    gdcm::SplitMosaicFilter, 1163
GetAETitle
    gdcm::ServiceClassUser, 1126
GetAlgorithmFamily
    gdcm::Surface, 1214
GetAlgorithmName
    gdcm::Surface, 1214
GetAlgorithmVersion
    gdcm::Surface, 1215
GetALGOType
    gdcm::Segment, 1080
GetALGOTypeString
    gdcm::Segment, 1080
GetAllFilenamesFromPrivateTagToValue
    gdcm::Scanner2, 1072
    gdcm::StrictScanner2, 1193
GetAllFilenamesFromPublicTagToValue
    gdcm::Scanner2, 1072
    gdcm::StrictScanner2, 1193
GetAllFilenamesFromTagToValue
    gdcm::Scanner, 1062
    gdcm::StrictScanner, 1183
GetAllRequiredTags
    gdcm::QueryBase, 1015
GetAllTags
    gdcm::QueryBase, 1015
GetAnatomicRegion
    gdcm::Segment, 1080, 1081
GetAnatomicRegionModifiers
    gdcm::Segment, 1081
GetAsDataElement
    gdcm::Attribute< Group, Element, TVR, TVM >, 161
    gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 171
    gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 178
    gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 184

gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 190
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 198
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 204
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 211
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 217
gdcm::Element< TVR, TVM >, 460
gdcm::Element< TVR, VM::VM1_2 >, 467
gdcm::Element< TVR, VM::VM1_n >, 472
gdcm::Element< TVR, VM::VM2_2n >, 480
gdcm::Element< TVR, VM::VM2_n >, 485
gdcm::Element< TVR, VM::VM3_3n >, 492
gdcm::Element< TVR, VM::VM3_4 >, 497
gdcm::Element< TVR, VM::VM3_n >, 503
gdcm::Element< VR::AS, VM::VM5 >, 507
gdcm::Element< VR::OB, VM::VM1 >, 512
gdcm::Element< VR::OW, VM::VM1 >, 517
gdcm::network::AbstractSyntax, 130
gdcm::PrivateTag, 1002
GetAsPoints
gdcm::Curve, 368
GetAsString
gdcm::CodeString, 316
GetAxisOfRotation
gdcm::Surface, 1215
GetBasicApplicationLevelConfidentialityProfileAttributes
gdcm::Anonymizer, 140
GetBitPosition
gdcm::Overlay, 901
GetBitsAllocated
gdcm::Overlay, 901
gdcm::PixelFormat, 942
GetBitSample
gdcm::LookupTable, 789
GetBitsStored
gdcm::PixelFormat, 942
GetBlob
gdcm::network::PresentationDataValue, 989
GetBuffer
gdcm::Bitmap, 254
gdcm::ByteValue, 280
gdcm::Parser, 911
gdcm::SequenceOfFragments, 1103
GetBuffer2
gdcm::Bitmap, 254
GetBufferAsRGBA
gdcm::LookupTable, 789
GetBufferLength
gdcm::Bitmap, 254
gdcm::JPEGLSCodec, 767
gdcm::PNMCodec, 971
gdcm::RLECodec, 1053
GetBuildVersion
gdcm::Version, 1404
GetByteValue
gdcm::CSAElement, 344
gdcm::DataElement, 374
GetCalledAETitle
gdcm::network::AAssociateRQPDU, 124
gdcm::network::ULConnectionInfo, 1365
gdcm::ServiceClassUser, 1126
GetCalledComputerName
gdcm::network::ULConnectionInfo, 1365
GetCalledIPAddress
gdcm::network::ULConnectionInfo, 1365
GetCalledIPPort
gdcm::network::ULConnectionInfo, 1365
GetCallingAETitle
gdcm::network::AAssociateRQPDU, 124
gdcm::network::ULConnectionInfo, 1365
GetCanonMECMR3Tag
gdcm::MEC_MR3, 802
GetCenterOfRotation
gdcm::Surface, 1215
GetCharacterFromCurrentLocale
gdcm::QueryFactory, 1017
GetCheckFileMetaInformation
gdcm::Writer, 1547
GetCipherType
gdcm::CAPICryptographicMessageSyntax, 289
gdcm::CryptographicMessageSyntax, 340
gdcm::OpenSSLCryptographicMessageSyntax, 887
gdcm::OpenSSLP7CryptographicMessageSyntax, 893
GetCodec
gdcm::FileChangeTransferSyntax, 561
GetColorLevel
vtkImageColorViewer, 1499
GetColorWindow
vtkImageColorViewer, 1499
GetColumns
gdcm::Bitmap, 254
gdcm::Overlay, 901
GetCommand
gdcm::Subject, 1209
GetConnectionInfo
gdcm::network::ULConnection, 1359
GetConstructorString
gdcm::Dicts, 439
GetContourReferencedFrameOfReferenceClassUID
vtkRTStructSetProperties, 1532
GetContourReferencedFrameOfReferenceInstanceUID
vtkRTStructSetProperties, 1532
GetCryptographicMessageSyntax

gdcm::Anonymizer, 140
GetCSADataInfo
gdcm::CSAHeader, 352
GetCSAEEnd
gdcm::CSAHeader, 353
GetCSAElementByName
gdcm::CSAHeader, 353
GetCSAHeaderDict
gdcm::Dicts, 439
GetCSAHeaderDictEntry
gdcm::CSAHeaderDict, 357
GetCSAImageHeaderInfoTag
gdcm::CSAHeader, 353
GetCSASeriesHeaderInfoTag
gdcm::CSAHeader, 353
GetCTImageSeriesUIDs
gdcm::DirectoryHelper, 451
GetCurrentByteIndex
gdcm::Parser, 911
GetCurrentDateTime
gdcm::System, 1243
GetCurrentModuleFileName
gdcm::System, 1243
GetCurrentProcessFileName
gdcm::System, 1244
GetCurrentResourcesDirectory
gdcm::System, 1244
GetCurve
gdcm::Pixmap, 952
GetCurveDataDescriptor
gdcm::Curve, 368
GetCWD
gdcm::System, 1244
GetData
gdcm::DataEvent, 388
GetDataElement
gdcm::Bitmap, 254
gdcm::DataSet, 394, 395
gdcm::Item, 727
GetDataExtraRoot
gdcm::Testing, 1270
GetDataLength
gdcm::DataEvent, 388
GetDataRoot
gdcm::Testing, 1271
GetDataSet
gdcm::CSAHeader, 353
gdcm::DataSetEvent, 404
gdcm::File, 551
GetDataSetPos
gdcm::network::ULEvent, 1375
GetDataSets
gdcm::network::ULBasicCallback, 1356
GetDataSetTransferSyntax
gdcm::FileMetaInformation, 577
GetDataValueRepresentation
gdcm::Curve, 368
GetDebugFlag
gdcm::Trace, 1277
GetDebugStream
gdcm::Trace, 1277
GetDecodeLength
gdcm::Base64, 224
GetDEEnd
gdcm::DataSet, 395
GetDefaultTransferSyntax
gdcm::PresentationContextGenerator, 984
GetDefs
gdcm::Global, 618
gdcm::TableReader, 1252
GetDES
gdcm::DataSet, 395
GetDescription
gdcm::CSAHeaderDictEntry, 360
gdcm::Exception, 538
gdcm::ModuleEntry, 840
gdcm::Overlay, 901
GetDescriptiveName
vtkGDCMImageReader, 1433
vtkGDCMImageReader2, 1447
vtkGDCMImageWriter, 1462
GetDict
gdcm::XMLDictReader, 1552
GetDictEntry
gdcm::Dict, 423
gdcm::Dicts, 439
gdcm::PrivateDict, 997
GetDictEntryByKeyword
gdcm::Dict, 423
GetDictEntryByName
gdcm::Dict, 424
GetDictName
gdcm::DictConverter, 428
GetDicts
gdcm::Global, 618, 619
GetDictVM
gdcm::Attribute< Group, Element, TVR, TVM >, 162
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 172
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 178
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 184
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 190
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 199

gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 204
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 211
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 217
GetDictVR
gdcm::Attribute< Group, Element, TVR, TVM >, 162
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 172
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 178
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 184
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 191
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 199
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 204
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 211
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 217
GetDimension
gdcm::Bitmap, 255
GetDimensions
gdcm::Bitmap, 255
gdcm::Curve, 368
gdcm::ImageCodec, 664
GetDimensionsValue
gdcm::ImageHelper, 677
GetDimensionsValueForResolution
gdcm::StreamImageReader, 1170
GetDirectionCosines
gdcm::Image, 636
GetDirectionCosinesFromDataSet
gdcm::ImageHelper, 677
GetDirectionCosinesTolerance
gdcm::IPPSorter, 719
GetDirectionCosinesValue
gdcm::ImageHelper, 678
GetDirectories
gdcm::Directory, 448
GetElapsedTime
gdcm::network::ARTIMTimer, 154
GetElement
gdcm::Tag, 1259
GetElementTag
gdcm::Tag, 1259
GetEncodeLength
gdcm::Base64, 224
GetErrorCode
gdcm::Parser, 911
GetErrorFlag
gdcm::Trace, 1277
GetErrorStream
gdcm::Trace, 1277
GetErrorString
gdcm::Parser, 912
GetEvent
gdcm::network::ULEvent, 1375
GetEventName
gdcm::AnonymizeEvent, 134
gdcm::DataEvent, 388
gdcm::DataSetEvent, 404
gdcm::Event, 535
gdcm::FileNameEvent, 588
gdcm::ProgressEvent, 1007
GetExtension
gdcm::Filename, 583
GetFactoryInstance
gdcm::CryptoFactory, 338
GetFile
gdcm::Anonymizer, 141
gdcm::Cleaner, 302
gdcm::DICOMDIRGenerator, 420
gdcm::FileDecompressLookupTable, 564
gdcm::FileDerivation, 567, 568
gdcm::FileExplicitFilter, 571
gdcm::IconImageFilter, 625
gdcm::PythonFilter, 1013
gdcm::Reader, 1036
gdcm::SplitGridFilter, 1159, 1160
gdcm::SplitMosaicFilter, 1163, 1164
gdcm::StreamImageReader, 1170
gdcm::StringFilter, 1204
gdcm::Writer, 1547
vtkGDCMMedicalImageProperties, 1469
GetFileExtensions
vtkGDCMImageReader, 1433
vtkGDCMImageReader2, 1447
vtkGDCMImageWriter, 1462
GetFileMetaInformationVersion
gdcm::FileMetaInformation, 578
GetFileName
gdcm::Filename, 583
gdcm::FileNameEvent, 588
gdcm::Testing, 1271
vtkGDCMImageWriter, 1462
vtkGDCMThreadedImageReader2, 1491
GetFilename
gdcm::FilenameGenerator, 591
gdcm::TableReader, 1252
GetFilenameFromPrivateTagToValue
gdcm::Scanner2, 1072
gdcm::StrictScanner2, 1193
GetFilenameFromPublicTagToValue

gdcm::Scanner2, 1072
gdcm::StrictScanner2, 1193
GetFilenameFromTagToValue
gdcm::Scanner, 1062
gdcm::StrictScanner, 1183
GetFileNames
gdcm::Testing, 1271
GetFilenames
gdcm::Directory, 448
gdcm::FilenameGenerator, 591
gdcm::Scanner, 1062
gdcm::Scanner2, 1072
gdcm::Sorter, 1152
gdcm::StrictScanner, 1184
gdcm::StrictScanner2, 1193
GetFilenamesFromSeriesUIDs
gdcm::DirectoryHelper, 451
GetFiles
gdcm::FileSet, 594
GetFiniteVolume
gdcm::Surface, 1215
GetFirstSingleSerieUIDFileSet
gdcm::SerieHelper, 1119
GetForcePixelSpacing
gdcm::ImageHelper, 678
GetForceRescaleInterceptSlope
gdcm::ImageHelper, 678
GetFormat
gdcm::CSAHeader, 354
GetFragBuffer
gdcm::SequenceOfFragments, 1103
GetFragment
gdcm::SequenceOfFragments, 1103
GetFragmentSizeMax
gdcm::ImageFragmentSplitter, 675
GetFrameOfReference
gdcm::DirectoryHelper, 451
GetFullLength
gdcm::FileMetaInformation, 578
GetGDCMDataRoot
vtkGDCMTesting, 1482
GetGDCMImplementationClassUID
gdcm::FileMetaInformation, 578
GetGDCMImplementationVersionName
gdcm::FileMetaInformation, 578
GetGDCMSourceApplicationEntityTitle
gdcm::FileMetaInformation, 578
GetGDCMUID
gdcm::UIDGenerator, 1294
GetGRIDSlicePosition
gdcm::SplitGridFilter, 1160
GetGroup
gdcm::Curve, 368
gdcm::Overlay, 901
gdcm::Tag, 1259
GetHasExpired
gdcm::network::ARTIMTimer, 154
GetHeader
gdcm::File, 552
GetHeaderInfo
gdcm::ImageCodec, 664
gdcm::JPEG12Codec, 734
gdcm::JPEG16Codec, 739
gdcm::JPEG2000Codec, 745
gdcm::JPEG8Codec, 752
gdcm::JPEGCodec, 759
gdcm::JPEGLSCodec, 768
gdcm::JPEGTurboCodec, 774
gdcm::PGXCodec, 934
gdcm::PNMCodec, 971
gdcm::RAWCodec, 1032
gdcm::RLECodec, 1053
GetHierachicalSearchTags
gdcm::QueryBase, 1015
gdcm::QueryImage, 1019
gdcm::QueryPatient, 1022
gdcm::QuerySeries, 1024
gdcm::QueryStudy, 1027
GetHighBit
gdcm::PixelFormat, 943
GetHostName
gdcm::System, 1244
GetIconImage
gdcm::IconImageFilter, 625
gdcm::IconImageGenerator, 628
gdcm::Pixmap, 952
vtkGDCMImageReader, 1433
vtkGDCMImageReader2, 1448
GetIconImagePort
vtkGDCMImageReader2, 1448
GetIE
gdcm::IODEntry, 712
GetImage
gdcm::ImageReader, 685
gdcm::ImageWriter, 698, 699
gdcm::PixmapWriter, 965
gdcm::SplitGridFilter, 1160
gdcm::SplitMosaicFilter, 1164
GetImplementationClassUID
gdcm::FileMetaInformation, 578
GetImplementationVersionName
gdcm::FileMetaInformation, 578
GetIndex
gdcm::SwapCode, 1237
gdcm::VM, 1412
GetInitialized
gdcm::CAPICryptographicMessageSyntax, 289
GetInput

gdcm::ImageToImageFilter, 694
gdcm::PixmapToPixmapFilter, 961
vtkImageColorViewer, 1499
GetInputFilename
gdcm::DictConverter, 428
GetInstance
gdcm::Global, 619
GetIntercept
gdcm::Image, 636
gdcm::Rescaler, 1046
GetInterfile
gdcm::CSAHeader, 354
GetInternal
gdcm::Preamble, 974
GetIOD
gdcm::IODs, 716
gdcm::SOPClassUIDToIOD, 1149
GetIODEntry
gdcm::IOD, 710
GetIODFromFile
gdcm::Defs, 410
GetIODFromSOPClassUID
gdcm::SOPClassUIDToIOD, 1149
GetIODNameFromMediaStorage
gdcm::Defs, 410
GetIODs
gdcm::Defs, 410
GetIsCommand
gdcm::network::PresentationDataValue, 989
GetIsLastFragment
gdcm::network::PresentationDataValue, 989
GetIStream
gdcm::network::ULEvent, 1375
GetItem
gdcm::SequenceOfItems, 1111, 1112
GetKey
gdcm::CSAElement, 344
GetKeys
gdcm::Scanner, 1063
gdcm::Scanner2, 1073
gdcm::StrictScanner, 1184
gdcm::StrictScanner2, 1194
GetKeyword
gdcm::DictEntry, 431
GetKeywordFromTag
gdcm::Dict, 424
GetLabel
gdcm::Orientation, 896
GetLastElement
gdcm::ParseException, 909
GetLastSystemError
gdcm::System, 1244
GetLength
gdcm::ByteValue, 280
gdcm::CP246ExplicitDataElement, 335
gdcm::DataElement, 375
gdcm::DataSet, 396
gdcm::Element< TVR, TVM >, 460
gdcm::Element< TVR, VM::VM1_2 >, 467
gdcm::Element< TVR, VM::VM1_n >, 472
gdcm::Element< TVR, VM::VM2_2n >, 480
gdcm::Element< TVR, VM::VM2_n >, 485
gdcm::Element< TVR, VM::VM3_3n >, 492
gdcm::Element< TVR, VM::VM3_4 >, 497
gdcm::Element< TVR, VM::VM3_n >, 503
gdcm::Element< VR::AS, VM::VM5 >, 507
gdcm::Element< VR::OB, VM::VM1 >, 512
gdcm::Element< VR::OW, VM::VM1 >, 517
gdcm::ExplicitDataElement, 543
gdcm::ExplicitImplicitDataElement, 547
gdcm::Fragment, 615
gdcm::ImplicitDataElement, 706
gdcm::Item, 727
gdcm::Preamble, 974
gdcm::SequenceOfFragments, 1103
gdcm::SequenceOfItems, 1112
gdcm::Tag, 1259
gdcm::UNExplicitDataElement, 1382
gdcm::UNExplicitImplicitDataElement, 1386
gdcm::Value, 1400
gdcm::VL, 1406
gdcm::VM, 1412
gdcm::VR, 1418
gdcm::VR16ExplicitDataElement, 1424
GetLocaleCharset
gdcm::System, 1244
GetLossless
gdcm::JPEGCodec, 759
gdcm::JPEGLSCodec, 768
GetLossyFlag
gdcm::ImageCodec, 664
GetLossyFlagFromFile
gdcm::Testing, 1271
GetLUT
gdcm::Bitmap, 255
gdcm::ImageCodec, 664
gdcm::ImageHelper, 678
gdcm::LookupTable, 789
GetLUTDescriptor
gdcm::LookupTable, 789
GetLUTLength
gdcm::LookupTable, 789
GetMacro
gdcm::Macros, 799
GetMacroEntry
gdcm::Macro, 796
GetMacros
gdcm::Defs, 411

GetMajorAxisFromPatientRelativeDirectionCosine
gdcm::Orientation, 896
GetMajorVersion
gdcm::Version, 1404
GetManifold
gdcm::Surface, 1215
GetMapping
gdcm::Scanner, 1063
gdcm::StrictScanner, 1184
GetMappingFromPrivateTagToValue
gdcm::Scanner2, 1073
gdcm::StrictScanner2, 1194
GetMappingFromPublicTagToValue
gdcm::Scanner2, 1073
gdcm::StrictScanner2, 1194
GetMappingFromTagToValue
gdcm::Scanner, 1063
gdcm::StrictScanner, 1184
GetMappings
gdcm::Scanner, 1063
gdcm::StrictScanner, 1184
GetMax
gdcm::PixelFormat, 943
GetMaximumLength
gdcm::network::MaximumLengthSub, 800
GetMaximumLengthSub
gdcm::network::UserInformation, 1393
GetMaximumPointDistance
gdcm::Surface, 1215
GetMaxLength
gdcm::PersonName, 929
GetMaxPDULength
gdcm::network::ULConnectionInfo, 1365
GetMaxPDUSize
gdcm::network::ULConnection, 1359
GetMD5DataImage
gdcm::Testing, 1271
GetMD5DataImages
gdcm::Testing, 1272
GetMD5FromBrokenFile
gdcm::Testing, 1272
GetMD5FromFile
gdcm::Testing, 1272
GetMD5MetaImage
vtkGDCMTesting, 1482
GetMeanPointDistance
gdcm::Surface, 1215
GetMediaStorage
gdcm::DataSet, 396
gdcm::FileMetaInformation, 578
GetMediaStorageAsString
gdcm::FileMetaInformation, 579
GetMediaStorageDataFile
gdcm::Testing, 1272
GetMediaStorageDataFiles
gdcm::Testing, 1272
GetMediaStorageFromFile
gdcm::Testing, 1272
GetMeshPrimitive
gdcm::Surface, 1215, 1216
GetMessageHeader
gdcm::network::PresentationDataValue, 990
GetMetaInformationTS
gdcm::FileMetaInformation, 579
GetMHDMD5FromFile
vtkGDCMTesting, 1482
GetMin
gdcm::PixelFormat, 943
GetMinorVersion
gdcm::Version, 1404
GetModality
gdcm::MediaStorage, 810
GetModalityDimension
gdcm::MediaStorage, 810
GetModule
gdcm::Modules, 843
GetModuleEntry
gdcm::NestedModuleEntries, 865
GetModuleEntryInMacros
gdcm::Module, 836
GetModules
gdcm::Defs, 411
GetMPType
gdcm::MeshPrimitive, 823
GetMPTypeString
gdcm::MeshPrimitive, 823
GetMRImageSeriesUIDs
gdcm::DirectoryHelper, 451
GetMrProtocol
gdcm::CSAHeader, 354
GetMrProtocolByName
gdcm::MrProtocol, 853
GetMSString
gdcm::MediaStorage, 810
GetMSType
gdcm::MediaStorage, 810
GetMTime
vtkImageMapToColors16, 1510
GetName
gdcm::CSAElement, 345
gdcm::CSAHeaderDictEntry, 360
gdcm::DictEntry, 431
gdcm::Filename, 583
gdcm::GroupDict, 622
gdcm::IODEntry, 712
gdcm::Macro, 796
gdcm::Module, 836
gdcm::ModuleEntry, 840

gdcm::network::AbstractSyntax, 130
gdcm::network::ApplicationContext, 146
gdcm::network::TransferSyntaxSub, 1287
gdcm::PDBElement, 918
gdcm::QueryBase, 1016
gdcm::QueryImage, 1019
gdcm::QueryPatient, 1022
gdcm::QuerySeries, 1024
gdcm::QueryStudy, 1027
gdcm::UIDs, 1312
GetNeedByteSwap
gdcm::Bitmap, 255
gdcm::ImageCodec, 665
GetNegociatedType
gdcm::TransferSyntax, 1284
GetNestedDataSet
gdcm::Item, 727
GetNextSingleSerieUIDFileSet
gdcm::SerieHelper, 1119
GetNoOfItems
gdcm::CSAElement, 345
GetNumberOfComponents
gdcm::PersonName, 929
GetNumberOfContourReferencedFrameOfReferences
vtkRTStructSetProperties, 1532
GetNumberOfCurves
gdcm::Curve, 368
gdcm::Pixmap, 953
GetNumberOfDimensions
gdcm::Bitmap, 256
gdcm::ImageCodec, 665
GetNumberOfElementsFromArray
gdcm::VM, 1413
GetNumberOfFileNames
gdcm::Testing, 1272
GetNumberOfFilenames
gdcm::FilenameGenerator, 591
GetNumberOfFragments
gdcm::SequenceOfFragments, 1104
GetNumberOfIconImages
gdcm::IconImageFilter, 625
GetNumberOfImagesInGrid
gdcm::SplitGridFilter, 1160
GetNumberOfImagesInMosaic
gdcm::SplitMosaicFilter, 1164
GetNumberOfIODs
gdcm::IOD, 710
GetNumberOfItems
gdcm::SequenceOfItems, 1112
GetNumberOfMD5DataImages
gdcm::Testing, 1273
GetNumberOfMD5MetaImages
vtkGDCMTesting, 1482
GetNumberOfMediaStorageDataFiles
gdcm::Testing, 1273
GetNumberOfModality
gdcm::MediaStorage, 811
GetNumberOfModuleEntries
gdcm::NestedModuleEntries, 866
GetNumberOfMSString
gdcm::MediaStorage, 811
GetNumberOfMSType
gdcm::MediaStorage, 811
GetNumberOfOverlays
gdcm::Pixmap, 953
GetNumberOfPoints
gdcm::Curve, 368
GetNumberOfPresentationContext
gdcm::network::AAssociateRQPDU, 125
GetNumberOfPresentationContextAC
gdcm::network::AAssociateACPDU, 118
GetNumberOfPresentationDataValues
gdcm::network::PDataTFPDU, 915
GetNumberOfPrimitivesData
gdcm::MeshPrimitive, 823
GetNumberOfReferencedFrameOfReferences
vtkRTStructSetProperties, 1533
GetNumberOfSegments
gdcm::SegmentWriter, 1097
GetNumberOfSOPClassToIOD
gdcm::SOPClassUIDToIOD, 1149
GetNumberOfStructureSetROIs
vtkRTStructSetProperties, 1533
GetNumberOfSurfacePoints
gdcm::Surface, 1216
GetNumberOfSurfaces
gdcm::SurfaceReader, 1229
gdcm::SurfaceWriter, 1234
GetNumberOfTransferSyntaxes
gdcm::network::PresentationContextRQ, 986
gdcm::PresentationContext, 978
GetNumberOfTransferSyntaxStrings
gdcm::UIDs, 1312
GetNumberOfValues
gdcm::Attribute< Group, Element, TVR, TVM >, 162
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 172
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 179
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 184
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 191
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 199
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 205

gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 211
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 217
GetNumberOfVectors
gdcm::Surface, 1216
GetObliquityThresholdCosineValue
gdcm::Orientation, 896
GetOffScreenRendering
vtkImageColorViewer, 1499
GetOptionalTags
gdcm::QueryBase, 1016
gdcm::QueryImage, 1020
gdcm::QueryPatient, 1022
gdcm::QuerySeries, 1025
gdcm::QueryStudy, 1027
GetOrderedValues
gdcm::Scanner, 1063
gdcm::StrictScanner, 1184
GetOrigin
gdcm::Image, 636
gdcm::Overlay, 902
GetOriginValue
gdcm::ImageHelper, 678
GetOuput
gdcm::ImageConverter, 671
GetOutput
gdcm::BitmapToBitmapFilter, 266
gdcm::ImageToImageFilter, 694
gdcm::PixmapToPixmapFilter, 961
GetOutputAsBitmap
gdcm::BitmapToBitmapFilter, 266
GetOutputAsPixmap
gdcm::PixmapToPixmapFilter, 961
GetOutputFilename
gdcm::DictConverter, 428
GetOutputType
gdcm::DictConverter, 428
GetOverlay
gdcm::Pixmap, 953
vtkGDCMImageReader, 1433
vtkGDCMImageReader2, 1448
GetOverlayData
gdcm::Overlay, 902
GetOverlayPort
vtkGDCMImageReader2, 1448
GetOverlayTypeAsString
gdcm::Overlay, 902
GetOverlayTypeFromString
gdcm::Overlay, 902
GetOverlayVisibility
vtkImageColorViewer, 1500
GetOwner
gdcm::PrivateTag, 1002
GetPath
gdcm::Filename, 584
GetPattern
gdcm::FilenameGenerator, 591
GetPDBEEnd
gdcm::PDBHeader, 921
GetPDBElementByName
gdcm::PDBHeader, 921
GetPDBInfoTag
gdcm::PDBHeader, 921
GetPDUs
gdcm::network::ULEvent, 1375
GetPDVs
gdcm::network::PDUFactory, 928
GetPermissions
gdcm::System, 1244
GetPhotometricInterpretation
gdcm::Bitmap, 256
gdcm::ImageChangePhotometricInterpretation, 645
gdcm::ImageCodec, 665
GetPhotometricInterpretationValue
gdcm::ImageHelper, 678
GetPIString
gdcm::PhotometricInterpretation, 937
GetPIType
gdcm::PhotometricInterpretation, 937
GetPixelFormat
gdcm::Bitmap, 256
gdcm::ImageCodec, 665
GetPixelFormatValue
gdcm::ImageHelper, 678
GetPixelRepresentation
gdcm::PixelFormat, 943
GetPixelSize
gdcm::PixelFormat, 943
GetPixelSpacingDataRoot
gdcm::Testing, 1273
GetPixmap
gdcm::FileDecompressLookupTable, 565
gdcm::IconImageGenerator, 628
gdcm::PixmapReader, 958
gdcm::PixmapWriter, 965
GetPlanarConfiguration
gdcm::Bitmap, 256
gdcm::ImageChangePlanarConfiguration, 650
gdcm::ImageCodec, 665
GetPlanarConfigurationValue
gdcm::ImageHelper, 679
GetPMSRescaleInterceptSlope
gdcm::ImageHelper, 679
GetPMTFInformationDataTag
gdcm::MEC_MR3, 802
GetPointCoordinatesData
gdcm::Surface, 1216

GetPointer
gdcm::ByteValue, 281
gdcm::LookupTable, 789
gdcm::SmartPointer< ObjectType >, 1145
vtkLookupTable16, 1527
GetPointerFromElement
gdcm::ImageHelper, 679
GetPointPositionAccuracy
gdcm::Surface, 1216
GetPointsBoundingBoxCoordinates
gdcm::Surface, 1216
GetPosition
vtkImageColorViewer, 1500
GetPreamble
gdcm::FileMetaInformation, 579
GetPrefix
gdcm::FilenameGenerator, 591
GetPresentationContext
gdcm::network::AAssociateRQPDU, 125
GetPresentationContextAC
gdcm::network::AAssociateACPDU, 118
GetPresentationContextACByID
gdcm::network::ULConnection, 1359
GetPresentationContextByAbstractSyntax
gdcm::network::AAssociateRQPDU, 125
GetPresentationContextByID
gdcm::network::AAssociateRQPDU, 125
GetPresentationContextID
gdcm::network::PresentationContextAC, 980
gdcm::network::PresentationContextRQ, 986
gdcm::network::PresentationDataValue, 990
gdcm::PresentationContext, 978
GetPresentationContextIDFromPresentationContext
gdcm::network::ULConnection, 1359
GetPresentationContextRQByID
gdcm::network::ULConnection, 1359
GetPresentationContexts
gdcm::network::AAssociateRQPDU, 125
gdcm::network::ULConnection, 1359
gdcm::PresentationContextGenerator, 984
GetPresentationDataValue
gdcm::network::PDataTFPDU, 915
GetPrettyPrint
gdcm::JSON, 776
GetPrimitiveData
gdcm::MeshPrimitive, 824
GetPrimitivesData
gdcm::MeshPrimitive, 824
GetPrimitiveType
gdcm::MeshPrimitive, 824
GetPrintStyle
gdcm::Printer, 994
gdcm::XMLPrinter, 1554
GetPrivateCreator
gdcm::DataSet, 396
gdcm::Tag, 1259
GetPrivateDict
gdcm::Dicts, 439
gdcm::XMLPrivateDictReader, 1558
GetPrivateMapping
gdcm::Scanner2, 1073
gdcm::StrictScanner2, 1194
GetPrivateMappings
gdcm::Scanner2, 1073
gdcm::StrictScanner2, 1194
GetPrivateOrderedValues
gdcm::Scanner2, 1073
gdcm::StrictScanner2, 1194
GetPrivateTag
gdcm::DataSet, 396
GetPrivateValue
gdcm::Scanner2, 1073
gdcm::StrictScanner2, 1194
GetPrivateValues
gdcm::Scanner2, 1074
gdcm::StrictScanner2, 1195
GetProcessingAlgorithm
gdcm::Surface, 1216, 1217
GetProgress
gdcm::ProgressEvent, 1007
GetPropertyCategory
gdcm::Segment, 1081
GetPropertyType
gdcm::Segment, 1081
GetPropertyTypeModifiers
gdcm::Segment, 1081
GetProtocol
gdcm::network::ULConnection, 1360
GetPublicDict
gdcm::Dicts, 440
GetPublicMapping
gdcm::Scanner2, 1074
gdcm::StrictScanner2, 1195
GetPublicMappings
gdcm::Scanner2, 1074
gdcm::StrictScanner2, 1195
GetPublicOrderedValues
gdcm::Scanner2, 1074
gdcm::StrictScanner2, 1195
GetPublicValue
gdcm::Scanner2, 1074
gdcm::StrictScanner2, 1195
GetPublicValues
gdcm::Scanner2, 1074
gdcm::StrictScanner2, 1195
GetQuality
gdcm::JPEG2000Codec, 745
gdcm::JPEGCodec, 760

GetQueryDataSet
gdcm::BaseQuery, 235
GetQueryLevel
gdcm::QueryBase, 1016
gdcm::QueryImage, 1020
gdcm::QueryPatient, 1022
gdcm::QuerySeries, 1025
gdcm::QueryStudy, 1027
GetQueryLevelFromQueryRoot
gdcm::BaseRootQuery, 240
GetQueryLevelFromString
gdcm::BaseRootQuery, 240
GetQueryLevelString
gdcm::BaseRootQuery, 240
GetRate
gdcm::JPEG2000Codec, 745
GetRAWMD5FromFile
vtkGDCMTesting, 1482
GetRealWorldValueMappingContent
gdcm::ImageHelper, 679
GetReason
gdcm::network::PresentationContextAC, 980
GetRecommendedDisplayCIELabValue
gdcm::Surface, 1217
GetRecommendedDisplayGrayscaleValue
gdcm::Surface, 1217
GetRecommendedPresentationOpacity
gdcm::Surface, 1217
GetRecommendedPresentationType
gdcm::Surface, 1217
GetRef
gdcm::IODEntry, 713
GetReferencedFrameOfReferenceClassUID
vtkRTStructSetProperties, 1533
GetReferencedFrameOfReferenceInstanceUID
vtkRTStructSetProperties, 1533
GetRegion
gdcm::ImageRegionReader, 691
GetRequiredDataSet
gdcm::ModalityPerformedProcedureStepCreateQuery, 828
gdcm::ModalityPerformedProcedureStepSetQuery, 832
GetRequiredTags
gdcm::QueryBase, 1016
gdcm::QueryImage, 1020
gdcm::QueryPatient, 1022
gdcm::QuerySeries, 1025
gdcm::QueryStudy, 1027
GetRescaleInterceptSlopeValue
gdcm::ImageHelper, 679
GetReserved43_74
gdcm::network::AAssociateRQPDU, 125
GetResponses
gdcm::network::ULBasicCallback, 1356
GetRetired
gdcm::DictEntry, 431
GetRoot
gdcm::UIDGenerator, 1295
GetRows
gdcm::Bitmap, 257
gdcm::Overlay, 902
GetRTStructSeriesUIDs
gdcm::DirectoryHelper, 451
GetSamplesPerPixel
gdcm::PhotometricInterpretation, 937
gdcm::PixelFormat, 944
GetScalarType
gdcm::PixelFormat, 944
GetScalarTypeAsString
gdcm::PixelFormat, 944
GetScanner
gdcm::DICOMDIRGenerator, 420
GetSecondaryCaptureImagePlaneModule
gdcm::ImageHelper, 679
GetSegment
gdcm::SegmentWriter, 1097
GetSegmentAlgorithmName
gdcm::Segment, 1081
GetSegmentAlgorithmType
gdcm::Segment, 1082
GetSegmentDescription
gdcm::Segment, 1082
GetSegmentLabel
gdcm::Segment, 1082
GetSegmentNumber
gdcm::Segment, 1082
GetSegments
gdcm::SegmentReader, 1092
gdcm::SegmentWriter, 1097
GetSelectedPrivateGroupOffsetFromFile
gdcm::Testing, 1273
GetSelectedTagsOffsetFromFile
gdcm::Testing, 1273
GetSequenceOfFragments
gdcm::DataElement, 375
GetSeriesUIDsBySOPClassUID
gdcm::DirectoryHelper, 451
GetSize
gdcm::VR, 1419
vtkImageColorViewer, 1500
GetSizeof
gdcm::VR, 1419
GetSliceArray
gdcm::MrProtocol, 853
GetSliceMax
vtkImageColorViewer, 1500
GetSliceMin

vtkImageColorViewer, 1500
GetSliceRange
vtkImageColorViewer, 1500
GetSlope
gdcm::Image, 636
gdcm::Rescaler, 1046
GetSOPClassUID
gdcm::DirectoryHelper, 451
GetSOPClassUIDFromIOD
gdcm::SOPClassUIDToIOD, 1149
GetSOPClassUIDToIOD
gdcm::SOPClassUIDToIOD, 1149
GetSOPClassUIDToIODs
gdcm::SOPClassUIDToIOD, 1150
GetSOPInstanceUID
gdcm::BaseQuery, 235
GetSourceApplicationEntityTitle
gdcm::FileMetaInformation, 579
GetSourceDirectory
gdcm::Testing, 1273
GetSpacing
gdcm::Image, 636
GetSpacingTagFromMediaStorage
gdcm::ImageHelper, 680
GetSpacingValue
gdcm::ImageHelper, 680
GetStart
gdcm::ByteBuffer, 272
GetState
gdcm::network::ULConnection, 1360
GetStateIndex
gdcm::network, 108
GetSTATES
gdcm::Surface, 1217
GetSTATESString
gdcm::Surface, 1217
GetStream
gdcm::Trace, 1277
GetStreamCurrentPosition
gdcm::Reader, 1036
GetStreamOffsetFromFile
gdcm::Testing, 1273
GetStreamPtr
gdcm::Reader, 1037
gdcm::Writer, 1547
GetString
gdcm::MediaStorage, 811
gdcm::PhotometricInterpretation, 938
gdcm::TransferSyntax, 1284
gdcm::UIDs, 1312
GetStringValueFromTag
gdcm::DirectoryHelper, 452
GetStructureSetObservationNumber
vtkRTStructSetProperties, 1533
GetStructureSetROIDescription
vtkRTStructSetProperties, 1533
GetStructureSetROIGenerationAlgorithm
vtkRTStructSetProperties, 1533
GetStructureSetROIName
vtkRTStructSetProperties, 1533
GetStructureSetROINumber
vtkRTStructSetProperties, 1534
GetStructureSetROIObservationLabel
vtkRTStructSetProperties, 1534
GetStructureSetROIRefFrameRefUID
vtkRTStructSetProperties, 1534
GetStructureSetRTROIInterpretedType
vtkRTStructSetProperties, 1534
GetSurface
gdcm::Segment, 1082
GetSurfaceComments
gdcm::Surface, 1217
GetSurfaceCount
gdcm::Segment, 1082
GetSurfaceNumber
gdcm::Surface, 1218
GetSurfaceProcessing
gdcm::Surface, 1218
GetSurfaceProcessingDescription
gdcm::Surface, 1218
GetSurfaceProcessingRatio
gdcm::Surface, 1218
GetSurfaces
gdcm::Segment, 1082
GetSwapCode
gdcm::TransferSyntax, 1284
GetSwapCodeString
gdcm::SwapCode, 1237
GetSyngoDT
gdcm::CSAElement, 345
GetTable
gdcm::SequenceOfFragments, 1104
GetTableEntry
gdcm::Table, 1249
GetTag
gdcm::AnonymizeEvent, 134
gdcm::Attribute< Group, Element, TVR, TVM >, 162
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 172
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 179
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 184
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 191
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 199

gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 205
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 211
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 217
gdcm::DataElement, 375, 376
GetTagListByLevel
gdcm::BaseRootQuery, 240
gdcm::FindPatientRootQuery, 606
gdcm::FindStudyRootQuery, 610
gdcm::MovePatientRootQuery, 846
gdcm::MoveStudyRootQuery, 850
gdcm::WLMFindQuery, 1543
GetTempDirectory
gdcm::Testing, 1274
GetTempDirectoryW
gdcm::Testing, 1274
GetTempFilename
gdcm::Testing, 1274
GetTempFilenameW
gdcm::Testing, 1274
GetTimeout
gdcm::network::ARTIMTimer, 155
gdcm::ServiceClassUser, 1126
GetTimer
gdcm::network::ULConnection, 1360
GetTimezoneOffsetFromUTC
gdcm::System, 1245
GetToplevel
gdcm::Directory, 449
GetToshibaMECMR3Tag
gdcm::MEC_MR3, 802
GetTransferSyntax
gdcm::Bitmap, 257
gdcm::ImageChangeTransferSyntax, 655
gdcm::network::PresentationContextAC, 980
gdcm::network::PresentationContextRQ, 987
gdcm::PresentationContext, 978
GetTransferSyntaxes
gdcm::network::PresentationContextRQ, 987
GetTransferSyntaxString
gdcm::UIDs, 1313
GetTransferSyntaxStrings
gdcm::UIDs, 1313
GetTSString
gdcm::TransferSyntax, 1284
GetTSType
gdcm::TransferSyntax, 1284
GetType
gdcm::ModuleEntry, 840
gdcm::Orientation, 896
gdcm::Overlay, 902
gdcm::PhotometricInterpretation, 938
GetTypeAsEnum
gdcm::Overlay, 902
GetTypeFromTag
gdcm::Defs, 411
gdcm::IOD, 710
GetTypeOfData
gdcm::Curve, 368
GetTypeOfDataDescription
gdcm::Curve, 369
GetTypeString
gdcm::Type, 1292
GetTypeType
gdcm::Type, 1292
GetUIDName
gdcm::UIDs, 1313
GetUIDString
gdcm::UIDs, 1313
GetUniqueTags
gdcm::QueryBase, 1016
gdcm::QueryImage, 1020
gdcm::QueryPatient, 1023
gdcm::QuerySeries, 1025
gdcm::QueryStudy, 1028
GetUnpackBuffer
gdcm::Overlay, 903
GetUnpackBufferLength
gdcm::Overlay, 903
GetUsage
gdcm::IODEntry, 713
GetUsageString
gdcm::Usage, 1390
GetUsageType
gdcm::IODEntry, 713
gdcm::Usage, 1390
GetUserData
gdcm::Parser, 912
GetUserInformation
gdcm::network::AAssociateACPDU, 118
gdcm::network::AAssociateRQPDU, 125
GetValidatedFile
gdcm::Validate, 1397
GetValidDataSet
gdcm::WLMFindQuery, 1543
GetValue
gdcm::Attribute< Group, Element, TVR, TVM >, 163
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 172
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 179
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 184
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 191

gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 199
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 205
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 211
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 217
gdcm::CSAElement, 345
gdcm::DataElement, 376
gdcm::Element< TVR, TVM >, 461
gdcm::Element< TVR, VM::VM1_2 >, 467
gdcm::Element< TVR, VM::VM1_n >, 472
gdcm::Element< TVR, VM::VM2_2n >, 480
gdcm::Element< TVR, VM::VM2_n >, 485
gdcm::Element< TVR, VM::VM3_3n >, 492
gdcm::Element< TVR, VM::VM3_4 >, 497
gdcm::Element< TVR, VM::VM3_n >, 503
gdcm::Element< VR::AS, VM::VM5 >, 507
gdcm::Element< VR::OB, VM::VM1 >, 512
gdcm::Element< VR::OW, VM::VM1 >, 517
gdcm::PDBElement, 918
gdcm::Scanner, 1063
gdcm::StrictScanner, 1185
GetValueAsSQ
gdcm::DataElement, 376
GetValues
gdcm::Attribute< Group, Element, TVR, TVM >, 163
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 172
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 179
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 184
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 191
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 199
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 205
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 211
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 217
gdcm::Element< TVR, TVM >, 461
gdcm::Element< TVR, VM::VM1_2 >, 467
gdcm::Element< TVR, VM::VM1_n >, 472
gdcm::Element< TVR, VM::VM2_2n >, 480
gdcm::Element< TVR, VM::VM2_n >, 485
gdcm::Element< TVR, VM::VM3_3n >, 492
gdcm::Element< TVR, VM::VM3_4 >, 497
gdcm::Element< TVR, VM::VM3_n >, 503
gdcm::Element< VR::AS, VM::VM5 >, 507
gdcm::Element< VR::OB, VM::VM1 >, 512
gdcm::Element< VR::OW, VM::VM1 >, 517
gdcm::Scanner, 1064
gdcm::Scanner2, 1075
gdcm::StrictScanner, 1185
gdcm::StrictScanner2, 1196
GetVectorAccuracy
gdcm::Surface, 1218
GetVectorCoordinateData
gdcm::Surface, 1218
GetVectorDimensionality
gdcm::Surface, 1218
GetVersion
gdcm::MrProtocol, 853
gdcm::Version, 1404
GetVIEWType
gdcm::Surface, 1218
GetVIEWTypeString
gdcm::Surface, 1219
GetVL
gdcm::DataElement, 377
GetVL16Max
gdcm::VL, 1406
GetVL32Max
gdcm::VL, 1407
GetVM
gdcm::Attribute< Group, Element, TVR, TVM >, 163
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 173
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 179
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 185
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 192
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 199
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 205
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 212
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 217
gdcm::CSAElement, 346
gdcm::CSAHeaderDictEntry, 360
gdcm::DictEntry, 431
gdcm::Element< TVR, TVM >, 461
gdcm::Element< TVR, VM::VM1_2 >, 467
gdcm::Element< TVR, VM::VM1_n >, 472
gdcm::Element< TVR, VM::VM2_2n >, 480
gdcm::Element< TVR, VM::VM2_n >, 485
gdcm::Element< TVR, VM::VM3_3n >, 492
gdcm::Element< TVR, VM::VM3_4 >, 497
gdcm::Element< TVR, VM::VM3_n >, 503
gdcm::Element< VR::AS, VM::VM5 >, 507

gdcm::Element< VR::OB, VM::VM1 >, 512
gdcm::Element< VR::OW, VM::VM1 >, 517
GetVMString
gdcm::VM, 1413
GetVMType
gdcm::VM, 1413
GetVMTypeFromLength
gdcm::VM, 1413
GetVoidPointer
gdcm::ByteValue, 281
GetVR
gdcm::Attribute< Group, Element, TVR, TVM >, 164
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 173
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 179
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 185
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 192
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 199
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 205
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 212
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 218
gdcm::CSAElement, 346
gdcm::CSAHeaderDictEntry, 360
gdcm::DataElement, 377
gdcm::DictEntry, 431
gdcm::Element< TVR, TVM >, 461
gdcm::Element< TVR, VM::VM1_2 >, 468
gdcm::Element< TVR, VM::VM1_n >, 472
gdcm::Element< TVR, VM::VM2_2n >, 480
gdcm::Element< TVR, VM::VM2_n >, 486
gdcm::Element< TVR, VM::VM3_3n >, 492
gdcm::Element< TVR, VM::VM3_4 >, 498
gdcm::Element< TVR, VM::VM3_n >, 504
gdcm::Element< VR::AS, VM::VM5 >, 508
gdcm::Element< VR::OB, VM::VM1 >, 512
gdcm::Element< VR::OW, VM::VM1 >, 517
GetVRFromTag
gdcm, 92
GetVRString
gdcm::VR, 1419
GetVRStringFromFile
gdcm::VR, 1419
GetVRType
gdcm::VR, 1419
GetVRTypeFromFile
gdcm::VR, 1419
GetVTKDataRoot
vtkGDCMTesting, 1482
GetWarningFlag
gdcm::Trace, 1277
GetWarningStream
gdcm::Trace, 1278
GetWindowName
vtkImageColorViewer, 1500
GetXMax
gdcm::BoxRegion, 270
GetXMin
gdcm::BoxRegion, 270
GetYMax
gdcm::BoxRegion, 270
GetYMin
gdcm::BoxRegion, 270
GetZMax
gdcm::BoxRegion, 270
GetZMin
gdcm::BoxRegion, 271
GetZSpacing
gdcm::IPPSorter, 719
GetZSpacingTagFromMediaStorage
gdcm::ImageHelper, 680
GetZSpacingTolerance
gdcm::IPPSorter, 720
Global
gdcm::Defs, 412
gdcm::Dicts, 440
gdcm::Global, 618
GlobalInstance
gdcm, 102
GrabOverlayFromPixelData
gdcm::Overlay, 903
Graphics
gdcm::Overlay, 900
GRAY
gdcm::LookupTable, 787
GrayscaleSoftcopyPresentationStateStorageSOPClass
gdcm::MediaStorage, 808
GREEN
gdcm::LookupTable, 787
green
gdcm::terminal, 110
GroupDict
gdcm::GroupDict, 621
GroupStringVector
gdcm::GroupDict, 621
GuessFromModality
gdcm::MediaStorage, 811

HandleBulkData
gdcm::XMLPrinter, 1554
HandleDataSet
gdcm::network::ULBasicCallback, 1356

gdcm::network::ULConnectionCallback, 1363
gdcm::network::ULWritingCallback, 1378
HandleDescription
gdcm::XMLDictReader, 1552
gdcm::XMLPrivateDictReader, 1558
HandleEntry
gdcm::XMLDictReader, 1552
gdcm::XMLPrivateDictReader, 1559
HandleEvent
gdcm::network::ULTransitionTable, 1376
HandleIOD
gdcm::TableReader, 1252
HandleIODEntry
gdcm::TableReader, 1252
HandleMacro
gdcm::TableReader, 1253
HandleMacroEntry
gdcm::TableReader, 1253
HandleMacroEntryDescription
gdcm::TableReader, 1253
HandleModule
gdcm::TableReader, 1253
HandleModuleEntry
gdcm::TableReader, 1253
HandleModuleEntryDescription
gdcm::TableReader, 1253
HandleModuleInclude
gdcm::TableReader, 1253
HandleResponse
gdcm::network::ULBasicCallback, 1356
gdcm::network::ULConnectionCallback, 1363
gdcm::network::ULWritingCallback, 1378
HangingProtocolStorage
gdcm::MediaStorage, 808
HardcopyColorImageStorage
gdcm::MediaStorage, 809
HardcopyGrayscaleImageStorage
gdcm::MediaStorage, 808
HasObserver
gdcm::Subject, 1209
HemodynamicWaveformStorage
gdcm::MediaStorage, 807
hidden
gdcm::terminal, 110
HITACHI
gdcm::EquipmentManufacturer, 533
HSV
gdcm::PhotometricInterpretation, 937
HTJ2K
gdcm::TransferSyntax, 1283
HTJ2KLossless
gdcm::TransferSyntax, 1283
HTJ2KRPCLLossless
gdcm::TransferSyntax, 1283
Icon
gdcm::Pixmap, 954
IconDataScalarType
vtkGDCMImageReader, 1442
vtkGDCMImageReader2, 1457
IconImage
gdcm, 87
IconImageDataExtent
vtkGDCMImageReader, 1442
vtkGDCMImageReader2, 1457
IconImageFilter
gdcm::IconImageFilter, 624
IconImageGenerator
gdcm::IconImageGenerator, 627
IconNumberOfScalarComponents
vtkGDCMImageReader, 1442
vtkGDCMImageReader2, 1457
ID
gdcm::PresentationContext, 979
ignore_char
gdcm::ignore_char, 630
Image
gdcm::Image, 635
ImageActor
vtkImageColorViewer, 1507
ImageApplyLookupTable
gdcm::ImageApplyLookupTable, 641
ImageChangePhotometricInterpretation
gdcm::ImageChangePhotometricInterpretation, 645
gdcm::ImageCodec, 668
ImageChangePlanarConfiguration
gdcm::ImageChangePlanarConfiguration, 650
ImageChangeTransferSyntax
gdcm::Bitmap, 262
gdcm::ImageChangeTransferSyntax, 655
ImageCodec
gdcm::ImageCodec, 661
ImageConverter
gdcm::ImageConverter, 671
ImageFormat
vtkGDCMImageReader, 1442
vtkGDCMImageReader2, 1457
ImageFragmentSplitter
gdcm::ImageFragmentSplitter, 674
ImageNumberOrdering
gdcm::SerieHelper, 1119
ImageOrientationPatient
vtkGDCMImageReader, 1442
vtkGDCMImageReader2, 1457
ImagePositionPatient
vtkGDCMImageReader, 1442
vtkGDCMImageReader2, 1457
ImagePositionPatientOrdering
gdcm::SerieHelper, 1119

ImageReader
gdcm::ImageReader, 685
ImageRegionReader
gdcm::ImageRegionReader, 690
gdcm::JPEG2000Codec, 747
gdcm::JPEGCodec, 762
gdcm::JPEGLSCodec, 769
gdcm::RLECodec, 1055
ImageToImageFilter
gdcm::ImageToImageFilter, 694
ImageWriter
gdcm::ImageWriter, 698
ImplementationClassUIDSub
gdcm::network::ImplementationClassUIDSub, 700
ImplementationUIDSub
gdcm::network::ImplementationUIDSub, 701
ImplementationVersionNameSub
gdcm::network::ImplementationVersionNameSub, 702
Implicit
gdcm::TransferSyntax, 1282
ImplicitVRBigEndianACRNEMA
gdcm::TransferSyntax, 1283
ImplicitVRBigEndianPrivateGE
gdcm::TransferSyntax, 1282
ImplicitVRLittleEndian
gdcm::TransferSyntax, 1282
IncompleteLUT
gdcm::LookupTable, 792
InformationObjectDefinition Directory Reference, 61
InitFromRQ
gdcm::network::AAssociateACPDU, 118
Initialize
gdcm::network::ULConnectionInfo, 1365
InitializeBlueLUT
gdcm::LookupTable, 790
InitializeConnection
gdcm::network::ULConnection, 1360
gdcm::ServiceClassUser, 1126
Initialized
gdcm::LookupTable, 790
InitializeDataSet
gdcm::BaseRootQuery, 240
gdcm::FindPatientRootQuery, 607
gdcm::FindStudyRootQuery, 611
gdcm::MovePatientRootQuery, 847
gdcm::MoveStudyRootQuery, 851
gdcm::WLMFindQuery, 1543
InitializeGreenLUT
gdcm::LookupTable, 790
InitializeIncomingConnection
gdcm::network::ULConnection, 1360
InitializeLUT
gdcm::LookupTable, 790
InitializeRedLUT
gdcm::LookupTable, 790
InitializeRTStructSet
vtkGDCMPolyDataWriter, 1477
InitOpenSSL
gdcm::OpenSSLCryptoFactory, 885
Input
gdcm::BitmapToBitmapFilter, 266
Insert
gdcm::CommandDataSet, 324
gdcm::DataSet, 396
gdcm::FileMetaInformation, 579
gdcm::GroupDict, 622
InsertDataElement
gdcm::DataSet, 397
gdcm::Item, 727
InsertEntry
gdcm::Table, 1249
InstallPipeline
vtkImageColorViewer, 1501
INT12
gdcm::PixelFormat, 941
INT16
gdcm::PixelFormat, 941
INT32
gdcm::PixelFormat, 941
INT64
gdcm::PixelFormat, 942
INT8
gdcm::PixelFormat, 941
Interactor
vtkImageColorViewer, 1507
InteractorStyle
vtkImageColorViewer, 1507
INTERFILE
gdcm::CSAHeader, 352
Internal
gdcm::ApplicationEntity, 149
gdcm::Attribute< Group, Element, TVR, TVM >, 167
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 175
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 181
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 187
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 201
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 207
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 214
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 219
gdcm::Element< TVR, TVM >, 464

gdcm::Element< TVR, VM::VM1_2 >, 469
gdcm::Element< TVR, VM::VM2_2n >, 482
gdcm::Element< TVR, VM::VM2_n >, 487
gdcm::Element< TVR, VM::VM3_3n >, 494
gdcm::Element< TVR, VM::VM3_4 >, 499
gdcm::Element< TVR, VM::VM3_n >, 505
gdcm::Element< VR::AS, VM::VM5 >, 509
gdcm::Element< VR::OB, VM::VM1 >, 514
gdcm::Element< VR::OW, VM::VM1 >, 519
gdcm::LookupTable, 792
gdcm::UI, 1293
InternalCode
gdcm::Coder, 312
gdcm::JPEG12Codec, 734
gdcm::JPEG16Codec, 739
gdcm::JPEG8Codec, 752
gdcm::JPEGTurboCodec, 774
Internals
vtkRTStructSetProperties, 1538
INVALID
gdcm::VR, 1416
Invalid
gdcm::Overlay, 900
gdcm::Usage, 1389
InverseRescale
gdcm::Rescaler, 1046
InverseRescaleFunctionIntoBestFit
gdcm::Rescaler, 1046
InvokeEvent
gdcm::Subject, 1209
IOD
gdcm::IOD, 710
IODEntry
gdcm::IODEntry, 712
IODMapType
gdcm::IODs, 715
IODMapTypeConstIterator
gdcm::IODs, 715
IODName
gdcm::IODs, 715
IODs
gdcm::IODs, 715
IPPSorter
gdcm::IPPSorter, 719
IS
gdcm::VR, 1417
IsAETitleValid
gdcm::network::AAssociateRQPDU, 125
IsASCII
gdcm::VR, 1419
IsASCII2
gdcm::VR, 1420
IsBinary
gdcm::VR, 1420
IsBinary2
gdcm::VR, 1420
IsCompatible
gdcm::PixelFormat, 944
IsDual
gdcm::VR, 1420
IsEmpty
gdcm::Bitmap, 257
gdcm::ByteValue, 281
gdcm::CSAElement, 346
gdcm::CSAHeaderDict, 357
gdcm::Curve, 369
gdcm::DataElement, 378
gdcm::DataSet, 397
gdcm::Defs, 411
gdcm::Dict, 424
gdcm::Dicts, 440
gdcm::Filename, 584
gdcm::Macros, 799
gdcm::Modules, 843
gdcm::Overlay, 903
gdcm::Preamble, 974
gdcm::PrivateDict, 998
gdcm::SegmentHelper::BasicCodedEntry, 245
gdcm::SequenceOfItems, 1112
IsEncapsulated
gdcm::TransferSyntax, 1284
IsEncoded
gdcm::TransferSyntax, 1285
IsExplicit
gdcm::TransferSyntax, 1285
IsFrameEncoder
gdcm::ImageCodec, 665
gdcm::JPEG2000Codec, 746
gdcm::JPEGCodec, 760
gdcm::JPEGLSCodec, 768
gdcm::RLECodec, 1054
IsGroupLength
gdcm::Tag, 1260
IsGroupXX
gdcm::Tag, 1260
IsIdentical
gdcm::Filename, 584
IsIllegal
gdcm::Tag, 1260
IsImage
gdcm::MediaStorage, 811
IsImplicit
gdcm::TransferSyntax, 1285
IsInPixelData
gdcm::Overlay, 903
IsKey
gdcm::Scanner, 1064
gdcm::Scanner2, 1075

gdcm::StrictScanner, 1185
gdcm::StrictScanner2, 1196
IsLastFragment
gdcm::network::AAbortPDU, 114
gdcm::network::AAssociateACPDU, 118
gdcm::network::AAssociateRJPDU, 121
gdcm::network::AAssociateRQPDU, 126
gdcm::network::AReleaseRPPDU, 150
gdcm::network::AReleaseRQPDU, 153
gdcm::network::BasePDU, 231
gdcm::network::PDataTFPDU, 915
IsLossless
gdcm::PhotometricInterpretation, 938
gdcm::TransferSyntax, 1285
IsLossy
gdcm::Bitmap, 257
gdcm::ImageCodec, 666
gdcm::PhotometricInterpretation, 938
gdcm::TransferSyntax, 1285
IsOdd
gdcm::VL, 1407
IsPresentationContextAccepted
gdcm::ServiceClassUser, 1127
IsPrintable
gdcm::ByteValue, 282
IsPrivate
gdcm::Tag, 1260
IsPrivateCreator
gdcm::Tag, 1260
IsPublic
gdcm::Tag, 1261
IsRetired
gdcm::PhotometricInterpretation, 938
IsRGB8
gdcm::LookupTable, 790
IsRowEncoder
gdcm::ImageCodec, 666
gdcm::JPEG2000Codec, 746
gdcm::JPEGCodec, 760
gdcm::JPEGLSCodec, 768
gdcm::RLECodec, 1054
IsSameColorSpace
gdcm::PhotometricInterpretation, 938
IsStateSuspension
gdcm::JPEG12Codec, 734
gdcm::JPEG16Codec, 739
gdcm::JPEG8Codec, 752
gdcm::JPEGCodec, 760
gdcm::JPEGTurboCodec, 774
IsSwap
gdcm::VR, 1420
IsTransferSyntaxCompatible
gdcm::Bitmap, 257
IsUndefined
gdcm::MediaStorage, 812
gdcm::VL, 1407
IsUndefinedLength
gdcm::DataElement, 378
gdcm::SequenceOfItems, 1112
IsUnique
gdcm::DictEntry, 432
IsValid
gdcm::ApplicationEntity, 148
gdcm::BoxRegion, 271
gdcm::CodeString, 316
gdcm::DirectionCosines, 445
gdcm::DPath, 453
gdcm::FileMetaInformation, 579
gdcm::ImageCodec, 666
gdcm::JPEGCodec, 760
gdcm::LO, 784
gdcm::PixelFormat, 945
gdcm::Preamble, 974
gdcm::Region, 1043
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1201
gdcm::TagPath, 1267
gdcm::TransferSyntax, 1285
gdcm::UIDGenerator, 1295
gdcm::UUIDGenerator, 1395
gdcm::VM, 1413
gdcm::VR, 1420
IsVRFile
gdcm::VR, 1420
IsZero
gdcm::Overlay, 904
Item
gdcm::Item, 726
Items
gdcm::SequenceOfItems, 1115
ItemVector
gdcm::SequenceOfItems, 1109
Iterator
gdcm::CSAHeaderDict, 356
gdcm::DataSet, 392
gdcm::Dict, 422
gdcm::SequenceOfFragments, 1101
gdcm::SequenceOfItems, 1109
iterator
gdcm::CodeString, 315
gdcm::LO, 783
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1200
ItFileSetHt
gdcm::SerieHelper, 1120
IVOCTForPresentation
gdcm::MediaStorage, 809
IVOCTForProcessing

gdcm::MediaStorage, 809

Join
gdcm::Filename, 584
JPEG12Codec
gdcm::JPEG12Codec, 734
JPEG16Codec
gdcm::JPEG16Codec, 739
JPEG2000
gdcm::TransferSyntax, 1283
JPEG2000_COMPRESSION
vtkGDCMImageWriter, 1461
JPEG2000Codec
gdcm::JPEG2000Codec, 743
JPEG2000Lossless
gdcm::TransferSyntax, 1283
JPEG2000Part2
gdcm::TransferSyntax, 1283
JPEG2000Part2Lossless
gdcm::TransferSyntax, 1283
JPEG8Codec
gdcm::JPEG8Codec, 752
JPEG_COMPRESSION
vtkGDCMImageWriter, 1461
JPEGBaselineProcess1
gdcm::TransferSyntax, 1282
JPEGCodec
gdcm::JPEGCodec, 757
JPEGExtendedProcess2_4
gdcm::TransferSyntax, 1282
JPEGExtendedProcess3_5
gdcm::TransferSyntax, 1282
JPEGFullProgressionProcess10_12
gdcm::TransferSyntax, 1282
JPEGLosslessProcess14
gdcm::TransferSyntax, 1282
JPEGLosslessProcess14_1
gdcm::TransferSyntax, 1283
JPEGLS_COMPRESSION
vtkGDCMImageWriter, 1461
JPEGLSCodec
gdcm::JPEGLSCodec, 765
JPEGLSLossless
gdcm::TransferSyntax, 1283
JPEGLSNearLossless
gdcm::TransferSyntax, 1283
JPEGSpectralSelectionProcess6_8
gdcm::TransferSyntax, 1282
JPEGTurboCodec
gdcm::JPEGTurboCodec, 773
JPIPReferenced
gdcm::TransferSyntax, 1283
JSON
gdcm::JSON, 775

JunkAfterDocElementError
gdcm::Parser, 911

KAKADUCodec
gdcm::KAKADUCodec, 779
KeyField
gdcm::CSAElement, 349
KeyObjectSelectionDocument
gdcm::MediaStorage, 808
KeyValuePairArrayType
gdcm::CompositeNetworkFunctions, 327
KeyValuePairType
gdcm::CompositeNetworkFunctions, 327
KODAK
gdcm::EquipmentManufacturer, 533

LD_ALL
gdcm, 91
LD_NOSEQ
gdcm, 91
LD_NOSHADOW
gdcm, 91
LD_NOSHADOWSEQ
gdcm, 91
LeadECGWaveformStorage
gdcm::MediaStorage, 807
LegacyConvertedEnhancedCTImageStorage
gdcm::MediaStorage, 809
LegacyConvertedEnhancedMRImageStorage
gdcm::MediaStorage, 809
LegacyConvertedEnhancedPETImageStorage
gdcm::MediaStorage, 809
Level
vtkImageMapToWindowLevelColors2, 1518
LINE
gdcm::MeshPrimitive, 823
ListCharSets
gdcm::QueryFactory, 1017
LittleEndian
gdcm::SwapCode, 1237
LO
gdcm::LO, 783, 784
gdcm::VR, 1417
Load
gdcm::Directory, 449
gdcm::MrProtocol, 853
LOADBULKDATA
gdcm::XMLPrinter, 1554
LoadDefault
gdcm::CSAHeaderDict, 357
gdcm::Dict, 424
gdcm::PrivateDict, 998
LoadDefaults
gdcm::Defs, 412
gdcm::Dicts, 440

LoadFromDataElement
gdcm::CSAHeader, 354
gdcm::PDBHeader, 921
LoadFromFile
gdcm::Defs, 412
LoadIconImage
vtkGDCMImageReader, 1443
vtkGDCMImageReader2, 1457
LoadImageFromFiles
gdcm::DirectoryHelper, 452
LoadOverlays
vtkGDCMImageReader, 1443
vtkGDCMImageReader2, 1458
LoadResourcesFiles
gdcm::Global, 619
LoadSingleFile
vtkGDCMImageReader, 1433
vtkGDCMImageReader2, 1448
Locate
gdcm::Global, 619
LOComp
gdcm, 87
LodModeType
gdcm, 90
LookupTable
gdcm::LookupTable, 787, 788
vtkImageMapToColors16, 1514
LookupTableType
gdcm::LookupTable, 787
LossyFlag
gdcm::Bitmap, 263
gdcm::ImageCodec, 669
vtkGDCMImageReader, 1443
vtkGDCMImageReader2, 1458
LT
gdcm::VR, 1417
LTComp
gdcm, 87
LUT
gdcm::Bitmap, 263
gdcm::ImageCodec, 669
LUTPtr
gdcm::Bitmap, 253
gdcm::ImageCodec, 661

m_char
gdcm::ignore_char, 630
m_ConstMemberFunction
gdcm::MemberCommand< T >, 819
m_DataSet
gdcm::DataSetEvent, 405
m_MemberFunction
gdcm::MemberCommand< T >, 819
gdcm::SimpleMemberCommand< T >, 1138
m_This
gdcm::MemberCommand< T >, 819
gdcm::SimpleMemberCommand< T >, 1138
Macro
gdcm::Macro, 796
MacroEntry
gdcm, 87
Macros
gdcm::Macros, 798
mAction
gdcm::network::Transition, 1289
magenta
gdcm::terminal, 110
MAGNIFIED
gdcm::Spacing, 1156
MakeDirectory
gdcm::System, 1245
MakeNew
gdcm::network::Transition, 1289
MakeObject
gdcm::AnonymizeEvent, 134
gdcm::DataEvent, 388
gdcm::DataSetEvent, 404
gdcm::Event, 536
gdcm::FileNameEvent, 588
gdcm::ProgressEvent, 1007
MammographyCADSR
gdcm::MediaStorage, 808
Mandatory
gdcm::Usage, 1389
MANUAL
gdcm::Segment, 1080
MapCSAHeaderDictEntry
gdcm::CSAHeaderDict, 356
MapDictEntry
gdcm::Dict, 422
MapIODEntry
gdcm::IOD, 709
MapModuleEntry
gdcm::Macro, 795
gdcm::Module, 835
MappingType
gdcm::Scanner, 1060
gdcm::StrictScanner, 1181
MapScalarsThroughTable2
vtkLookupTable16, 1527
MapTableEntry
gdcm::Table, 1248
MARCONI
gdcm::EquipmentManufacturer, 533
Match
gdcm::DPath, 454
MaximumLengthSub
gdcm::network::MaximumLengthSub, 800

MaxLength
gdcm::ApplicationEntity, 149
gdcm::PersonName, 930
MaxNumberOfComponents
gdcm::ApplicationEntity, 149
gdcm::PersonName, 930
MaxPrintLength
gdcm::Printer, 996
mConnection
gdcm::network::ULConnectionManager, 1373
MD5DataImagesType
gdcm::Testing, 1270
MD5MetaImagesType
vtkGDCMTesting, 1481
mDataSet
gdcm::BaseQuery, 237
MediaStorage
gdcm::MediaStorage, 810
MediaStorageAndFileFormat Directory Reference, 62
MediaStorageDataFilesType
gdcm::Testing, 1270
MediaStorageDirectoryStorage
gdcm::MediaStorage, 807
MedicalImageProperties
vtkGDCMImageReader, 1443
vtkGDCMPolyDataReader, 1474
vtkGDCMPolyDataWriter, 1479
mElementOffsets
gdcm::StreamImageWriter, 1176
mElementOffsets1
gdcm::StreamImageWriter, 1176
MemberCommand
gdcm::MemberCommand< T >, 817
mEnd
gdcm::network::Transition, 1289
MeshPrimitive
gdcm::MeshPrimitive, 823
MessageExchangeDefinition Directory Reference, 65
MessageID
gdcm::network::CEchoRQ, 292
MetaInformationTS
gdcm::FileMetaInformation, 582
mHelpDescription
gdcm::BaseRootQuery, 241
mImage
gdcm::BaseRootQuery, 241
mImplicit
gdcm::network::ULConnectionCallback, 1364
ModalityPerformedProcedureStepCreateQuery
gdcm::ModalityPerformedProcedureStepCreateQuery, 828
ModalityPerformedProcedureStepSetQuery
gdcm::ModalityPerformedProcedureStepSetQuery, 831
ModalityPerformedProcedureStepSOPClass
gdcm::MediaStorage, 808
Mode
gdcm::terminal, 110
Module
gdcm::Module, 835
ModuleEntry
gdcm::ModuleEntry, 839
ModuleMapType
gdcm::Macros, 798
gdcm::Modules, 842
Modules
gdcm::Modules, 842
MONOCHROME1
gdcm::PhotometricInterpretation, 936
MONOCHROME2
gdcm::PhotometricInterpretation, 936
MovePatientRootQuery
gdcm::MovePatientRootQuery, 846
MoveStudyRootQuery
gdcm::MoveStudyRootQuery, 850
mPatient
gdcm::BaseRootQuery, 242
MPEG2MainProfile
gdcm::TransferSyntax, 1283
MPEG2MainProfileHighLevel
gdcm::TransferSyntax, 1283
MPEG4AVCH264BDcompatibleHighProfileLevel4_1
gdcm::TransferSyntax, 1283
MPEG4AVCH264HighProfileLevel4_1
gdcm::TransferSyntax, 1283
MPType
gdcm::MeshPrimitive, 822
MPType_END
gdcm::MeshPrimitive, 823
MRImageStorage
gdcm::MediaStorage, 807
mRootType
gdcm::BaseRootQuery, 242
MrProtocol
gdcm::MrProtocol, 852
MRSpectroscopyStorage
gdcm::MediaStorage, 807
MS_END
gdcm::MediaStorage, 809
mSecondaryConnection
gdcm::network::ULConnectionManager, 1373
mSeries
gdcm::BaseRootQuery, 242
mSopInstanceUID
gdcm::BaseQuery, 237
mspFile
gdcm::StreamImageWriter, 1176
mStudy

gdcm::BaseRootQuery, 242
MSType
gdcm::MediaStorage, 807
mTransitions
gdcm::network::ULConnectionManager, 1373
MultiframeGrayscaleByteSecondaryCaptureImageStorage
gdcm::MediaStorage, 807
MultiframeGrayscaleWordSecondaryCaptureImageStorage
gdcm::MediaStorage, 807
MultiframeSingleBitSecondaryCaptureImageStorage
gdcm::MediaStorage, 807
MultiframeTrueColorSecondaryCaptureImageStorage
gdcm::MediaStorage, 807
mWriter
gdcm::StreamImageWriter, 1177
mXMax
gdcm::StreamImageWriter, 1177
mXMin
gdcm::StreamImageWriter, 1177
mYMax
gdcm::StreamImageWriter, 1177
mYMin
gdcm::StreamImageWriter, 1177
mZMax
gdcm::StreamImageWriter, 1177
mZMin
gdcm::StreamImageWriter, 1177

N_ACTION_RQ
gdcm::network::DIMSE, 442
N_ACTION_RSP
gdcm::network::DIMSE, 442
N_CREATE_RQ
gdcm::network::DIMSE, 442
N_CREATE_RSP
gdcm::network::DIMSE, 442
N_DELETE_RQ
gdcm::network::DIMSE, 442
N_DELETE_RSP
gdcm::network::DIMSE, 442
N_EVENT_REPORT_RQ
gdcm::network::DIMSE, 442
N_EVENT_REPORT_RSP
gdcm::network::DIMSE, 442
N_GET_RQ
gdcm::network::DIMSE, 442
N_GET_RSP
gdcm::network::DIMSE, 442
N_SET_RQ
gdcm::network::DIMSE, 442
N_SET_RSP
gdcm::network::DIMSE, 442
NAction
gdcm::NormalizedNetworkFunctions, 875
Name
gdcm::ModuleEntry, 841
NameField
gdcm::CSAElement, 349
gdcm::PDBElement, 919
NCreate
gdcm::NormalizedNetworkFunctions, 876
NDelete
gdcm::NormalizedNetworkFunctions, 876
NeedByteSwap
gdcm::Bitmap, 263
gdcm::ImageCodec, 669
NeedOverlayCleanup
gdcm::ImageCodec, 669
NegociatedType
gdcm::TransferSyntax, 1282
NestedMacroEntries
gdcm, 87
NestedModuleEntries
gdcm::NestedModuleEntries, 865
NEventReport
gdcm::NormalizedNetworkFunctions, 876
New
gdcm::Anonymizer, 141
gdcm::Cleaner, 302
gdcm::FileChangeTransferSyntax, 561
gdcm::FileStreamer, 598
gdcm::MemberCommand< T >, 818
gdcm::Scanner, 1064
gdcm::Scanner2, 1075
gdcm::SequenceOfFragments, 1104
gdcm::SequenceOfItems, 1113
gdcm::ServiceClassUser, 1127
gdcm::SimpleMemberCommand< T >, 1137
gdcm::StrictScanner, 1185
gdcm::StrictScanner2, 1196
vtkGDCMImageReader, 1433
vtkGDCMImageReader2, 1448
vtkGDCMImageWriter, 1462
vtkGDCMMedicalImageProperties, 1469
vtkGDCMPolyDataReader, 1472
vtkGDCMPolyDataWriter, 1477
vtkGDCMTesting, 1482
vtkGDCMThreadedImageReader, 1487
vtkGDCMThreadedImageReader2, 1491
vtkImageColorViewer, 1501
vtkImageMapToColors16, 1510
vtkImageMapToWindowLevelColors2, 1516
vtkImagePlanarComponentsToComponents, 1520
vtkImageRGBToYBR, 1522
vtkImageYBRToRGB, 1524
vtkLookupTable16, 1527
vtkRTStructSetProperties, 1534
NGet

gdcm::NormalizedNetworkFunctions, 876
NO
gdcm::Surface, 1213
NO_COMPRESSION
vtkGDCMImageWriter, 1461
NoElementsError
gdcm::Parser, 911
NoError
gdcm::Parser, 911
NOMAGIC
gdcm::CSAHeader, 352
NoMemoryError
gdcm::Parser, 911
NoObject
gdcm::MediaStorage, 809
NoOfItemsField
gdcm::CSAElement, 349
Norm
gdcm::DirectionCosines, 445
Normal
gdcm::MrProtocol::Slice, 1142
Normalize
gdcm::DirectionCosines, 445
NSet
gdcm::NormalizedNetworkFunctions, 876
NuclearMedicineImageStorage
gdcm::MediaStorage, 808
NuclearMedicineImageStorageRetired
gdcm::MediaStorage, 807
NumberOfDimensions
gdcm::Bitmap, 263
gdcm::ImageCodec, 669
NumberOfIconImages
vtkGDCMImageReader, 1443
vtkGDCMImageReader2, 1458
NumberOfOverlays
vtkGDCMImageReader, 1443
vtkGDCMImageReader2, 1458
NumberOfSurfaces
gdcm::SurfaceWriter, 1235

OB
gdcm::VR, 1417
OB_OW
gdcm::VR, 1417
Object
gdcm::Object, 881
ObjectEnd
gdcm::MediaStorage, 810
ObjectType
gdcm::MediaStorage, 809
OBLIQUE
gdcm::Orientation, 895
OD
gdcm::VR, 1417
OF
gdcm::VR, 1417
Ofstream
gdcm::Writer, 1549
OL
gdcm::VR, 1417
OnlyUUID
gdcm::XMLPrinter, 1554
OPENSSL
gdcm::CryptoFactory, 337
OpenSSLCryptoFactory
gdcm::OpenSSLCryptoFactory, 884
OpenSSLCryptographicMessageSyntax
gdcm::OpenSSLCryptographicMessageSyntax, 887
OPENSSLP7
gdcm::CryptoFactory, 337
OpenSSLP7CryptoFactory
gdcm::OpenSSLP7CryptoFactory, 890
OpenSSLP7CryptographicMessageSyntax
gdcm::OpenSSLP7CryptographicMessageSyntax, 892
operator const char *
gdcm::ConstCharWrapper, 332
gdcm::Filename, 584
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1201
operator const double *
gdcm::DirectionCosines, 446
operator const std::vector< char > &
gdcm::ByteValue, 282
operator MSType
gdcm::MediaStorage, 812
operator ObjectType *
gdcm::SmartPointer< ObjectType >, 1145
operator PIType
gdcm::PhotometricInterpretation, 938
operator ScalarType
gdcm::PixelFormat, 945
operator SwapCode::SwapCodeType
gdcm::SwapCode, 1237
operator TSType
gdcm::TransferSyntax, 1285
gdcm::UIDs, 1313
operator TypeType
gdcm::Type, 1292
operator uint32_t
gdcm::VL, 1407
operator UsageType
gdcm::Usage, 1390
operator VMType
gdcm::VM, 1413
operator VRType
gdcm::VR, 1421

operator!=
gdcm, 92
gdcm::Attribute< Group, Element, TVR, TVM >, 164
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 173
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 179
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 185
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 192
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 199
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 205
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 212
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 218
gdcm::CodeString, 317
gdcm::PixelFormat, 945
gdcm::PrivateTag, 1002
gdcm::Tag, 1261
operator<
gdcm::Attribute< Group, Element, TVR, TVM >, 164
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 173
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 179
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 185
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 192
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 200
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 205
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 212
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 218
gdcm::CSAElement, 346
gdcm::CSAHeaderDictEntry, 360
gdcm::DataElement, 378
gdcm::DPath, 454
gdcm::PrivateTag, 1003
gdcm::Tag, 1261
operator<<
gdcm, 92–101
gdcm::BasicOffsetTable, 249
gdcm::CodeString, 317
gdcm::CommandDataSet, 325
gdcm::CSAElement, 348
gdcm::CSAHeader, 355
gdcm::CSAHeaderDict, 358
gdcm::CSAHeaderDictEntry, 361
gdcm::DataElement, 383
gdcm::DataSet, 401
gdcm::Dict, 425
gdcm::DictEntry, 433
gdcm::Dicts, 440
gdcm::Directory, 450
gdcm::DPath, 454
gdcm::File, 553
gdcm::FileMetaInformation, 581
gdcm::FileSet, 594
gdcm::Fragment, 616
gdcm::Global, 620
gdcm::GroupDict, 623
gdcm::IOD, 711
gdcm::IODEntry, 714
gdcm::IODs, 716
gdcm::Item, 728
gdcm::Macro, 797
gdcm::Macros, 799
gdcm::MediaStorage, 813
gdcm::Module, 837
gdcm::ModuleEntry, 841
gdcm::Modules, 843
gdcm::MrProtocol, 854
gdcm::NestedModuleEntries, 866
gdcm::Object, 882
gdcm::Orientation, 897
gdcm::PDBElement, 919
gdcm::PDBHeader, 922
gdcm::PhotometricInterpretation, 939
gdcm::PixelFormat, 947
gdcm::Preamble, 975
gdcm::PrivateDict, 998
gdcm::PrivateTag, 1004
gdcm::Scanner, 1066
gdcm::Scanner2, 1076
gdcm::Sorter, 1154
gdcm::StrictScanner, 1187
gdcm::StrictScanner2, 1197
gdcm::SwapCode, 1238
gdcm::Table, 1249
gdcm::Tag, 1265
gdcm::TransferSyntax, 1286
gdcm::Type, 1292
gdcm::UI, 1293
gdcm::Usage, 1390
gdcm::Version, 1404
gdcm::VL, 1409
gdcm::VM, 1414
gdcm::VR, 1421
operator<=
gdcm::Tag, 1261

operator>>
gdcm, 101
gdcm::Tag, 1265
operator()
gdcm::DataSet, 397
gdcm::Scanner2::Itstr, 793
gdcm::Scanner::Itstr, 793
gdcm::StrictScanner2::Itstr, 794
gdcm::StrictScanner::Itstr, 794
operator++
gdcm::VL, 1407
operator+=
gdcm::VL, 1407
operator->
gdcm::SmartPointer< ObjectType >, 1146
operator=
gdcm::AnonymizeEvent, 134
gdcm::ASN1, 156
gdcm::Base64, 225
gdcm::BoxRegion, 271
gdcm::ByteSwapFilter, 276
gdcm::ByteValue, 282
gdcm::Command, 320
gdcm::CryptographicMessageSyntax, 340
gdcm::CSAElement, 346
gdcm::CSAHeaderDict, 357
gdcm::DataElement, 379
gdcm::DataEvent, 388
gdcm::DataSet, 397
gdcm::DataSetEvent, 405
gdcm::Defs, 412
gdcm::Dict, 424
gdcm::Dicts, 440
gdcm::Element< TVR, VM::VM1_n >, 473
gdcm::Event, 536
gdcm::FileMetaInformation, 579
gdcm::FileNameEvent, 588
gdcm::Global, 620
gdcm::MemberCommand< T >, 818
gdcm::network::ULAction, 1316
gdcm::network::ULConnection, 1360
gdcm::network::UserInformation, 1393
gdcm::Object, 882
gdcm::Overlay, 904
gdcm::ParseException, 909
gdcm::Preamble, 974
gdcm::PrivateTag, 1003
gdcm::ProgressEvent, 1007
gdcm::SequenceOfItems, 1113
gdcm::ServiceClassUser, 1127
gdcm::SHA1, 1132
gdcm::SimpleMemberCommand< T >, 1137
gdcm::SimpleSubjectWatcher, 1139
gdcm::SmartPointer< ObjectType >, 1146
gdcm::Table, 1249
gdcm::Tag, 1261
operator==
gdcm, 101
gdcm::Attribute< Group, Element, TVR, TVM >, 164
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 173
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 179
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 185
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 192
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 200
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 205
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 212
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 218
gdcm::ByteValue, 282
gdcm::CodeString, 317
gdcm::CSAElement, 347
gdcm::DataElement, 379
gdcm::network::AbstractSyntax, 130
gdcm::network::PresentationContextRQ, 987
gdcm::network::TransferSyntaxSub, 1287
gdcm::PDBElement, 918
gdcm::PixelFormat, 945
gdcm::PresentationContext, 978
gdcm::PrivateTag, 1003
gdcm::SequenceOfFragments, 1104
gdcm::SequenceOfItems, 1113
gdcm::Tag, 1262
gdcm::Value, 1400
operator[]
gdcm::Attribute< Group, Element, TVR, TVM >, 164, 165
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 173
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 180
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 185
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 192
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 200
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 206
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 212
gdcm::Attribute< Group, Element, TVR, VM::VM3_n

>, 218
gdcm::DataSet, 398
gdcm::Element< TVR, TVM >, 462
gdcm::Element< TVR, VM::VM1_2 >, 468
gdcm::Element< TVR, VM::VM1_n >, 473
gdcm::Element< TVR, VM::VM2_2n >, 480
gdcm::Element< TVR, VM::VM2_n >, 486
gdcm::Element< TVR, VM::VM3_3n >, 492
gdcm::Element< TVR, VM::VM3_4 >, 498
gdcm::Element< TVR, VM::VM3_n >, 504
gdcm::Element< VR::AS, VM::VM5 >, 508
gdcm::Element< VR::OB, VM::VM1 >, 512
gdcm::Element< VR::OW, VM::VM1 >, 517
gdcm::Tag, 1262
operator*
gdcm::SmartPointer< ObjectType >, 1146
OphthalmicPhotography16BitImageStorage
gdcm::MediaStorage, 809
OphthalmicPhotography8BitImageStorage
gdcm::MediaStorage, 809
OphthalmicTomographyImageStorage
gdcm::MediaStorage, 809
OrderFileList
gdcm::SerieHelper, 1119
Orientation
gdcm::Orientation, 895
OrientationType
gdcm::Orientation, 895
Output
gdcm::BitmapToBitmapFilter, 266
OutputFormat
vtkImageMapToColors16, 1514
OutputTypes
gdcm::DictConverter, 427
OV
gdcm::VR, 1417
Overlay
gdcm::Overlay, 900, 901
OverlayImageActor
vtkImageColorViewer, 1507
Overlays
gdcm::Pixmap, 955
OverlayType
gdcm::Overlay, 900
OW
gdcm::VR, 1417

Pack
gdcm::Unpacker12Bits, 1387
Padding
gdcm::ApplicationEntity, 149
gdcm::PersonName, 930
PALETTE_COLOR
gdcm::PhotometricInterpretation, 937
Parent
gdcm::Element< TVR, VM::VM1_2 >, 467
gdcm::Element< TVR, VM::VM2_2n >, 479
gdcm::Element< TVR, VM::VM2_n >, 485
gdcm::Element< TVR, VM::VM3_3n >, 491
gdcm::Element< TVR, VM::VM3_4 >, 497
gdcm::Element< TVR, VM::VM3_n >, 503
Parse
gdcm::Parser, 912
ParseBuffer
gdcm::Parser, 912
ParseCertificateFile
gdcm::CAPICryptographicMessageSyntax, 289
gdcm::CryptographicMessageSyntax, 341
gdcm::OpenSSLCryptographicMessageSyntax, 887
gdcm::OpenSSLP7CryptographicMessageSyntax, 893
ParseDateTime
gdcm::System, 1245
ParseDump
gdcm::ASN1, 156
ParseDumpFile
gdcm::ASN1, 156
ParseException
gdcm::ParseException, 908
ParseKeyFile
gdcm::CAPICryptographicMessageSyntax, 289
gdcm::CryptographicMessageSyntax, 341
gdcm::OpenSSLCryptographicMessageSyntax, 888
gdcm::OpenSSLP7CryptographicMessageSyntax, 893
Parser
gdcm::Parser, 911
PassAlphaToOutput
vtkImageMapToColors16, 1514
Patient
gdcm::Patient, 913
PDataTFPDU
gdcm::network::PDataTFPDU, 915
PDBElement
gdcm::PDBElement, 918
PDBHeader
gdcm::PDBHeader, 921
PDF
gdcm::MediaStorage, 810
PDFCodec
gdcm::PDFCodec, 924
PerformAction
gdcm::network::ULAction, 1316
gdcm::network::ULActionAA1, 1318
gdcm::network::ULActionAA2, 1319
gdcm::network::ULActionAA3, 1320
gdcm::network::ULActionAA4, 1322
gdcm::network::ULActionAA5, 1323

gdcm::network::ULActionAA6, 1324
gdcm::network::ULActionAA7, 1326
gdcm::network::ULActionAA8, 1327
gdcm::network::ULActionAE1, 1328
gdcm::network::ULActionAE2, 1330
gdcm::network::ULActionAE3, 1331
gdcm::network::ULActionAE4, 1332
gdcm::network::ULActionAE5, 1334
gdcm::network::ULActionAE6, 1335
gdcm::network::ULActionAE7, 1336
gdcm::network::ULActionAE8, 1338
gdcm::network::ULActionAR1, 1339
gdcm::network::ULActionAR10, 1340
gdcm::network::ULActionAR2, 1342
gdcm::network::ULActionAR3, 1343
gdcm::network::ULActionAR4, 1344
gdcm::network::ULActionAR5, 1346
gdcm::network::ULActionAR6, 1347
gdcm::network::ULActionAR7, 1348
gdcm::network::ULActionAR8, 1350
gdcm::network::ULActionAR9, 1351
gdcm::network::ULActionDT1, 1352
gdcm::network::ULActionDT2, 1354
PETImageStorage
gdcm::MediaStorage, 808
PF
gdcm::Bitmap, 263
gdcm::ImageCodec, 669
PGXCodec
gdcm::PGXCodec, 934
PHILIPS
gdcm::Dicts, 438
Philips3D
gdcm::MediaStorage, 808
PhilipsPrivateMRSyntheticImageStorage
gdcm::MediaStorage, 808
PhotometricInterpretation
gdcm::PhotometricInterpretation, 937
PI
gdcm::Bitmap, 263
gdcm::ImageCodec, 670
PI_END
gdcm::PhotometricInterpretation, 937
PIType
gdcm::PhotometricInterpretation, 936
PixelData
gdcm::Bitmap, 264
gdcm::PixmapReader, 959
gdcm::PixmapWriter, 967
PixelFormat
gdcm::PixelFormat, 942
Pixmap
gdcm::Pixmap, 952
PixmapReader
gdcm::Bitmap, 262
gdcm::PixmapReader, 958
PixmapToPixmapFilter
gdcm::PixmapToPixmapFilter, 961
PixmapWriter
gdcm::PixmapWriter, 965
PlanarConfiguration
gdcm::Bitmap, 264
gdcm::ImageCodec, 670
vtkGDCMImageReader, 1443
vtkGDCMImageReader2, 1458
PMS
gdcm::EquipmentManufacturer, 533
PN
gdcm::VR, 1417
PNComp
gdcm, 87
PNMCodec
gdcm::PNMCodec, 970
pointer
gdcm::CodeString, 315
gdcm::LO, 783
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1200
POINTS
gdcm::Surface, 1214
Position
gdcm::MrProtocol::Slice, 1142
Preamble
gdcm::Preamble, 973
PrepareWrite
gdcm::PixmapWriter, 966
gdcm::SegmentWriter, 1097
gdcm::SurfaceWriter, 1235
PrepareWritePointMacro
gdcm::SurfaceWriter, 1235
Prepend
gdcm::Global, 620
PresentationContext
gdcm::PresentationContext, 977
PresentationContextAC
gdcm::network::PresentationContextAC, 980
PresentationContextArrayType
gdcm::network::AAssociateRQPDU, 124
gdcm::PresentationContextGenerator, 983
PresentationContextGenerator
gdcm::PresentationContextGenerator, 983
PresentationContextRQ
gdcm::network::PresentationContextRQ, 986
PresentationDataValue
gdcm::network::PresentationDataValue, 989
Preserve
gdcm::Cleaner, 303
PrettyPrintOff

gdcm::JSON, 776
PrettyPrintOn
gdcm::JSON, 776
PrimitiveData
gdcm::MeshPrimitive, 825
PrimitivesData
gdcm::MeshPrimitive, 822
PrimitiveType
gdcm::MeshPrimitive, 825
Print
gdcm::ApplicationEntity, 148
gdcm::Attribute< Group, Element, TVR, TVM >, 165
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 174
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 180
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 185
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 193
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 200
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 206
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 212
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 218
gdcm::BaseQuery, 235
gdcm::Bitmap, 257
gdcm::BoxRegion, 271
gdcm::ByteValue, 282
gdcm::CSAHeader, 354
gdcm::Curve, 369
gdcm::DataSet, 398
gdcm::DictPrinter, 436
gdcm::DirectionCosines, 446
gdcm::Directory, 449
gdcm::DPath, 454
gdcm::Element< TVR, TVM >, 462
gdcm::Element< TVR, VM::VM1_2 >, 468
gdcm::Element< TVR, VM::VM1_n >, 473
gdcm::Element< TVR, VM::VM2_2n >, 480
gdcm::Element< TVR, VM::VM2_n >, 486
gdcm::Element< TVR, VM::VM3_3n >, 492
gdcm::Element< TVR, VM::VM3_4 >, 498
gdcm::Element< TVR, VM::VM3_n >, 504
gdcm::Element< VR::AS, VM::VM5 >, 508
gdcm::Element< VR::OB, VM::VM1 >, 513
gdcm::Element< VR::OW, VM::VM1 >, 518
gdcm::Event, 536
gdcm::Image, 637
gdcm::LookupTable, 791
gdcm::MEC_MR3, 803
gdcm::MrProtocol, 853
gdcm::network::AAbortPDU, 114
gdcm::network::AAssociateACPDU, 118
gdcm::network::AAssociateRJPDU, 121
gdcm::network::AAssociateRQPDU, 126
gdcm::network::AbstractSyntax, 130
gdcm::network::ApplicationContext, 146
gdcm::network::AReleaseRPPDU, 150
gdcm::network::AReleaseRQPDU, 153
gdcm::network::AsynchronousOperationsWindowSub, 158
gdcm::network::BasePDU, 231
gdcm::network::ImplementationClassUIDSub, 700
gdcm::network::ImplementationVersionNameSub, 702
gdcm::network::MaximumLengthSub, 800
gdcm::network::PDataTFPDU, 915
gdcm::network::PresentationContextAC, 980
gdcm::network::PresentationContextRQ, 987
gdcm::network::PresentationDataValue, 990
gdcm::network::RoleSelectionSub, 1056
gdcm::network::ServiceClassApplicationInformation, 1122
gdcm::network::SOPClassExtendedNegociationSub, 1147
gdcm::network::TransferSyntaxSub, 1287
gdcm::network::UserInformation, 1394
gdcm::Object, 882
gdcm::Orientation, 896
gdcm::Overlay, 904
gdcm::PDBHeader, 922
gdcm::PersonName, 929
gdcm::PixelFormat, 945
gdcm::Pixmap, 953
gdcm::Preamble, 974
gdcm::PresentationContext, 978
gdcm::Printer, 994
gdcm::Region, 1043
gdcm::Scanner, 1065
gdcm::Scanner2, 1075
gdcm::SegmentedPaletteColorLookupTable, 1089
gdcm::SequenceOfFragments, 1104
gdcm::SequenceOfItems, 1113
gdcm::Sorter, 1152
gdcm::StrictScanner, 1186
gdcm::StrictScanner2, 1196
gdcm::TagPath, 1267
gdcm::Testing, 1274
gdcm::Version, 1404
gdcm::XMLPrinter, 1554
PrintASCII
gdcm::ByteValue, 283
PrintASCIIXML
gdcm::ByteValue, 283

PrintAsContinuousString
gdcm::Tag, 1262
PrintAsContinuousUpperCaseString
gdcm::Tag, 1262
PrintAsPipeSeparatedString
gdcm::Tag, 1262
PrintDataElement
gdcm::Printer, 994
gdcm::XMLPrinter, 1555
PrintDataElement2
gdcm::DictPrinter, 436
PrintDataSet
gdcm::Printer, 995
gdcm::XMLPrinter, 1555
PrintDataSet2
gdcm::DictPrinter, 436
Printer
gdcm::Printer, 994
PrintGroupLength
gdcm::ByteValue, 283
PrintHex
gdcm::ByteValue, 283
PrintHexXML
gdcm::ByteValue, 283
PrintPNXML
gdcm::ByteValue, 283
PrintSelf
vtkGDCMImageReader, 1434
vtkGDCMImageReader2, 1448
vtkGDCMImageWriter, 1462
vtkGDCMMedicalImageProperties, 1469
vtkGDCMPolyDataReader, 1472
vtkGDCMPolyDataWriter, 1477
vtkGDCMTesting, 1483
vtkGDCMThreadedImageReader, 1487
vtkGDCMThreadedImageReader2, 1491
vtkImageColorViewer, 1501
vtkImageMapToColors16, 1510
vtkImageMapToWindowLevelColors2, 1516
vtkImagePlanarComponentsToComponents, 1520
vtkImageRGBToYBR, 1522
vtkImageYBRToRGB, 1524
vtkLookupTable16, 1527
vtkRTStructSetProperties, 1534
PrintSQ
gdcm::Printer, 995
gdcm::XMLPrinter, 1555
PrintStyle
gdcm::Printer, 996
gdcm::XMLPrinter, 1556
PrintStyles
gdcm::Printer, 994
gdcm::XMLPrinter, 1554
PrintTable
gdcm::network::ULTransitionTable, 1376
gdcm::Scanner, 1065
gdcm::Scanner2, 1075
gdcm::StrictScanner, 1186
gdcm::StrictScanner2, 1196
PrintXML
gdcm::PrivateDict, 998
PrivateBegin
gdcm::Scanner2, 1075
gdcm::StrictScanner2, 1196
PrivateConstIterator
gdcm::Scanner2, 1070
gdcm::StrictScanner2, 1191
PrivateDict
gdcm::PrivateDict, 997
PrivateEnd
gdcm::Scanner2, 1076
gdcm::StrictScanner2, 1197
PrivateMappingType
gdcm::Scanner2, 1070
gdcm::StrictScanner2, 1191
PrivateTag
gdcm::PrivateTag, 1002
PrivateTagToValue
gdcm::Scanner2, 1070
gdcm::StrictScanner2, 1191
PrivateTagToValueValueType
gdcm::Scanner2, 1070
gdcm::StrictScanner2, 1191
Process
gdcm::Parser, 912
ProcessDataSet
gdcm::FileExplicitFilter, 571
ProcessPrivateTag
gdcm::Scanner2, 1076
gdcm::StrictScanner2, 1197
ProcessPublicTag
gdcm::Scanner, 1065
gdcm::Scanner2, 1076
gdcm::StrictScanner, 1186
gdcm::StrictScanner2, 1197
ProcessRequest
vtkGDCMImageReader2, 1449
ProduceCharacterSetDataElement
gdcm::QueryFactory, 1017
ProduceQuery
gdcm::QueryFactory, 1018
ProgressEvent
gdcm::ProgressEvent, 1006
PropertyCategory
gdcm::Segment, 1084
PropertyType
gdcm::Segment, 1084
PropertyTypeModifiers

gdcm::Segment, 1084
PublicConstIterator
gdcm::Scanner2, 1070
gdcm::StrictScanner2, 1191
PublicMappingType
gdcm::Scanner2, 1070
gdcm::StrictScanner2, 1191
PublicTagToValue
gdcm::Scanner2, 1070
gdcm::StrictScanner2, 1191
PublicTagToValueValueType
gdcm::Scanner2, 1070
gdcm::StrictScanner2, 1191
Push
gdcm::TagPath, 1267, 1268
PushBackFile
vtkGDCMMedicalImageProperties, 1469
PVRGCodec
gdcm::PVRGCodec, 1011
Python Directory Reference, 67
PythonFilter
gdcm::PythonFilter, 1013

Quality
gdcm::JPEGCodec, 762
QueryFactory
gdcm::BaseQuery, 236
gdcm::BaseRootQuery, 241
gdcm::FindPatientRootQuery, 607
gdcm::FindStudyRootQuery, 611
gdcm::ModalityPerformedProcedureStepCreateQuery, 829
gdcm::ModalityPerformedProcedureStepSetQuery, 832
gdcm::MovePatientRootQuery, 847
gdcm::MoveStudyRootQuery, 851
gdcm::WLMFindQuery, 1544

RAWCodec
gdcm::RAWCodec, 1031
RawDataStorage
gdcm::MediaStorage, 808
Read
gdcm::BasicOffsetTable, 249
gdcm::ByteValue, 283, 284
gdcm::CommandDataSet, 324
gdcm::CP246ExplicitDataElement, 335
gdcm::DataElement, 379
gdcm::DataSet, 398
gdcm::Element< TVR, TVM >, 462
gdcm::Element< TVR, VM::VM1_2 >, 468
gdcm::Element< TVR, VM::VM1_n >, 473
gdcm::Element< TVR, VM::VM2_2n >, 480
gdcm::Element< TVR, VM::VM2_n >, 486
gdcm::Element< TVR, VM::VM3_3n >, 492
gdcm::Element< TVR, VM::VM3_4 >, 498
gdcm::Element< TVR, VM::VM3_n >, 504
gdcm::Element< VR::AS, VM::VM5 >, 508
gdcm::Element< VR::OB, VM::VM1 >, 513
gdcm::Element< VR::OW, VM::VM1 >, 518
gdcm::EncodingImplementation< VR::VRASCII >, 527
gdcm::EncodingImplementation< VR::VRBINARY >, 529
gdcm::ExplicitDataElement, 543
gdcm::ExplicitImplicitDataElement, 547
gdcm::File, 552
gdcm::FileMetaInformation, 580
gdcm::Fragment, 615
gdcm::ImageReader, 686
gdcm::ImageRegionReader, 691
gdcm::ImplicitDataElement, 706
gdcm::Item, 727
gdcm::network::AAbortPDU, 114
gdcm::network::AAssociateACPDU, 118
gdcm::network::AAssociateRJPDU, 121
gdcm::network::AAssociateRQPDU, 126
gdcm::network::AbstractSyntax, 130
gdcm::network::ApplicationContext, 146
gdcm::network::AReleaseRPPDU, 151
gdcm::network::AReleaseRQPDU, 153
gdcm::network::AsynchronousOperationsWindowSub, 158
gdcm::network::BasePDU, 231
gdcm::network::ImplementationClassUIDSub, 700
gdcm::network::ImplementationVersionNameSub, 702
gdcm::network::MaximumLengthSub, 800
gdcm::network::PDataTFPDU, 916
gdcm::network::PresentationContextAC, 981
gdcm::network::PresentationContextRQ, 987
gdcm::network::PresentationDataValue, 990
gdcm::network::RoleSelectionSub, 1056
gdcm::network::ServiceClassApplicationInformation, 1122
gdcm::network::SOPClassExtendedNegociationSub, 1147
gdcm::network::TransferSyntaxSub, 1287
gdcm::network::UserInformation, 1394
gdcm::PGXCodec, 935
gdcm::PixmapReader, 958
gdcm::PNMCodec, 971
gdcm::Preamble, 974
gdcm::Reader, 1037
gdcm::SegmentReader, 1092
gdcm::SequenceOfFragments, 1105
gdcm::SequenceOfItems, 1113
gdcm::StreamImageReader, 1170
gdcm::SurfaceReader, 1229

gdcm::TableReader, 1253
gdcm::Tag, 1263
gdcm::UNExplicitDataElement, 1382
gdcm::UNExplicitImplicitDataElement, 1386
gdcm::ValueIO< TDE, TSwap, TType >, 1401
gdcm::VL, 1408
gdcm::VR, 1421
gdcm::VR16ExplicitDataElement, 1424
gdcm::VRVLSize< 0 >, 1427
gdcm::VRVLSize< 1 >, 1429
Read16
gdcm::VL, 1408
ReadACRNEMAImage
gdcm::ImageReader, 686
gdcm::PixmapReader, 958
ReadBacktrack
gdcm::Fragment, 615
ReadCompat
gdcm::FileMetaInformation, 580
ReadCompatInternal
gdcm::FileMetaInformation, 580
ReadComputeLength
gdcm::EncodingImplementation< VR::VRASCII >, 527
gdcm::EncodingImplementation< VR::VRBINARY >, 529
ReadDataSet
gdcm::Reader, 1037
Reader
gdcm::Reader, 1036
ReadFiles
vtkGDCMThreadedImageReader, 1487
ReadFromCommaSeparatedString
gdcm::PrivateTag, 1003
gdcm::Tag, 1263
ReadFromContinuousString
gdcm::Tag, 1263
ReadFromPipeSeparatedString
gdcm::Tag, 1263
ReadImage
gdcm::ImageReader, 686
gdcm::PixmapReader, 959
ReadImageInformation
gdcm::StreamImageReader, 1170
ReadImageInternal
gdcm::PixmapReader, 959
ReadInformation
gdcm::ImageRegionReader, 691
ReadInto
gdcm::network::PDataTFPDU, 916
gdcm::network::PresentationDataValue, 990
ReadIntoBuffer
gdcm::ImageRegionReader, 691
README.txt, 1561
ReadMetaInformation
gdcm::Reader, 1037
ReadNested
gdcm::DataSet, 398
ReadNoSwap
gdcm::EncodingImplementation< VR::VRASCII >, 527
gdcm::EncodingImplementation< VR::VRBINARY >, 529
ReadOrSkip
gdcm::DataElement, 379
ReadPointMacro
gdcm::SurfaceReader, 1230
ReadPreamble
gdcm::Reader, 1037
ReadPreValue
gdcm::CP246ExplicitDataElement, 335
gdcm::DataElement, 379
gdcm::ExplicitDataElement, 543
gdcm::ExplicitImplicitDataElement, 547
gdcm::Fragment, 615
gdcm::ImplicitDataElement, 706
gdcm::SequenceOfFragments, 1105
gdcm::UNExplicitDataElement, 1382
gdcm::UNExplicitImplicitDataElement, 1386
gdcm::VR16ExplicitDataElement, 1425
ReadSegment
gdcm::SegmentReader, 1093
ReadSegments
gdcm::SegmentReader, 1093
ReadSelectedPrivateTags
gdcm::DataSet, 398
gdcm::Reader, 1038
ReadSelectedPrivateTagsWithLength
gdcm::DataSet, 398
ReadSelectedTags
gdcm::DataSet, 399
gdcm::Reader, 1038
ReadSelectedTagsWithLength
gdcm::DataSet, 399
ReadSurface
gdcm::SurfaceReader, 1230
ReadSurfaces
gdcm::SurfaceReader, 1230
Readuint16
gdcm::DictConverter, 428
ReadUpToTag
gdcm::DataSet, 399
gdcm::Reader, 1038
ReadUpToTagWithLength
gdcm::DataSet, 399
ReadValue
gdcm::CP246ExplicitDataElement, 335
gdcm::DataElement, 380

gdcm::ExplicitDataElement, 544
gdcm::ExplicitImplicitDataElement, 548
gdcm::Fragment, 616
gdcm::ImplicitDataElement, 706
gdcm::SequenceOfFragments, 1105
gdcm::UNExplicitDataElement, 1382
gdcm::UNExplicitImplicitDataElement, 1386
gdcm::VR16ExplicitDataElement, 1425
ReadValueWithLength
gdcm::DataElement, 380
gdcm::ImplicitDataElement, 706
ReadVM
gdcm::DictConverter, 428
ReadVR
gdcm::DictConverter, 428
ReadWithLength
gdcm::CP246ExplicitDataElement, 335
gdcm::DataElement, 380
gdcm::DataSet, 399
gdcm::ExplicitDataElement, 544
gdcm::ExplicitImplicitDataElement, 548
gdcm::ImplicitDataElement, 706
gdcm::UNExplicitDataElement, 1382
gdcm::VR16ExplicitDataElement, 1425
RealWorldValueIntercept
gdcm::RealWorldValueMappingContent, 1041
RealWorldValueSlope
gdcm::RealWorldValueMappingContent, 1041
RecommendedDisplayCIELabToRGB
gdcm::SurfaceHelper, 1224
RecurseDataSet
gdcm::Anonymizer, 141
RED
gdcm::LookupTable, 787
red
gdcm::terminal, 110
reference
gdcm::CodeString, 315
gdcm::LO, 783
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1200
ReferenceFrameOfReferenceUID
vtkRTStructSetProperties, 1538
ReferenceSeriesInstanceUID
vtkRTStructSetProperties, 1538
Region
gdcm::Region, 1042
Register
gdcm::Object, 882
Remove
gdcm::Anonymizer, 141
gdcm::Cleaner, 303
gdcm::DataSet, 400
gdcm::FileAnonymizer, 556
gdcm::Preamble, 975
RemoveAllGroupLength
gdcm::Cleaner, 303
RemoveAllIllegal
gdcm::Cleaner, 304
RemoveAllMissingPrivateCreator
gdcm::Cleaner, 304
RemoveAllObservers
gdcm::Subject, 1210
RemoveDictEntry
gdcm::PrivateDict, 998
RemoveFile
gdcm::System, 1245
RemoveGroupLength
gdcm::Anonymizer, 141
RemoveItemByIndex
gdcm::SequenceOfItems, 1114
RemoveMissingPrivateCreator
gdcm::Cleaner, 304
RemoveObserver
gdcm::Subject, 1210
RemoveOverlay
gdcm::Pixmap, 953
RemovePrivateTags
gdcm::Anonymizer, 142
RemoveRetired
gdcm::Anonymizer, 142
Render
vtkImageColorViewer, 1501
Renderer
vtkImageColorViewer, 1507
RenderWindow
vtkImageColorViewer, 1507
Replace
gdcm::Anonymizer, 142, 143
gdcm::CommandDataSet, 324
gdcm::DataSet, 400
gdcm::FileAnonymizer, 557
gdcm::FileMetaInformation, 580
ReplaceCodeMeaning
gdcm::Cleaner, 304
ReplaceEmpty
gdcm::DataSet, 400
RequestData
vtkGDCMImageReader2, 1449
vtkGDCMPolyDataReader, 1473
vtkImageMapToColors16, 1510
vtkImageMapToWindowLevelColors2, 1516
vtkImagePlanarComponentsToComponents, 1520
RequestData_HemodynamicWaveformStorage
vtkGDCMPolyDataReader, 1473
RequestData_RTStructureSetStorage
vtkGDCMPolyDataReader, 1473
RequestDataCompat

vtkGDCMImageReader, 1434
vtkGDCMImageReader2, 1449
vtkGDCMThreadedImageReader, 1487
RequestInformation
vtkGDCMImageReader2, 1449
vtkGDCMPolyDataReader, 1473
vtkGDCMThreadedImageReader2, 1491
vtkImageMapToColors16, 1511
vtkImageMapToWindowLevelColors2, 1516
RequestInformation_HemodynamicWaveformStorage
vtkGDCMPolyDataReader, 1473
RequestInformation_RTStructureSetStorage
vtkGDCMPolyDataReader, 1473
RequestInformationCompat
vtkGDCMImageReader, 1434
vtkGDCMImageReader2, 1449
RequestPaddedCompositePixelCode
gdcm::ImageCodec, 670
RequestPlanarConfiguration
gdcm::ImageCodec, 670
Rescale
gdcm::Rescaler, 1046
RescaleFunctionIntoBestFit
gdcm::Rescaler, 1046
Rescaler
gdcm::Rescaler, 1045
ReserveDataElement
gdcm::FileStreamer, 599
ReserveGroupDataElement
gdcm::FileStreamer, 599
reset
gdcm::terminal, 110
ResetHandledDataSet
gdcm::network::ULConnectionCallback, 1363
RetrieveSOPInstanceUIDFromIndex
gdcm::DirectoryHelper, 452
RetrieveSOPInstanceUIDFromZPosition
gdcm::DirectoryHelper, 452
reverse
gdcm::terminal, 110
reverse_iterator
gdcm::CodeString, 315
gdcm::LO, 783
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1200
RGB
gdcm::PhotometricInterpretation, 937
RGB2YBR
gdcm::ImageChangePhotometricInterpretation, 646
RGBPixelsToRGBPlanes
gdcm::ImageChangePlanarConfiguration, 650
RGBPlanesToRGBPixels
gdcm::ImageChangePlanarConfiguration, 650
RGBToRecommendedDisplayCIELab
gdcm::SurfaceHelper, 1225
RGBToRecommendedDisplayGrayscale
gdcm::SurfaceHelper, 1225
RLE_COMPRESSION
vtkGDCMImageWriter, 1461
RLECodec
gdcm::RLECodec, 1051
RLELossless
gdcm::TransferSyntax, 1283
ROI
gdcm::Overlay, 900
RoleSelectionSub
gdcm::network::RoleSelectionSub, 1055
Round
gdcm, 101
roundat
gdcm, 101
RTDoseStorage
gdcm::MediaStorage, 808
RTImageStorage
gdcm::MediaStorage, 808
RTIonBeamsTreatmentRecordStorage
gdcm::MediaStorage, 809
RTIonPlanStorage
gdcm::MediaStorage, 808
RTPlanStorage
gdcm::MediaStorage, 808
RTStructSetProperties
vtkGDCMPolyDataReader, 1475
vtkGDCMPolyDataWriter, 1479
RTStructureSetStorage
gdcm::MediaStorage, 808
RTTreatmentSummaryRecordStorage
gdcm::MediaStorage, 809
Rule
gdcm::SerieHelper, 1117
RunEventLoop
gdcm::network::ULConnectionManager, 1370
RunMoveEventLoop
gdcm::network::ULConnectionManager, 1370

SAGITTAL
gdcm::Orientation, 895
SAMSUNG
gdcm::EquipmentManufacturer, 533
ScalarType
gdcm::PixelFormat, 941
Scale
vtkGDCMImageReader, 1444
vtkGDCMImageReader2, 1458
Scan
gdcm::Scanner, 1065
gdcm::Scanner2, 1076
gdcm::StrictScanner, 1186

gdcm::StrictScanner2, 1197
Scanner
gdcm::Scanner, 1061
Scanner2
gdcm::Scanner2, 1071
Scrub
gdcm::Cleaner, 304, 305
SecondaryCaptureImageStorage
gdcm::MediaStorage, 807
Segment
gdcm::Segment, 1080
SegmentAlgorithmName
gdcm::Segment, 1085
SegmentAlgorithmType
gdcm::Segment, 1085
Segmentation
gdcm::MediaStorage, 810
SegmentationStorage
gdcm::MediaStorage, 808
SegmentDescription
gdcm::Segment, 1085
SegmentedPaletteColorLookupTable
gdcm::SegmentedPaletteColorLookupTable, 1088
SegmentLabel
gdcm::Segment, 1085
SegmentMap
gdcm::SegmentReader, 1092
SegmentNumber
gdcm::Segment, 1085
SegmentReader
gdcm::SegmentReader, 1092
Segments
gdcm::SegmentReader, 1093
gdcm::SegmentWriter, 1098
SegmentVector
gdcm::SegmentReader, 1092
gdcm::SegmentWriter, 1097
SegmentWriter
gdcm::SegmentWriter, 1097
Selection
gdcm::Sorter, 1154
SelectionMap
gdcm::Sorter, 1152
Self
gdcm::AnonymizeEvent, 133
gdcm::DataEvent, 387
gdcm::DataSetEvent, 403
gdcm::FileNameEvent, 587
gdcm::MemberCommand< T >, 817
gdcm::ProgressEvent, 1006
gdcm::SimpleMemberCommand< T >, 1136
SEMIAUTOMATIC
gdcm::Segment, 1080
SendEcho
gdcm::network::ULConnectionManager, 1370
gdcm::ServiceClassUser, 1127
SendFind
gdcm::network::ULConnectionManager, 1370, 1371
gdcm::ServiceClassUser, 1127
SendMove
gdcm::network::ULConnectionManager, 1371
gdcm::ServiceClassUser, 1127, 1128
SendNAction
gdcm::network::ULConnectionManager, 1371
SendNCreate
gdcm::network::ULConnectionManager, 1371
SendNDelete
gdcm::network::ULConnectionManager, 1372
SendNEventReport
gdcm::network::ULConnectionManager, 1372
SendNGet
gdcm::network::ULConnectionManager, 1372
SendNSet
gdcm::network::ULConnectionManager, 1372
SendStore
gdcm::network::ULConnectionManager, 1373
gdcm::ServiceClassUser, 1128
Separator
gdcm::ApplicationEntity, 149
gdcm::PersonName, 930
SequenceLengthField
gdcm::SequenceOfItems, 1115
SequenceOfFragments
gdcm::SequenceOfFragments, 1102
SequenceOfItems
gdcm::SequenceOfItems, 1110
SerieHelper
gdcm::SerieHelper, 1118
SerieRestrictions
gdcm::SerieHelper, 1117
Series
gdcm::Series, 1121
SeriesInstanceUID
vtkRTStructSetProperties, 1538
ServiceClassApplicationInformation
gdcm::network::ServiceClassApplicationInformation, 1121
ServiceClassUser
gdcm::ServiceClassUser, 1126
Set
gdcm::Attribute< Group, Element, TVR, TVM >, 165
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 174
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 180
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 185

gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 193
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 200
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 206
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 212
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 218
gdcm::Element< TVR, TVM >, 462
gdcm::Element< TVR, VM::VM1_2 >, 468
gdcm::Element< TVR, VM::VM1_n >, 473
gdcm::Element< TVR, VM::VM2_2n >, 481
gdcm::Element< TVR, VM::VM2_n >, 486
gdcm::Element< TVR, VM::VM3_3n >, 493
gdcm::Element< TVR, VM::VM3_4 >, 498
gdcm::Element< TVR, VM::VM3_n >, 504
gdcm::Element< VR::AS, VM::VM5 >, 508
gdcm::Element< VR::OB, VM::VM1 >, 513
gdcm::Element< VR::OW, VM::VM1 >, 518
SetAbstractSyntax
gdcm::network::PresentationContextRQ, 987
gdcm::PresentationContext, 978
SetAETitle
gdcm::ServiceClassUser, 1129
SetAlgorithmFamily
gdcm::Surface, 1219
SetAlgorithmName
gdcm::Surface, 1219
SetAlgorithmVersion
gdcm::Surface, 1219
SetAnatomicRegion
gdcm::Segment, 1082
SetAnatomicRegionModifiers
gdcm::Segment, 1083
SetAppendDerivationHistory
gdcm::FileDerivation, 568
SetArray
gdcm::Element< TVR, VM::VM1_n >, 474
setattribute
gdcm::terminal, 111
SetAxisOfRotation
gdcm::Surface, 1219
setbgcolor
gdcm::terminal, 111
SetBitPosition
gdcm::Overlay, 904
SetBitsAllocated
gdcm::Overlay, 904
gdcm::PixelFormat, 946
SetBitSample
gdcm::JPEGCodec, 760
SetBitsStored
gdcm::PixelFormat, 946
SetBlob
gdcm::ApplicationEntity, 148
gdcm::network::PresentationDataValue, 990
gdcm::PersonName, 929
SetBlueLUT
gdcm::LookupTable, 791
SetBufferLength
gdcm::JPEGLSCodec, 768
gdcm::PNMCodec, 971
gdcm::RLECodec, 1054
SetByteSwapTag
gdcm::ByteSwapFilter, 276
SetByteValue
gdcm::Attribute< Group, Element, TVR, TVM >, 165
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 174
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 180
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 186
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 193
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 200
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 206
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 213
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 218
gdcm::CSAElement, 347
gdcm::DataElement, 380
SetByteValueNoSwap
gdcm::Attribute< Group, Element, TVR, TVM >, 165
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 174
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 180
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 186
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 193
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 200
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 206
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 213
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 219
SetCallbackFunction
gdcm::MemberCommand< T >, 818, 819
gdcm::SimpleMemberCommand< T >, 1137

SetCalledAETitle
gdcm::network::AAssociateACPDU, 119
gdcm::network::AAssociateRQPDU, 126
gdcm::ServiceClassUser, 1129
SetCallingAETitle
gdcm::network::AAssociateACPDU, 119
gdcm::network::AAssociateRQPDU, 126
SetCenterOfRotation
gdcm::Surface, 1219
SetChangePrivateTags
gdcm::FileExplicitFilter, 571
SetCheckFileMetaInformation
gdcm::Writer, 1548
SetCipherType
gdcm::CAPICryptographicMessageSyntax, 290
gdcm::CryptographicMessageSyntax, 341
gdcm::OpenSSLCryptographicMessageSyntax, 888
gdcm::OpenSSLP7CryptographicMessageSyntax, 893
SetColor
gdcm::Printer, 995
SetColorLevel
vtkImageColorViewer, 1501
SetColorWindow
vtkImageColorViewer, 1501
SetColumns
gdcm::Bitmap, 258
gdcm::Overlay, 904
SetCommand
gdcm::network::PresentationDataValue, 990
SetComponents
gdcm::PersonName, 929, 930
SetCompressIconImage
gdcm::ImageChangeTransferSyntax, 656
SetComputeZSpacing
gdcm::IPPSorter, 720
SetCoordinateStartValue
gdcm::Curve, 369
SetCoordinateStepValue
gdcm::Curve, 369
SetCryptographicMessageSyntax
gdcm::Anonymizer, 143
SetCurve
gdcm::Curve, 369
vtkGDCMImageReader, 1434
vtkGDCMImageReader2, 1450
SetCurveDataDescriptor
gdcm::Curve, 369
SetCurveDescription
gdcm::Curve, 369
SetData
gdcm::DataEvent, 389
SetDataElement
gdcm::Bitmap, 258
SetDataSet
gdcm::File, 552
gdcm::network::PresentationDataValue, 990
SetDataSetTransferSyntax
gdcm::FileMetaInformation, 580
SetDataValueRepresentation
gdcm::Curve, 370
SetDebug
gdcm::Trace, 1278
SetDebugStream
gdcm::Trace, 1278
SetDefaultTransferSyntax
gdcm::PresentationContextGenerator, 984
SetDerivationCodeSequenceCodeValue
gdcm::FileDerivation, 568
SetDerivationDescription
gdcm::FileDerivation, 568
SetDescription
gdcm::CSAHeaderDictEntry, 361
gdcm::ModuleEntry, 840
gdcm::Overlay, 905
SetDescriptor
gdcm::DICOMDIRGenerator, 420
SetDictName
gdcm::DictConverter, 428
SetDicts
gdcm::PythonFilter, 1013
gdcm::StringFilter, 1204
SetDimension
gdcm::Bitmap, 258
SetDimensions
gdcm::Bitmap, 258
gdcm::Curve, 370
gdcm::ImageCodec, 666
SetDimensionsValue
gdcm::ImageHelper, 680
SetDirectionCosines
gdcm::Image, 637
vtkGDCMImageWriter, 1462
SetDirectionCosinesFromImageOrientationPatient
vtkGDCMImageWriter, 1462
SetDirectionCosinesTolerance
gdcm::IPPSorter, 720
SetDirectionCosinesValue
gdcm::ImageHelper, 680
SetDirectory
gdcm::network::ULWritingCallback, 1378
gdcm::SerieHelper, 1119
SetDisplayId
vtkImageColorViewer, 1501
SetDomain
gdcm::BoxRegion, 271
SetDropDuplicatePositions
gdcm::IPPSorter, 721

SetElement
gdcm::Tag, 1263
SetElementHandler
gdcm::Parser, 912
SetElementTag
gdcm::Tag, 1264
SetElementXX
gdcm::DictEntry, 432
SetError
gdcm::Trace, 1278
SetErrorStream
gdcm::Trace, 1278
SetEvent
gdcm::network::ULEvent, 1375
setfgcolor
gdcm::terminal, 111
SetFile
gdcm::Anonymizer, 143
gdcm::Cleaner, 305
gdcm::DICOMDIRGenerator, 420
gdcm::FileDecompressLookupTable, 565
gdcm::FileDerivation, 568
gdcm::FileExplicitFilter, 571
gdcm::IconImageFilter, 626
gdcm::Printer, 995
gdcm::PythonFilter, 1013
gdcm::Reader, 1038
gdcm::SplitGridFilter, 1160
gdcm::SplitMosaicFilter, 1164
gdcm::StreamImageWriter, 1174
gdcm::StringFilter, 1204
gdcm::Validate, 1397
gdcm::Writer, 1548
gdcm::XMLPrinter, 1555
SetFileName
gdcm::FileNameEvent, 588
gdcm::Reader, 1038
gdcm::StreamImageReader, 1171
gdcm::StreamImageWriter, 1175
gdcm::Writer, 1548
vtkGDCMThreadedImageReader2, 1491
SetFilename
gdcm::TableReader, 1254
SetFileNames
vtkGDCMImageReader, 1434
vtkGDCMImageWriter, 1463
vtkGDCMThreadedImageReader2, 1491
SetFilenames
gdcm::DICOMDIRGenerator, 420
SetFilePattern
vtkGDCMImageReader, 1435
vtkGDCMImageReader2, 1450
SetFilePrefix
vtkGDCMImageReader, 1435
vtkGDCMImageReader2, 1450
SetFiles
gdcm::FileSet, 594
SetFiniteVolume
gdcm::Surface, 1219
SetForce
gdcm::ImageChangeTransferSyntax, 656
gdcm::ImageFragmentSplitter, 675
SetForcePixelSpacing
gdcm::ImageHelper, 680
SetForceRescaleInterceptSlope
gdcm::ImageHelper, 680
SetFragmentSizeMax
gdcm::ImageFragmentSplitter, 675
SetFrameOrigin
gdcm::Overlay, 905
SetFromDataElement
gdcm::Attribute< Group, Element, TVR, TVM >, 166
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 174
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 180
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 186
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 193
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 200
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 206
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 213
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 219
gdcm::Element< TVR, TVM >, 462
gdcm::Element< TVR, VM::VM1_2 >, 468
gdcm::Element< TVR, VM::VM1_n >, 474
gdcm::Element< TVR, VM::VM2_2n >, 481
gdcm::Element< TVR, VM::VM2_n >, 486
gdcm::Element< TVR, VM::VM3_3n >, 493
gdcm::Element< TVR, VM::VM3_4 >, 498
gdcm::Element< TVR, VM::VM3_n >, 504
gdcm::Element< VR::AS, VM::VM5 >, 508
gdcm::Element< VR::OB, VM::VM1 >, 513
gdcm::Element< VR::OW, VM::VM1 >, 518
SetFromDataSet
gdcm::Attribute< Group, Element, TVR, TVM >, 166
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 175
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 180
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 186
gdcm::Attribute< Group, Element, TVR, VM::VM1_n

>, 193
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 201
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 206
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 213
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 219
gdcm::MediaStorage, 812
SetFromFile
gdcm::MediaStorage, 812
SetFromHeader
gdcm::MediaStorage, 812
SetFromModality
gdcm::MediaStorage, 813
SetFromSourceImageSequence
gdcm::MediaStorage, 813
SetFromString
gdcm::DirectionCosines, 446
SetFromUID
gdcm::UIDs, 1313
SetGreenLUT
gdcm::LookupTable, 791
SetGroup
gdcm::Curve, 370
gdcm::Overlay, 905
gdcm::Tag, 1264
SetGroupXX
gdcm::DictEntry, 432
SetHeader
gdcm::File, 553
SetHighBit
gdcm::PixelFormat, 946
SetHostname
gdcm::ServiceClassUser, 1129
SetIconImage
gdcm::Pixmap, 954
SetIE
gdcm::IODEntry, 713
SetImage
gdcm::PixmapWriter, 966
gdcm::SplitGridFilter, 1160
gdcm::SplitMosaicFilter, 1164
SetImplementationClassUID
gdcm::FileMetaInformation, 580
SetImplementationVersionName
gdcm::FileMetaInformation, 581
SetImplicitFlag
gdcm::network::ULConnectionCallback, 1363
SetInput
gdcm::BitmapToBitmapFilter, 266
gdcm::ImageConverter, 671
vtkImageColorViewer, 1502
SetInputConnection
vtkImageColorViewer, 1502
SetInputDirectory
gdcm::EmptyMaskGenerator, 523
SetInputFileName
gdcm::DictConverter, 429
gdcm::FileAnonymizer, 557
gdcm::FileChangeTransferSyntax, 561
SetIntercept
gdcm::Image, 637
gdcm::Rescaler, 1047
SetKey
gdcm::CSAElement, 347
SetKeyword
gdcm::DictEntry, 432
SetLastElement
gdcm::ParseException, 909
SetLastFragment
gdcm::network::PresentationDataValue, 991
SetLength
gdcm::ByteValue, 284
gdcm::Element< TVR, VM::VM1_2 >, 468
gdcm::Element< TVR, VM::VM1_n >, 474
gdcm::Element< TVR, VM::VM2_2n >, 481
gdcm::Element< TVR, VM::VM2_n >, 486
gdcm::Element< TVR, VM::VM3_3n >, 493
gdcm::Element< TVR, VM::VM3_4 >, 498
gdcm::Element< TVR, VM::VM3_n >, 504
gdcm::RLECodec, 1054
gdcm::SequenceOfFragments, 1105
gdcm::SequenceOfItems, 1114
gdcm::Value, 1400
SetLengthOnly
gdcm::ByteValue, 284
gdcm::Value, 1400
SetLengthToUndefined
gdcm::SequenceOfItems, 1114
SetLoadMode
gdcm::SerieHelper, 1120
SetLookupTable
vtkImageMapToColors16, 1511
SetLossless
gdcm::JPEGCodec, 760
gdcm::JPEGLSCodec, 768
SetLossyError
gdcm::JPEGLSCodec, 768
SetLossyFlag
gdcm::Bitmap, 259
gdcm::ImageCodec, 666
gdcm::PVRGCodec, 1012
SetLUT
gdcm::Bitmap, 259
gdcm::ImageCodec, 666
gdcm::LookupTable, 791

gdcm::SegmentedPaletteColorLookupTable, 1089
SetManifold
gdcm::Surface, 1219
SetMaximumLength
gdcm::network::MaximumLengthSub, 800
SetMaximumPointDistance
gdcm::Surface, 1220
SetMaxPDULength
gdcm::network::ULConnectionInfo, 1365
SetMaxPDUSize
gdcm::network::ULConnection, 1360
SetMCT
gdcm::JPEG2000Codec, 746
SetMeanPointDistance
gdcm::Surface, 1220
SetMedicalImageProperties
vtkGDCMImageReader, 1435
vtkGDCMImageReader2, 1450
vtkGDCMImageWriter, 1463
vtkGDCMPolyDataWriter, 1478
SetMergeModeToAbstractSyntax
gdcm::PresentationContextGenerator, 984
SetMergeModeToTransferSyntax
gdcm::PresentationContextGenerator, 984
SetMeshPrimitive
gdcm::Surface, 1220
SetMessageHeader
gdcm::network::PresentationDataValue, 991
SetMinMaxForPixelType
gdcm::Rescaler, 1047
setmode
gdcm::terminal, 111
SetName
gdcm::CSAElement, 347
gdcm::CSAHeaderDictEntry, 361
gdcm::DictEntry, 432
gdcm::IODEntry, 713
gdcm::Macro, 796
gdcm::Module, 836
gdcm::ModuleEntry, 840
gdcm::network::AbstractSyntax, 130
gdcm::network::ApplicationContext, 146
gdcm::network::TransferSyntaxSub, 1287
gdcm::PDBElement, 918
SetNameFromUID
gdcm::network::AbstractSyntax, 130
gdcm::network::TransferSyntaxSub, 1287
SetNeedByteSwap
gdcm::Bitmap, 259
gdcm::ImageCodec, 667
SetNeedOverlayCleanup
gdcm::ImageCodec, 667
SetNestedDataSet
gdcm::Item, 728
SetNoOfItems
gdcm::CSAElement, 347
SetNoSwap
gdcm::Element< TVR, TVM >, 463
gdcm::Element< TVR, VM::VM1_2 >, 468
gdcm::Element< TVR, VM::VM1_n >, 474
gdcm::Element< TVR, VM::VM2_2n >, 481
gdcm::Element< TVR, VM::VM2_n >, 486
gdcm::Element< TVR, VM::VM3_3n >, 493
gdcm::Element< TVR, VM::VM3_4 >, 498
gdcm::Element< TVR, VM::VM3_n >, 504
gdcm::Element< VR::AS, VM::VM5 >, 508
gdcm::Element< VR::OB, VM::VM1 >, 513
gdcm::Element< VR::OW, VM::VM1 >, 518
SetNumberOfCurves
gdcm::Pixmap, 954
SetNumberOfDimensions
gdcm::Bitmap, 259
gdcm::ImageCodec, 667
SetNumberOfFilenames
gdcm::FilenameGenerator, 592
SetNumberOfFrames
gdcm::Overlay, 905
SetNumberOfInputPorts
vtkGDCMPolyDataWriter, 1478
SetNumberOfItems
gdcm::SequenceOfItems, 1114
SetNumberOfOverlays
gdcm::Pixmap, 954
SetNumberOfPoints
gdcm::Curve, 370
SetNumberOfResolutions
gdcm::JPEG2000Codec, 746
SetNumberOfSegments
gdcm::SegmentWriter, 1098
SetNumberOfSurfacePoints
gdcm::Surface, 1220
SetNumberOfSurfaces
gdcm::SurfaceWriter, 1235
SetNumberOfTableValues
vtkLookupTable16, 1527
SetNumberOfThreadsForDecompression
gdcm::JPEG2000Codec, 746
SetNumberOfValues
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 194
SetNumberOfVectors
gdcm::Surface, 1220
SetObliquityThresholdCosineValue
gdcm::Orientation, 896
SetOffScreenRendering
vtkImageColorViewer, 1502
SetOrigin
gdcm::Image, 637, 638

gdcm::Overlay, 905
SetOriginValue
gdcm::ImageHelper, 681
SetOutputDimensions
gdcm::IconImageGenerator, 628
SetOutputDirectory
gdcm::EmptyMaskGenerator, 523
SetOutputFileName
gdcm::DictConverter, 429
gdcm::FileAnonymizer, 557
gdcm::FileChangeTransferSyntax, 561
gdcm::FileStreamer, 599
SetOutputFormatToLuminance
vtkImageMapToColors16, 1511
SetOutputFormatToLuminanceAlpha
vtkImageMapToColors16, 1511
SetOutputFormatToRGB
vtkImageMapToColors16, 1511
SetOutputFormatToRGBA
vtkImageMapToColors16, 1511
SetOutputType
gdcm::DictConverter, 429
SetOutsideValuePixel
gdcm::IconImageGenerator, 628
SetOverlay
gdcm::Overlay, 905
SetOverlayVisibility
vtkImageColorViewer, 1502
SetOwner
gdcm::PrivateTag, 1003
SetParentId
vtkImageColorViewer, 1502
SetPassword
gdcm::CAPICryptographicMessageSyntax, 290
gdcm::CryptographicMessageSyntax, 341
gdcm::OpenSSLCryptographicMessageSyntax, 888
gdcm::OpenSSLP7CryptographicMessageSyntax, 893
SetPattern
gdcm::FilenameGenerator, 592
SetPDU
gdcm::network::ULEvent, 1375
SetPermissions
gdcm::System, 1246
SetPhotometricInterpretation
gdcm::Bitmap, 259
gdcm::ImageChangePhotometricInterpretation, 646
gdcm::ImageCodec, 667
SetPixelFormat
gdcm::Bitmap, 260
gdcm::ImageCodec, 667
gdcm::JPEGCodec, 761
gdcm::Rescaler, 1047
SetPixelMinMax
gdcm::IconImageGenerator, 629
SetPixelRepresentation
gdcm::PixelFormat, 946
SetPixmap
gdcm::FileDecompressLookupTable, 565
gdcm::IconImageGenerator, 629
gdcm::PixmapWriter, 966
SetPlanarConfiguration
gdcm::Bitmap, 260
gdcm::ImageChangePlanarConfiguration, 651
gdcm::ImageCodec, 668
SetPMSRescaleInterceptSlope
gdcm::ImageHelper, 681
SetPointCoordinatesData
gdcm::Surface, 1220
SetPointPositionAccuracy
gdcm::Surface, 1220
SetPointsBoundingBoxCoordinates
gdcm::Surface, 1220
SetPort
gdcm::ServiceClassUser, 1129
SetPortSCP
gdcm::ServiceClassUser, 1129
SetPosition
vtkImageColorViewer, 1502
SetPreamble
gdcm::FileMetaInformation, 581
SetPrefix
gdcm::FilenameGenerator, 592
SetPresentationContextID
gdcm::network::PresentationContextAC, 981
gdcm::network::PresentationContextRQ, 987
gdcm::network::PresentationDataValue, 991
gdcm::PresentationContext, 979
SetPresentationContexts
gdcm::network::ULConnection, 1360, 1361
gdcm::ServiceClassUser, 1130
SetPrettyPrint
gdcm::JSON, 776
SetPrimitiveData
gdcm::MeshPrimitive, 824
SetPrimitivesData
gdcm::MeshPrimitive, 825
SetPrimitiveType
gdcm::MeshPrimitive, 825
SetPrivateCreator
gdcm::Tag, 1264
SetProcessingAlgorithm
gdcm::Surface, 1221
SetProgress
gdcm::ProgressEvent, 1007
SetPropertyCategory
gdcm::Segment, 1083
SetPropertyType

gdcm::Segment, 1083
SetPropertyTypeModifiers
gdcm::Segment, 1083
SetPurposeOfReferenceCodeSequenceCodeValue
gdcm::FileDerivation, 569
SetQuality
gdcm::JPEG2000Codec, 746
gdcm::JPEGCodec, 761
SetRate
gdcm::JPEG2000Codec, 746
SetReason
gdcm::network::AAbortPDU, 115
gdcm::network::PresentationContextAC, 981
SetRecommendedDisplayCIELabValue
gdcm::Surface, 1221
SetRecommendedDisplayGrayscaleValue
gdcm::Surface, 1221
SetRecommendedPresentationOpacity
gdcm::Surface, 1221
SetRecommendedPresentationType
gdcm::Surface, 1221
SetRecomputeItemLength
gdcm::FileExplicitFilter, 571
SetRecomputeSequenceLength
gdcm::FileExplicitFilter, 572
SetRedLUT
gdcm::LookupTable, 791
SetRef
gdcm::IODEntry, 713
SetRegion
gdcm::ImageRegionReader, 692
SetRenderer
vtkImageColorViewer, 1503
SetRenderWindow
vtkImageColorViewer, 1503
SetRescaleInterceptSlopeValue
gdcm::ImageHelper, 681
SetRetired
gdcm::DictEntry, 432
SetReversible
gdcm::JPEG2000Codec, 747
SetRGB8
gdcm::ImageApplyLookupTable, 642
SetRoot
gdcm::UIDGenerator, 1295
SetRootDirectory
gdcm::DICOMDIRGenerator, 421
SetRows
gdcm::Bitmap, 260
gdcm::Overlay, 906
SetRTStructSetProperties
vtkGDCMPolyDataWriter, 1478
SetSamplesPerPixel
gdcm::PixelFormat, 946
SetScalarType
gdcm::PixelFormat, 946
SetSearchParameter
gdcm::BaseQuery, 235
SetSecondaryCaptureImagePlaneModule
gdcm::ImageHelper, 681
SetSegmentAlgorithmName
gdcm::Segment, 1083
SetSegmentAlgorithmType
gdcm::Segment, 1083
SetSegmentDescription
gdcm::Segment, 1083
SetSegmentLabel
gdcm::Segment, 1084
SetSegmentNumber
gdcm::Segment, 1084
SetSegments
gdcm::SegmentWriter, 1098
SetSize
vtkImageColorViewer, 1503
SetSlice
vtkImageColorViewer, 1503
SetSliceOrientation
vtkImageColorViewer, 1503
SetSliceOrientationToXY
vtkImageColorViewer, 1504
SetSliceOrientationToXZ
vtkImageColorViewer, 1504
SetSliceOrientationToYZ
vtkImageColorViewer, 1504
SetSlope
gdcm::Image, 638
gdcm::Rescaler, 1047
SetSOPClassUIDMode
gdcm::EmptyMaskGenerator, 524
SetSOPInstanceUID
gdcm::BaseQuery, 236
SetSortFunction
gdcm::Sorter, 1153
SetSource
gdcm::network::AAbortPDU, 115
SetSourceApplicationEntityTitle
gdcm::FileMetaInformation, 581
SetSpacing
gdcm::Image, 638
SetSpacingValue
gdcm::ImageHelper, 681
SetState
gdcm::network::ULConnection, 1361
SetStream
gdcm::Reader, 1039
gdcm::StreamImageReader, 1171
gdcm::StreamImageWriter, 1175
gdcm::Trace, 1278

gdcm::Writer, 1548
SetStreamToFile
gdcm::Trace, 1279
SetStyle
gdcm::Printer, 995
gdcm::XMLPrinter, 1555
SetSurfaceComments
gdcm::Surface, 1221
SetSurfaceCount
gdcm::Segment, 1084
SetSurfaceNumber
gdcm::Surface, 1222
SetSurfaceProcessing
gdcm::Surface, 1222
SetSurfaceProcessingDescription
gdcm::Surface, 1222
SetSurfaceProcessingRatio
gdcm::Surface, 1222
SetSyngoDT
gdcm::CSAElement, 347
SetTag
gdcm::AnonymizeEvent, 134
gdcm::DataElement, 381
SetTagsToRead
gdcm::Sorter, 1153
SetTargetPixelType
gdcm::Rescaler, 1047
SetTemplateFileName
gdcm::FileStreamer, 599
SetTileSize
gdcm::JPEG2000Codec, 747
SetTimeout
gdcm::network::ARTIMTimer, 155
gdcm::ServiceClassUser, 1130
SetToUndefined
gdcm::VL, 1408
SetTransferSyntax
gdcm::Bitmap, 260
gdcm::FileChangeTransferSyntax, 562
gdcm::ImageChangeTransferSyntax, 656
gdcm::network::PresentationContextAC, 981
SetTuple
gdcm::network::RoleSelectionSub, 1056
gdcm::network::ServiceClassApplicationInformation, 1122
gdcm::network::SOPClassExtendedNegociationSub, 1147
SetType
gdcm::ModuleEntry, 840
gdcm::Overlay, 906
SetTypeOfData
gdcm::Curve, 370
SetupInteractor
vtkImageColorViewer, 1504
SetUsage
gdcm::IODEntry, 713
SetUserCodec
gdcm::ImageChangeTransferSyntax, 656
SetUserData
gdcm::Parser, 912
SetUserInformation
gdcm::network::AAssociateRQPDU, 126
SetUseSeriesDetails
gdcm::SerieHelper, 1120
SetUseTargetPixelType
gdcm::Rescaler, 1048
SetUseVRUN
gdcm::FileExplicitFilter, 572
SetValue
gdcm::Attribute< Group, Element, TVR, TVM >, 166
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 175
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 180
gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 186
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 194
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 201
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 206
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 213
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 219
gdcm::CSAElement, 348
gdcm::DataElement, 381
gdcm::Element< TVR, TVM >, 463
gdcm::Element< TVR, VM::VM1_2 >, 469
gdcm::Element< TVR, VM::VM1_n >, 475
gdcm::Element< TVR, VM::VM2_2n >, 481
gdcm::Element< TVR, VM::VM2_n >, 487
gdcm::Element< TVR, VM::VM3_3n >, 493
gdcm::Element< TVR, VM::VM3_4 >, 499
gdcm::Element< TVR, VM::VM3_n >, 505
gdcm::Element< VR::AS, VM::VM5 >, 508
gdcm::Element< VR::OB, VM::VM1 >, 513
gdcm::Element< VR::OW, VM::VM1 >, 518
gdcm::PDBElement, 919
SetValueFieldLength
gdcm::DataElement, 382
SetValues
gdcm::Attribute< Group, Element, TVR, TVM >, 167
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 175
gdcm::Attribute< Group, Element, TVR, VM::VM1_3 >, 181

gdcm::Attribute< Group, Element, TVR, VM::VM1_8 >, 186
gdcm::Attribute< Group, Element, TVR, VM::VM1_n >, 194
gdcm::Attribute< Group, Element, TVR, VM::VM2_2n >, 201
gdcm::Attribute< Group, Element, TVR, VM::VM2_n >, 207
gdcm::Attribute< Group, Element, TVR, VM::VM3_3n >, 213
gdcm::Attribute< Group, Element, TVR, VM::VM3_n >, 219
SetVectorAccuracy
gdcm::Surface, 1222
SetVectorCoordinateData
gdcm::Surface, 1222
SetVectorDimensionality
gdcm::Surface, 1222
SetVL
gdcm::DataElement, 382
SetVLToUndefined
gdcm::DataElement, 382
SetVM
gdcm::CSAElement, 348
gdcm::CSAHeaderDictEntry, 361
gdcm::DictEntry, 433
SetVR
gdcm::CSAElement, 348
gdcm::CSAHeaderDictEntry, 361
gdcm::DataElement, 382
gdcm::DictEntry, 433
SetWarning
gdcm::Trace, 1279
SetWarningStream
gdcm::Trace, 1279
SetWindowId
vtkImageColorViewer, 1504
SetWriteDataSetOnly
gdcm::Writer, 1549
SetZSpacingTolerance
gdcm::IPPSorter, 721
SH
gdcm::VR, 1417
SHA1
gdcm::SHA1, 1132
SHComp
gdcm, 88
Shift
vtkGDCMImageReader, 1444
vtkGDCMImageReader2, 1458
ShiftEnd
gdcm::ByteBuffer, 272
ShowAbort
gdcm::SimpleSubjectWatcher, 1139
ShowAnonymization
gdcm::SimpleSubjectWatcher, 1140
ShowData
gdcm::SimpleSubjectWatcher, 1140
ShowDataSet
gdcm::SimpleSubjectWatcher, 1140
ShowFileName
gdcm::SimpleSubjectWatcher, 1140
ShowIteration
gdcm::SimpleSubjectWatcher, 1140
ShowProgress
gdcm::SimpleSubjectWatcher, 1140
SIEMENS
gdcm::Dicts, 438
gdcm::EquipmentManufacturer, 533
SimpleMemberCommand
gdcm::SimpleMemberCommand< T >, 1136
SimpleSubjectWatcher
gdcm::SimpleSubjectWatcher, 1139
SINGLEBIT
gdcm::PixelFormat, 942
SingleSerieUIDFileSetHT
gdcm::SerieHelper, 1120
SingleSerieUIDFileSetmap
gdcm::SerieHelper, 1117
Size
gdcm::CodeString, 316
gdcm::DataSet, 400
gdcm::GroupDict, 622
gdcm::network::AAbortPDU, 115
gdcm::network::AAssociateACPDU, 119
gdcm::network::AAssociateRJPDU, 121
gdcm::network::AAssociateRQPDU, 127
gdcm::network::AbstractSyntax, 130
gdcm::network::ApplicationContext, 146
gdcm::network::AReleaseRPPDU, 151
gdcm::network::AReleaseRQPDU, 153
gdcm::network::AsynchronousOperationsWindowSub, 158
gdcm::network::BasePDU, 231
gdcm::network::ImplementationClassUIDSub, 700
gdcm::network::ImplementationVersionNameSub, 702
gdcm::network::MaximumLengthSub, 800
gdcm::network::PDataTFPDU, 916
gdcm::network::PresentationContextAC, 981
gdcm::network::PresentationContextRQ, 988
gdcm::network::PresentationDataValue, 991
gdcm::network::RoleSelectionSub, 1056
gdcm::network::ServiceClassApplicationInformation, 1122
gdcm::network::SOPClassExtendedNegociationSub, 1148
gdcm::network::TransferSyntaxSub, 1287

gdcm::network::UserInformation, 1394
size_type
gdcm::CodeString, 315
gdcm::LO, 783
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1200
SizeType
gdcm::DataSet, 392
gdcm::FilenameGenerator, 590
gdcm::IOD, 709
gdcm::NestedModuleEntries, 865
gdcm::network::AAssociateACPDU, 117
gdcm::network::AAssociateRQPDU, 124
gdcm::network::PDataTFPDU, 915
gdcm::network::PresentationContextRQ, 985
gdcm::PresentationContext, 977
gdcm::PresentationContextGenerator, 983
gdcm::SequenceOfFragments, 1101
gdcm::SequenceOfItems, 1110
SL
gdcm::VR, 1417
Slice
vtkImageColorViewer, 1507
SLICE_ORIENTATION_XY
vtkImageColorViewer, 1499
SLICE_ORIENTATION_XZ
vtkImageColorViewer, 1499
SLICE_ORIENTATION_YZ
vtkImageColorViewer, 1498
SliceOrientation
vtkImageColorViewer, 1508
Slices
gdcm::MrProtocol::SliceArray, 1143
SmartPointer
gdcm::Object, 882
gdcm::SmartPointer< ObjectType >, 1145
SOPClassExtendedNegociationSub
gdcm::network::SOPClassExtendedNegociationSub, 1147
SOPClassUIDMode
gdcm::EmptyMaskGenerator, 523
SOPInstanceUID
vtkRTStructSetProperties, 1538
Sort
gdcm::IPPSorter, 721
gdcm::Sorter, 1153
Sorter
gdcm::Sorter, 1152
SortFunc
gdcm::Sorter, 1154
SortFunction
gdcm::Sorter, 1152
Source Directory Reference, 67
SpacialFiducialsStorage
gdcm::MediaStorage, 808
SpacialRegistrationStorage
gdcm::MediaStorage, 808
Spacing
gdcm::Spacing, 1156
SpacingType
gdcm::Spacing, 1156
Spectroscopy
gdcm::Spectroscopy, 1157
Split
gdcm::ImageFragmentSplitter, 675
gdcm::SplitGridFilter, 1160
gdcm::SplitMosaicFilter, 1164
SplitExtent
vtkGDCMThreadedImageReader2, 1491
SplitGridFilter
gdcm::SplitGridFilter, 1159
SplitMosaicFilter
gdcm::SplitMosaicFilter, 1162
SQ
gdcm::VR, 1417
Squeeze
gdcm::ApplicationEntity, 148
SS
gdcm::VR, 1417
ST
gdcm::VR, 1417
StableSort
gdcm::Sorter, 1153
StandaloneCurveStorage
gdcm::MediaStorage, 807
StandaloneModalityLUTStorage
gdcm::MediaStorage, 807
StandaloneOverlayStorage
gdcm::MediaStorage, 807
StandaloneVOILUTStorage
gdcm::MediaStorage, 807
Start
gdcm::network::ARTIMTimer, 155
StartAssociation
gdcm::ServiceClassUser, 1130
StartDataElement
gdcm::FileStreamer, 599
StartElement
gdcm::TableReader, 1254
gdcm::XMLDictReader, 1552
gdcm::XMLPrivateDictReader, 1559
StartElementHandler
gdcm::Parser, 910
StartEncode
gdcm::ImageCodec, 668
gdcm::JPEG2000Codec, 747
gdcm::JPEGCodec, 761
gdcm::JPEGLSCodec, 768

gdcm::RLECodec, 1054
StartFilter
gdcm::SimpleSubjectWatcher, 1140
StartGroupDataElement
gdcm::FileStreamer, 600
STATES
gdcm::Surface, 1213
STATES_END
gdcm::Surface, 1214
STComp
gdcm, 88
Stop
gdcm::network::ARTIMTimer, 155
StopAssociation
gdcm::ServiceClassUser, 1130
StopDataElement
gdcm::FileStreamer, 600
StopEncode
gdcm::ImageCodec, 668
gdcm::JPEG2000Codec, 747
gdcm::JPEGCodec, 761
gdcm::JPEGLSCodec, 769
gdcm::RLECodec, 1054
StopGroupDataElement
gdcm::FileStreamer, 600
StopProtocol
gdcm::network::ULConnection, 1361
StrCaseCmp
gdcm::System, 1246
Stream
gdcm::Writer, 1549
StreamImageReader
gdcm::Reader, 1039
gdcm::StreamImageReader, 1169
StreamImageWriter
gdcm::StreamImageWriter, 1173
gdcm::Writer, 1549
StrictScanner
gdcm::StrictScanner, 1182
StrictScanner2
gdcm::StrictScanner2, 1192
String
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1201
StringFilter
gdcm::StringFilter, 1203
StrNCaseCmp
gdcm::System, 1246
StrSep
gdcm::System, 1246
StrTokR
gdcm::System, 1246
StructureSetDate
vtkRTStructSetProperties, 1538
StructureSetLabel
vtkRTStructSetProperties, 1538
StructureSetName
vtkRTStructSetProperties, 1539
StructureSetTime
vtkRTStructSetProperties, 1539
Study
gdcm::Study, 1206
StudyComponentManagementSOPClass
gdcm::MediaStorage, 808
StudyInstanceUID
vtkRTStructSetProperties, 1539
Subject
gdcm::Subject, 1208
Superclass
gdcm::AnonymizeEvent, 133
gdcm::DataEvent, 387
gdcm::DataSetEvent, 403
gdcm::FileNameEvent, 587
gdcm::LO, 783
gdcm::ProgressEvent, 1006
SURFACE
gdcm::Surface, 1214
Surface
gdcm::Surface, 1214
SurfaceCount
gdcm::Segment, 1085
SurfaceReader
gdcm::SurfaceReader, 1229
Surfaces
gdcm::Segment, 1085
SurfaceSegmentationStorage
gdcm::MediaStorage, 809
SurfaceVector
gdcm::Segment, 1079
SurfaceWriter
gdcm::SurfaceWriter, 1234
SV
gdcm::VR, 1417
SV10
gdcm::CSAHeader, 352
Swap
gdcm::ByteSwap< T >, 273
gdcm::SwapperDoOp, 1238
gdcm::SwapperNoOp, 1239
SwapArray
gdcm::SwapperDoOp, 1238
gdcm::SwapperNoOp, 1239
SwapCode
gdcm::SwapCode, 1237
SwapCodeType
gdcm::SwapCode, 1237
SwapFromSwapCodeIntoSystem
gdcm::ByteSwap< T >, 273

SwapRange
gdcm::ByteSwap< T >, 274
SwapRangeFromSwapCodeIntoSystem
gdcm::ByteSwap< T >, 274
SyngoDTField
gdcm::CSAElement, 349
SyntaxError
gdcm::Parser, 911
SystemIsBigEndian
gdcm::ByteSwap< T >, 274
SystemIsLittleEndian
gdcm::ByteSwap< T >, 274

T1
gdcm::Type, 1291
T1C
gdcm::Type, 1291
T2
gdcm::Type, 1291
T2C
gdcm::Type, 1291
T3
gdcm::Type, 1291
Table
gdcm::Table, 1248
Table16
vtkLookupTable16, 1528
TableEntry
gdcm::TableEntry, 1250
TableInternal
gdcm::Table, 1250
TableReader
gdcm::TableReader, 1252
TableRow
gdcm::network::TableRow, 1255
Tag
gdcm::Tag, 1258
tag
gdcm::Tag, 1265
TagField
gdcm::DataElement, 384
TagMismatchError
gdcm::Parser, 911
TagPath
gdcm::TagPath, 1267
tags
gdcm::Tag, 1266
TagsToRead
gdcm::Sorter, 1154
TagToValue
gdcm::Scanner, 1060
gdcm::StrictScanner, 1181
TagToValueValueType
gdcm::Scanner, 1060
gdcm::StrictScanner, 1182
TConstMemberFunctionPointer
gdcm::MemberCommand< T >, 817
TestAbortOff
gdcm::SimpleSubjectWatcher, 1141
TestAbortOn
gdcm::SimpleSubjectWatcher, 1141
Testing
gdcm::Testing, 1270
TestPBKDF2
gdcm::ASN1, 157
TestsList.txt, 1561
ThreadedExecute
vtkImageRGBToYBR, 1522
vtkImageYBRToRGB, 1524
ThreadedRequestData
vtkGDCMThreadedImageReader2, 1491
vtkImageMapToColors16, 1511
vtkImageMapToWindowLevelColors2, 1516
TM
gdcm::VR, 1417
TMComp
gdcm, 88
TMemberFunctionPointer
gdcm::MemberCommand< T >, 817
gdcm::SimpleMemberCommand< T >, 1136
Todo List, 3
ToPyObject
gdcm::PythonFilter, 1014
TOSHIBA
gdcm::EquipmentManufacturer, 533
ToshibaPrivateDataStorage
gdcm::MediaStorage, 808
ToString
gdcm::StringFilter, 1205
ToStringPair
gdcm::StringFilter, 1205, 1206
ToUnixSlashes
gdcm::Filename, 584
ToWindowsSlashes
gdcm::Filename, 585
Trace
gdcm::Trace, 1276
TransferSyntax
gdcm::TransferSyntax, 1283
TransferSyntaxArrayType
gdcm::PresentationContext, 977
TransferSyntaxes
gdcm::PresentationContext, 979
TransferSyntaxStringsType
gdcm::UIDs, 1312
TransferSyntaxSub
gdcm::network::TransferSyntaxSub, 1287
Transition

gdcm::network::Transition, 1289
transitions
gdcm::network::TableRow, 1255
TRIANGLE
gdcm::MeshPrimitive, 823
TRIANGLE_FAN
gdcm::MeshPrimitive, 823
TRIANGLE_STRIP
gdcm::MeshPrimitive, 823
Trim
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1202
TrimInternal
gdcm::CodeString, 316
Truncate
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1202
TryJPEG2000Codec
gdcm::Bitmap, 261
gdcm::ImageChangeTransferSyntax, 657
TryJPEG2000Codec2
gdcm::Bitmap, 261
TryJPEGCodec
gdcm::Bitmap, 261
gdcm::ImageChangeTransferSyntax, 657
TryJPEGCodec2
gdcm::Bitmap, 261
TryJPEGLSCodec
gdcm::Bitmap, 261
gdcm::ImageChangeTransferSyntax, 657
TryKAKADUCodec
gdcm::Bitmap, 261
TryPVRGCodec
gdcm::Bitmap, 262
TryRAWCodec
gdcm::Bitmap, 262
gdcm::ImageChangeTransferSyntax, 657
TryRLECodec
gdcm::Bitmap, 262
gdcm::ImageChangeTransferSyntax, 657
TS
gdcm::Bitmap, 264
TS_END
gdcm::TransferSyntax, 1283
TSName
gdcm::UIDs, 1312
TSType
gdcm::TransferSyntax, 1282
gdcm::UIDs, 1312
Type
gdcm::Element< TVR, TVM >, 460
gdcm::Element< TVR, VM::VM1_2 >, 467
gdcm::Element< TVR, VM::VM1_n >, 471
gdcm::Element< TVR, VM::VM2_2n >, 479
gdcm::Element< TVR, VM::VM2_n >, 485
gdcm::Element< TVR, VM::VM3_3n >, 491
gdcm::Element< TVR, VM::VM3_4 >, 497
gdcm::Element< TVR, VM::VM3_n >, 503
gdcm::Element< VR::AS, VM::VM5 >, 507
gdcm::Element< VR::OB, VM::VM1 >, 512
gdcm::Element< VR::OW, VM::VM1 >, 517
gdcm::EquipmentManufacturer, 533
gdcm::Type, 1291
gdcm::VL, 1406
TYPETOENCODING
gdcmVR.h, 1814
TYPETOLENGTH
gdcmVM.h, 1810
TypeToString
gdcm::EquipmentManufacturer, 533
TypeType
gdcm::Type, 1291

UC
gdcm::VR, 1417
UCComp
gdcm, 88
UI
gdcm::VR, 1417
UIComp
gdcm, 88
UIDGenerator
gdcm::UIDGenerator, 1294
UIDs
gdcm::UIDs, 1312
UIH
gdcm::EquipmentManufacturer, 533
UINT12
gdcm::PixelFormat, 941
UINT16
gdcm::PixelFormat, 941
UINT32
gdcm::PixelFormat, 941
UINT64
gdcm::PixelFormat, 941
UINT8
gdcm::PixelFormat, 941
UL
gdcm::VR, 1417
ULAction
gdcm::network::ULAction, 1315, 1316
ULActionAE6
gdcm::network::ULConnection, 1361
ULBasicCallback
gdcm::network::ULBasicCallback, 1356
ULConnection
gdcm::network::ULConnection, 1358
ULConnectionCallback

gdcm::network::ULConnectionCallback, 1363
ULConnectionInfo
gdcm::network::ULConnectionInfo, 1365
ULConnectionManager
gdcm::network::ULConnection, 1361
gdcm::network::ULConnectionManager, 1369
ULEvent
gdcm::network::ULEvent, 1374
ULTransitionTable
gdcm::network::ULTransitionTable, 1376
UltrasoundImageStorage
gdcm::MediaStorage, 807
UltrasoundImageStorageRetired
gdcm::MediaStorage, 807
UltrasoundMultiFrameImageStorage
gdcm::MediaStorage, 807
UltrasoundMultiFrameImageStorageRetired
gdcm::MediaStorage, 807
ULWritingCallback
gdcm::network::ULWritingCallback, 1378
UN
gdcm::VR, 1417
UndefinedEntityError
gdcm::Parser, 911
underline
gdcm::terminal, 110
UnexpectedStateError
gdcm::Parser, 911
UnInstallPipeline
vtkImageColorViewer, 1504
UNKNOWN
gdcm::CSAHeader, 352
gdcm::EquipmentManufacturer, 533
gdcm::LookupTable, 787
gdcm::Orientation, 895
gdcm::PhotometricInterpretation, 936
gdcm::PixelFormat, 942
gdcm::Spacing, 1156
gdcm::Surface, 1214
gdcm::Type, 1291
Unknown
gdcm::SwapCode, 1237
gdcm::TransferSyntax, 1282
Unpack
gdcm::Unpacker12Bits, 1387
UnRegister
gdcm::Object, 882
UnusedBitsPresentInPixelData
gdcm::Bitmap, 262
gdcm::Pixmap, 954
Update
gdcm::Curve, 370
gdcm::Overlay, 906
UpdateDisplayExtent
vtkImageColorViewer, 1504
UpdateOrientation
vtkImageColorViewer, 1505
UpdatePosition
gdcm::ByteBuffer, 273
UR
gdcm::VR, 1417
URComp
gdcm, 88
URI
gdcm::MediaStorage, 810
US
gdcm::VR, 1417
US_OW
gdcm::VR, 1417
US_SS
gdcm::VR, 1417
US_SS_OW
gdcm::VR, 1417
Usage
gdcm::Usage, 1389
UsageType
gdcm::Usage, 1389
UseDictAlways
gdcm::PythonFilter, 1014
gdcm::StringFilter, 1206
UseGrayscaleSecondaryImageStorage
gdcm::EmptyMaskGenerator, 523
UseOriginalSOPClassUID
gdcm::EmptyMaskGenerator, 523
UserInformation
gdcm::network::UserInformation, 1393
UserOption
gdcm::Usage, 1389
UserOrdering
gdcm::SerieHelper, 1120
UT
gdcm::VR, 1417
UTComp
gdcm, 88
Utilities Directory Reference, 68
UV
gdcm::VR, 1417

V
gdcm::Validate, 1397
Valid
gdcm::Preamble, 975
Validate
gdcm::PixelFormat, 947
gdcm::Validate, 1396
ValidateQuery
gdcm::BaseQuery, 236
gdcm::BaseRootQuery, 241

gdcm::FindPatientRootQuery, 607
gdcm::FindStudyRootQuery, 611
gdcm::ModalityPerformedProcedureStepCreateQuery, 828
gdcm::ModalityPerformedProcedureStepSetQuery, 832
gdcm::MovePatientRootQuery, 847
gdcm::MoveStudyRootQuery, 851
gdcm::WLMFindQuery, 1543
Validation
gdcm::Validate, 1397
ValidDataSet
gdcm::BaseQuery, 236
Value
gdcm::Value, 1399
value
gdcm::STATIC_ASSERTION_FAILURE< true >, 1168
value_type
gdcm::CodeString, 315
gdcm::LO, 783
gdcm::String< TDelimiter, TMaxLength, TPadChar >, 1200
ValueField
gdcm::DataElement, 384
gdcm::PDBElement, 919
ValueLengthField
gdcm::DataElement, 384
ValueMultiplicityField
gdcm::CSAElement, 349
ValuePtr
gdcm::DataElement, 374
ValuesType
gdcm::Scanner, 1061
gdcm::Scanner2, 1070
gdcm::StrictScanner, 1182
gdcm::StrictScanner2, 1191
VERBOSE_STYLE
gdcm::Printer, 994
Verify
gdcm::Defs, 412
gdcm::Macro, 797
gdcm::Module, 836
Version
gdcm::Version, 1403
VERTEX
gdcm::MeshPrimitive, 823
Video
gdcm::MediaStorage, 810
VideoEndoscopicImageStorage
gdcm::MediaStorage, 808
VideoMicroscopicImageStorage
gdcm::MediaStorage, 809
VideoPhotographicImageStorage
gdcm::MediaStorage, 809
VIEWType
gdcm::Surface, 1214
VIEWType_END
gdcm::Surface, 1214
VL
gdcm::VL, 1406
VL16
gdcm::VR, 1417
VL32
gdcm::VR, 1417
VLEndoscopicImageStorage
gdcm::MediaStorage, 809
VLMicroscopicImageStorage
gdcm::MediaStorage, 809
VLPhotographicImageStorage
gdcm::MediaStorage, 808
VLWholeSlideMicroscopyImageStorage
gdcm::MediaStorage, 809
VM
gdcm::VM, 1412
VM0
gdcm::VM, 1411
VM1
gdcm::VM, 1411
VM10
gdcm::VM, 1411
VM12
gdcm::VM, 1411
VM16
gdcm::VM, 1411
VM18
gdcm::VM, 1411
VM1_2
gdcm::VM, 1411
VM1_3
gdcm::VM, 1411
VM1_32
gdcm::VM, 1411
VM1_4
gdcm::VM, 1411
VM1_5
gdcm::VM, 1411
VM1_8
gdcm::VM, 1411
VM1_99
gdcm::VM, 1411
VM1_n
gdcm::VM, 1411
VM2
gdcm::VM, 1411
VM24
gdcm::VM, 1411
VM256

gdcm::VM, 1411
VM28
gdcm::VM, 1411
VM2_2n
gdcm::VM, 1411
VM2_n
gdcm::VM, 1412
VM3
gdcm::VM, 1411
VM30_30n
gdcm::VM, 1412
VM32
gdcm::VM, 1411
VM35
gdcm::VM, 1411
VM3_3n
gdcm::VM, 1412
VM3_4
gdcm::VM, 1412
VM3_n
gdcm::VM, 1412
VM4
gdcm::VM, 1411
VM47_47n
gdcm::VM, 1412
VM4_4n
gdcm::VM, 1412
VM5
gdcm::VM, 1411
VM6
gdcm::VM, 1411
VM6_6n
gdcm::VM, 1412
VM6_n
gdcm::VM, 1412
VM7_7n
gdcm::VM, 1412
VM8
gdcm::VM, 1411
VM9
gdcm::VM, 1411
VM99
gdcm::VM, 1411
VM_END
gdcm::VM, 1412
VMType
gdcm::Attribute< Group, Element, TVR, TVM >, 161
gdcm::Attribute< Group, Element, TVR, VM::VM1 >, 171
gdcm::VM, 1411
VR
gdcm::VR, 1418
VR_END
gdcm::VR, 1418
VR_VM1
gdcm::VR, 1417
VRALL
gdcm::VR, 1418
VRASCII
gdcm::VR, 1417
VRBINARY
gdcm::VR, 1417
VRField
gdcm::CSAElement, 349
gdcm::DataElement, 384
VRType
gdcm::VR, 1416
VRTypeTemplateCase
gdcmVR.h, 1814
VT100
gdcm::terminal, 110
VTK Directory Reference, 68
VTK_CMYK
vtkGDCMImageReader.h, 2203
vtkGDCMImageReader2.h, 2208
VTK_INVERSE_LUMINANCE
vtkGDCMImageReader.h, 2203
vtkGDCMImageReader2.h, 2208
VTK_LOOKUP_TABLE
vtkGDCMImageReader.h, 2203
vtkGDCMImageReader2.h, 2208
VTK_YBR
vtkGDCMImageReader.h, 2203
vtkGDCMImageReader2.h, 2208
vtkBooleanMacro
vtkGDCMImageReader, 1435, 1436
vtkGDCMImageReader2, 1450, 1451
vtkGDCMImageWriter, 1463
vtkGDCMThreadedImageReader, 1487
vtkGDCMThreadedImageReader2, 1492
vtkImageColorViewer, 1505
vtkImageMapToColors16, 1512
vtkGDCMImageReader, 1429
~vtkGDCMImageReader, 1432
ApplyInverseVideo, 1441
ApplyLookupTable, 1441
ApplyPlanarConfiguration, 1441
ApplyShiftScale, 1441
ApplyYBRToRGB, 1441
CanReadFile, 1432
Curve, 1441
DirectionCosines, 1441
ExecuteData, 1432
ExecuteInformation, 1433
FileNames, 1442
FillMedicalImageInformation, 1433
ForceRescale, 1442
GetDescriptiveName, 1433

GetFileExtensions, 1433
GetIconImage, 1433
GetOverlay, 1433
IconDataScalarType, 1442
IconImageDataExtent, 1442
IconNumberOfScalarComponents, 1442
ImageFormat, 1442
ImageOrientationPatient, 1442
ImagePositionPatient, 1442
LoadIconImage, 1443
LoadOverlays, 1443
LoadSingleFile, 1433
LossyFlag, 1443
MedicalImageProperties, 1443
New, 1433
NumberOfIconImages, 1443
NumberOfOverlays, 1443
PlanarConfiguration, 1443
PrintSelf, 1434
RequestDataCompat, 1434
RequestInformationCompat, 1434
Scale, 1444
SetCurve, 1434
SetFileNames, 1434
SetFilePattern, 1435
SetFilePrefix, 1435
SetMedicalImageProperties, 1435
Shift, 1444
vtkBooleanMacro, 1435, 1436
vtkGDCMImageReader, 1432
vtkGDCMMedicalImageProperties, 1470
vtkGetMacro, 1436–1438
vtkGetObjectMacro, 1438, 1439
vtkGetStringMacro, 1439
vtkGetVector3Macro, 1439
vtkGetVector6Macro, 1439
vtkSetMacro, 1439, 1440
vtkSetVector6Macro, 1440
vtkTypeMacro, 1440
vtkGDCMImageReader.h, 2201, 2203
VTK_CMYK, 2203
VTK_INVERSE_LUMINANCE, 2203
VTK_LOOKUP_TABLE, 2203
VTK_YBR, 2203
vtkGDCMImageReader2, 1444
∼vtkGDCMImageReader2, 1447
ApplyInverseVideo, 1456
ApplyLookupTable, 1456
ApplyPlanarConfiguration, 1456
ApplyShiftScale, 1456
ApplyYBRToRGB, 1456
CanReadFile, 1447
Curve, 1456
DirectionCosines, 1456
FillMedicalImageInformation, 1447
ForceRescale, 1457
GetDescriptiveName, 1447
GetFileExtensions, 1447
GetIconImage, 1448
GetIconImagePort, 1448
GetOverlay, 1448
GetOverlayPort, 1448
IconDataScalarType, 1457
IconImageDataExtent, 1457
IconNumberOfScalarComponents, 1457
ImageFormat, 1457
ImageOrientationPatient, 1457
ImagePositionPatient, 1457
LoadIconImage, 1457
LoadOverlays, 1458
LoadSingleFile, 1448
LossyFlag, 1458
New, 1448
NumberOfIconImages, 1458
NumberOfOverlays, 1458
PlanarConfiguration, 1458
PrintSelf, 1448
ProcessRequest, 1449
RequestData, 1449
RequestDataCompat, 1449
RequestInformation, 1449
RequestInformationCompat, 1449
Scale, 1458
SetCurve, 1450
SetFilePattern, 1450
SetFilePrefix, 1450
SetMedicalImageProperties, 1450
Shift, 1458
vtkBooleanMacro, 1450, 1451
vtkGDCMImageReader2, 1447
vtkGDCMMedicalImageProperties, 1470
vtkGetMacro, 1451–1453
vtkGetObjectMacro, 1453
vtkGetStringMacro, 1454
vtkGetVector3Macro, 1454
vtkGetVector6Macro, 1454
vtkSetMacro, 1454, 1455
vtkSetVector6Macro, 1455
vtkTypeMacro, 1455
vtkGDCMImageReader2.h, 2207, 2209
VTK_CMYK, 2208
VTK_INVERSE_LUMINANCE, 2208
VTK_LOOKUP_TABLE, 2208
VTK_YBR, 2208
vtkGDCMImageWriter, 1459
∼vtkGDCMImageWriter, 1461
CompressionTypes, 1461
GetDescriptiveName, 1462

GetFileExtensions, 1462
GetFileName, 1462
JPEG2000_COMPRESSION, 1461
JPEG_COMPRESSION, 1461
JPEGLS_COMPRESSION, 1461
New, 1462
NO_COMPRESSION, 1461
PrintSelf, 1462
RLE_COMPRESSION, 1461
SetDirectionCosines, 1462
SetDirectionCosinesFromImageOrientationPatient, 1462
SetFileNames, 1463
SetMedicalImageProperties, 1463
vtkBooleanMacro, 1463
vtkGDCMImageWriter, 1461
vtkGDCMMedicalImageProperties, 1470
vtkGetMacro, 1463, 1464
vtkGetObjectMacro, 1464, 1465
vtkGetStringMacro, 1465
vtkSetMacro, 1465, 1466
vtkSetStringMacro, 1466
vtkTypeMacro, 1466
Write, 1466
WriteGDCMData, 1467
WriteSlice, 1467
vtkGDCMImageWriter.h, 2212, 2213
vtkGDCMMedicalImageProperties, 1467
~vtkGDCMMedicalImageProperties, 1468
Clear, 1469
GetFile, 1469
New, 1469
PrintSelf, 1469
PushBackFile, 1469
vtkGDCMImageReader, 1470
vtkGDCMImageReader2, 1470
vtkGDCMImageWriter, 1470
vtkGDCMMedicalImageProperties, 1468
vtkTypeMacro, 1469
vtkGDCMMedicalImageProperties.h, 2215, 2216
vtkGDCMPolyDataReader, 1470
~vtkGDCMPolyDataReader, 1472
FileName, 1474
FillMedicalImageInformation, 1472
MedicalImageProperties, 1474
New, 1472
PrintSelf, 1472
RequestData, 1473
RequestData_HemodynamicWaveformStorage, 1473
RequestData_RTStructureSetStorage, 1473
RequestInformation, 1473
RequestInformation_HemodynamicWaveformStorage, 1473
RequestInformation_RTStructureSetStorage, 1473
RTStructSetProperties, 1475
vtkGDCMPolyDataReader, 1472
vtkGetObjectMacro, 1473, 1474
vtkGetStringMacro, 1474
vtkSetStringMacro, 1474
vtkTypeMacro, 1474
vtkGDCMPolyDataReader.h, 2221
vtkGDCMPolyDataWriter, 1475
~vtkGDCMPolyDataWriter, 1477
InitializeRTStructSet, 1477
MedicalImageProperties, 1479
New, 1477
PrintSelf, 1477
RTStructSetProperties, 1479
SetMedicalImageProperties, 1478
SetNumberOfInputPorts, 1478
SetRTStructSetProperties, 1478
vtkGDCMPolyDataWriter, 1477
vtkTypeMacro, 1478
WriteData, 1478
WriteRTSTRUCTData, 1479
WriteRTSTRUCTInfo, 1479
vtkGDCMPolyDataWriter.h, 2222, 2223
vtkGDCMTesting, 1480
~vtkGDCMTesting, 1481
GetGDCMDataRoot, 1482
GetMD5MetaImage, 1482
GetMHDMD5FromFile, 1482
GetNumberOfMD5MetaImages, 1482
GetRAWMD5FromFile, 1482
GetVTKDataRoot, 1482
MD5MetaImagesType, 1481
New, 1482
PrintSelf, 1483
vtkGDCMTesting, 1481
vtkTypeMacro, 1483
vtkGDCMTesting.h, 2224, 2225
vtkGDCMThreadedImageReader, 1483
~vtkGDCMThreadedImageReader, 1486
ExecuteData, 1486
ExecuteInformation, 1486
New, 1487
PrintSelf, 1487
ReadFiles, 1487
RequestDataCompat, 1487
vtkBooleanMacro, 1487
vtkGDCMThreadedImageReader, 1486
vtkGetMacro, 1487
vtkSetMacro, 1487, 1488
vtkTypeMacro, 1488
vtkGDCMThreadedImageReader.h, 2226
vtkGDCMThreadedImageReader2, 1489
~vtkGDCMThreadedImageReader2, 1490

GetFileName, 1491
New, 1491
PrintSelf, 1491
RequestInformation, 1491
SetFileName, 1491
SetFileNames, 1491
SplitExtent, 1491
ThreadedRequestData, 1491
vtkBooleanMacro, 1492
vtkGDCMThreadedImageReader2, 1490
vtkGetMacro, 1492, 1493
vtkGetObjectMacro, 1493
vtkGetVector3Macro, 1493, 1494
vtkGetVector6Macro, 1494
vtkSetMacro, 1494, 1495
vtkSetVector3Macro, 1495
vtkSetVector6Macro, 1495
vtkTypeMacro, 1495
vtkGDCMThreadedImageReader2.h, 2228
vtkGetMacro
vtkGDCMImageReader, 1436–1438
vtkGDCMImageReader2, 1451–1453
vtkGDCMImageWriter, 1463, 1464
vtkGDCMThreadedImageReader, 1487
vtkGDCMThreadedImageReader2, 1492, 1493
vtkImageColorViewer, 1505
vtkImageMapToColors16, 1512
vtkImageMapToWindowLevelColors2, 1517
vtkGetObjectMacro
vtkGDCMImageReader, 1438, 1439
vtkGDCMImageReader2, 1453
vtkGDCMImageWriter, 1464, 1465
vtkGDCMPolyDataReader, 1473, 1474
vtkGDCMThreadedImageReader2, 1493
vtkImageColorViewer, 1505, 1506
vtkImageMapToColors16, 1512
vtkGetStringMacro
vtkGDCMImageReader, 1439
vtkGDCMImageReader2, 1454
vtkGDCMImageWriter, 1465
vtkGDCMPolyDataReader, 1474
vtkRTStructSetProperties, 1534–1536
vtkGetVector3Macro
vtkGDCMImageReader, 1439
vtkGDCMImageReader2, 1454
vtkGDCMThreadedImageReader2, 1493, 1494
vtkGetVector6Macro
vtkGDCMImageReader, 1439
vtkGDCMImageReader2, 1454
vtkGDCMThreadedImageReader2, 1494
vtkImageColorViewer, 1496
~vtkImageColorViewer, 1499
AddInput, 1499
AddInputConnection, 1499
FirstRender, 1507
GetColorLevel, 1499
GetColorWindow, 1499
GetInput, 1499
GetOffScreenRendering, 1499
GetOverlayVisibility, 1500
GetPosition, 1500
GetSize, 1500
GetSliceMax, 1500
GetSliceMin, 1500
GetSliceRange, 1500
GetWindowName, 1500
ImageActor, 1507
InstallPipeline, 1501
Interactor, 1507
InteractorStyle, 1507
New, 1501
OverlayImageActor, 1507
PrintSelf, 1501
Render, 1501
Renderer, 1507
RenderWindow, 1507
SetColorLevel, 1501
SetColorWindow, 1501
SetDisplayId, 1501
SetInput, 1502
SetInputConnection, 1502
SetOffScreenRendering, 1502
SetOverlayVisibility, 1502
SetParentId, 1502
SetPosition, 1502
SetRenderer, 1503
SetRenderWindow, 1503
SetSize, 1503
SetSlice, 1503
SetSliceOrientation, 1503
SetSliceOrientationToXY, 1504
SetSliceOrientationToXZ, 1504
SetSliceOrientationToYZ, 1504
SetupInteractor, 1504
SetWindowId, 1504
Slice, 1507
SLICE_ORIENTATION_XY, 1499
SLICE_ORIENTATION_XZ, 1499
SLICE_ORIENTATION_YZ, 1498
SliceOrientation, 1508
UnInstallPipeline, 1504
UpdateDisplayExtent, 1504
UpdateOrientation, 1505
vtkBooleanMacro, 1505
vtkGetMacro, 1505
vtkGetObjectMacro, 1505, 1506
vtkImageColorViewer, 1499
vtkImageColorViewerCallback, 1506

vtkTypeMacro, 1506
WindowLevel, 1508
vtkImageColorViewer.h, 2230, 2231
vtkImageColorViewerCallback
vtkImageColorViewer, 1506
vtkImageMapToColors16, 1508
~vtkImageMapToColors16, 1510
ActiveComponent, 1513
DataWasPassed, 1513
GetMTime, 1510
LookupTable, 1514
New, 1510
OutputFormat, 1514
PassAlphaToOutput, 1514
PrintSelf, 1510
RequestData, 1510
RequestInformation, 1511
SetLookupTable, 1511
SetOutputFormatToLuminance, 1511
SetOutputFormatToLuminanceAlpha, 1511
SetOutputFormatToRGB, 1511
SetOutputFormatToRGBA, 1511
ThreadedRequestData, 1511
vtkBooleanMacro, 1512
vtkGetMacro, 1512
vtkGetObjectMacro, 1512
vtkImageMapToColors16, 1510
vtkSetMacro, 1513
vtkTypeMacro, 1513
vtkImageMapToColors16.h, 2234
vtkImageMapToWindowLevelColors2, 1514
~vtkImageMapToWindowLevelColors2, 1516
Level, 1518
New, 1516
PrintSelf, 1516
RequestData, 1516
RequestInformation, 1516
ThreadedRequestData, 1516
vtkGetMacro, 1517
vtkImageMapToWindowLevelColors2, 1516
vtkSetMacro, 1517
vtkTypeMacro, 1517
Window, 1518
vtkImageMapToWindowLevelColors2.h, 2236
vtkImagePlanarComponentsToComponents, 1518
~vtkImagePlanarComponentsToComponents, 1519
New, 1520
PrintSelf, 1520
RequestData, 1520
vtkImagePlanarComponentsToComponents, 1519
vtkTypeMacro, 1520
vtkImagePlanarComponentsToComponents.h, 2238
vtkImageRGBToYBR, 1521
~vtkImageRGBToYBR, 1522
New, 1522
PrintSelf, 1522
ThreadedExecute, 1522
vtkImageRGBToYBR, 1522
vtkTypeMacro, 1522
vtkImageRGBToYBR.h, 2239, 2240
vtkImageYBRToRGB, 1523
~vtkImageYBRToRGB, 1524
New, 1524
PrintSelf, 1524
ThreadedExecute, 1524
vtkImageYBRToRGB, 1524
vtkTypeMacro, 1525
vtkImageYBRToRGB.h, 2241
vtkLookupTable16, 1525
~vtkLookupTable16, 1526
Build, 1527
GetPointer, 1527
MapScalarsThroughTable2, 1527
New, 1527
PrintSelf, 1527
SetNumberOfTableValues, 1527
Table16, 1528
vtkLookupTable16, 1526
vtkTypeMacro, 1528
WritePointer, 1528
vtkLookupTable16.h, 2242, 2243
vtkRTStructSetProperties, 1529
~vtkRTStructSetProperties, 1531
AddContourReferencedFrameOfReference, 1531
AddReferencedFrameOfReference, 1531
AddStructureSetROI, 1531
AddStructureSetROIObservation, 1532
Clear, 1532
DeepCopy, 1532
GetContourReferencedFrameOfReferenceClassUID, 1532
GetContourReferencedFrameOfReferenceInstanceUID, 1532
GetNumberOfContourReferencedFrameOfReferences, 1532
GetNumberOfReferencedFrameOfReferences, 1533
GetNumberOfStructureSetROIs, 1533
GetReferencedFrameOfReferenceClassUID, 1533
GetReferencedFrameOfReferenceInstanceUID, 1533
GetStructureSetObservationNumber, 1533
GetStructureSetROIDescription, 1533
GetStructureSetROIGenerationAlgorithm, 1533
GetStructureSetROIName, 1533
GetStructureSetROINumber, 1534
GetStructureSetROIObservationLabel, 1534
GetStructureSetROIRefFrameRefUID, 1534
GetStructureSetRTROIInterpretedType, 1534
Internals, 1538

New, 1534
PrintSelf, 1534
ReferenceFrameOfReferenceUID, 1538
ReferenceSeriesInstanceUID, 1538
SeriesInstanceUID, 1538
SOPInstanceUID, 1538
StructureSetDate, 1538
StructureSetLabel, 1538
StructureSetName, 1539
StructureSetTime, 1539
StudyInstanceUID, 1539
vtkGetStringMacro, 1534–1536
vtkRTStructSetProperties, 1531
vtkSetStringMacro, 1536, 1537
vtkTypeMacro, 1537
vtkRTStructSetProperties.h, 2244, 2245
vtkSetMacro
vtkGDCMImageReader, 1439, 1440
vtkGDCMImageReader2, 1454, 1455
vtkGDCMImageWriter, 1465, 1466
vtkGDCMThreadedImageReader, 1487, 1488
vtkGDCMThreadedImageReader2, 1494, 1495
vtkImageMapToColors16, 1513
vtkImageMapToWindowLevelColors2, 1517
vtkSetStringMacro
vtkGDCMImageWriter, 1466
vtkGDCMPolyDataReader, 1474
vtkRTStructSetProperties, 1536, 1537
vtkSetVector3Macro
vtkGDCMThreadedImageReader2, 1495
vtkSetVector6Macro
vtkGDCMImageReader, 1440
vtkGDCMImageReader2, 1455
vtkGDCMThreadedImageReader2, 1495
vtkTypeMacro
vtkGDCMImageReader, 1440
vtkGDCMImageReader2, 1455
vtkGDCMImageWriter, 1466
vtkGDCMMedicalImageProperties, 1469
vtkGDCMPolyDataReader, 1474
vtkGDCMPolyDataWriter, 1478
vtkGDCMTesting, 1483
vtkGDCMThreadedImageReader, 1488
vtkGDCMThreadedImageReader2, 1495
vtkImageColorViewer, 1506
vtkImageMapToColors16, 1513
vtkImageMapToWindowLevelColors2, 1517
vtkImagePlanarComponentsToComponents, 1520
vtkImageRGBToYBR, 1522
vtkImageYBRToRGB, 1525
vtkLookupTable16, 1528
vtkRTStructSetProperties, 1537

WarningOff
gdcm::Trace, 1279
WarningOn
gdcm::Trace, 1279
Waveform
gdcm::MediaStorage, 810
gdcm::Waveform, 1540
WeirdPapryus
gdcm::TransferSyntax, 1283
what
gdcm::Exception, 538
white
gdcm::terminal, 110
Window
vtkImageMapToWindowLevelColors2, 1518
WindowLevel
vtkImageColorViewer, 1508
WIREFRAME
gdcm::Surface, 1214
WLMFindQuery
gdcm::WLMFindQuery, 1543
Wrapping Directory Reference, 69
Write
gdcm::ByteValue, 284
gdcm::CommandDataSet, 324
gdcm::DataElement, 383
gdcm::DataSet, 401
gdcm::Element< TVR, TVM >, 463
gdcm::Element< TVR, VM::VM1_2 >, 469
gdcm::Element< TVR, VM::VM1_n >, 475
gdcm::Element< TVR, VM::VM2_2n >, 481
gdcm::Element< TVR, VM::VM2_n >, 487
gdcm::Element< TVR, VM::VM3_3n >, 493
gdcm::Element< TVR, VM::VM3_4 >, 499
gdcm::Element< TVR, VM::VM3_n >, 505
gdcm::Element< VR::AS, VM::VM5 >, 509
gdcm::Element< VR::OB, VM::VM1 >, 513
gdcm::Element< VR::OW, VM::VM1 >, 518
gdcm::EncodingImplementation< VR::VRASCII >, 527, 528
gdcm::EncodingImplementation< VR::VRBINARY >, 530
gdcm::ExplicitDataElement, 544
gdcm::File, 553
gdcm::FileAnonymizer, 558
gdcm::FileMetaInformation, 581
gdcm::Fragment, 616
gdcm::ImageWriter, 699
gdcm::ImplicitDataElement, 706
gdcm::Item, 728
gdcm::network::AAbortPDU, 115
gdcm::network::AAssociateACPDU, 119
gdcm::network::AAssociateRJPDU, 121
gdcm::network::AAssociateRQPDU, 127
gdcm::network::AbstractSyntax, 130

gdcm::network::ApplicationContext, 146
gdcm::network::AReleaseRPPDU, 151
gdcm::network::AReleaseRQPDU, 153
gdcm::network::AsynchronousOperationsWindowSub, 158
gdcm::network::BasePDU, 232
gdcm::network::ImplementationClassUIDSub, 700
gdcm::network::ImplementationUIDSub, 701
gdcm::network::ImplementationVersionNameSub, 702
gdcm::network::MaximumLengthSub, 800
gdcm::network::PDataTFPDU, 916
gdcm::network::PresentationContextAC, 981
gdcm::network::PresentationContextRQ, 988
gdcm::network::PresentationDataValue, 991
gdcm::network::RoleSelectionSub, 1056
gdcm::network::ServiceClassApplicationInformation, 1122
gdcm::network::SOPClassExtendedNegociationSub, 1148
gdcm::network::TransferSyntaxSub, 1288
gdcm::network::UserInformation, 1394
gdcm::PGXCodec, 935
gdcm::PixmapWriter, 966
gdcm::PNMCodec, 971
gdcm::Preamble, 975
gdcm::SegmentWriter, 1098
gdcm::SequenceOfFragments, 1105
gdcm::SequenceOfItems, 1114
gdcm::StreamImageWriter, 1175
gdcm::SurfaceWriter, 1235
gdcm::Tag, 1265
gdcm::ValueIO< TDE, TSwap, TType >, 1401
gdcm::VL, 1408
gdcm::VR, 1421
gdcm::VRVLSize< 0 >, 1427
gdcm::VRVLSize< 1 >, 1429
gdcm::Writer, 1549
vtkGDCMImageWriter, 1466
Write16
gdcm::VL, 1408
WriteASCII
gdcm::Element< TVR, VM::VM1_n >, 475
WriteBuffer
gdcm::ByteValue, 285
gdcm::SequenceOfFragments, 1106
WriteBufferAsRGBA
gdcm::LookupTable, 791
WriteData
vtkGDCMPolyDataWriter, 1478
WriteFooter
gdcm::DictConverter, 429
WriteGDCMData
vtkGDCMImageWriter, 1467
WriteHeader
gdcm::DictConverter, 429
WriteHelpFile
gdcm::BaseQuery, 236
WriteImageInformation
gdcm::StreamImageWriter, 1175
WriteImageSubregionRAW
gdcm::StreamImageWriter, 1176
WritePointer
vtkLookupTable16, 1528
WriteQuery
gdcm::BaseQuery, 236
Writer
gdcm::Writer, 1547
WriteRawHeader
gdcm::StreamImageWriter, 1176
WriteRTSTRUCTData
vtkGDCMPolyDataWriter, 1479
WriteRTSTRUCTInfo
vtkGDCMPolyDataWriter, 1479
WriteSlice
vtkGDCMImageWriter, 1467

x16printf
gdcm, 102
XML
gdcm::Printer, 994
XMLDictReader
gdcm::XMLDictReader, 1551
XMLPrinter
gdcm::XMLPrinter, 1554
XMLPrivateDictReader
gdcm::XMLPrivateDictReader, 1558
XRay3DAngiographicImageStorage
gdcm::MediaStorage, 808
XRay3DCraniofacialImageStorage
gdcm::MediaStorage, 809
XRayAngiographicBiPlaneImageStorageRetired
gdcm::MediaStorage, 808
XRayAngiographicImageStorage
gdcm::MediaStorage, 808
XRayRadiationDoseSR
gdcm::MediaStorage, 809
XRayRadiofluoroscopingImageStorage
gdcm::MediaStorage, 808

YBR2RGB
gdcm::ImageChangePhotometricInterpretation, 646
YBR_FULL
gdcm::PhotometricInterpretation, 937
YBR_FULL_422
gdcm::PhotometricInterpretation, 937
YBR_ICT
gdcm::PhotometricInterpretation, 937
YBR_PARTIAL_420

gdcm::PhotometricInterpretation, 937
YBR_PARTIAL_422
gdcm::PhotometricInterpretation, 937
YBR_RCT
gdcm::PhotometricInterpretation, 937
yellow
gdcm::terminal, 110
YES
gdcm::Surface, 1214

ZEROED_OUT
gdcm::CSAHeader, 352
ZSpacing
gdcm::IPPSorter, 722
ZTolerance
gdcm::IPPSorter, 722