

Appendix A
Informative
Conformance
Statement

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A.1 **INTRODUCTION**

All medical imaging, PACS and printing devices conforming to DICOM 3.0 must indicate in sufficient details the Service Classes and Information Objects, collectively referred as SOP (Service Object Pair). The guideline is in accordance with Part 2 of the Standard.

The Conformance Statement listed below is normative. It should only be used as an example for drafting an actual Conformance Statement. The Toolkit is not an Application. Therefore, a number of entities cannot be specified. For example, the real world activity for Query/Retrieve, Implementation Class UID and specific Services supported can only be listed by the Application developer.

It is the responsibility of Application developer to write a Conformance Statement specifying supported SOP Classes.

A.2 **IMPLEMENTATION MODEL**

msiCOM3 Toolkit provides fundamental tools for exchanging data between SCU and SCP over a network. Application developer creates real world instances using the toolkit.

A.2.1 **Application Data Flow Diagram**

Application data flow will depend upon the Application being developed. An example of Storage Service Class Application is shown in Figure A.1.

A.2.2 **Functional Definition of Application Entities**

msiCOM3 Toolkit is used to develop programs that act as a Service Class User (SCU) or Service Class Provider (SCP).

An Application acting as an SCP is enabled when the machine is powered on. It waits for Association request from other remote DICOM clients.

An Application acting as an SCU initiates and transfers data to a remote DICOM server.

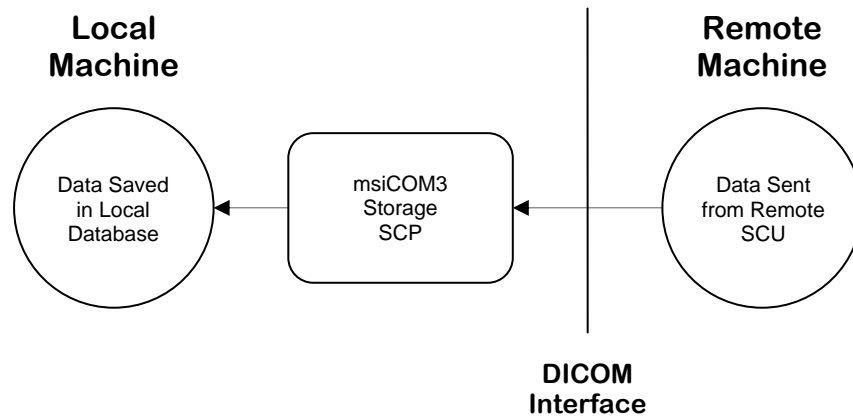


Figure A.1 Storage Application Data Flow Diagram

A.2.3 Sequencing of Real World Activity

Real world activity depends upon the Application developer. It is the responsibility of the Application to document real world activity.

A.3 APPLICATION ENTITY SPECIFICATIONS

A.3.1 Supported Application Entity

msiCOM3 Toolkit supports the following Application Entities in SCP and/or SCU roles, depending upon the Application.

A.3.1.1 Basic Worklist Management Application Entity.

SOP Class Name	SOP Class UID
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3
Modality Performed Procedure Step - Retrieve	1.2.840.10008.3.1.2.3.4
Modality Performed Procedure Step - Notify	1.2.840.10008.3.1.2.3.5
Structured Reporting - Basic Text	1.2.840.10008.5.1.4.1.1.88.11
Structured Reporting - Enhanced	1.2.840.10008.5.1.4.1.1.88.22
Structured Reporting - Comprehensive	1.2.840.10008.5.1.4.1.1.88.33
Structured Reporting - Chest CAD	1.2.840.10008.5.1.4.1.1.88.65

A.3.1.2 *Media Storage Application Entity.*

SOP Class Name	SOP Class UID
Basic Color Image Box Storage	1.2.840.10008.5.1.1.4.1
Basic Film Session Storage	1.2.840.10008.5.1.1.1
Basic Film Box Storage	1.2.840.10008.5.1.1.2
Basic Gray Image Box Storage	1.2.840.10008.5.1.1.4
CR Image Storage	1.2.840.10008.5.1.4.1.1.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
Detached Patient Management Storage	1.2.840.10008.3.1.2.1.1
Detached Visit Management Storage	1.2.840.10008.3.1.2.2.1
Detached Result Management Storage	1.2.840.10008.3.1.2.5.1
Detached Interpretation Management Storage	1.2.840.10008.3.1.2.6.1
Detached Study Management Storage	1.2.840.10008.3.1.2.3.1
Detached Study Component Mgmt. Storage	1.2.840.10008.3.1.2.3.2
Digital Intra Oral Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.3
Digital Intra Oral Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.3.1
Digital Mammo Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammo Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.2.1
Digital X-Ray Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital X-Ray Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.1.1
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.1.11.1
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29
Hardcopy Color Image Storage	1.2.840.10008.5.1.1.30
Media Storage Directory Storage	1.2.840.10008.1.3.10
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2
NM Image Storage	1.2.840.10008.5.1.4.1.1.20
PET Image Storage	1.2.840.10008.5.1.4.1.1.128
PET Curve Storage	1.2.840.10008.5.1.4.1.1.129
SC Image Storage	1.2.840.10008.5.1.4.1.1.7

SOP Class Name	SOP Class UID
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11
Stored Print Storage	1.2.840.10008.5.1.1.27
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1
US Multi Image Storage	1.2.840.10008.5.1.4.1.1.3.1
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3
Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1
Waveform Storage - Audio	1.2.840.10008.5.1.4.1.1.9.1.2
Waveform Storage - ECG	1.2.840.10008.5.1.4.1.1.9.1.1
Waveform Storage - Hemo	1.2.840.10008.5.1.4.1.1.9.2.1
X-Ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66

A.3.1.3 Patient Management Application Entity.

SOP Class Name	SOP Class UID
Detached Patient Management	1.2.840.10008.3.1.2.1.1
Detached Visit Management	1.2.840.10008.3.1.2.2.1
Patient Management Meta	1.2.840.10008.3.1.2.1.4

A.3.1.4 Print Management Application Entity.

SOP Class Name	SOP Class UID
Basic Annotation Box	1.2.840.10008.5.1.1.15
Basic Color Image Box	1.2.840.10008.5.1.1.4.1
Basic Color Print Management Meta	1.2.840.10008.5.1.1.18

SOP Class Name	SOP Class UID
Basic Film Box	1.2.840.10008.5.1.1.2
Basic Film Session	1.2.840.10008.5.1.1.1
Basic Gray Image Box	1.2.840.10008.5.1.1.4
Basic Gray Print Management Meta	1.2.840.10008.5.1.1.9
Image Overlay Box	1.2.840.10008.5.1.1.24
Presentation LUT	1.2.840.10008.5.1.1.23
Print Job	1.2.840.10008.5.1.1.14
Printer	1.2.840.10008.5.1.1.16
Pull Print Request	1.2.840.10008.5.1.1.31
Pull Stored Print Management Meta	1.2.840.10008.5.1.1.32
Reference Color Print Management Meta	1.2.840.10008.5.1.1.18.1
Reference Gray Print Management Meta	1.2.840.10008.5.1.1.9.1
Reference Image Box	1.2.840.10008.5.1.1.4.2
VOI LUT Box	1.2.840.10008.5.1.1.22

A.3.1.5 *Query/Retrieve Application Entity.*

SOP Class Name	SOP Class UID
Patient Root Q/R Find	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Q/R Move	1.2.840.10008.5.1.4.1.2.1.2
Patient Root Q/R Get	1.2.840.10008.5.1.4.1.2.1.3
Study Root Q/R Find	1.2.840.10008.5.1.4.1.2.2.1
Study Root Q/R Move	1.2.840.10008.5.1.4.1.2.2.2
Study Root Q/R Get	1.2.840.10008.5.1.4.1.2.2.3
Patient/Study Root Q/R Find	1.2.840.10008.5.1.4.1.2.3.1
Patient/Study Root Q/R Move	1.2.840.10008.5.1.4.1.2.3.2
Patient/Study Root Q/R Get	1.2.840.10008.5.1.4.1.2.3.3

A.3.1.6 *Queue Management Application Entity.*

SOP Class Name	SOP Class UID
Detached Result Management	1.2.840.10008.3.1.2.5.1
Detached Interpretation Management	1.2.840.10008.3.1.2.6.1

SOP Class Name	SOP Class UID
Result Management Meta	1.2.840.10008.3.1.2.6.4

A.3.1.7 Results Management Application Entity.

SOP Class Name	SOP Class UID
Detached Result Management	1.2.840.10008.3.1.2.5.1
Detached Interpretation Management	1.2.840.10008.3.1.2.6.1
Result Management Meta	1.2.840.10008.3.1.2.6.4

A.3.1.9 Storage Service Application Entity.

SOP Class Name	SOP Class UID
Basic Color Image Box Storage	1.2.840.10008.5.1.1.4.1
Basic Film Session Storage	1.2.840.10008.5.1.1.1
Basic Film Box Storage	1.2.840.10008.5.1.1.2
Basic Gray Image Box Storage	1.2.840.10008.5.1.1.4
CR Image Storage	1.2.840.10008.5.1.4.1.1.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
Detached Patient Management Storage	1.2.840.10008.3.1.2.1.1
Detached Visit Management Storage	1.2.840.10008.3.1.2.2.1
Detached Result Management Storage	1.2.840.10008.3.1.2.5.1
Detached Interpretation Management Storage	1.2.840.10008.3.1.2.6.1
Detached Study Management Storage	1.2.840.10008.3.1.2.3.1
Detached Study Component Mgmt. Storage	1.2.840.10008.3.1.2.3.2
Digital Intra Oral Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.3
Digital Intra Oral Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.3.1
Digital Mammo Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammo Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.2.1
Digital X-Ray Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital X-Ray Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.1.1
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.1.11.1
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29
Hardcopy Color Image Storage	1.2.840.10008.5.1.1.30

SOP Class Name	SOP Class UID
Media Storage Directory Storage	1.2.840.10008.1.3.10
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2
NM Image Storage	1.2.840.10008.5.1.4.1.1.20
PET Image Storage	1.2.840.10008.5.1.4.1.1.128
PET Curve Storage	1.2.840.10008.5.1.4.1.1.129
SC Image Storage	1.2.840.10008.5.1.4.1.1.7
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11
Stored Print Storage	1.2.840.10008.5.1.1.27
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1
US Multi Image Storage	1.2.840.10008.5.1.4.1.1.3.1
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3
Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1
Waveform Storage - Audio	1.2.840.10008.5.1.4.1.1.9.1.2
Waveform Storage - ECG	1.2.840.10008.5.1.4.1.1.9.1.1
Waveform Storage - Hemo	1.2.840.10008.5.1.4.1.1.9.2.1
X-Ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2

A.3.1.8 *Storage Commitment Application Entity.*

SOP Class Name	SOP Class UID
Storage Commitment Push Model Class	1.2.840.10008.1.20.1
Storage Commitment Push Model Instance	1.2.840.10008.1.20.1.1

SOP Class Name	SOP Class UID
Storage Commitment Pull Model Class	1.2.840.10008.1.20.2
Storage Commitment Pull Model Instance	1.2.840.10008.1.20.2.1

A.3.1.10 *Study Content Notification Application Entity.*

SOP Class Name	SOP Class UID
Basic Study Content Notification	1.2.840.10008.1.9

A.3.1.11 *Study Management Application Entity.*

SOP Class Name	SOP Class UID
Detached Study Component Management	1.2.840.10008.3.1.2.3.2
Detached Study Management	1.2.840.10008.3.1.2.3.1
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3
Modality Performed Procedure Step - Notify	1.2.840.10008.3.1.2.3.5
Modality Performed Procedure Step - Retrieve	1.2.840.10008.3.1.2.3.4
Study Management Meta	1.2.840.10008.3.1.2.5.5

A.3.1.12 *Verification Application Entity.*

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1

A.3.2 **Association Establishment Policies**

A.3.2.1 *General*

There is no limit on maximum PDU size. It is usually limited by available the system memory. The default value is 128 Kbytes (16,384 bytes). This value is specified by the Application developer.

A.3.2.2 *Number of Associations*

There is no inherent limitation in number of Association accepted by an SCP. It is usually limited by Application design and available system resources. An Application acting as an SCU will initiate only one Association.

A.3.2.3 *Asynchronous Nature*

Asynchronous operations are not supported. A request for asynchronous transfer will be rejected.

A.3.2.4 *Implementation Identifying Information*

The Application programmer specifies the Implementation Class UID and Implementation Version Name. The default Implementation Class UID is “1.3.6.1.4.1.11157.I.J.K”, where I, J and K are the numeric values of major, minor and revision numbers of the Toolkit version. The default Implementation Version Name is “msiCOM3 I.J.X”, where I and J are the major and minor version numbers and X is the alphabetic revision code.

A.3.3 **Association Initiation / Acceptance Policy**

An SCU Application initiates a new Association with or without operator action. For example, in the former case, the operator may send a study to a printer from a GUI control of the machine, while, the latter may be used for the nightly PACS archival.

An SCP Application does not initiate a new Association. It only processes the Association from a remote node, optionally alerting the operator about the activity.

Association Acceptance Policy is configurable. It can be unrestricted, restricted to correct Called AE Title or restricted to correct Called and Calling AE Titles

A.3.3.1 *Associated Real World Activity*

All real world activity is Application dependent.

A.3.3.2 *Proposed Presentation Context Table*

An Application can propose (for an SCU Application) or accept (for an SCP Application) one or more of the following Transfer Syntaxes.

Name List	UID List
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2
JPEG Lossy, Baseline	1.2.840.10008.1.2.4.50
JPEG Extended (Proc 2 & 4)	1.2.840.10008.1.2.4.51
JPEG Extended (Proc 3 & 5)	1.2.840.10008.1.2.4.52
JPEG Spectral, Non Hier (Proc 6 & 8)	1.2.840.10008.1.2.4.53
JPEG Spectral, Non Hier (Proc 7 & 9)	1.2.840.10008.1.2.4.54
JPEG Full Prog, Non Hier (Proc 10 & 12)	1.2.840.10008.1.2.4.55
JPEG Full Prog, Non Hier (Proc 11 & 13)	1.2.840.10008.1.2.4.56
JPEG Lossless, Non Hier (Proc 14)	1.2.840.10008.1.2.4.57
JPEG Lossless, Non Hier (Proc 15)	1.2.840.10008.1.2.4.58
JPEG Extended, Non Hier (Proc 16 & 18)	1.2.840.10008.1.2.4.59
JPEG Extended, Hier (Proc 17 & 19)	1.2.840.10008.1.2.4.60
JPEG Spectral, Hier (Proc 20 & 22)	1.2.840.10008.1.2.4.61
JPEG Spectral, Hier (Proc 21 & 23)	1.2.840.10008.1.2.4.62
JPEG Full Prog, Hier (Proc 24 & 26)	1.2.840.10008.1.2.4.63
JPEG Full Prog, Hier (Proc 25 & 27)	1.2.840.10008.1.2.4.64
JPEG Lossless, Hier (Proc 28)	1.2.840.10008.1.2.4.65
JPEG Lossless, Hier (Proc 29)	1.2.840.10008.1.2.4.66
JPEG Lossless, First Order Prediction	1.2.840.10008.1.2.4.70
JPEG LS, Lossless	1.2.840.10008.1.2.4.80
JPEG LS, Lossy	1.2.840.10008.1.2.4.81
JPEG 2000, Lossless	1.2.840.10008.1.2.4.90
JPEG 2000, Lossy	1.2.840.10008.1.2.4.91
RLE Lossless	1.2.840.10008.1.2.5

If multiple Transfer Syntaxes are proposed to an SCP by a remote client, then the preference will be determined by the order in which the Transfer Syntaxes are listed in the Application.

The maximum number of Transfer Syntaxes presented in an Association is 512.

An example of Presentation Context Table is shown below. This table can be extended to include all SOP Classes listed in Section A.3.1.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Basic Film Session	1.2.840.10008.5.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		JPEG Lossy, Extended	1.2.840.10008.1.2.4.51		
		JPEG Lossless	1.2.840.10008.1.2.4.57		

A.4 **COMMUNICATION PROFILES**

A.4.1 **Supported Communication Stacks**

msiCOM3 Toolkit provides TCP/IP Communication Support as defined in Part 8.

A.4.1.1 *OSI Stack*

OSI stack is not supported.

A.4.1.2 *TCP/IP Stack*

TCP/IP stack is inherited from the operating system.

A.4.1.3 *Point to Point Stack*

Point to Point stack is not supported.

A.5 **EXTENSIONS / SPECIALIZATIONS / PRIVATIZATIONS**

None.

A.6 **CONFIGURATION**

All configurable parameters can be 'hardcoded' by Application programmer or can be read from an external configuration file at run time. The parameters that are not explicitly specified will be set to their default values.

A.6.1 AE Title / Presentation Address Mapping

Local AE Title is configurable. The default value is derived from the machine's hostname. As per the specification of an AE Title, only the printable ASCII characters are used. All others are replaced with the underscore ('_') character. The resultant string is truncated to 16 characters, if needed.

Node IP address, netmask, hostname, hostname aliases are configured by the local system administrator. TCP/IP port is configurable. The default value is 104, well known port for DICOM.

A.7 SUPPORT OF EXTENDED CHARACTER SETS

No extended character sets are supported.