
DICOM

Conformance Statement

Media Center R.2.2



Issued by:

Philips Medical Systems Nederland BV, a Philips Healthcare company,

P.O. Box 10.000
5680 DA Best
The Netherlands

Email: dicom@philips.com

Internet: <http://www.healthcare.philips.com/connectivity>

Document Number: XPS031-090362.03

Date: 12-October-2009

1. DICOM CONFORMANCE STATEMENT OVERVIEW

The Media Center system is a DICOM media burning service provider for medical images and other object instances.

The Media Center provides the following DICOM data exchange features:

- It receives instances sent to it by remote systems (e.g. workstations or imaging modalities) and stores them in a temporary database for burning.
- It is able to write DICOM CD disks.



Figure 1: Media Center in a DICOM Network

Media Center allows the operator also to monitor queues and burning process of the received images.

This version of DICOM Conformance Statement applies to the Media Center system version R.2.2.

Next table presents an overview of all network services and the applicable SOP Class as provided by Media Center.

Table 1: Network Services

SOP Class		User of Service (SCU)	Provider of Service (SCP)
Name	UID		
Other			
Verification SOP Class	1.2.840.10008.1.1	No	Yes
Transfer			
12-Lead ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.1	No	Yes
Ambulatory ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.3	No	Yes
Basic Cardiac ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.3.1	No	Yes
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	No	Yes

SOP Class		User of Service (SCU)	Provider of Service (SCP)
Name	UID		
Basic Voice Audio Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.4.1	No	Yes
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	No	Yes
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	No	Yes
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	No	Yes
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	No	Yes
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	No	Yes
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	No	Yes
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	No	Yes
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	No	Yes
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	No	Yes
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	No	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	No	Yes
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	No	Yes
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	No	Yes
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	No	Yes
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	No	Yes
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	No	Yes
Hemodynamic Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.2.1	No	Yes
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	No	Yes
Mammography CAD SR SOP Class	1.2.840.10008.5.1.4.1.1.88.50	No	Yes
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	No	Yes
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	No	Yes
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	No	Yes
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	No	Yes
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	No	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	No	Yes
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	No	Yes
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	No	Yes
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	No	Yes
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	No	Yes
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	No	Yes
RT Beams Treatment Record Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.4	No	Yes
RT Brachy Treatment Record Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.6	No	Yes
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	No	Yes

SOP Class		User of Service (SCU)	Provider of Service (SCP)
Name	UID		
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	No	Yes
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	No	Yes
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	No	Yes
RT Treatment Summary Record Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.7	No	Yes
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	No	Yes
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	No	Yes
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	No	Yes
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	No	Yes
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	No	Yes
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	No	Yes
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	No	Yes
Standalone VOI LUT Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.11	No	Yes
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	No	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	No	Yes
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	No	Yes
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	No	Yes
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	No	Yes
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	No	Yes
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	No	Yes
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	No	Yes
VL Endoscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.1	No	Yes
VL Microscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.2	No	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	No	Yes
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	No	Yes
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	No	Yes
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	No	Yes
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	No	Yes

The following table lists the Supported Media Storage Application Profiles (with roles).

Table 2: Media Services

Media Storage Application Profile	File-set Creator (FSC)	File-set Updater (FSU)	File-set Reader (FSR)	Display Directory (DD)
Compact Disk-Recordable				
General Purpose CD-R Interchange	Yes	No	No	No

2. TABLE OF CONTENTS

1.	DICOM CONFORMANCE STATEMENT OVERVIEW	3
2.	TABLE OF CONTENTS	6
3.	INTRODUCTION	8
3.1.	REVISION HISTORY	8
3.2.	AUDIENCE	8
3.3.	REMARKS	8
3.4.	DEFINITIONS, TERMS AND ABBREVIATIONS	9
3.5.	REFERENCES	10
4.	NETWORKING	11
4.1.	IMPLEMENTATION MODEL	11
4.1.1.	Application Data Flow.....	11
4.1.2.	Functional Definition of AE's.....	12
4.1.2.1.	Functional Definition of Storage Provider AE.....	12
4.1.3.	Sequencing of Real World Activities.....	13
4.2.	AE SPECIFICATIONS	14
4.2.1.	Storage Provider AE.....	14
4.2.1.1.	SOP Classes.....	14
4.2.1.2.	Association Policies.....	15
4.2.1.2.1.	General.....	16
4.2.1.2.2.	Number of Associations.....	16
4.2.1.2.3.	Asynchronous Nature.....	16
4.2.1.2.4.	Implementation Identifying Information.....	17
4.2.1.2.5.	Communication Failure Handling.....	17
4.2.1.3.	Association Initiation Policy.....	17
4.2.1.4.	Association Acceptance Policy.....	18
4.2.1.4.1.	(Real-World) Activity – Verification as SCP.....	18
4.2.1.4.2.	(Real-World) Activity – Image Import.....	19
4.3.	NETWORK INTERFACES	28
4.3.1.	Physical Network Interfaces.....	28
4.3.2.	Additional Protocols.....	28
4.4.	CONFIGURATION	28
4.4.1.	AE Title/Presentation Address Mapping.....	28
4.4.1.1.	Local AE Titles.....	28
4.4.1.2.	Remote AE Title/Presentation Address Mapping.....	29
4.4.2.	Parameters.....	29
5.	MEDIA INTERCHANGE	31
5.1.	IMPLEMENTATION MODEL	31
5.1.1.	Application Data Flow Diagram.....	31
5.1.2.	Functional Definitions of AE's.....	31
5.1.3.	Sequencing of Real World Activities.....	32
5.2.	AE SPECIFICATIONS	32
5.2.1.	Media AE Media - Specification.....	32
5.2.1.1.	File Meta Information for the Media AE.....	33
5.2.1.2.	Real-World Activities.....	33
5.2.1.2.1.	RWA - Create File-set.....	33
5.3.	AUGMENTED AND PRIVATE APPLICATION PROFILES	34
5.4.	MEDIA CONFIGURATION	34
6.	SUPPORT OF CHARACTER SETS	35
7.	SECURITY	37
7.1.	SECURITY PROFILES	37
7.1.1.	Security use Profiles.....	37
7.1.2.	Security Transport Connection Profiles.....	37

7.1.3. Digital Signature Profiles..... 37
7.1.4. Media Storage Security Profiles..... 37
7.1.5. Attribute Confidentiality Profiles 37
7.1.6. Network Address Management Profiles 37
7.1.7. Time Synchronization Profiles 37
7.1.8. Application Configuration Management Profiles..... 37
7.1.9. Audit Trail Profiles..... 37
7.2. ASSOCIATION LEVEL SECURITY 37
7.3. APPLICATION LEVEL SECURITY..... 38

3. INTRODUCTION

The introduction specifies product and relevant disclaimers as well as any general information that the vendor feels is appropriate.

3.1. Revision History

The revision history provides dates and differences of the different releases.

Table 3: Revision History

Document Version	Date of Issue	Status	Description
00	30-August-2006	Draft	Initial version MC R.2.1 draft
01	02-September-2009	Proposal	Update to MC R2.2
02	30-September-2009	Preliminary	Update MC R.2.2 based on the results of the Media test.
03	12-October-2009	Approved	Final version

3.2. Audience

This Conformance Statement is intended for:

- (Potential) customers
- System integrators of medical equipment
- Marketing staff interested in system functionality
- Software designers implementing DICOM interfaces

It is assumed that the reader is familiar with the DICOM standard.

3.3. Remarks

The DICOM Conformance Statement is contained in chapter 4 through 8 and follows the contents and structuring requirements of DICOM PS 3.2.

This DICOM Conformance Statement by itself does not guarantee successful interoperability of Philips equipment with non-Philips equipment. The user (or user's agent) should be aware of the following issues:

- **Interoperability**

Interoperability refers to the ability of application functions, distributed over two or more systems, to work successfully together. The integration of medical devices into an IT environment may require application functions that are not specified within the scope of DICOM. Consequently, using only the information provided by this Conformance Statement does not guarantee interoperability of Philips equipment with non-Philips equipment.

It is the user's responsibility to analyze thoroughly the application

requirements and to specify a solution that integrates Philips equipment with non-Philips equipment.

- **Validation**

Philips equipment has been carefully tested to assure that the actual implementation of the DICOM interface corresponds with this Conformance Statement.

Where Philips equipment is linked to non-Philips equipment, the first step is to compare the relevant Conformance Statements. If the Conformance Statements indicate that successful information exchange should be possible, additional validation tests will be necessary to ensure the functionality, performance, accuracy and stability of image and image related data. It is the responsibility of the user (or user's agent) to specify the appropriate test suite and to carry out the additional validation tests.

- **New versions of the DICOM Standard**

The DICOM Standard will evolve in future to meet the user's growing requirements and to incorporate new features and technologies. Philips is actively involved in this evolution and plans to adapt its equipment to future versions of the DICOM Standard. In order to do so, Philips reserves the right to make changes to its products or to discontinue its delivery.

The user should ensure that any non-Philips provider linking to Philips equipment also adapts to future versions of the DICOM Standard. If not, the incorporation of DICOM enhancements into Philips equipment may lead to loss of connectivity (in case of networking) and incompatibility (in case of media).

3.4. Definitions, Terms and Abbreviations

Table 4: Definitions, Terms and Abbreviations

Abbreviation/Term	Explanation
AE	Application Entity
CD	Compact Disc
CD-R	CD-Recordable
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
ELE	DICOM Explicit VR Little Endian
FSC	File-set Creator
FSR	File-set Reader
FSU	File-set Updater
ILE	DICOM Implicit VR Little Endian
MC	Media Center
NEMA	National Electrical Manufacturers Association
PDU	Protocol Data Unit

Abbreviation/Term	Explanation
RT	Radiotherapy
RWA	Real-World Activity
SC	Secondary Capture
SCP	Service Class Provider
SCU	Service Class User
SOP	Service Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier

3.5. References

- [DICOM] Digital Imaging and Communications in Medicine, Part 1 - 18
(NEMA PS 3.1- PS 3.18),
National Electrical Manufacturers Association (NEMA)
Publication Sales 1300 N. 17th Street, Suite 1752
Rosslyn, Virginia. 22209, United States of America
Internet: <http://medical.nema.org/>
Note that at any point in time the official standard consists of the most recent yearly edition of the base standard (currently 2008) plus all the supplements and correction items that have been approved as Final Text.

4. NETWORKING

This section contains the networking related services (vs. the media related ones).

4.1. Implementation model

The implementation model consists of three sections:

- The application data flow diagram, specifying the relationship between the Application Entities and the "external world" or Real-World Activities,
- A functional description of each Application Entity, and
- The sequencing constraints among them.

4.1.1. Application Data Flow

The Media Center communication is based on the DICOM v3.0 standard. this enables the Media Center to communicate with any DICOM v3.0 compliant products (e.g., modalities, workstations, PACS and hardcopy units).

The Media Center implements and provides DICOM Services using the following application Entities:

- Storage Provider AE
- Media AE (No network AE, See session 5)

The Data Flow Diagram show the Media Center application as a functional overview:

- After RWA Request Verification, the Storage Provider AE act as a C-ECHO SCP, it receives a verification request and responds successfully to the requesting SCU.
- After RWA Storage Data Flow, the Storage Provider AE acts as C-STORE SCP. It receives requests from instance storage form external AE convert it into assigned destination transfer syntax an collects the instances on its disk.

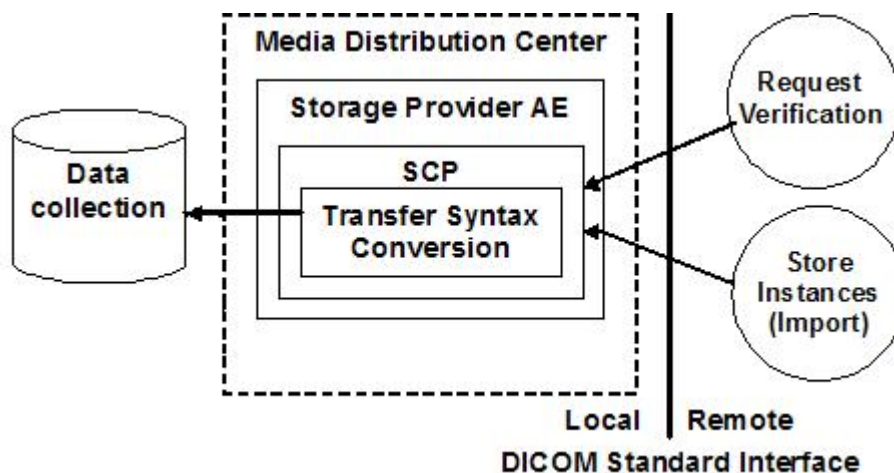


Figure 2: Networking application Data Flow Diagram

4.1.2. Functional Definition of AE's

This section contains a functional definition for each individual local Application Entity.

4.1.2.1. Functional Definition of Storage Provider AE

The Storage Provider constantly waits for association requests from external applications.

For each association it verifies the access privileges that was defined from the requesting AE, decides whether to accept the association runs in a separate thread.

The Storage Provider accepts associations for verify connectivity and import instances.

Verification Service Class

The Storage Provider AE can perform the verification service as SCP (RWA Request Verification).

A remote SCU shall request an association with the Storage Provider AE for Verification SOP Class. After accepting the association, the AE shall receive and respond to the verification request to check the network connection to the AE and make sure that the AE is up and running, and release the association when request successfully.

Storage Service Class

The Storage Provider AE waits for incoming associations and can perform the Storage service as SCP (RWA Store Instances, Import).

Incoming associations are approved or rejected according to the settings in the Storage Provider AE control database.

A remote SCU shall request an association with the Storage Provider AE for Storage SOP Classes. After accepting the association, the Storage Provider AE shall receive the Storage requests, store the data in the data collection storage, send the applicable

Storage responses, and release the association when requested. The received instances are divided into collections by patient identification for which Patient's Name (0010,0010) and Patient ID (0010,0020) are used.

The Storage Provider AE can convert received instances from source transfer syntax into destination transfer syntax, if this is assigned by configuration.

4.1.3. Sequencing of Real World Activities

Not applicable.

4.2. AE Specifications

This section in the DICOM Conformance Statement is a set of application entity specifications. There are as many of these subsections as there are different AE's in the implementation.

4.2.1. Storage Provider AE

Detail of this specific Application Entity is specified in this section.

4.2.1.1. SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes.

Table 5: SOP Classes for Storage Provider AE

SOP Class Name	SOP Class UID	SCU	SCP
12-Lead ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.1	No	Yes
Ambulatory ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.3	No	Yes
Basic Cardiac ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.3.1	No	Yes
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	No	Yes
Basic Voice Audio Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.4.1	No	Yes
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	No	Yes
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	No	Yes
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	No	Yes
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	No	Yes
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	No	Yes
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	No	Yes
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	No	Yes
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	No	Yes
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	No	Yes
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	No	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	No	Yes
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	No	Yes
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	No	Yes
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	No	Yes
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	No	Yes
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	No	Yes
Hemodynamic Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.2.1	No	Yes
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	No	Yes
Mammography CAD SR SOP Class	1.2.840.10008.5.1.4.1.1.88.50	No	Yes
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	No	Yes
Multi-frame Grayscale Byte SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.2	No	Yes
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	No	Yes
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	No	Yes

SOP Class Name	SOP Class UID	SCU	SCP
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	No	Yes
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	No	Yes
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	No	Yes
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	No	Yes
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	No	Yes
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	No	Yes
RT Beams Treatment Record Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.4	No	Yes
RT Brachy Treatment Record Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.6	No	Yes
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	No	Yes
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	No	Yes
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	No	Yes
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	No	Yes
RT Treatment Summary Record Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.7	No	Yes
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	No	Yes
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	No	Yes
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	No	Yes
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	No	Yes
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	No	Yes
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	No	Yes
Standalone VOI LUT Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.11	No	Yes
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	No	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	No	Yes
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	No	Yes
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	No	Yes
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	No	Yes
Verification SOP Class	1.2.840.10008.1.1	No	Yes
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	No	Yes
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	No	Yes
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	No	Yes
VL Endoscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.1	No	Yes
VL Microscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.2	No	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	No	Yes
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	No	Yes
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	No	Yes
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	No	Yes
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	No	Yes

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

4.2.1.2. Association Policies

Each AE specification contains a description of the general association establishment and acceptance policies of the AE.

4.2.1.2.1. General

The DICOM standard application context is specified below.

Table 6: DICOM Application Context

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

Storage Provider shall accept Associations for the following purposes:

- To allow remote applications to verify application level communication with Storage Provider.
- To allow remote applications to store instances in the Storage Provider database (i.e. instance import).

The maximum PDU size, which can be received the Storage Provider, is configurable (default value is 16 Kbytes).

4.2.1.2.2. Number of Associations

The Storage Provider manages an association resources pool. Each incoming association is assigned to one of the pool members. The size of this pool is configurable and the maximum size is limited only by the underlying operating system and by hardware limits (default is 5).

The maximum of configurable Remote System are 2.

The number of simultaneous associations that an Application Entity may support as a Initiator or Acceptor is specified here.

Table 7: Number of associations as an Association Initiator for this AE

Description	Value
Maximum number of simultaneous associations	0

Table 8: Number of associations as an Association Acceptor for this AE

Description	Value
Maximum number of simultaneous associations	configurable

Nevertheless, the number of simultaneous associations shall be limited by the available resources (CPU, memory, disk space).

4.2.1.2.3. Asynchronous Nature

The implementation supports negotiation of multiple outstanding transactions, along with the maximum number of outstanding transactions supported.

Asynchronous communication is not supported.

Table 9: Asynchronous nature as an Association Initiator for this AE

Description	Value
Maximum number of outstanding asynchronous transactions	0

4.2.1.2.4. Implementation Identifying Information

The value supplied for Implementation Class UID and version name are documented here.

Table 10: DICOM Implementation Class and Version for Storage Provider AE

Implementation Class UID	1.2.826.0.1.3680043.8.195.0.2004107
Implementation Version Name	CDP_V3

4.2.1.2.5. Communication Failure Handling

The behavior of the AE during communication failure is summarized in the next table.

Table 11: Communication Failure Behavior

Exception	Behavior
ARTIM Timeout	The association shall be dropped. Storage Provider waits next association.
Association Timeout SCU	The association shall be dropped. Storage Provider waits next association.
Association aborted	The association shall be dropped. Storage Provider waits next association.

4.2.1.3. Association Initiation Policy

Storage Provider never initiates an association.

4.2.1.4. Association Acceptance Policy

Storage Provider shall accept associations for the following purposes:

- To allow remote applications to verify application level communication with Storage Provider.
- To allow remote applications to store instances in the Storage Provider database.

The Storage Provider will acknowledge an association from an external AE if the following conditions are met all conditions:

- The association request application context is DICOM,
- The requesting AE title is configured in the Storage Provider control database,
- The requesting AE network node matches the configured node,
- The responding AE title in the association request matches this one of defined Storage Provider AE titles,
- The number of active associations has not reached the maximum concurrent associations limits.

4.2.1.4.1. (Real-World) Activity – Verification as SCP

4.2.1.4.1.1. Description and Sequencing of Activities

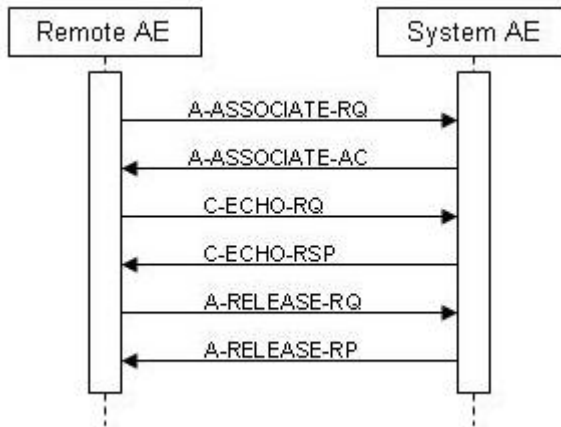


Figure 3: Sequencing of RWA Request Verification

The Storage Provider AE shall accept associations from systems that wish to verify application level communication using the C-ECHO command.

The real-world activity associated with the C-ECHO request is verification activity made by an external AE wishing to verify that the network connection is operating properly and that the Storage Provider is up and running.

4.2.1.4.1.2. Accepted Presentation Contexts

The Storage Provider will accept any number of Verification SOP Classes, provided that the requesting application configured and granted storage access.

The Storage Provider accepts presentation contexts with multiple transfer syntaxes, presentation contexts differing only by their transfer syntax as well as duplicate presentation contexts.

There is no check for duplicate contexts, and these will therefore be accepted.

The Storage Provider does not limit the number of accepted presentation contexts.

In the unlikely event that the Storage Provider runs out of resources while trying to accept multiple presentation contexts, the Storage Provider will gracefully reject the association.

The Storage Provider shall be able to accept the presentation contexts as specified in the next table.

Table 12: Acceptable Presentation Contexts for (Real-World) Activity – Verification as SCP

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

4.2.1.4.1.3. SOP Specific Conformance for Verification SOP Class

The Storage Provider AE provides standard conformance to the verification service class.

4.2.1.4.1.3.1. Dataset Specific Conformance for Verification C-ECHO SCP

Not applicable.

4.2.1.4.2. (Real-World) Activity – Image Import

4.2.1.4.2.1. Description and Sequencing of Activities

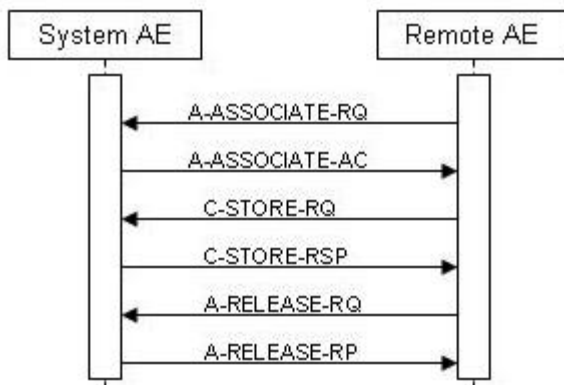


Figure 4: Sequencing of RWA Store Instances (import)

The Storage Provider AE shall accept associations from systems that wish to store instances in the data collection storage using the C-STORE command to store the instances on the Storage Provider disk.

The instances are divided into collections by patient identification for which Patient's Name (0010,0010) and Patient ID (0010,0020) are used.

The Storage Provider AE will issue a failure status by patient identification for which Patient's Name (0010,0010) and Patient ID (0010,0020) are used.

The Storage Provider AE will issue a failure status in the following cases:

- The Storage Provider AE is unable to store the instances on the disk.
- The SOP Class used for transmission does not match the instance structure and data.

4.2.1.4.2.2. Accepted Presentation Contexts

The presentation contexts are defined in the next table, provided that the requesting application configured and granted storage access.

Table 13: Acceptable Presentation Contexts for (Real-World) Activity – Image Import

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
12-Lead ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Ambulatory ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Basic Cardiac ECG	1.2.840.10008.5.1.4.1.1.9.3.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Waveform Storage SOP Class		Implicit VR Little Endian	1.2.840.10008.1.2		
Basic Text SR SOP Class	1.2.840.10008.5.1.4.1.1.88.11	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Basic Voice Audio Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.4.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Comprehensive SR SOP Class	1.2.840.10008.5.1.4.1.1.88.33	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Computed Radiography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Intra-oral X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Intra-oral X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.3.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Mammography X-Ray Image Storage - Pres. SOP	1.2.840.10008.5.1.4.1.1.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital Mammography X-Ray Image Storage - Proc. SOP	1.2.840.10008.5.1.4.1.1.1.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Digital X-Ray Image Storage - For Pres. SOP	1.2.840.10008.5.1.4.1.1.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Digital X-Ray Image Storage - For Proc. SOP	1.2.840.10008.5.1.4.1.1.1.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Enhanced SR SOP Class	1.2.840.10008.5.1.4.1.1.88.22	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
General ECG Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Hardcopy Color Image Storage (Retired)	1.2.840.10008.5.1.1.30	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Hardcopy Grayscale Image Storage (Retired)	1.2.840.10008.5.1.1.29	JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		RLE Lossless	1.2.840.10008.1.2.5		
Hemodynamic Waveform Storage SOP Class	1.2.840.10008.5.1.4.1.1.9.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Mammography CAD SR SOP Class	1.2.840.10008.5.1.4.1.1.88.50	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Multi-frame Grayscale Byte SC Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
SOP Class		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Grayscale Word SC Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame Single Bit Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Nuclear Medicine Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.20	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Positron Emission Tomography Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.128	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
RT Beams Treatment	1.2.840.10008.5.1.4.1.1.481.4	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Record Storage SOP Class		Implicit VR Little Endian	1.2.840.10008.1.2		
RT Brachy Treatment Record Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.6	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
RT Dose Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
RT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
RT Plan Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.5	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
RT Treatment Summary Record Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.7	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Standalone Curve Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.9	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Standalone Overlay Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.8	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Standalone VOI LUT Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.11	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Ultrasound Multi-frame Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Endoscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Microscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.77.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Photographic Image	1.2.840.10008.5.1.4.1.1.77.1.	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Storage	4	Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
X-Ray Angiographic Bi-Plane Image Storage SOP Class (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		RLE Lossless	1.2.840.10008.1.2.5		
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
X-Ray Radiofluoroscopic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
		RLE Lossless	1.2.840.10008.1.2.5		

The Storage Provider accepts presentation contexts with multiple transfer syntaxes, the presentation contexts differing only by their transfer syntax as well as duplicate presentation contexts.

There is no check for duplicate contexts, and these will therefore be accepted.

The Storage Provider AE does not limit the number of accepted presentation contexts. In the unlikely event that the Storage Provider AE runs out of resources while trying to accept multiple presentation contexts, the Media Center will gracefully reject the association.

The Storage Provider AE supports transfer syntaxes for storage as can be seen in the table above, and supports for all other SOP Classes, other than storage only ILE and ELE transfer syntaxes.

4.2.1.4.2.3. SOP Specific Conformance for Storage SOP Classes

The DICOM Standard does not guarantee that the Storage Provider AE applications can process the received instances. This depends on the presence and consistency of a set of attributes in these instances.

The Storage Provider AE conforms to the SOP's of the Storage Service Class at Level 2(Full) conformance.

The Storage Provider AE does not attempt any extend negotiation.

The Storage Provider AE does not discard any elements.

The Storage Provider AE takes no future action in case of warnings or errors in the C-STORE operations. The store response status is saved in the extended log.

The Storage Provides AE does not have internal viewing option.

4.2.1.4.2.3.1. Dataset Specific Conformance for C-STORE-RSP

Detail regarding the Dataset Specific response behavior will be reported in this section.

This includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 14: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful stored	The instance(s) shall store in the Media Center database.
Error	C000	Cannot understand	The instance(s) cannot be parsed. Storage Provider shall send a notification, log the condition, and wait next store request.

4.3. Network Interfaces

4.3.1. Physical Network Interfaces

The System provides only DICOM V3.0 TCP/IP Network Communication Support as defined in PS 3.8 of the standard.

Media Center supports a single network interface: Ethernet ISO.8802-3.

With standard supported physical medium include:

IEEE 802.3-1995, 10BASE-T

IEEE 802.3-1995, 100BASE-TX (Fast Ethernet)

IEEE 802.3, 1000BASE-X (Fiber Optic Gigabit Ethernet).

4.3.2. Additional Protocols

TCP/IP stack is inherited from the Operating System.

The Media Center is available on Windows 2000 Professional and Windows XP SP3 operating system (i.e. the operating system platform)

The Media Center is indifferent to the physical media over which TCP/IP operates. It inherits the medium form the operating system upon which it executes.

OSI stack is not supported

Point-to-Point stack is not supported

4.4. Configuration

Any implementation's DICOM conformance may be dependent upon configuration, which takes place at the time of installation. Issues concerning configuration are addressed in this section.

4.4.1. AE Title/Presentation Address Mapping

AE Title/ Presentation-address mapping is stored in the Media Center control database and is configured using administration utilities.

How this is to be performed shall be described in this section.

4.4.1.1. Local AE Titles

The local AE title mapping and configuration are specified as:

Table 15: AE Title configuration table

Application Entity	Default AE Title	Default TCP/IP Port
Storage Provider (CD producing)	CDP_PRINTER	104

The AE titles in the Media Center can be changed independently.

4.4.1.2. Remote AE Title/Presentation Address Mapping

The configuration of the remote application is specified here.

For Remote Association Acceptors the Media Center needs the following information:

- The Application Entity Title.
- The hostname/ IP address on which the remote application resides.
- The port number at which the remote application accepts association requests.

4.4.2. Parameters

The Media Center uses a centralized control database for configuration.

Media Center system is configured by means of a configuration program. This program is accessible during operation of the Media Center system. It is password protected and intended to be used by Philips Customer Support Engineers only.

The configuration program shall prompt the Customer Support Engineer to enter configuration information as required by the Media Center applications.

The specification of important operational parameters, their default value and range (if configurable) are specified here.

The configuration parameters categorized in the following sections:

- General Parameters of Media Center AE
- Local Configurable Parameters of the Media Center AE
- Remote Configurable Parameters of the Media Center AE

Table 16: Configuration Parameters Table

Parameter	Configurable	Default Value
General Parameter		
Time-out waiting for acceptance or rejection Response to an Association Open Request (Application Level timeout)	Yes	10 sec.
General DIMSE level time-out values (Verification, Storage, Storage Commitment)	Yes	30 sec.
Time-out for response to TCP/IP connect request. (Low-level timeout) ¹	No	-
Time-out waiting for acceptance of a TCP/IP message over the network (Low-level timeout) ¹	No	-
Time-out for waiting for data between TCP/IP packets. (Low-level timeout) ¹	No	-
Any changes to default TCP/IP settings, such as configurable stack parameters. ¹	No	-
Local Configurable Parameter of the Media Center AE		
Size constraint in maximum object size	No	-

Parameter	Configurable	Default Value
Maximum PDU size the AE can receive	Yes	16 Kbytes Min. 4 Kbytes Max. 64 kBytes
AE specific DIMSE level time-out values	Yes	30 sec.
Number of simultaneous associations by Service and/or SOP Class	Yes	5
SOP Class support	No	As listed in the DCS
Transfer Syntax support	No	As listed in the DCS
Remote Configurable Parameters of the Media Center AE		
Size constraint in maximum object size	No	-
Maximum PDU size the AE can send	No	No limit

Note1: The parameters depend on operation system configuration.

The Media Center configuration is done using administration utilities. Please refer to Installation Manual and Administration's Manual for complete documentation.

5. MEDIA INTERCHANGE

5.1. Implementation model

The implementation model identifies the DICOM Application Entities for Media in specific implementation and relates the Application Entities to Real-World Activities.

5.1.1. Application Data Flow Diagram

The Media AE will act as a FSC when writing the selected instances onto the CD-R medium.

The data flow diagram shows the Media Interchange as a functional overview of the Media Center AE for CD-R.

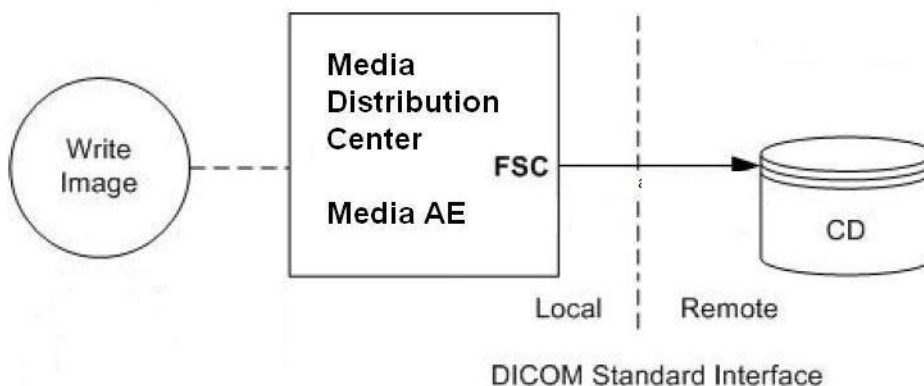


Figure 5: Media Interchange Application Data Flow Diagram

The Media Center AE will act as a FSC for a CD-R, when writing the selected instances in a data folder onto the medium.

The Media Center writes DICOMDIR using Explicit Little Endian transfer syntax.

The Media Center writes the instances using the same transfer syntax as they were stored on the Media Center by Storage Provider AE.

5.1.2. Functional Definitions of AE's

The Media Center AE includes the following service class.

Media Storage Service Class for CD

The Media AE can perform the CD-R Media storage service as SCU, with capabilities for RWA Write Instances (as FSC).

5.1.3. Sequencing of Real World Activities

Whenever a CD has to be written the Media AE first reads required DICOM instances from Media Center temporary storage and builds the DICOMDIR for the instances set. The Media AE will compile the DICOMDIR, required DICOM instances, unique high quality self playing image viewing and manipulation program (DiagNET) into a CD media image; This CD media image will be written to CD.

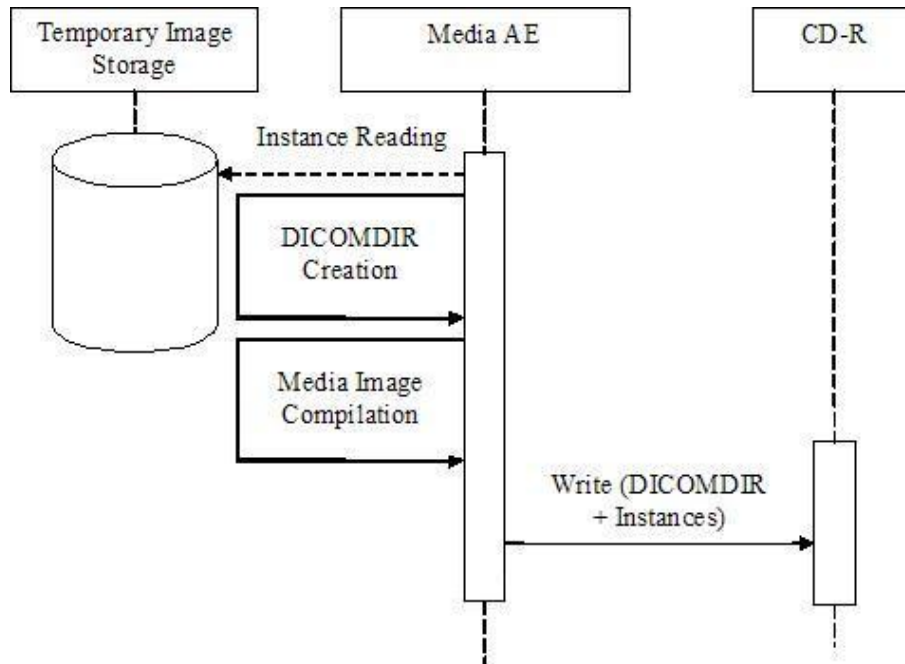


Figure 6: Sequencing of RWA Write Instances

5.2. AE Specifications

This section in the DICOM Conformance Statement specifies a set of Media Application Entities.

5.2.1. Media AE Media - Specification

The Media AE provides standard conformance to the DICOM Media Storage service and file format ([DICOM] PS 3.10), the Media Storage Application Profiles STD-GEN-CD ([DICOM] PS 3.11) for writing.

Media AE supports single-patient CD-R disks for Writing.

Supported media by Media AE are: CD-R and CD RW with the profile: STD-GEN-CD For one or more Application Profiles, the following table shows the Real-World Activities and the roles of each of these Real-World Activities.

Table 17: AE Media AE related Application Profiles, RWA activities and roles

Supported Application Profile	Identifier	Real-World Activities	Roles
General Purpose CD-R Interchange	STD-GEN-CD	Create File-set	FSC

5.2.1.1. File Meta Information for the Media AE

The AE-Title is registered into the DICOM File Meta Information header and is supported by the Media AE (CD write option) acting as a FSC.

Table 18: File Meta Information for the Media AE

Implementation Class UID	1.2.826.0.1.3680043.8.195
Implementation Version Name	CDP_V3

5.2.1.2. Real-World Activities

The AE specification contains a description of the Real-World Activities, which invoke the particular AE.

5.2.1.2.1. RWA - Create File-set

When an instance transfer to CD-R is initiated then the Media AE acts as an FSC using the interchange option to export SOP instances from the temporary location to a CD-R medium.

5.2.1.2.1.1. Media Storage Application Profile

The Media AE supports the RWA - Create File-set for the STD-GEN-CD application profiles.

5.2.1.2.1.1.1. Options

All existing in received instance Optional, Retired and Private attributes are kept, stored and exported.

The DICOMDIR file will be created for the whole set of instances during creating of media image. In case some attributes are not present in an instance but are specified as mandatory in the DICOMDIR definition in DICOM Media, a generated value will be filled in.

Implementation remarks and restrictions

When writing the DICOMDIR records, key values are generated when no value of the corresponding attribute is supplied, according to the following table.

Table 19: Generated Keys

Key	Tag	Generated Value
Patient Keys		

Key	Tag	Generated Value
Patient ID	0010,0020	At import Media Center creates a value based on the Accession Number, if the Patient ID does not exist or has empty value. If Accession Number attribute does not exist or has empty value, attribute value is created on base of the Study Instance UID for each new study written to the CD-R (even if this study belongs to a patient recorded earlier).
Study Keys		
Study Date	0008,0020	Current date
Study Time	0008,0030	Current time
Study ID	0020,0010	"UNKNOWN"
Series Keys		
Series Number	0020,0011	1

The value for File-set Consistency Flag (0004,1212) is set to FFFFH (inconsistencies may be present).

Media Center can write data on volumes of the media.
 Media Center writes next disk if data is spanning over more CD-disks.
 Media Center is first checking disk if it is already written or has error to be written.
 These disks are throw out by text "REJECT" on the disk and will not be used, next available disk is taken.

The unique high quality self playing image viewing and manipulation program (DiagNET) will be written on each medium.

5.3. Augmented and Private Application Profiles

Not applicable

5.4. Media Configuration

Any configuration issues may be found in the Network section 4.4 Configuration.

6. SUPPORT OF CHARACTER SETS

Any support for character sets in Network and Media services is described here.

Table 20: Supported DICOM Character Sets

Character Set Description	Defined Term	ESC Sequence	ISO Registration Number	Code Element	Character Set
GB18030	GB18030	-	-	-	-
		-	-	-	-
Latin alphabet No. 1	ISO 2022 IR 100	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/01	ISO-IR 100	G1	Supplementary set of ISO 8859
Latin alphabet No. 2	ISO 2022 IR 101	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/02	ISO-IR 101	G1	Supplementary set of ISO 8859
Latin alphabet No. 3	ISO 2022 IR 109	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/03	ISO-IR 109	G1	Supplementary set of ISO 8859
Latin alphabet No. 4	ISO 2022 IR 110	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/04	ISO-IR 110	G1	Supplementary set of ISO 8859
Greek	ISO 2022 IR 126	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/06	ISO-IR 126	G1	Supplementary set of ISO 8859
Arabic	ISO 2022 IR 127	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/07	ISO-IR 127	G1	Supplementary set of ISO 8859
Japanese	ISO 2022 IR 13	ESC 02/08 04/10	ISO-IR 14	G0	JIS X 0201: Romaji
		ESC 02/09 04/09	ISO-IR 13	G1	JIS X 0201: Katakana
Hebrew	ISO 2022 IR 138	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/08	ISO-IR 138	G1	Supplementary set of ISO 8859
Cyrillic	ISO 2022 IR 144	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/12	ISO-IR 144	G1	Supplementary set of ISO 8859
Latin alphabet No. 5	ISO 2022 IR 148	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/13	ISO-IR 148	G1	Supplementary set of ISO 8859
Korean	ISO 2022 IR 149	-	ISO-IR 149	G1	KS X 1001: Hangul and Hanja
		-	-	-	-
Japanese	ISO 2022 IR 159	-	ISO-IR 159	G0	JIS X 0212: Supplementary Kanji set
		-	-	-	-

Character Set Description	Defined Term	ESC Sequence	ISO Registration Number	Code Element	Character Set
Thai	ISO 2022 IR 166	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 05/04	ISO-IR 166	G1	TIS 620-2533 (1990)
Default repertoire	ISO 2022 IR 6	-	ISO-IR 6	G0	ISO 646
		-	-	-	-
Japanese	ISO 2022 IR 87	-	ISO-IR 87	G0	JIS X 0208: Kanji
		-	-	-	-
Latin alphabet No. 1	ISO_IR 100	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 100	G1	Supplementary set of ISO 8859
Latin alphabet No. 2	ISO_IR 101	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 101	G1	Supplementary set of ISO 8859
Latin alphabet No. 3	ISO_IR 109	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 109	G1	Supplementary set of ISO 8859
Latin alphabet No. 4	ISO_IR 110	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 110	G1	Supplementary set of ISO 8859
Greek	ISO_IR 126	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 126	G1	Supplementary set of ISO 8859
Arabic	ISO_IR 127	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 127	G1	Supplementary set of ISO 8859
Japanese	ISO_IR 13	-	ISO-IR 14	G0	JIS X 0201: Romaji
		-	ISO-IR 13	G1	JIS X 0201: Katakana
Hebrew	ISO_IR 138	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 138	G1	Supplementary set of ISO 8859
Cyrillic	ISO_IR 144	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 144	G1	Supplementary set of ISO 8859
Latin alphabet No. 5	ISO_IR 148	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 148	G1	Supplementary set of ISO 8859
Thai	ISO_IR 166	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 166	G1	TIS 620-2533 (1990)
Unicode in UTF-8	ISO_IR 192	-	-	-	-
		-	-	-	-
Default repertoire	-	-	ISO-IR 6	G0	ISO 646
		-	-	-	-

If an extended or replacement character set is used in one of the attributes, the attributes will be stored and exported "as is". The Media Center processes code part of the attributes as binary data.

The Media Center used default language character set of operation system for non-Unicode programs. In the reason the attributes, coded with extended character set, may be unreadable in internal applications of Media Center.

7. SECURITY

7.1. Security Profiles

7.1.1. Security use Profiles

Not applicable

7.1.2. Security Transport Connection Profiles

Not applicable

7.1.3. Digital Signature Profiles

Not applicable

7.1.4. Media Storage Security Profiles

Not applicable

7.1.5. Attribute Confidentiality Profiles

Not applicable

7.1.6. Network Address Management Profiles

Not applicable

7.1.7. Time Synchronization Profiles

Not applicable

7.1.8. Application Configuration Management Profiles

Not applicable

7.1.9. Audit Trail Profiles

Not applicable

7.2. Association Level Security

Not applicable

7.3. Application Level Security

Not applicable