Canon

No. 2G985-011EN*B

DICOM CONFORMANCE STATEMENT

FOR

DIAGNOSTIC WORKSTATION

Rapideye™ Station

MODEL

STMH-005

SVIW-TMH05

CANON MEDICAL SYSTEMS CORPORATION

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1 CONFORMANCE STATEMENT OVERVIEW

This product is a networked computer system used for diagnostic medical device. It is able to receive images from external systems, and is able to retrieve information about such images. The system conforms to the DICOM standard to allow the sharing of medical information with other digital imaging systems.

Table 1.1-1 provides an overview of the network services supported by this product.

Table 1.1-1

NETWORK SERVICES

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Verification		
Verification	No	Yes
Transfer		
Computed Radiography Image Storage(CR)	Yes	Yes
Digital X-Ray Image Storage – For Presentation(DX)	Yes	Yes
Digital Mammography X-Ray Image Storage – For Presentation(MG)	Yes	Yes
CT Image Storage	Yes	Yes
MR Image Storage	Yes	Yes
Ultrasound Image Storage	Yes	Yes
Ultrasound Multi-frame Image Storage	Yes	Yes
Secondary Capture Image Storage	Yes	Yes
X-Ray Angiographic Image Storage*	Yes	Yes
X-Ray Radio Fluoroscopic Image Storage	Yes	Yes
Nuclear Medicine Image Storage	Yes	Yes
Positron Emission Tomography Image Storage	Yes	Yes
Mammography CAD SR	No	Yes
Query/Retrieve		
Study Root Q/R Information Model – Find	Yes	No
Study Root Q/R Information Model – Move	Yes	No
Print Management		
Basic Grayscale Print Management	Yes	No
Basic Color Print Management	Yes	No

***The system does not support Multi-frame XA image data.**

Table 1.1-2

MEDIA SERVICES

Media Storage Application Profile	Write Files (FSC)	Read Files (FSR)	Update Files (FSU)
Compact Disk – Recordable			
General Purpose CD-R	Yes	Yes	No
DVD – Random Access			
General Purpose DVD-RAM	Yes	Yes	No

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3 INTRODUCTION

3.1. REVISION HISTORY

REV.	Date of Issue	Author	Description
*	November 28, 2014	TMSC	Initial Version
A	January 4, 2018	Canon Medical Systems Corporation	Change of company name
B	August 1, 2018	Canon Medical Systems Corporation	Addition of compatible versions.

3.2. AUDIENCE

This document is intended for hospital staff, health system integrators, software designers, service staff, and implementers. It is assumed that the reader has a working understanding of DICOM.

3.3. REMARKS

DICOM, by itself, does not guarantee interoperability. However, the Conformance Statement facilitates a first-level validation for interoperability between different applications supporting the same DICOM functionality.

This Conformance Statement is not intended to replace validation with other DICOM equipment to ensure proper exchange of information intended.

The scope of this Conformance Statement is to facilitate communication with Canon Medical Systems and other vendors' Medical equipment. The Conformance Statement should be read and understood in conjunction with the DICOM Standard. However, by itself it is not guaranteed to ensure the desired interoperability and a successful interconnectivity.

The user should be aware of the following important issues:

— The comparison of different conformance statements is the first step towards assessing interconnectivity between Canon Medical Systems and non- Canon Medical Systems equipment.
— Test procedures should be defined to validate the desired level of connectivity.
— The DICOM standard will evolve to meet the users' future requirements. Canon Medical Systems is actively involved in developing the standard further and therefore reserves the right to make changes to its products or to discontinue its delivery.

3.4. TERMS AND DEFINITIONS

Informal definitions are provided for the following terms used in this Conformance Statement. The DICOM Standard is the authoritative source for formal definitions of these terms.

Abstract Syntax – the information agreed to be exchanged between applications, generally equivalent to a Service/Object Pair (SOP) Class. Examples : Verification SOP Class, Modality Worklist Information Model Find SOP Class, Computed Radiography Image Storage SOP Class.

Application Entity (AE) – an end point of a DICOM information exchange, including the DICOM network or media interface software; i.e., the software that sends or receives DICOM information objects or messages. A single device may have multiple Application Entities.

Application Entity Title – the externally known name of an *Application Entity*, used to identify a DICOM application to other DICOM applications on the network.

Application Context – the specification of the type of communication used between *Application Entities*. Example: DICOM network protocol.

Association – a network communication channel set up between *Application Entities*.

Attribute – a unit of information in an object definition; a data element identified by a *tag*. The information may be a complex data structure (Sequence), itself composed of lower level data elements. Examples: Patient ID (0010,0020), Accession Number (0008,0050), Photometric Interpretation (0028,0004), Procedure Code Sequence (0008,1032).

Information Object Definition (IOD) – the specified set of *Attributes* that comprise a type of data object; does not represent a specific instance of the data object, but rather a class of similar data objects that have the same properties. The *Attributes* may be specified as Mandatory (Type 1), Required but possibly unknown (Type 2), or Optional (Type 3), and there may be conditions associated with the use of an Attribute (Types 1C and 2C). Examples: MR Image IOD, CT Image IOD, Print Job IOD.

Joint Photographic Experts Group (JPEG) – a set of standardized image compression techniques, available for use by DICOM applications.

Media Application Profile – the specification of DICOM information objects and encoding exchanged on removable media (e.g., CDs)

Module – a set of *Attributes* within an *Information Object Definition* that are logically related to each other. Example: Patient Module includes Patient Name, Patient ID, Patient Birth Date, and Patient Sex.

Negotiation – first phase of *Association* establishment that allows *Application Entities* to agree on the types of data to be exchanged and how that data will be encoded.

Presentation Context – the set of DICOM network services used over an *Association*, as negotiated between *Application Entities*; includes *Abstract Syntaxes* and *Transfer Syntaxes*.

Protocol Data Unit (PDU) – a packet (piece) of a DICOM message sent across the network. Devices must specify the maximum size packet they can receive for DICOM messages.

Security Profile – a set of mechanisms, such as encryption, user authentication, or digital signatures, used by an *Application Entity* to ensure confidentiality, integrity, and/or availability of exchanged DICOM data

Service Class Provider (SCP) – role of an *Application Entity* that provides a DICOM network service; typically, a server that performs operations requested by another *Application Entity* (*Service Class User*). Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).

Service Class User (SCU) – role of an *Application Entity* that uses a DICOM network service; typically, a client. Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU)

Service/Object Pair (SOP) Class – the specification of the network or media transfer (service) of a particular type of data (object); the fundamental unit of DICOM interoperability specification. Examples: Ultrasound Image Storage Service, Basic Grayscale Print Management.

Service/Object Pair (SOP) Instance – an information object; a specific occurrence of information exchanged in a *SOP Class*. Examples: a specific x-ray image.

Tag – a 32-bit identifier for a data element, represented as a pair of four digit hexadecimal numbers, the "group" and the "element". If the "group" number is odd, the tag is for a private (manufacturer-specific) data element. Examples: (0010,0020) [Patient ID], (07FE,0010) [Pixel Data], (0019,0210) [private data element]

Transfer Syntax – the encoding used for exchange of DICOM information objects and messages. Examples: *JPEG* compressed (images), little endian explicit value representation.

Unique Identifier (UID) – a globally unique "dotted decimal" string that identifies a specific object or a class of objects; an ISO-8824 Object Identifier. Examples: Study Instance UID, SOP Class UID, SOP Instance UID.

Value Representation (VR) – the format type of an individual DICOM data element, such as text, an integer, a person's name, or a code. DICOM information objects can be transmitted with either explicit identification of the type of each data element (Explicit VR), or without explicit identification (Implicit VR); with Implicit VR, the receiving application must use a DICOM data dictionary to look up the format of each data element.

3.5. BASICS OF DICOM COMMUNICATION

This section describes terminology used in this Conformance Statement for the non-specialist. The key terms used in the Conformance Statement are highlighted in italics below. This section is not a substitute for training about DICOM, and it makes many simplifications about the meanings of DICOM terms.

Two Application Entities (devices) that want to communicate with each other over a network using DICOM protocol must first agree on several things during an initial network "handshake". One of the two devices must initiate an Association (a connection to the other device), and ask if specific services, information, and encoding can be supported by the other device (Negotiation).

DICOM specifies a number of network services and types of information objects, each of which is called an Abstract Syntax for the Negotiation. DICOM also specifies a variety of methods for encoding data, denoted Transfer Syntaxes. The Negotiation allows the initiating Application Entity to propose combinations of Abstract Syntax and Transfer Syntax to be used on the Association; these combinations are called Presentation Contexts. The receiving Application Entity accepts the Presentation Contexts it supports.

For each Presentation Context, the Association Negotiation also allows the devices to agree on Roles – which one is the Service Class User (SCU - client) and which is the Service Class Provider (SCP - server). Normally the device initiating the connection is the SCU, i.e., the client system calls the server, but not always.

3.6. ABBREVIATIONS

AE	Application Entity
AET	Application Entity Title
ASCE	Association Control Service Element
CD-R	Compact Disk Recordable
CR	Computed Radiography
CT	Computed Tomography
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DVD-RAM	DVD-Random Access. An abbreviation of DVD recordable
DX	Digital Radiography
FSC	File-Set Creator
FSU	File-Set Updater
FSR	File-Set Reader
IE	Information Entity
IOD	Information Object Definition
ISO	International Standards Organization
JPEG	Joint Photographic Experts Group
KO	Key Object Selection
MG	Mammography
MR	Magnetic Resonance
NM	Nuclear Medicine
PDU	Protocol Data Unit
PET	Positron Emission Tomography
RF	X-Ray Radio Fluoroscopy
PR	Presentation State
RG	Radiographic Imaging
RTIMAGE	Radiotherapy Image
RTDOSE	Radiotherapy Dose
RTPLAN	Radiotherapy Plan
RTRECORD	RT Treatment Record
RTSTRUCT	Radiotherapy Structure Set
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
US	Ultrasound
VM	Value Multiplicity
VR	Value Representation

XA	X-Ray Angiography

3.7. REFERENCES

Digital Imaging and Communications in Medicine (DICOM), NEMA PS 3.1-3.18, 2011

4 NETWORKING

4.1. IMPLEMENTATION MODEL

4.1.1. Application Data Flow

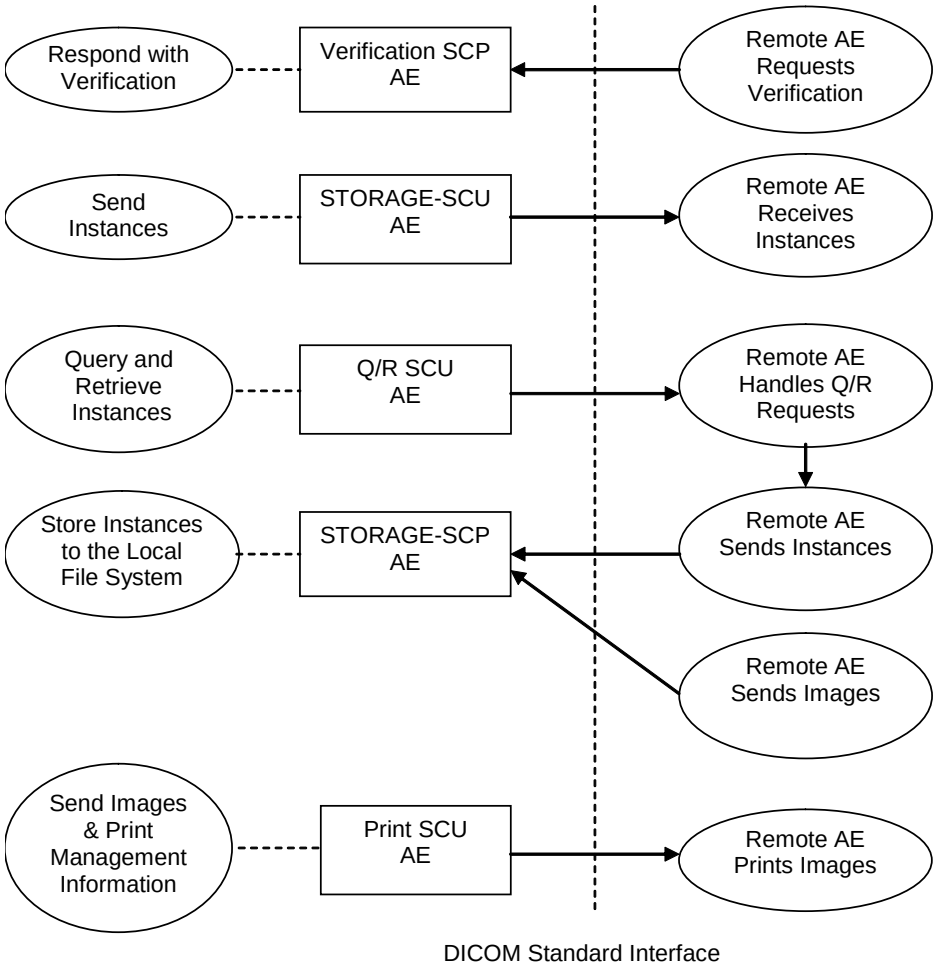

Figure 4.1-1
APPLICATION DATA FLOW DIAGRAM

This product is an application that provides a user interface, an internal database, a network listener that spawns additional threads as necessary to handle incoming connections, and media support.

Conceptually, the network services may be modeled as the following separate AEs, although in fact all the AEs share a single (configurable) AE Title:

— Verification SCP, which responds to verification requests.
— STORAGE-SCU, which sends outbound images and other composite instances.
— STORAGE-SCP, which receives incoming images and other composite instances.
— Q/R SCU, which queries a remote AE for lists of studies, series, and instances. And Q/R SCU AE retrieves selected studies, series, and instances.
— Print SCU, which prints images on a remote AE (Printer or Imager). It is associated with the local real-world activity “Send Images & Print Management Information”. “Send Images & Print Management Information” creates a print-job within the print queue containing one or more virtual film sheets composed from images selected by the user.

4.1.2. Functional Definitions of AEs

4.1.2.1. Functional Definition of Verification SCP AE

The Verification SCP AE waits in the background for connections, will accept associations with Presentation Contexts for SOP Classes of the Verification Service Class, and will respond successfully to echo requests.

4.1.2.2. Functional Definition of STORAGE-SCP AE

STORAGE-SCP AE waits in the background for connections, will accept associations with Presentation Contexts for SOP Classes of the Storage Service Class, and will store the received instances to the local database where they may subsequently be listed and viewed through the user interface.

4.1.2.3. Functional Definition of STORAGE-SCU AE

STORAGE-SCU AE is activated through the user interface when a user selects instances from the local database, or the currently displayed instance and requests that they will be sent to a remote AE (selected from a preconfigured list).

4.1.2.4. Functional Definition of Q/R SCU AE

Q/R SCU AE is activated through the user interface when a user selects a remote AE to query (from a preconfigured list) and then initiates a query. Queries are performed recursively from the study through the series and instance levels until all matching instances have been listed.

Q/R SCU AE is activated through the user interface when a user selects a study, series, or instance for retrieval. A connection to the remote AE is established to initiate and monitor the retrieval, and the STORAGE-SCP AE receives the retrieved instances.

4.1.2.5. Functional Definition of Print SCU AE

The existence of a print-job in the print queue will activate the Print SCU AE. An Association is established with the printer and the printer’s status determined. If the printer is operating normally, the film sheets described within the print-job will be printed. If the printer is not operating normally, an error message will be displayed and this print-job can be canceled or restarted by the user operations.

4.1.3. Sequencing of Real-World Activities

All SCP activities are performed asynchronously in the background and are not dependent on any sequencing.

All SCU activities are sequentially initiated in the user interface, and another activity may not be initiated until the prior activity is completed.

4.2. AE SPECIFICATIONS

4.2.1. Verification SCP AE Specification

4.2.1.1. SOP Classes

Verification SCP AE provides Standard Conformance to the following DICOM V3.0 SOP Classes:

Table 4.2-1
SOP Classes supported by Verification SCP AE

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	No	Yes

4.2.1.2. Association Policies

4.2.1.2.1. General

Verification SCP AE accepts but never initiates associations.

The DICOM Standard application context name for DICOM 3.0 is always proposed:

Table 4.2-2
DICOM Application Context for Verification SCP AE

Application Context Name	1.2.840.10008.3.1.1.1

Table 4.2-3
Maximum PDU size received for Verification SCP AE

Maximum PDU size received	64 Kbytes

4.2.1.2.2. Number of Associations

Verification SCP AE can support up to 3 Associations at a time.

There is no inherent limit to the number of associations other than limits imposed by the computer's operating system.

Table 4.2-4
Number of Associations for Verification SCP AE

Maximum number of simultaneous associations	3 (Configurable)

4.2.1.2.3. Asynchronous Nature

Verification SCP AE will only allow a single outstanding operation on an association. Therefore, The Verification SCP AE will not perform asynchronous operation window negotiation.

4.2.1.2.4. Implementation Identifying Information

Table 4.2-5
DICOM Implementation Class and Version for Verification SCP AE

Implementation Class UID	1.2.392.200036.9116.7.30.10
Implementation Version Name	TM_OT_TMH_1.0

4.2.1.3. Association Initiation Policy

Verification SCP AE does not initiate associations.

4.2.1.4. Association Acceptance Policy

When Verification SCP AE accepts an association, it will respond to echo requests. If the Called AE Title does not match the preconfigured AE Title shared by all the SCPs of the application, the association will be rejected.

4.2.1.4.1. Activity – Receive to Verification Request

4.2.1.4.1.1. Description and Sequencing of Activities

When the Verification SCP AE accepts an association, it will respond to a verification request (C-ECHO).

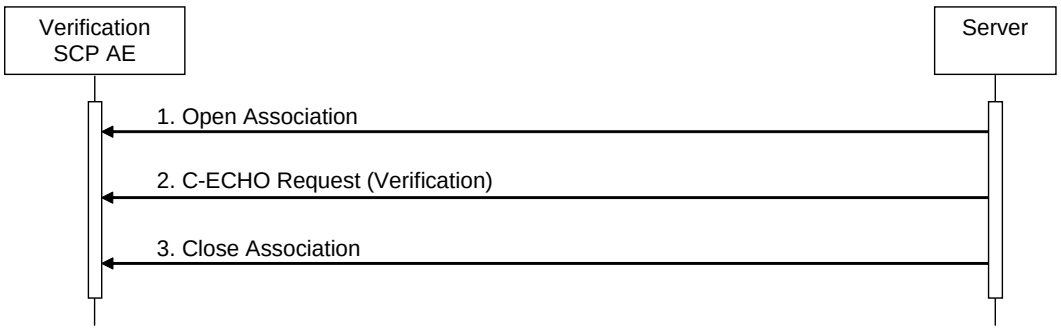

Figure 4.2-1
SEQUENCING OF ACTIVITY – RESPOND TO VERIFICATION REQUEST

A possible sequence of interactions between the Verification SCP AE and the Server (e.g. a storage or archive device supporting the Verification SOP Classes as an SCU) is illustrated in the figure above:

1. The server opens an association with the Verification SCP AE.
2. The server issues a verification request (C-ECHO) and the Verification SCP AE replies with a C-ECHO response (status success).
3. The server closes the association with the Verification SCP AE.

4.2.1.4.1.2. Accepted Presentation Contexts

Table 4.2-6
Acceptable Presentation Contexts for Verification SCP AE

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

4.2.1.4.1.2.1. Extended Negotiation

No extended negotiation is performed.

4.2.1.4.1.3. SOP Specific Conformance

4.2.1.4.1.3.1. SOP Specific Conformance to Verification SOP Class

Verification SCP AE provides standard conformance to the Verification Service Class as an SCP.

The behavior of Verification SCP AE when encountering status codes in a C-ECHO response is summarized in the table below:

Table 4.2-7
VERIFICATION RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The Verification SCP AE judges the remote AE is present and active on the network.

4.2.1.4.1.3.2. Presentation Context Acceptance Criteria

Verification SCP AE will always accept any Presentation Context for the supported SOP Classes with the supported Transfer Syntaxes. More than one proposed Presentation Context will be accepted for the same Abstract Syntax if the Transfer Syntax is supported, whether or not it is the same as another Presentation Context.

4.2.1.4.1.3.3. Transfer Syntax Selection Policies

Verification SCP AE will accept duplicate Presentation Contexts, that is, if it is offered multiple Presentation Contexts, each of which offers acceptable Transfer Syntaxes, it will accept all Presentation Contexts, applying the same priority for selecting the Transfer Syntax to each.

4.2.2. STORAGE-SCP AE Specification

4.2.2.1. SOP Classes

STORAGE-SCP AE provides Standard Conformance to the following DICOM V3.0 SOP Classes:

Table 4.2-8
SOP Classes supported by STORAGE-SCP AE

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	No	Yes
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	No	Yes
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	No	Yes
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	No	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	No	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	No	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	No	Yes
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	No	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	No	Yes
X-Ray Angiographic Image Storage*	1.2.840.10008.5.1.4.1.1.12.1	No	Yes
X-Ray Radio Fluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	No	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	No	Yes
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	No	Yes
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	No	Yes

***The system does not support Multi-frame XA image data.**

4.2.2.2. Association Policies

4.2.2.2.1. General

STORAGE-SCP AE accepts but never initiates associations.

The DICOM Standard application context name for DICOM 3.0 is always proposed:

Table 4.2-9
DICOM Application Context for STORAGE-SCP AE

Application Context Name	1.2.840.10008.3.1.1.1

Table 4.2-10
Maximum PDU size received

Maximum PDU size received	64 Kbytes

4.2.2.2.2. Number of Associations

STORAGE-SCP AE can support up to 3 Associations at a time.

There is no inherent limit to the number of associations other than limits imposed by the operating system of the computer.

Table 4.2-11
Number of Associations

Maximum number of simultaneous associations	3 (Configurable)

4.2.2.2.3. Asynchronous Nature

STORAGE-SCP AE will only allow a single outstanding operation on an association. Therefore, STORAGE-SCP AE will not perform asynchronous operation window negotiation.

4.2.2.2.4. Implementation Identifying Information

Table 4.2-12
DICOM Implementation Class and Version for STORAGE-SCP AE

Implementation Class UID	1.2.392.200036.9116.7.30.10
Implementation Version Name	TM_OT_TMH_1.0

4.2.2.3. Association Initiation Policy

STORAGE-SCP AE does not initiate associations.

4.2.2.4. Association Acceptance Policy

When STORAGE-SCP AE accepts an association, it will respond to storage requests. If the Called AE Title does not match the preconfigured AE Title shared by all the SCPs of the application, the association will be rejected.

Storage SCP AE accepts associations only if they have valid Presentation Contexts. If none of the requested Presentation Contexts are accepted then the association request itself is rejected. It can be configured to only accept associations with certain hosts (using TCP/IP address) and/or AE Titles.

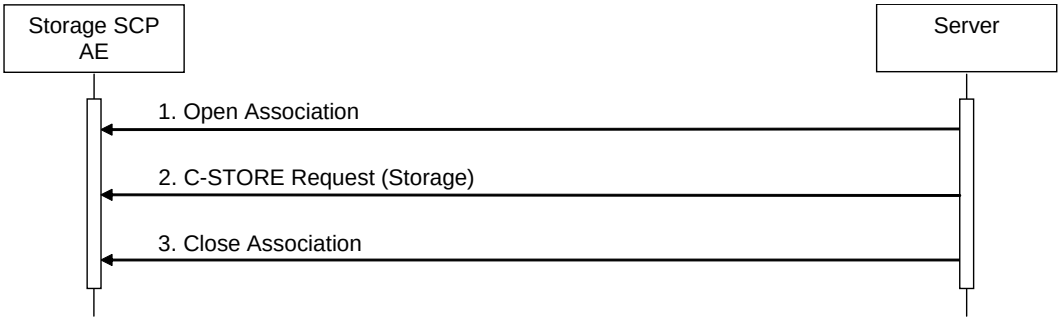

Figure 4.2-2
SEQUENCING OF ACTIVITY – STORE IMAGES TO THE LOCAL FILE SYSTEM

A possible sequence of interactions between the Storage SCP AE and the Server is illustrated in the Figure above:

1. The Server opens an association with the Storage SCP AE.
2. The Server sends images to the Storage SCP AE using a storage request (C-STORE) and the Storage SCP AE replies with a C-STORE response (status success).
3. The Server closes the association with the Storage SCP AE.

4.2.2.4.1. Activity – Receive Storage Request

4.2.2.4.1.1. Description and Sequencing of Activities

As instances are received, they are copied to the local file system and a record is inserted into the local database. If the Instance UID of received instance is a duplicate of a previously received instance, this product returns the error status "0xA702" to the remote storage SCU.

4.2.2.4.1.2. Accepted Presentation Contexts

Table 4.2-13
Acceptable Presentation Contexts for STORAGE-SCP AE

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
See Table 4.2-8	See Table 4.2-8	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None

4.2.2.4.1.2.1. Extended Negotiation

No extended negotiation is performed, though the STORAGE-SCP AE is a:

— Level 2 Storage SCP (Full – does not discard any data elements)

4.2.2.4.1.3. SOP Specific Conformance

4.2.2.4.1.3.1. SOP Specific Conformance to Storage SOP Classes

The STORAGE-SCP AE provides standard conformance to the Storage Service Class.

4.2.2.4.1.3.2. Presentation Context Acceptance Criteria

STORAGE-SCP AE will always accept any Presentation Context for the supported SOP Classes with the supported Transfer Syntaxes. More than one proposed Presentation Context will be accepted for the same Abstract Syntax if the Transfer Syntax is supported, whether or not it is the same as another Presentation Context.

4.2.2.4.1.3.3. Transfer Syntax Selection Policies

STORAGE-SCP AE prefers explicit Transfer Syntaxes. If offered a choice of Transfer Syntaxes in a Presentation Context, it will apply the following priority to the choice of Transfer Syntax:

a. first encountered explicit Transfer Syntax,
b. default Transfer Syntax.

STORAGE-SCP AE will accept duplicate Presentation Contexts, that is, if it is offered multiple Presentation Contexts, each of which offers acceptable Transfer Syntaxes, it will accept all Presentation Contexts, applying the same priority for selecting the Transfer Syntax to each.

4.2.2.4.1.3.4. Response Status

STORAGE-SCP AE will behave as described in the table below when generating the C-STORE response command message.

Table 4.2-14
Response Status for STORAGE-SCP AE

Service Status	Further Meaning	Status Codes	Reason
Refused	Out of resources	A700	Local resources are insufficient.
	Disk or DB full	A701	Disk full or DB full.
	Instance UID duplicate	A702	Instance(s) received before.
Error	Data set does not match SOP Class	A900	SOP Class UID does not match.
	Cannot understand	C000	Invalid data set or unsupported extended character sets. ・The system does not support Multi-frame XA image data. ・The value of Photometric Interpretation (0028,0004) is unsupported (values other than "MONOCHROME1", MONOCHROME2", and "RGB"). ・Mandatory DICOM Tag* (e.g. Patient ID (0010,0020)) does not exist.
Success		0000	Operation was performed properly.

* Mandatory DICOM Tag is the mandatory DICOM tag defined in Digital Imaging and Communications in Medicine (DICOM)

4.2.3. STORAGE-SCU AE Specification

4.2.3.1. SOP Classes

STORAGE-SCU AE provides Standard Conformance to the following DICOM V3.0 SOP Classes:

Table 4.2-15
SOP Classes supported by STORAGE-SCU AE

SOP Class Name	SOP Class UID	SCU	SCP
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	No
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	No
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	No
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	No
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	No
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	No
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	No
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	No
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	No
X-Ray Radio Fluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	No
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	No
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	No

4.2.3.2. Association Policies

4.2.3.2.1. General

STORAGE-SCU AE initiates but never accepts associations.

The DICOM Standard application context name for DICOM 3.0 is always proposed:

Table 4.2-16
DICOM Application Context for STORAGE-SCU AE

Application Context Name	1.2.840.10008.3.1.1.1

Table 4.2-17
Maximum PDU size received for STORAGE-SCU AE

Maximum PDU size received	64 Kbytes

4.2.3.2.2. Number of Associations

Table 4.2-18
Number of Associations for STORAGE-SCU AE

Maximum number of simultaneous associations	1

4.2.3.2.3. Asynchronous Nature

STORAGE-SCU AE will only allow a single outstanding operation on an Association. Therefore, the STORAGE-SCU AE will not perform asynchronous operation window negotiation.

4.2.3.2.4. Implementation Identifying Information

The implementation information for the Storage-SCU AE is:

Table 4.2-19
DICOM Implementation Class and Version for STORAGE-SCU AE

Implementation Class UID	1.2.392.200036.9116.7.30.10
Implementation Version Name	TM_OT_TMH_1.0

4.2.3.3. Association Initiation Policy

STORAGE-SCU AE attempts to initiate a new association for each instance it attempts to transfer.

4.2.3.3.1. Activity – Send Storage Request

4.2.3.3.1.1. Description and Sequencing of Activities

For each instance selected from the user interface to be transferred, a single attempt will be made to transmit it to the selected remote AE. If the send fails, for whatever reason, no retry will be performed, and an attempt will be made to send the next instance.

STORAGE-SCU AE attempts to initiate a new Association in order to issue a Storage Request (C-STORE).

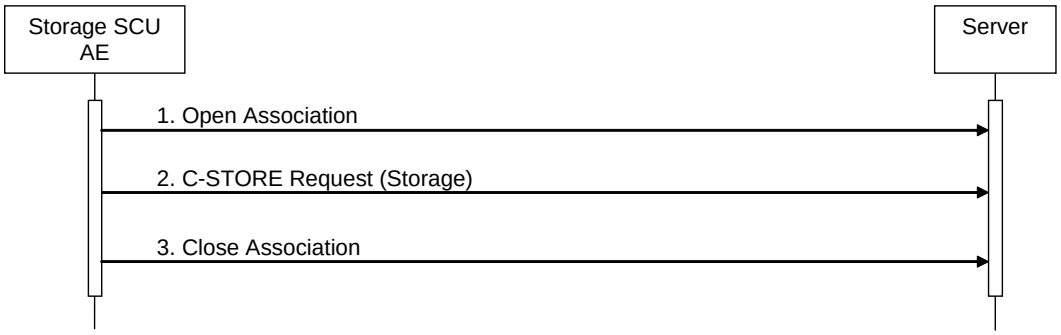

Figure 4.2-3
SEQUENCING OF ACTIVITY – SEND INSTANCES

A possible sequence of interactions between the STORAGE-SCU AE and a Server (e.g. a storage or archive device supporting the Storage SOP Classes as an SCP) is illustrated in the Figure above:

1. STORAGE-SCU AE opens an Association with the server.
2. Acquired instances are transmitted to the server using a Storage Request (C-STORE) and the server replies with a C-STORE response (status success).
3. STORAGE-SCU AE closes the Association with the server.

4.2.3.3.1.2. Proposed Presentation Contexts

STORAGE-SCU AE will propose Presentation Contexts as shown in the following table:

Table 4.2-20
Proposed Presentation Contexts for STORAGE-SCU AE

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
See Table 4.2-15	See Table 4.2-15	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

STORAGE-SCU AE will propose Presentation Contexts only for the SOP Class of the instance that is to be transferred.

4.2.3.3.1.2.1. Extended Negotiation

No extended negotiation is performed.

4.2.3.3.1.3. SOP Specific Conformance

4.2.3.3.1.3.1. SOP Specific Conformance for Storage SOP Classes

STORAGE-SCU AE provides standard conformance to the Storage Service Class.

For the purposes of image display, the system supports the following photometric interpretations:

MONOCHROME1, MONOCHROME2, RGB and ARGB.

4.2.3.3.1.3.2. Presentation Context Acceptance Criterion

STORAGE-SCU AE does not accept associations.

4.2.3.3.1.3.3. Response Status

STORAGE-SCU AE will behave as described in the table below in response to the status returned in the C-STORE response command message.

Table 4.2-21
STORAGE C-STORE Response Status HANDLING BEHAVIOR

Service Status	Further Meaning	Status Codes	Behavior
Success	Success	0000	The SCU assumes that the SCP has successfully stored the SOP Instance.
*	*	Any other status code.	The Association is aborted using A-RELEASE-RQ.

4.2.3.4. Association Acceptance Policy

STORAGE-SCU AE does not accept associations.

4.2.4. Q/R SCU AE Specification

4.2.4.1. SOP Classes

Q/R SCU AE provides Standard Conformance to the following DICOM V3.0 SOP Classes:

Table 4.2-22
SOP Classes supported by THE Q/R SCU

SOP Class Name	SOP Class UID	SCU	SCP
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	No
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Yes	No

4.2.4.2. Association Policies

4.2.4.2.1. General

Q/R SCU AE initiates but never accepts associations.

The DICOM Standard application context name for DICOM 3.0 is always proposed:

Table 4.2-23
DICOM Application Context for THE Q/R SCU AE

Application Context Name	1.2.840.10008.3.1.1.1

Table 4.2-24
MAXIMUM PDU SIZE RECEIVED FOR THE Q/R SCU AE

Maximum PDU size received	64 Kbytes

4.2.4.2.2. Number of Associations

Table 4.2-25
NUMBER OF ASSOCIATIONS FOR THE Q/R SCU AE

Maximum number of simultaneous associations	1

4.2.4.2.3. Asynchronous Nature

Q/R SCU AE will only allow a single outstanding operation on an association. Therefore, the Q/R SCU AE will not perform asynchronous operation window negotiation.

4.2.4.2.4. Implementation Identifying Information

The implementation information for this Application Entity is:

Table 4.2-26
DICOM IMPLEMENTATION CLASS AND VERSION FOR THE Q/R SCU AE

Implementation Class UID	1.2.392.200036.9116.7.30.10
Implementation Version Name	TM_OT_TMH_1.0

4.2.4.3. Association Initiation Policy

Q/R SCU AE attempts to initiate a new association when the user performs the query action from the user interface. If this involves recursive queries for lower query levels in the hierarchy, these will be performed on the same association.

4.2.4.3.1. Activity – Query and Retrieve Instances

4.2.4.3.1.1. Description and Sequencing of Activities

A single attempt will be made to query the remote AE. If the query fails, for whatever reason, no retry will be performed.

Q/R SCU AE is activated when the user selects a remote node to query and enters some key information, Patient's Name, Patient ID and/or Study Date. The user can select series to be retrieved. The instances will be received at the Storage SCP AE.

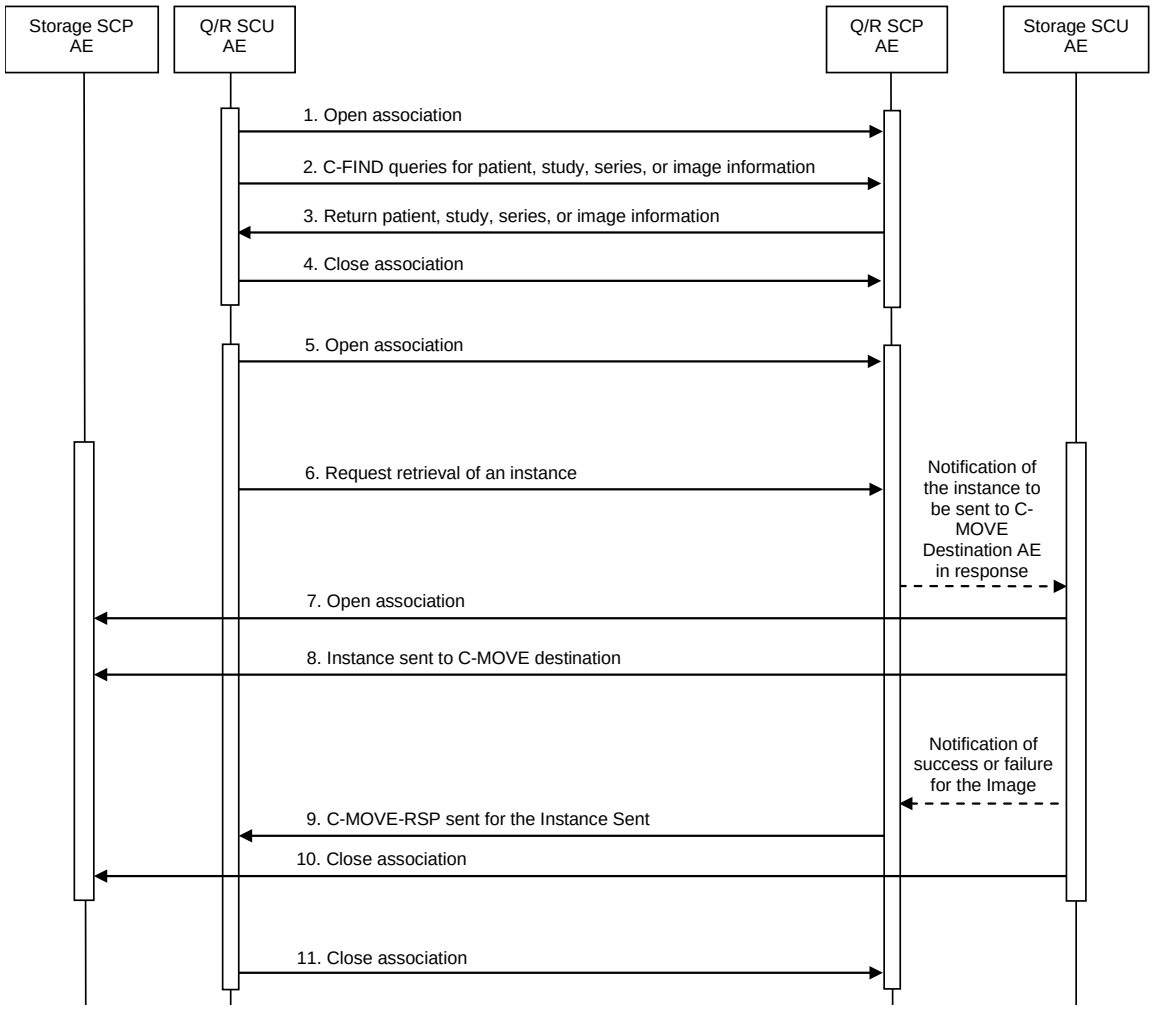

Figure 4.2-4
SEQUENCING OF ACTIVITY – QUERY AND RETRIEVE INSTANCES

The following sequencing constraints illustrated in the Figure above:

1. Q/R SCU AE opens an association with the Q/R SCP AE.
2. Q/R SCU AE sends a C-FIND-RQ Message.
3. Q/R SCP AE returns a C-FIND-RSP Message to the Q/R SCU AE with matching information. A C-FIND-RSP is sent for each entity matching the identifier specified in the C-FIND-RQ. A final C-FIND-RSP is sent indicating that the matching is complete.
4. Q/R SCU AE closes the association.
5. Q/R SCU AE opens an association with the Q/R SCP AE.
6. Q/R SCU AE sends a C-MOVE-RQ Message. Q/R SCP AE notifies the Storage SCU AE to send the Composite SOP Instances to the peer C-MOVE Destination AE as indicated in the C-MOVE-RQ.
7. Storage SCU AE opens an association with the C-MOVE Destination AE.
8. Storage SCU AE sends instances to the C-MOVE Destination AE. The Storage SCU AE indicates to the Q/R SCP AE whether the transfer succeeded or failed.
9. Q/R SCP AE then returns a C-MOVE-RSP indicating this success or failure.
10. Storage SCU AE closes the association.
11. Q/R SCU AE closes the association.

4.2.4.3.1.2. Proposed Presentation Contexts

Q/R SCU AE will propose Presentation Contexts shown in the following table:

Table 4.2-27
PROPOSED PRESENTATION CONTEXTS FOR THE Q/R SCU AE

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
See Table 4.2-22.	See Table 4.2-22.	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

4.2.4.3.1.2.1. Extended Negotiation

No extended negotiation is performed.

In particular, relational queries are not supported.

4.2.4.3.1.3. SOP Specific Conformance

4.2.4.3.1.3.1. SOP Specific Conformance for C-FIND SOP Classes

Q/R SCU AE provides standard conformance to the supported C-FIND SOP Classes as an SCU.

Only the information model Study Root is supported.

All queries are initiated at the highest level of the information model and are then recursively repeated at the next lower level (the STUDY level, the SERIES level, and then the IMAGE level) for each response received in order to completely elucidate the “tree” of instances available on the remote AE (from which the user may subsequently request a retrieval at any level).

No CANCEL requests are ever issued.

Requested return attributes not returned by the SCP are ignored.

Table 4.2-28
Study Root Request Identifier for the Q/R SCU AE

Name	Tag	Types of Matching
STUDY Level		
Patient ID	(0010,0020)	S,*,U
Patient's Name	(0010,0010)	S,*,U
Study ID	(0020,0010)	S,*,U
Study Date	(0008,0020)	S,*,U,R
Study Time	(0008,0030)	S,*,U,R
Accession Number	(0008,0050)	S,*,U
Modalities in Study	(0008,0061)	S, U
Study Instance UID	(0020,000D)	UNIQUE
SERIES Level		
Series Number	(0020,0011)	S,*,U
Modality	(0008,0060)	S,*,U
Series Instance UID	(0020,000E)	UNIQUE
IMAGE Level		
Instance Number	(0020,0013)	S,*,U
SOP Instance UID	(0008,0018)	UNIQUE

Types of Matching:
The types of matching supported by the C-FIND SCU are as follows. An "S" indicates that the identifier attribute uses Single Value Matching, an "R" indicates Range Matching, an "*" indicates wildcard matching, and a 'U' indicates Universal Matching. "UNIQUE" indicates the Unique Key for the query level; in this case, Universal Matching or Single Value Matching is used, depending on the query level.

4.2.4.3.1.3.2. SOP-Specific Conformance for C-MOVE SOP Classes

MOVE-SCU AE provides standard conformance to the supported C-MOVE SOP Classes.

No CANCEL requests are ever issued.

The retrieval is performed from the AE that was specified in the Retrieve AE attribute returned from the query performed by FIND-SCU. The instances are retrieved to the current application's local database by specifying the destination as the AE Title of the STORE-SCP AE of the local application. This implies that the remote C-MOVE SCP must be preconfigured to determine the presentation address corresponding to the STORE-SCP AE. The STORE-SCP AE will accept storage requests addressed to it from anywhere; therefore, no preconfiguration of the local application is required to accept requests from the remote AE (except appropriate configuration of FIND-SCU).

Table 4.2-29
Study Root Request Identifier for MOVE-SCU AE

Name	Tag	Unique, Matching or Return Key
STUDY Level		
Patient ID	(0010,0020)	MATCHING
Study Instance UID	(0020,000D)	UNIQUE
SERIES Level		
Series Instance UID	(0020,000E)	UNIQUE
IMAGE Level		
SOP Instance UID	(0008,0016)	UNIQUE

4.2.4.3.1.3.3. Presentation Context Acceptance Criteria

Q/R SCU AE does not accept associations.

4.2.4.3.1.3.4. Response Status

Q/R SCU AE will behave as described in Table 4.2-30 in response to the status returned in the C-FIND response command message(s).

Table 4.2-30
FIND-SCU AE Response Status HANDLING BEHAVIOR

Service Status	Further Meaning	Status Codes	Behavior
Cancel	Matching terminated due to Cancel request.	FE00	Ignored (should never occur, since cancels are never issued).
Success	Matching is complete - No final Identifier is supplied.	0000	Current query is terminated; remaining queries continue.
Pending	Matching is continuing - Current Match is supplied and Optional Keys are supported in the same manner as Required Keys.	FF00	Identifier used to populate the browser and trigger recursive lower level queries.
	Matching is continuing - Warning that one or more Optional Keys is not supported for existence and/or matching for this Identifier.	FF01	Identifier used to populate the browser and trigger recursive lower level queries.
*	*	Any other status code.	The Association is aborted using A-RELEASE-RQ.

Q/R-SCU AE will behave as described in the table below in response to the status returned in the C-MOVE response command message(s).

Table 4.2-31
MOVE-SCU AE Response Status HANDLING BEHAVIOR

Service Status	Further Meaning	Status Codes	Reason
Success	Success	0000	Retrieval is terminated.
*	*	Any other status code.	The Association is aborted using A-RELEASE-RQ.

4.2.4.3.1.3.5. Suboperation-dependent behavior

Since the C-MOVE operation is dependent on the completion of C-STORE suboperations that occur on a separate association, the effects of failure of operations on the other association(s) must be considered.

The MOVE-SCU AE completely ignores the activities taking place in relation to the STORAGE-SCP AE that is receiving the retrieved instances. Once C-MOVE has been initiated, it runs to completion (or failure) as described in the C-MOVE response command message(s). There is no attempt by MOVE-SCU AE to confirm that instances have actually been successfully received or locally stored.

Whether or not completely or partially successful retrievals are made available in the local database is beyond the control of THE MOVE-SCU AE. The user is purely dependent on the success or failure of the C-STORE suboperations, not on any explicit action by MOVE-SCU AE.

Whether or not the remote AE attempts to retry any failed C-STORE suboperations is beyond the control of MOVE-SCU AE.

If the association on which the C-MOVE was issued is aborted for any reason, whether or not the C-STORE suboperations continue is dependent on the remote AE; the local STORAGE-SCP AE will continue to accept associations and storage operations regardless.

4.2.4.3.1.3.6. Association Acceptance Policy

FIND-SCU AE and MOVE-SCU AE do not accept associations.

4.2.5. Print SCU AE Specification

4.2.5.1. SOP Classes

Print SCU AE provides Standard Conformance to the following Meta SOP Classes:

Table 4.2-32
META SOP CLASSES FOR PRINT SCU AE

SOP Class Name	SOP Class UID	SCU	SCP
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	Yes	No
Basic Color Print Management Meta	1.2.840.10008.5.1.1.18	Yes	No

The above Meta SOP Classes are defined by the following set of supported SOP Classes:

Table 4.2-33
SOP Classes for PRINT SCU AE

SOP Class Name	SOP Class UID	SCU	SCP
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No
Basic film Box SOP Class	1.2.840.10008.5.1.1.2	Yes	No
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Yes	No
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Yes	No
Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No

4.2.5.2. Association Policies

4.2.5.2.1. General

The DICOM standard application context name for DICOM 3.0 is always proposed:

Table 4.2-34
DICOM Application Context for PRINT SCU AE

Application Context Name	1.2.840.10008.3.1.1.1

4.2.5.2.2. Number of Associations

Table 4.2-35
Number of Associations Accepted for PRINT SCU AE

Maximum number of simultaneous Associations	1

4.2.5.2.3. Asynchronous Nature

Print SCU AE does not support asynchronous communication (multiple outstanding transactions over a single Association).

Table 4.2-36
Asynchronous Nature for PRINT SCU AE

Maximum number of outstanding asynchronous transactions	1

4.2.5.2.4. Implementation Identifying Information

The implementation information for Print SCU AE is:

Table 4.2-37
DICOM Implementation Class and Version for PRINT SCU AE

Implementation Class UID	1.2.392.200036.9116.7.30.10
Implementation Version Name	TM_OT_TMH_1.0

4.2.5.3. Association Initiation Policy

4.2.5.3.1. Activity – Send Images & Print Management Information

4.2.5.3.1.1. Description and Sequencing of Activities

A user composes images onto film sheets and requests them to be sent to a specific hardcopy device. The user can select the desired film format and number of copies.

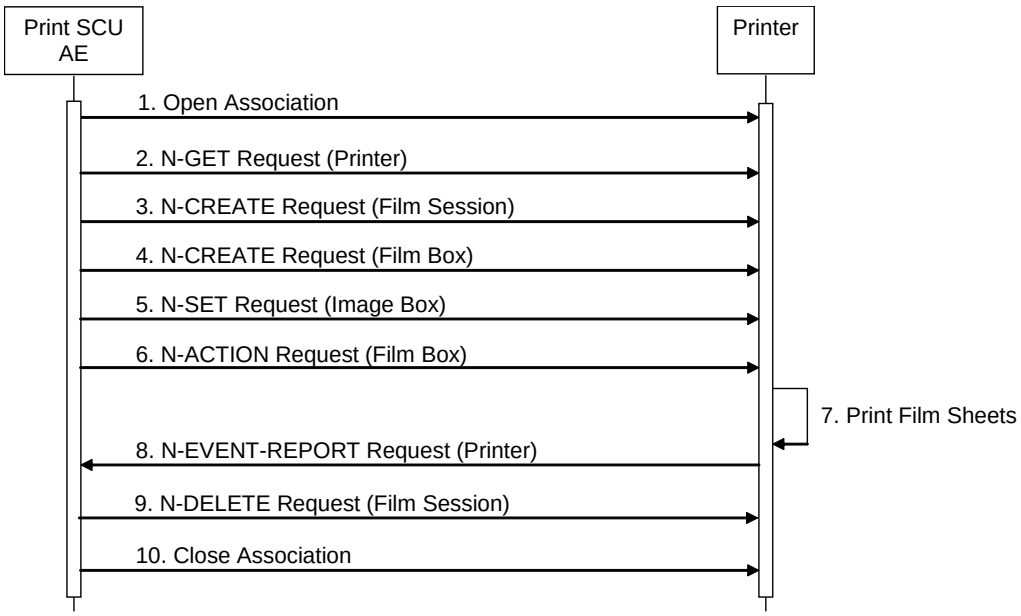

Figure 4.2-5
Sequencing of Activity – SEND Images & PRINT MANAGEMENT INFORMATION

A typical sequence of DIMSE messages sent over an association between the Print SCU AE and a Printer is illustrated in the Figure above:

1. The Print SCU AE opens an Association with the Printer.
2. N-GET on the Printer SOP Class is used to obtain current printer status information.
3. N-CREATE on the Film Session SOP Class creates a Film Session.
4. N-CREATE on the Film Box SOP Class creates a Film Box linked to the Film Session.
5. N-SET on the Image Box SOP Class transfers the contents of the film sheet to the printer.
6. N-ACTION on the Film Box SOP Class instructs the Printer to print the Film Box.
7. The Printer prints the requested number of film sheets.
8. The Printer asynchronously reports its status via N-EVENT-REPORT notification (Printer SOP Class). The printer can send this message at any time. The Print SCU AE does not require the N-EVENT-REPORT to be sent. The Print SCU AE is capable of receiving an N-EVENT-REPORT notification at any time during an association.
9. The Print SCU AE closes the Association with the Printer.

4.2.5.3.1.2. Proposed Presentation Contexts

Print SCU AE is capable of proposing the Presentation Contexts shown in the Table below:

Table 4.2-38
Proposed Presentation Contexts for Activity
SEND Images & PRINT MANAGEMENT INFORMATION

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Color Print Management Meta	1.2.840.10008.5.1.1.18	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

4.2.5.3.1.3. Common SOP Specific Conformance for all Print SOP Classes

The general behavior of the Print SCU AE during communication failure is summarized in the Table below. This behavior is common for all SOP Classes supported by the Print SCU AE.

Table 4.2-39
PRINT Communication Failure Behavior

Exception	Behavior
Timeout	The Association is aborted using A-ABORT and the print-job is marked as failed. The reason is logged and the job failure is reported to the user via the job control application.
Association aborted by the SCP or network layers	The print-job is marked as failed. The reason is logged and the job failure is reported to the user via the job control application.

4.2.5.3.1.4. SOP Specific Conformance for Printer SOP Class

Print SCU AE supports the following DIMSE operations and notifications for the Printer SOP Class:

— N-GET
— N-EVENT-REPORT

Details of the supported attributes and status handling behavior are described in the following subsections.

4.2.5.3.1.4.1. Printer SOP Class Operations (N-GET)

Print SCU AE uses the Printer SOP Class N-GET operation to obtain information about the current printer status. The attributes obtained via N-GET are listed in the Table below:

Table 4.2-40
Printer SOP Class N-GET Request Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Printer Status	(2110,0010)	CS	Provided by Printer	ALWAYS	Printer
Printer Status Info	(2110,0020)	CS	Provided by Printer	ALWAYS	Printer
Printer Name	(2110,0030)	CS	Provided by Printer	VNAP	Printer
Manufacturer	(0008,0070)	CS	Provided by Printer	VNAP	Printer
Manufacturer Model Name	(0008,1090)	CS	Provided by Printer	VNAP	Printer

Printer Status information is evaluated as follows:

1. If Printer status (2110,0010) is NORMAL, the print-job continues to be printed.
2. If Printer status (2110,0010) is FAILURE, the print-job is marked as failed. The contents of Printer Status Info (2110,0020) is logged and reported to the user via the job control application.
3. If Printer status (2110,0010) is WARNING, the print-job continues to be printed. The contents of Printer Status Info (2110,0020) is logged and reported to the user via the job control application.

The behavior of Print SCU AE when encountering status codes in an N-GET response is summarized in the Table below:

Table 4.2-41
Printer SOP Class N-GET Response Status Handling Behavior

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The request to get printer status information was success.
*	*	Any other status code	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.5.3.1.4.2. Printer SOP Class Notifications (N-EVENT-REPORT)

Print SCU AE is capable of receiving an N-EVENT-REPORT request at any time during an association.

The behavior of The Print SCU AE when receiving Event Types within the N-EVENT-REPORT is summarized in the Table below:

Table 4.2-42
Printer SOP Class N-EVENT-REPORT Behavior

Event Type Name	Event Type ID	Behavior
Normal	1	The print-job continues to be printed.
Warning	2	The print-job continues to be printed.
Failure	3	The print-job continues to be printed.
*	*	The print-job continues to be printed.

The reasons for returning specific status codes in an N-EVENT-REPORT response are summarized in the Table below:

Table 4.2-43
Printer SOP Class N-EVENT-REPORT Response Status Reasons

Service Status	Further Meaning	Status Code	Reasons
Success	Success	0000	The notification event has been successfully received.

4.2.5.3.1.5. SOP Specific Conformance for the Film Session SOP Class

Print SCU AE supports the following DIMSE operations for the Film Session SOP Class:

— N-CREATE

Details of the supported attributes and status handling behavior are described in the following subsections.

4.2.5.3.1.5.1. Film Session SOP Class Operations (N-CREATE)

The attributes supplied in an N-CREATE Request are listed in the Table below:

Table 4.2-44
Film Session SOP Class N-CREATE Request Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Number of Copies	(2000,0010)	IS	1	ALWAYS	Auto
Print Priority	(2000,0020)	CS	MED	ALWAYS	Auto
Medium Type	(2000,0030)	CS	BLUE FILM	ALWAYS	Auto
Film Destination	(2000,0040)	CS		ANAP	Auto
Memory Allocation	(2000,0060)	CS		ANAP	Auto

The behavior of Print SCU AE when encountering status codes in an N-CREATE response is summarized in the Table below:

Table 4.2-45
Film Session SOP Class N-CREATE Response Status Handling Behavior

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
*	*	Any other status code	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.5.3.1.6. SOP Specific Conformance for the Film Box SOP Class

Print SCU AE supports the following DIMSE operations for the Film Box SOP Class:

— N-CREATE
— N-ACTION

Details of the supported attributes and status handling behavior are described in the following subsections.

4.2.5.3.1.6.1. Film Box SOP Class Operations (N-CREATE)

The attributes supplied in an N-CREATE Request are listed in the Table below:

Table 4.2-46
Film Box SOP Class N-CREATE Request Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Display Format	(2010,0010)	ST	STANDARD\C,R	ALWAYS	Auto
Film Orientation	(2010,0040)	CS	PORTRAIT or LANDSCAPE	ALWAYS	User
Film Size ID	(2010,0050)	CS	14INX17IN, 14INX14IN, 11INX14IN, 8INX10IN, etc.	ALWAYS	User
Magnification Type	(2010,0060)	CS	CUBIC or NONE	ALWAYS	User
Smoothing Type	(2010,0080)	CS	MEDIUM	ALWAYS	Auto
Border Density	(2010,0100)	CS	BLACK or WHITE	ALWAYS	User
Empty Image Density	(2010,0110)	CS		ALWAYS	Auto
Min Density	(2010,0120)	US		ANAP	User
Max Density	(2010,0130)	US		ANAP	User
Trim	(2010,0140)	CS	YES or NO	ALWAYS	User
Configuration Information	(2010,0150)	ST		ALWAYS	Auto
Referenced Film Session Sequence	(2010,0500)	SQ		ALWAYS	Auto
>Referenced SOP Class UID	(0008,1150)	UI	1.2.840.10008.5.1.1.1	ALWAYS	Auto
>Referenced SOP Instance UID	(0008,1155)	UI	From created Film Session SOP Instance	ALWAYS	Auto

The behavior of Print SCU AE when encountering status codes in an N-CREATE response is summarized in the Table below:

Table 4.2-47
Film Box SOP Class N-CREATE Response Status Handling Behavior

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Warning	Requested Min Density or Max Density outside of printer's operating range	B605	The N-CREATE operation is considered successful if it is configured that the status would be considered successful.
*	*	Any other status code.	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.5.3.1.6.2. Film Box SOP Class Operations (N-ACTION)

An N-ACTION Request is issued to instruct the Print SCP to print the contents of the Film Box. The Action Reply argument in an N-ACTION response is not evaluated.

The behavior of The Print SCU AE when encountering status codes in a N-ACTION response is summarized in the Table below:

Table 4.2-48
Film Box SOP Class N-ACTION Response Status Handling Behavior

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully. The film has been accepted for printing.
Warning	Film Box SOP Instance hierarchy does not contain Image Box SOP Instances (empty page)	B603	The N-ACTION operation is considered successful if it is configured that the status would be considered successful.
Warning	Image size is larger than Image Box size. The image has been damaged.	B604	The N-ACTION operation is considered successful if it is configured that the status would be considered successful.
*	*	Any other status code	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.5.3.1.7. SOP Specific Conformance for the Grayscale Image Box SOP Class

The Print SCU AE supports the following DIMSE operations for the Grayscale Image Box SOP Class:

— N-SET

Details of the supported attributes and status handling behavior are described in the following subsections.

4.2.5.3.1.7.1. Grayscale Image Box SOP Class Operations (N-SET)

The attributes supplied in an N-SET Request are listed in the Table below:

Table 4.2-49
Grayscale Image Box SOP Class N-SET Request Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Position	(2020,0010)	US		ALWAYS	Auto
Polarity	(2020,0020)	CS	NORMAL	ALWAYS	Auto
Magnification Type	(2010,0060)	CS		ANAP	User
Smoothing Type	(2010,0080)	CS		ANAP	User
Basic Grayscale Image Sequence	(2020,0110)	SQ		ALWAYS	Auto
>Samples Per Pixel	(0028,0002)	US	1	ALWAYS	Auto
>Photometric Interpretation	(0028,0004)	CS	MONOCHROME2	ALWAYS	Auto
>Rows	(0028,0010)	US		ALWAYS	Auto
>Columns	(0028,0011)	US		ALWAYS	Auto
>Pixel Aspect Ratio	(0028,0034)	IS	1\1	ALWAYS	Auto
>Bits Allocated	(0028,0100)	US	8	ALWAYS	Auto
>Bits Stored	(0028,0101)	US	8	ALWAYS	Auto
>High Bit	(0028,0102)	US	7	ALWAYS	Auto
>Pixel Representation	(0028,0103)	US	0	ALWAYS	Auto
>Pixel Data	(7FE0,0010)	OB		ALWAYS	Auto

The behavior of Print SCU AE when encountering status codes in an N-SET response is summarized in the Table below:

Table 4.2-50
GRAYSCALE Image Box SOP Class N-SET Response Status Handling Behavior

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully. Image successfully stored in Image Box.
Warning	Image size is larger than Image Box size. The image has been damaged.	B604	The N-SET operation is considered successful if it is configured that the status would be considered successful.
Warning	Requested Min Density or Max Density outside of printer's operating range.	B605	The N-SET operation is considered successful if it is configured that the status would be considered successful.
*	*	Any other status code	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.5.3.1.8. SOP Specific Conformance for the Color Image Box SOP Class

Print SCU AE supports the following DIMSE operations for the Color Image Box SOP Class:

— N-SET

Details of the supported attributes and status handling behavior are described in the following subsections.

4.2.5.3.1.8.1. Color Image Box SOP Class Operations (N-SET)

The attributes supplied in an N-SET Request are listed in the Table below:

Table 4.2-51
COLOR Image Box SOP Class N-SET Request Attributes

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Position	(2020,0010)	US		ALWAYS	Auto
Polarity	(2020,0020)	CS	NORMAL	ALWAYS	Auto
Magnification Type	(2010,0060)	CS		ANAP	User
Smoothing Type	(2010,0080)	CS		ANAP	User
Basic Color Image Sequence	(2020,0111)	SQ		ALWAYS	Auto
>Samples Per Pixel	(0028,0002)	US	3	ALWAYS	Auto
>Photometric Interpretation	(0028,0004)	CS	RGB	ALWAYS	Auto
>Planar Condition	(0028,0006)	US	0x0001	ALWAYS	Auto
>Rows	(0028,0010)	US		ALWAYS	Auto
>Columns	(0028,0011)	US		ALWAYS	Auto
>Pixel Aspect Ratio	(0028,0034)	IS	1\1	ALWAYS	Auto
>Bits Allocated	(0028,0100)	US	8	ALWAYS	Auto
>Bits Stored	(0028,0101)	US	8	ALWAYS	Auto
>High Bit	(0028,0102)	US	7	ALWAYS	Auto
>Pixel Representation	(0028,0103)	US	0	ALWAYS	Auto
>Pixel Data	(7FE0,0010)	OB		ALWAYS	Auto

The behavior of Print SCU AE when encountering status codes in a N-SET response is summarized in the Table below:

Table 4.2-52
COLOR Image Box SOP Class N-SET Response Status Handling Behavior

Service Status	Further Meaning	Status Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully. Image successfully stored in Image Box.
Warning	Image size is larger than Image Box size. The image has been damaged.	B604	The N-SET operation is considered successful if it is configured that the status would be considered successful.
*	*	Any other status code	The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user.

4.2.5.4. Association Acceptance Policy

Print SCU AE does not accept Associations.

4.3. NETWORK INTERFACES

4.3.1. Physical Network Interface

The application is indifferent to the physical medium over which TCP/IP executes, which is dependent on the underlying operating system and hardware.

4.3.2. Additional Protocols

When host names rather than IP addresses are used in the configuration properties to specify presentation addresses for remote AEs, the application is dependent on the name resolution mechanism of the underlying operating system.

4.4. CONFIGURATION

All configurations are performed through the use of INI file(s) stored in predefined locations that are specific to the underlying operating system.

4.4.1. AE Title/Presentation Address Mapping

The Calling AE Title of the local application is configurable in the preferences file and is shared by all the AEs. The mapping of the logical name, by which remote AEs are described in the user interface to Called AE Titles and of the presentation address (hostname or IP address and port number) is configurable in the preferences file.

4.4.1.1. Local AE Titles

The mapping from AE Title to TCP/IP addresses and ports is configurable and set at the time of installation by Installation Personnel.

Table 4.4-1
AE TITLE CONFIGURATION TABLE

Application Entity	Role	Default AE Title	Default TCP/IP Port
Verification SCP	SCP	TM_OT_TMH_1.0	Not Applicable
STORAGE-SCU	SCU		Not Applicable
STORAGE-SCP	SCP		5000
Q/R SCU	SCU		Not Applicable
Print SCU	SCU		Not Applicable

4.4.2. Parameters

Table 4.4-2
CONFIGURATION PARAMETERS TABLE

Parameter	Configurable (Yes/No)[Range]	Default Value
General Parameters		
Time-out waiting for acceptance or rejection response to an Association Open Request. (Application-level timeout)	Yes[1-32767]	60 sec
TCP/IP Port number.	Yes	5000
AE-Specific Parameters (all AEs)		
Maximum DICOM file size that can be received	Yes[33-140]	33 Mbytes
Maximum PDU size that can be sent and received by the AE	Yes[16-64]	64 Kbytes
AE-specific DIMSE-level time-out values	No	C-MOVE 900 sec Other 120 sec
Number of simultaneous Associations by Service and/or SOP Class	Yes[1,3]	Unlimited
Association establishment request waiting time	Yes[1-32767]	60 sec
Association establishment response waiting time	Yes[1-32767]	60 sec
Service request waiting time	Yes[1-32767]	60 sec
Association release response waiting time	Yes[1-32767]	60 sec
SOP Class support	Yes	All supported SOP Classes always proposed and accepted
Transfer Syntax support	No	All supported Transfer Syntaxes always proposed and accepted

5 MEDIA INTERCHANGE

5.1. IMPLEMENTATION MODEL

5.1.1. Application Data Flow

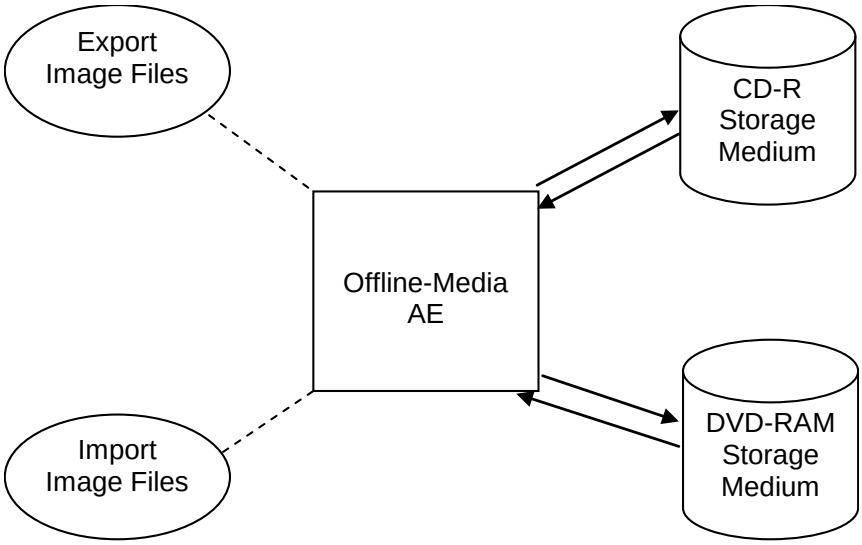

Figure 5.1-1
APPLICATION DATA FLOW DIAGRAM FOR MEDIA STORAGE

— The Offline-Media AE exports image files to a CD-R or a DVD-RAM storage medium. It is associated with the local real-world activity “Export Image Files” performed by user operation.

— The Offline-Media AE imports image files from a CD-R or a DVD-RAM storage medium. It is associated with the local real-world activity “Import Image Files” performed by user operation.

5.1.2. Functional Definition of AEs

5.1.2.1. Functional Definition of Offline-Media AE

The Offline-Media AE is performed upon user request for selected studies /series/images to/from an offline DICOM CD-R medium. It therefore performs the following tasks:

Export:

- Builds DICOM Information Objects.
- Creates a DICOMDIR file that represents the contents of the DICOM Information Objects to be recorded.
- Records DICOM Information Objects and the DICOMDIR file to the CD-R or DVD-RAM medium.

Import:

- Reads the DICOMDIR file that represents the contents of the data as recorded.
- Displays the ordered list of studies/series/images, identifying information.
- Loads the selected studies/series/images from the CD-R or DVD-RAM medium and displays them on the screen.

5.1.3. Sequencing of Real-World Activities

5.1.3.1. Activity - Export Image Files

5.1.3.1.1. Activity-Export Image Files to media

Operator requests to create new File-set(s) onto a new CD-R medium or a DVD-RAM medium. The requests are placed in a queue and are executed in the background.

The operations for “Export Image Files” are described below:

Step-1: Select the instance(s), series or studies on the local storage device to be created to the medium.

Step-2: Select the image archiving.

Step-3: Select the medium device as a destination.

Step-4: Request to copy to the medium.

5.1.3.2. Activity - Import Image Files from medium

Operator requests to retrieve File-set(s) on the CD-R or DVD-RAM medium. The requests are placed in a queue and are executed in the background.

The operations for “Import Image Files” are described below:

Step-1: Select the instances on the medium to be retrieved to the local storage device.

Step-2: Select the data retrieval.

Step-3: Select the local storage device as a destination.

5.1.4. File Meta Information for Implementation Class and Version

The implementation information written to the File Meta Header in each file is:

Table 5.1-1
DICOM IMPLEMENTATION CLASS AND VERSION FOR MEDIA STORAGE

File Meta Information Version	1
Implementation Class UID	1.2.392.200036.9116.7.30.10
Implementation Version Name	TM_OT_TMH_1.0

5.2. AE SPECIFICATIONS

5.2.1. Offline-Media AE Specification

The Offline-Media AE provides standard conformance to the DICOM Interchange Option of the Media Storage Service Class. The Application Profiles and roles are listed below:

Table 5.2-1
APPLICATION PROFILES, ACTIVITIES AND ROLES FOR OFFLINE-MEDIA

Application Profiles Supported	Real World Activity	Role	SC Option
STD-GEN-CD, STD-GEN-DVD-RAM	Export Image Files	FSC	Interchange
	Import Image Files	FSR	Interchange

5.2.1.1. File Meta Information for the Application Entity

The Offline-Media AE does not set the Source Application Entity Title.

5.2.1.2. Real-World Activities

5.2.1.2.1. Activity – Export Image Files

The Offline-Media AE acts as an FSC using the interchange option when requested to export SOP Instances from the local database to a CD-R or a DVD-RAM medium.

5.2.1.2.1.1. Media Storage Application Profiles

The Offline-Media AE supports STD-GEN-CD and STD-GEN-DVD-RAM Application Profile.

5.2.1.2.1.1.1. Options

The Offline-Media AE supports the SOP Classes and Transfer Syntaxes listed in the Table below for STD-GEN-CD and STD-GEN-DVD-RAM Application Profile as an FSC.

Table 5.2-2
IODs, SOP Classes and Transfer Syntaxes for THE STD-GEN-CD PROFILE

Information Object Definition	SOP Class UID	Transfer Syntax	Transfer Syntax UID
Media Storage Directory Storage	1.2.840.10008.1.3.10	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
Computed Radiography Image Storage(CR)	1.2.840.10008.5.1.4.1.1.1	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
Digital X-Ray Image Storage – For Presentation(DX)	1.2.840.10008.5.1.4.1.1.1.1	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
Digital Mammography X-Ray Image Storage – For Presentation(MG)	1.2.840.10008.5.1.4.1.1.1.2	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
X-Ray Radio Fluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Explicit VR Little Endian Uncompressed	1.2.840.10008.1.2.1

5.2.1.2.1.2. Activity – Import Image Files

The Offline-Media AE acts as an FSR using the interchange option when requested to import SOP Instances from a CD-R or a DVD-RAM medium to the local database.

5.2.1.2.1.3. Media Storage Application Profiles

The Offline-Media AE supports STD-GEN-CD and STD-GEN-DVD-RAM Application Profile.

5.2.1.2.1.3.1. Options

The Offline-Media AE supports the SOP Classes and Transfer Syntaxes listed in the Table 5.2-2 for STD-GEN-CD and STD-GEN-DVD-RAM Application Profile as an FSR.

5.2.1.2.2. Activity – Add Image Files

Not applicable to this product.

5.3. AUGMENTED AND PRIVATE APPLICATION PROFILES

5.3.1. Augmented Application Profiles

Not applicable to this product.

5.3.2. Private Application Profiles

Not applicable to this product.

5.4. MEDIA CONFIGURATION

Not applicable to this product.

6 SUPPORT OF CHARACTER SETS

This product supports the following character sets:

STORAGE-SCU AE, STORAGE-SCP AE, and FIND-SCU AE:

ISO-IR 6(default) (Basic G0 set)	ISO 646
JIS X 0201 (Katakana)	JIS X 0201 (Romaji)
ISO-IR 87 (Japanese kanji, hiragana, and katakana)	JIS X 0208 (Kanji)

MOVE-SCU AE:

ISO-IR 6 (default) (Basic G0 set)	ISO 646

Support extends to correctly decoding and displaying the correct symbol for all names received over the network and for all names in the local database.

Print SCU AE

This product supports the following character sets:

• ISO-IR 6 (default)	ISO 646

This product can also receive and transmit images containing character sets other than those listed above, but the image viewer bundled with the product can correctly display only the character sets listed above.

7 SECURITY

7.1. SECURITY PROFILES

This product does not support any specific security measures.

It is assumed that the product is used within a secured environment. It is assumed that a secured environment includes at a minimum:

a. Firewall or router protections to ensure that only approved external hosts have network access to the product.

b. Firewall or router protections to ensure that the product only has network access to approved external hosts and services.

c. Any communication with external hosts and services outside the locally secured environment is performed via appropriate secured network channels (e.g. such as a Virtual Private Network (VPN))

Other network security procedures such as automated intrusion detection may be appropriate in some environments. Additional security features may be established by the local security policy and are beyond the scope of this conformance statement.

7.2. ASSOCIATION LEVEL SECURITY

The STORAGE-SCP AE can be configured to check the following DICOM values when determining whether to accept Association Open Requests:

Calling AE Title

Called AE Title

Application Context

The SCP AE can be configured to only accept Association Requests from a specified list of Calling AE Titles. Each SCP AE may have its own designated Calling AE Title list.

In addition, the IP address of the requestor can be checked. The SCP AE can be constrained to only accept Association Requests from a configured list of IP addresses.

7.3. APPLICATION LEVEL SECURITY

Not supported.

8 ANNEXES

8.1. IOD CONTENTS

8.1.1. Created SOP Instances

None.

8.1.2. Usage of Attributes from Received IODs

No SOP-Class-specific fields are required.

The local database and the remote query and directory browsers make use of conventional identification attributes to distinguish patients, studies, series, and instances. In particular, if two patients have the same value for the Patient ID, they will be treated as the same patient in the browser and the local database.

8.1.3. Attribute Mapping

Not applicable to this product.

8.1.4. Coerced/Modified Fields

No coercion is performed.

8.2. DATA DICTIONARY OF PRIVATE ATTRIBUTES

This product reserves private attribute values in group 7019.

The private attributes added to created SOP instances or directory records are listed in the following table.

Table 8.2-1
DATA DICTIONARY OF PRIVATE ATTRIBUTES

Tag	Attribute Name	VR	VM
(7019,00XX)	Private Creator	LO	1
(7019,XX01)	Annotation Version No.	DS	1
(7019,XX02)	Annotation Sequence	SQ	1
(7019,00XX)	> Private Creator	LO	1
(7019,XX04)	> Annotation Object Number	SS	1
(7019,XX05)	> Annotation Type	SS	1
(7019,XX06)	> Annotation Font Size	SS	1
(7019,XX07)	> Annotation Font Color	UL	1
(7019,XX08)	> Display Position X of Result of Measure	SS	1
(7019,XX09)	> Display Position Y of Result of Measure	SS	1
(7019,XX0A)	> Line Width	SS	1
(7019,XX0B)	> Line Color	UL	1
(7019,XX0C)	> Measurement Type	SS	1
(7019,XX0D)	> Character String Font Size	SS	1
(7019,XX0E)	> Character String Font Color	UL	1
(7019,XX10)	> Line Position Sequence	SQ	1
(7019,00XX)	>> Private Creator	LO	1
(7019,XX11)	>> Line Position x0	SS	1
(7019,XX12)	>> Line Position y0	SS	1
(7019,XX13)	>> Line Position x1	SS	1
(7019,XX14)	>> Line Position y1	SS	1
(7019,XX15)	>>Click Position X	SS	1
(7019,XX16)	>> Click Position Y	SS	1
(7019,XX20)	> ROI Center Position X	SS	1
(7019,XX21)	> ROI Center Position Y	SS	1
(7019,XX22)	> Length X from Center of ROI	SS	1
(7019,XX23)	> Length Y from Center of ROI	SS	1
(7019,XX24)	> Rotation Angle of ROI	FL	1
(7019,XX2A)	> Vertex Number of Polygonal ROI	SS	1
(7019,XX2B)	> Vertex Position of Polygonal ROI Sequence	SQ	1
(7019,00XX)	>> Private Creator	LO	1
(7019,XX2C)	>> Vertex Position X	SS	1
(7019,XX2D)	>> Vertex Position Y	SS	1
(7019,XX30)	> Edit Box Position X	SS	1
(7019,XX31)	> Edit Box Position Y	SS	1

Tag	Attribute Name	VR	VM
(7019,XX32)	> Edit Box Character Set	CS	1
(7019,XX33)	> Edit Box String Length	SS	1
(7019,XX34)	> Edit Box String	ST	1
(7019,XX61)	> Start X Of Arrow	SS	1
(7019,XX62)	> Start Y Of Arrow	SS	1
(7019,XX63)	> End Y Of Arrow	SS	1
(7019,XX64)	> End X Of Arrow	SS	1
(7019,XX65)	> End X Of Arrow With Character	SS	1
(7019,XX66)	> End Y Of Arrow With Character	SS	1
(7019,XX67)	> Character Code Of Arrow With Character	CS	1
(7019,XX68)	> Character Length Of Arrow With Character	SS	1
(7019,XX69)	> Character String Of Arrow With Character	ST	1
(7019,XX40)	Image Type for MEDIS-DC media format	CS	1
(7019,XX45)	Information Change Sequence	SQ	1
(0008,1070)	> Operators' Name	PN	1-n
(7019,00XX)	> Private Creator	LO	1
(7019,XX46)	> Information Change Date	DA	1
(7019,XX47)	> Information Change Time	TM	1
(XXXX,XXXX)	> Changed Data Element	*1	1
(7019,XX50)	Pixel Size	DS	2
(7019,XX51)	Original Image SOP Instance UID	UI	1
(7019,XX52)	Original Image Series Instance UID	UI	1
(7019,XX53)	Copy Image Creation Date	DA	1
(7019,XX54)	Copy Image Creation Time	TM	1

*1: Always set when the system creates private data.

8.3. CODED TERMINOLOGY AND TEMPLATES

8.3.1. Mammography View Codes

The following table lists View codes defined for Mammography images.

Table 8.3-1
VIEW CODES FOR MAMMOGRAPHY IMAGES

Coding Scheme Designator (0008,01012)	Code Value (0008,0100)	Code Meaning (0008,0104)	ACR MQCM 1999 Equivalent
SNM3	R-10224	medio lateral	ML
SNM3	R-10226	medio lateral oblique	MLO
SNM3	R-10228	latero medial	LM
SNM3	R-10230	latero medial oblique	LMO
SNM3	R-10242	cranio caudal	CC
SNM3	R-10244	caudo cranial (from below)	FB
SNM3	R-102D0	superolateral to inferomedial oblique	SIO
SNM3	R-102CF	exaggerated cranio caudal	XCC
SRT	R-1024A	cranio caudal exaggerated laterally	XCCL
SRT	R-1024B	cranio caudal exaggerated medially	XCCM

The following table lists View Modifier codes defined for Mammography images.

Table 8.3-2
VIEW MODIFIER CODES FOR MAMMOGRAPHY IMAGES

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)	Applies only when View ACR MQCM 1999 Equivalent is	ACR MQCM 1999 Equivalent
SNM3	R-102D2	Cleavage	CC or FB	CV
SNM3	R-102D1	Axillary Tail	MLO	AT
SNM3	R-102D3	Rolled Lateral	any	…RL
SNM3	R-102D4	Rolled Medial	any	…RM
SNM3	R-102CA	Rolled Inferior	any	…RI
SNM3	R-102C9	Rolled Superior	any	…RS
SNM3	R-102D5	Implant Displaced	any	…ID
SNM3	R-102D6	Magnification	any	M…
SNM3	R-102D7	Spot Compression	any	S…
SNM3	R-102C2	Tangential	any	TAN

8.4. GRAYSCALE IMAGE CONSISTENCY

Not supported.

8.5. STANDARD EXTENDED/SPECIALIZED/PRIVATE SOP CLASSES

Not supported.

8.6. PRIVATE TRANSFER SYNTAXES

Not supported.