UniSight

DICOM Conformance Statement

Revision 4.1
Software Version 4.0 and after

Date: October 24, 2005

1. DICOM COMFORMANCE STATEMENT OVERVIEW

UniSight supports display of DICOM image objects obtained over the network, from interchange media, or from PS 3.10 files loaded from the local file system.

UniSight supports querying a remote system for a list of DICOM objects that may then be retrieved to the local system. It also supports sending locally loaded images across the network to another system.

Most storage SOP Classes defined as of DICOM 2004 can be received, stored and transmitted by UniSight, but some may not be loaded and viewed. All single and multi-frame with grayscale and color images may be displayed.

Both hierarchical and relational queries are supported.

Table 1-1

NETWORK SERVICES

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Instance Transfer and Verification		
Verification	Yes	Yes
Storage Commitment Push Model	Yes	No
Computed Radiography Image Storage	Stored and Viewed	Yes
Digital X-Ray Image Storage – For Presentation	Stored and Viewed	Yes
Digital X-Ray Image Storage – For Processing	Stored and Viewed	Yes
Digital Mammography X-Ray Image Storage – For Presentation	Stored and Viewed	Yes
Digital Mammography X-Ray Image Storage – For Processing	Stored and Viewed	Yes
Digital Intra-oral X-Ray Image Storage – For Presentation	Stored and Viewed	Yes
Digital Intra-oral X-Ray Image Storage – For Processing	Stored and Viewed	Yes
CT Image Storage	Stored and Viewed	Yes
Enhanced CT Image Storage	Stored only	Yes
Ultrasound Multi-frame Image Storage (Retired)	Stored and Viewed	Yes
Ultrasound Multi-frame Image Storage	Stored and Viewed	Yes
MR Image Storage	Stored and Viewed	Yes
Enhanced MR Image Storage	Stored only	Yes
MR Spectroscopy Storage	Stored only	Yes
Nuclear Medicine Image Storage (Retired)	Stored and Viewed	Yes
Ultrasound Image Storage (Retired)	Stored and Viewed	Yes
Ultrasound Image Storage	Stored and Viewed	Yes
Secondary Capture Image Storage	Stored and Viewed	Yes

Multi-frame Grayscale Byte Secondary Capture Image Storage	Stored and Viewed	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	Stored and Viewed	Yes
Multi-frame True Color Secondary Capture Image Storage	Stored and Viewed	Yes
Standalone Overlay Storage	Stored only	Yes
Standalone Curve Storage	Stored only	Yes
12-lead ECG Waveform Storage	Stored only	Yes
General ECG Waveform Storage	Stored only	Yes
Ambulatory ECG Waveform Storage	Stored only	Yes
Hemodynamic Waveform Storage	Stored only	Yes
Cardiac Electrophysiology Waveform	Stored only	Yes
Basic Voice Audio Waveform Storage	Stored only	Yes
Standalone Modality LUT Storage	Stored only	Yes
Standalone VOI LUT Storage	Stored only	Yes
Grayscale Softcopy Presentation State Storage SOP Class	Stored and Viewed with images	Yes
X-Ray Angiographic Image Storage	Stored and Viewed	Yes
X-Ray Radiofluoroscopic Image Storage	Stored and Viewed	Yes
X-Ray Angiographic Bi-Plane Image Storage (Retired)	Stored and Viewed	Yes
Nuclear Medicine Image Storage	Stored and Viewed	Yes
VL Endoscopic Image Storage	Stored and Viewed	Yes
Video Endoscopic Image Storage	Stored and Viewed	Yes
VL Microscopic Image Storage	Stored and Viewed	Yes
Video Microscopic Image Storage	Stored and Viewed	Yes
VL Slide-Coordinates Microscopic Image Storage	Stored and Viewed	Yes
VL Photographic Image Storage	Stored and Viewed	Yes
Video Photometric Image Storage	Stored and Viewed	Yes
Ophthalmic Photography 8 Bit Image Storage	Stored and Viewed	Yes
Ophthalmic Photography 16 Bit Image Storage	Stored and Viewed	Yes
Basic Text SR	Stored and Viewed (Note 1)	Yes
Enhanced SR	Stored and Viewed (Note 1)	Yes
Comprehensive SR	Stored only	Yes
Mammography CAD SR	Stored only	Yes
Key Object Selection Document	Stored and Viewed with images	Yes
Chest CAD SR	Stored only	Yes
Positron Emission Tomography Image Storage	Stored and Viewed	Yes
RT Image Storage	Stored and Viewed	Yes
Query/Retrieve		
Study Root Information Model FIND	Yes (Note 2)	No

Study Root Information Model MOVE	Yes	No

Note 1: Viewing SR objects requires optional Report Reader software, POP-Net SR.

Note 2: Relational Queries is supported.

Table 1-2

MEDIA SERVICES

Media Storage Application Profile	Write Files (FSC or FSU)	Read Files (FSR)
Compact Disk - Recordable		
General Purpose CD-R	Yes	Yes
Basic Cardiac XA on CD-R	Yes	Yes
1024 XA on CD-R	Yes	Yes
CT and MR on CD-R	Yes	Yes
DVD		
General Purpose DVD-RAM	Yes	Yes
MOD		
Ultrasound - Image Display / Spatial Calibration / Combined Calibration - Single Frame / Multi-frame	Yes	Yes

2. TABLE OF CONTENTS

3 INTRODUCTION

3.1 Revision History

Document Version	Date of Issue	Author	Description
4.0	February 9, 2005	M. Kobayashi	Revised per DICOM 2004 Part 2
4.1	October 24, 2005	Tom Wang	Revised for UniSight (USA market)

3.2 Audience

This document is intended for hospital staff, health system integrators, software designers or 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 between the UniSight and other DICOM systems. The Conformance Statement should be read and understood in conjunction with the DICOM Standard [DICOM]. 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 UniSight and other DICOM conformant equipment.

– Test procedures should be defined to validate the desired level of connectivity.

3.4 Abbreviations and Acronyms:

AE   Application Entity

CR   Computerized Radiography

CT   Computerized Tomography

DICOM   Digital Imaging and Communications in Medicine

IE   Information Entity

IOD   Information Object Definition

ISO   International Standards Organization

MR   Magnetic Resonance

PDU   Protocol Data Unit

SC   Secondary Capture

SCP   Service Class Provider

SCU   Service Class User

SOP   Service-Object Pair

SR   Structured Reporting

TCP/IP   Transmission Control Protocol/Internet Protocol

UID   Unique Identifier

US   Ultrasound

VM   Value Multiplicity

VL   Visible Light

VR   Value Representation

4 NETWORKING

4.1 Implementation Model

4.1.1 Application Data Flow

DICOM Standard Interface
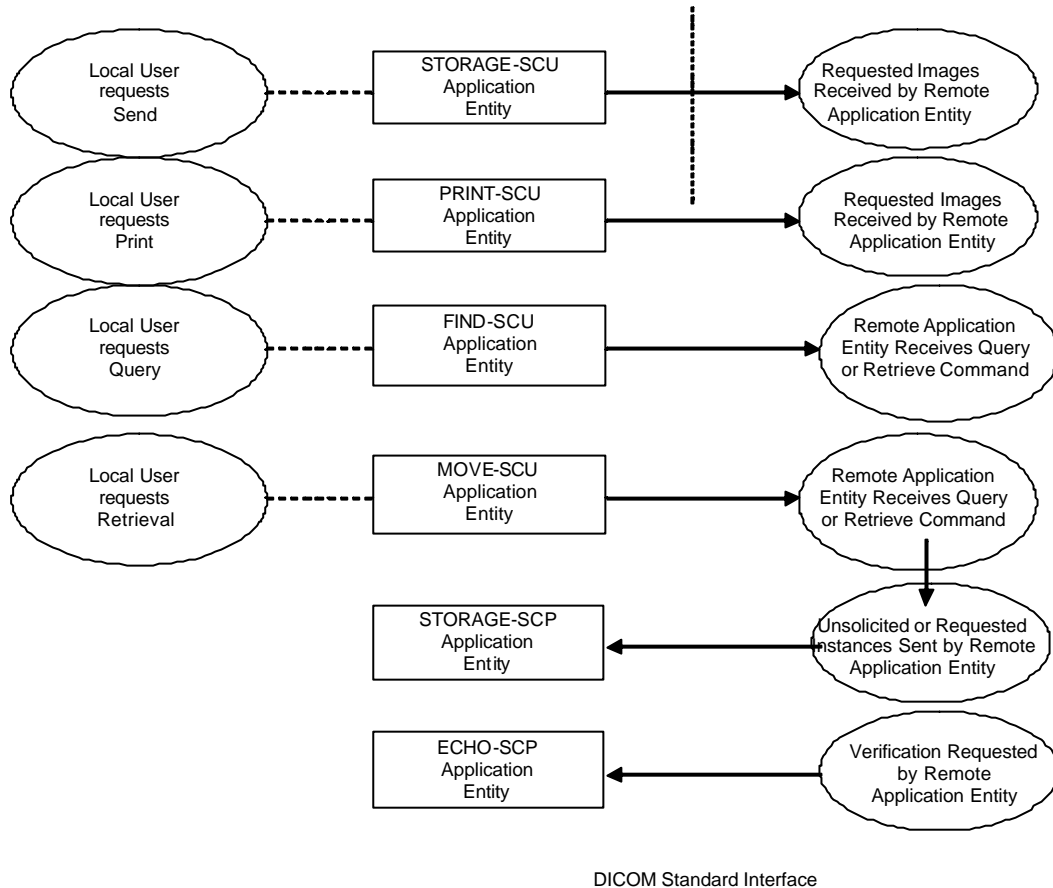
Figure 4.1.1-1

IMPLEMENTATION MODEL

UniSight is a single Windows XP application that provides both a user interface, internal database and network listener that spawns additional threads as necessary to handle incoming connections, as well as media support.

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

–   ECHO-SCP, which responds to verification requests

–   STORAGE-SCP, which receives incoming images and other composite instances

–   STORAGE-SCU, which sends outbound images and other composite instances

–   FIND-SCU, which queries remote AEs for lists of studies, series and instances

–   MOVE-SCU, which retrieves selected studies, series or instances

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– PRINT-SCU, which sends outbound images and other composite instances to a printing device.

4.1.2 Functional Definitions of AE's

4.1.2.1 ECHO-SCP

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

4.1.2.2 STORAGE-SCP

STORAGE-SCP 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 STORAGE-SCU

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

4.1.2.4 FIND-SCU

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

4.1.2.5 MOVE-SCU

MOVE-SCU 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.

4.1.2.6 PRINT-SCU

PRINT-SCU is activated through the user interface when a user selects instances from the currently displayed instances, and requests that they be printed by a remote AE (selected from a pre-configured list).

4.1.3 Sequencing of Real-World Activities

All SCP activities are performed asynchronously in the background and 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 has completed.

4.2 AE Specifications

4.2.1 ECHO-SCP

4.2.1.1 SOP Classes

ECHO-SCP provides Standard Conformance to the following SOP Class:

Table 4.2.1.1-1

SOP CLASSES SUPPORTED BY ECHO-SCP

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

ECHO-SCP accepts but never initiates associations.

Table 4.2.1.2.1-1

MAXIMUM PDU SIZE RECEIVED AS A SCP FOR ECHO-SCP

Maximum PDU size received	64k bytes

4.2.1.2.2 Number of Associations

Table 4.2.1.2.2-1

NUMBER OF ASSOCIATIONS AS A SCP FOR ECHO-SCP

Maximum number of simultaneous associations	8

4.2.1.2.3 Asynchronous Nature

ECHO-SCP will only allow a single outstanding operation on an Association. All Association requests must be completed and acknowledged before a new operation can be initiated.

4.2.1.2.4 Implementation Identifying Information

Table 4.2.1.2.4-1

DICOM IMPLEMENTATION CLASS AND VERSION FOR ECHO-SCP

Implementation Class UID	1.2.840.113820.4
Implementation Version Name	EBM_DICOM_30

4.2.1.3 Association Initiation Policy

ECHO-SCP does not initiate associations.

4.2.1.4 Association Acceptance Policy

If the Called AE Title does not match the pre-configured AE Title shared by all the SCPs of UniSight, the association may be rejected.

4.2.1.4.1 Activity – Receive Echo Request

4.2.1.4.1.1 Description and Sequencing of Activities

The ECHO-SCP AE accepts Associations only if they have valid Presentation Contexts. If ECHO-SCP AE receives an echo (C-ECHO) request then the response(s) will be sent over the same Association used to send the C-ECHO-RQ.

4.2.1.4.1.2 Accepted Presentation Contexts

Table 4.2.1.4.1.2-1

ACCEPTABLE PRESENTATION CONTEXTS FOR ECHO-SCP AND RECEIVE ECHO REQUEST

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

ECHO-SCP provides standard conformance to the Verification Service Class.

4.2.1.4.1.3.2 Presentation Context Acceptance Criterion

ECHO-SCP 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

If multiple Transfer Syntaxes are proposed per Presentation Context, then only the first supported Transfer Syntax is accepted.

4.2.2 STORAGE-SCP

4.2.2.1 SOP Classes

STORAGE-SCP provide Standard Conformance to the following SOP Class(es):

Table 4.2.2.1-1

SOP CLASSES SUPPORTED BY STORAGE-SCP

SOP Class Name	SOP Class UID	SCU	SCP
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 X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	No	Yes
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	No	Yes
Digital Mammography X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	No	Yes
Digital Intra-oral X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.3	No	Yes
Digital Intra-oral X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	No	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	No	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	No	Yes
US Multi-frame Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	No	Yes
US Multi-frame Storage	1.2.840.10008.5.1.4.1.1.3.1	No	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	No	Yes
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	No	Yes
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	No	Yes
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	No	Yes
US Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	No	Yes
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	No	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	No	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	No	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	No	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	No	Yes
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	No	Yes
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	No	Yes

12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	No	Yes
General ECG Waveform Strage	1.2.840.10008.5.1.4.1.1.9.1.2	No	Yes
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	No	Yes
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	No	Yes
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	No	Yes
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	No	Yes
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	No	Yes
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	No	Yes
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	No	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	No	Yes
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	No	Yes
X-Ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	No	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	No	Yes
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	No	Yes
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	No	Yes
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	No	Yes
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	No	Yes
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	No	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	No	Yes
Video Photometric Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	No	Yes
Opthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	No	Yes
Opthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	No	Yes
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	No	Yes
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	No	Yes
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	No	Yes
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	No	Yes
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	No	Yes
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	No	Yes
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	No	Yes
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	No	Yes

4.2.2.2 Association Policies

4.2.2.2.1 General

STORAGE-SCP accepts but never initiates associations.

Table 4.2.2.2.1-1

MAXIMUM PDU SIZE RECEIVED AS A SCP FOR STORAGE-SCP

Maximum PDU size received	64k bytes

4.2.2.2.2 Number of Associations

Table 4.2.2.2.2-1

NUMBER OF ASSOCIATIONS AS A SCP FOR STORAGE-SCP

Maximum number of simultaneous associations	8

4.2.2.2.3 Asynchronous Nature

STORAGE-SCP will only allow a single outstanding operation on an Association. All Association requests must be completed and acknowledged before a new operation can be initiated.

4.2.2.2.4 Implementation Identifying Information

Table 4.2.2.2.4-1

DICOM IMPLEMENTATION CLASS AND VERSION FOR STORAGE-SCP

Implementation Class UID	1.2.840.113820.4
Implementation Version Name	EBM_DICOM_30

4.2.2.3 Association Initiation Policy

STORAGE-SCP does not initiate associations.

4.2.2.4 Association Acceptance Policy

The STORAGE-SCP AE accepts Associations only if they have valid Presentation Contexts. If the Called AE Title does not match the pre-configured AE Title shared by all the SCPs of UniSight, the association may be rejected.

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 inserted into the local database. If the received instance is a duplicate of a previously received instance, the old file and database record will be overwritten

with the new one.

4.2.2.4.1.2 Accepted Presentation Contexts

Table 4.2.2.4.1.2-1

ACCEPTABLE PRESENTATION CONTEXTS FOR

STORAGE-SCP AND RECEIVE STORAGE REQUEST

Presentation Context Table				
Abstract Syntax		Transfer Syntax	Role	Ext. Neg.
Name	UID	Table		
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	4.1.2-3	SCP	None
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	4.1.2-3	SCP	None
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	4.1.2-3	SCP	None
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	4.1.2-3	SCP	None
Digital Mammography X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	4.1.2-3	SCP	None
Digital Intra-oral X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.3	4.1.2-3	SCP	None
Digital Intra-oral X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	4.1.2-3	SCP	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	4.1.2-3	SCP	None
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	4.1.2-3	SCP	None
US Multi-frame Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	4.1.2-3	SCP	None
US Multi-frame Storage	1.2.840.10008.5.1.4.1.1.3.1	4.1.2-3	SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	4.1.2-3	SCP	None
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	4.1.2-3	SCP	None
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	4.1.2-3	SCP	None
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	4.1.2-3	SCP	None
US Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	4.1.2-3	SCP	None
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	4.1.2-3	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	4.1.2-3	SCP	None

Presentation Context Table				
Abstract Syntax		**Transfer Syntax**	**Role**	**Ext. Neg.**
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	4.1.2-3	SCP	None
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	4.1.2-3	SCP	None
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	4.1.2-3	SCP	None
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	4.1.2-2	SCP	None
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	4.1.2-2	SCP	None
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	4.1.2-2	SCP	None
General ECG Waveform Strage	1.2.840.10008.5.1.4.1.1.9.1.2	4.1.2-2	SCP	None
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	4.1.2-2	SCP	None
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	4.1.2-2	SCP	None
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	4.1.2-2	SCP	None
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	4.1.2-2	SCP	None
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	4.1.2-2	SCP	None
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	4.1.2-2	SCP	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	4.1.2-2	SCP	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	4.1.2-3	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	4.1.2-3	SCP	None
X-Ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	4.1.2-3	SCP	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	4.1.2-3	SCP	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	4.1.2-3	SCP	None
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	4.1.2-3	SCP	None

Presentation Context Table				
Abstract Syntax		Transfer Syntax	Role	Ext. Neg.
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	4.1.2-3	SCP	None
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	4.1.2-3	SCP	None
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	4.1.2-3	SCP	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	4.1.2-3	SCP	None
Video Photometric Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	4.1.2-3	SCP	None
Opthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	4.1.2-3	SCP	None
Opthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	4.1.2-3	SCP	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	4.1.2-2	SCP	None
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	4.1.2-2	SCP	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	4.1.2-2	SCP	None
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	4.1.2-2	SCP	None
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	4.1.2-2	SCP	None
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	4.1.2-2	SCP	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	4.1.2-3	SCP	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	4.1.2-3	SCP	None

4.2.2.4.1.2-2

TRANSFER SYNTAX COMBINATION FOR NON-IMAGE STORAGE SOP CLASSES

Transfer Syntax	
Name	UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1

4.2.2.4.1.2-3

TRANSFER SYNTAX COMBINATION FOR IMAGE STORAGE SOP CLASSES

Transfer Syntax	
Name	**UID**
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50
JPEG 12 Bit Image Compression	1.2.840.10008.1.2.4.51
JPEG Lossless Image Compression	1.2.840.10008.1.2.4.70
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91
RLE Lossless	1.2.840.10008.1.2.5

4.2.2.4.1.2.1 Extended Negotiation

No extended negotiation is performed, though STORAGE-SCP:

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

– does not support digital signatures

– does not coerce any received 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

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

When displaying an image in the viewing application, the newest Grayscale Softcopy Presentation State containing references to the image will be automatically applied and the GSPS Presentation Label and Presentation description will be displayed in the status bar. The user has the option to select any other Presentation States that also references the image. If no Presentation State references the image then no Presentation State will be applied by default. The Mask Subtraction transformation contained in Mask Subtraction Sequence (0028,6100) in Presentation State is also supported.

Grayscale images in all of the Image Storage SOP Classes listed in Table 4.2.2.1-1 are supported as references from instances of the Grayscale Softcopy Presentation State Storage SOP Class.

4.2.2.4.1.3.2 Presentation Context Acceptance Criterion

STORAGE-SCP 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

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 Transfer Syntax, if it is one of the Transfer Syntax's listed in Table 4.2.2.4.1.2-2 or 4.2.2.4.1.2-3.

    b. DICOM default Transfer Syntax, which is Implicit VR Little Endian.

STORAGE-SCP 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 a Transfer Syntax for each.

4.2.2.4.1.3.4 Response Status

STORAGE-SCP will behave as described in Table 4.2.2.4.1.3.4-1 when generating the C-STORE response command message.

Table 4.2.2.4.1.3.4-1

RESPONSE STATUS FOR STORAGE-SCP AND RECEIVE STORAGE REQUEST

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The Composite SOP Instance was successfully received.
Refused	Out of Resources	A700	Indicates that there was not enough disk space to store the image or resource to process storage.
Error	Data Set does not match SOP Class	A900	Indicates that the Data Set does not encode a valid instance of the SOP Class specified. This status is returned if the DICOM Object stream can be successfully parsed but does not contain values for one or more mandatory Elements of the SOP Class.

4.2.3 STORAGE-SCU

4.2.3.1 SOP Classes

STORAGE-SCU provide Standard Conformance to the following SOP Class(es):

Table 4.2.3.1-1

SOP CLASSES SUPPORTED BY STORAGE-SCU

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	Yes	No
Storage Commitment Push Model	1.2.840.10008.1.20.1	Yes	No
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 X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	No
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	No
Digital Mammography X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	No
Digital Intra-oral X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.3	Yes	No
Digital Intra-oral X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	No
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	No
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	No
US Multi-frame Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	No
US Multi-frame Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	No
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	No
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	No
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Yes	No
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Yes	No
US Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	No
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	No
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	No
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	No
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	No
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	No

Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	Yes	No
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	Yes	No
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Yes	No
General ECG Waveform Strage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	No
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	Yes	No
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	Yes	No
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	Yes	No
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Yes	No
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	Yes	No
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	Yes	No
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Yes	No
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	No
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	No
X-Ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Yes	No
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	No
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	No
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Yes	No
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	No
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	Yes	No
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Yes	No
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	No
Video Photometric Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Yes	No
Opthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Yes	No
Opthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Yes	No
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Yes	No
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Yes	No
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Yes	No
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Yes	No
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Yes	No
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Yes	No
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	No
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	No

4.2.3.2 Association Policies

4.2.3.2.1 General

STORAGE-SCU initiates and accepts associations.

Table 4.2.3.2.1-1

MAXIMUM PDU SIZE RECEIVED AS A SCP FOR STORAGE-SCU

Maximum PDU size received	64k bytes

4.2.3.2.2 Number of Associations

Table 4.2.3.2.2-1

NUMBER OF ASSOCIATIONS AS A SCP FOR STORAGE-SCU

Maximum number of simultaneous Associations proposed by STORAGE-SCU	1
Maximum number of simultaneous Associations requested by peer AEs	1

4.2.3.2.3 Asynchronous Nature

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

4.2.3.2.4 Implementation Identifying Information

Table 4.2.3.2.4-1

DICOM IMPLEMENTATION CLASS AND VERSION FOR STORAGE-SCU

Implementation Class UID	1.2.840.113820.4
Implementation Version Name	EBM_DICOM_30

4.2.3.3 Association Initiation Policy

STORAGE-SCU 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.

4.2.3.3.1.2 Proposed Presentation Contexts

Table 4.2.3.3.1.2-1

Proposed Presentation Contexts by the STORAGE-SCU AE

Presentation Context Table				
Abstract Syntax		Transfer Syntax	Role	Ext. Neg.
Name	UID	Table		
Verification	1.2.840.10008.1.1	3.1.2-2	SCU	None
Storage Commitment Push Model	1.2.840.10008.1.20.1	3.1.2-2	SCU	None
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	3.1.2-3	SCU	None
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	3.1.2-3	SCU	None
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	3.1.2-3	SCU	None
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	3.1.2-3	SCU	None
Digital Mammography X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	3.1.2-3	SCU	None
Digital Intra-oral X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.3	3.1.2-3	SCU	None
Digital Intra-oral X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	3.1.2-3	SCU	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	3.1.2-3	SCU	None
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	3.1.2-3	SCU	None
US Multi-frame Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	3.1.2-3	SCU	None
US Multi-frame Storage	1.2.840.10008.5.1.4.1.1.3.1	3.1.2-3	SCU	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	3.1.2-3	SCU	None
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	3.1.2-3	SCU	None
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	3.1.2-3	SCU	None
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	3.1.2-3	SCU	None
US Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	3.1.2-3	SCU	None
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	3.1.2-3	SCU	None

Presentation Context Table				
Abstract Syntax		Transfer Syntax		
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	3.1.2-3	SCU	None
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	3.1.2-3	SCU	None
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	3.1.2-3	SCU	None
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	3.1.2-3	SCU	None
Standalone Overlay Storage	1.2.840.10008.5.1.4.1.1.8	3.1.2-2	SCU	None
Standalone Curve Storage	1.2.840.10008.5.1.4.1.1.9	3.1.2-2	SCU	None
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	3.1.2-2	SCU	None
General ECG Waveform Strage	1.2.840.10008.5.1.4.1.1.9.1.2	3.1.2-2	SCU	None
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	3.1.2-2	SCU	None
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	3.1.2-2	SCU	None
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	3.1.2-2	SCU	None
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	3.1.2-2	SCU	None
Standalone Modality LUT Storage	1.2.840.10008.5.1.4.1.1.10	3.1.2-2	SCU	None
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	3.1.2-2	SCU	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	3.1.2-2	SCU	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	3.1.2-3	SCU	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	3.1.2-3	SCU	None
X-Ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	3.1.2-3	SCU	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	3.1.2-3	SCU	None

Presentation Context Table				
Abstract Syntax		**Transfer Syntax**		
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	3.1.2-3	SCU	None
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	3.1.2-3	SCU	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	3.1.2-3	SCU	None
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	3.1.2-3	SCU	None
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	3.1.2-3	SCU	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	3.1.2-3	SCU	None
Video Photometric Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	3.1.2-3	SCU	None
Opthalomic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	3.1.2-3	SCU	None
Opthalomic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	3.1.2-3	SCU	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	3.1.2-2	SCU	None
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	3.1.2-2	SCU	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	3.1.2-2	SCU	None
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	3.1.2-2	SCU	None
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	3.1.2-2	SCU	None
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	3.1.2-2	SCU	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	3.1.2-3	SCU	None
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	3.1.2-3	SCU	None

Table 4.2.3.3.1.2-2

TRANSFER SYNTAX COMBINATION FOR NON-IMAGE STORAGE SOP CLASSES

Transfer Syntax	
Name	**UID**
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1

Table 4.2.3.3.1.2-3

TRANSFER SYNTAX COMBINATION FOR IMAGE STORAGE SOP CLASSES

Transfer Syntax	
Name	**UID**
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50
JPEG 12 Bit Image Compression	1.2.840.10008.1.2.4.51
JPEG Lossless Image Compression	1.2.840.10008.1.2.4.70
JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90
JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91
RLE Lossless	1.2.840.10008.1.2.5

STORAGE-SCU will propose Presentation Contexts only for the SOP Class of the instance that is to be transferred. For that SOP Class, STORAGE-SCU will propose a single Presentation Context with one or two Transfer Syntaxes. The first Transfer Syntax proposed is identical to the Transfer Syntax in which the instance is being stored on the local storage. If it is not Implicit VR Little Endian, STORAGE-SCU proposes DICOM default Transfer Syntax, Implicit VR Little Endian, as the second Transfer Syntax.

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 Verification SOP Class
Standard conformance is provided to the DICOM Verification Service Class as an SCU. The Verification Service as an SCU is actually only supported as a diagnostic service tool for network communication issues.

4.2.3.3.1.3.2 SOP Specific Conformance to Storage SOP Classes
STORAGE-SCU provides standard conformance to the Storage Service Class.

TABLE 4.2.3.3.1.3.2-1

STORAGE-SCU AE C-STORE Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has successfully stored the exported SOP Instance.
Refused	Out of Resources	A700 – A7FF	This is treated as a permanent Failure.
Error	Data Set does not match SOP Class	A900 – A9FF	This is treated as a permanent Failure.
	Cannot Understand	C000 - CFFF	This is treated as a permanent Failure.
Warning	Coercion of Data Elements	B000	Image transmission is considered successful with warning.
	Data Set does not match SOP Class	B007	Image transmission is considered successful with warning.
	Elements Discarded	B006	Image transmission is considered successful with warning.
	Attribute List Error	0107	Image transmission is considered successful with warning.
	Attribute Value Out of Range	0116	Image transmission is considered successful with warning.
*	*	Any other status code.	This is treated as a permanent Failure.

4.2.3.3.1.3.3 SOP Specific Conformance for Storage Commitment Push Model (N-ACTION)

STORAGE-SCU can request storage commitment for instances of Image Storage SOP Class and Grayscale Softcopy Presentation State Storage SOP Class, if user indicates request for it though user interface and the Remote AE accepts presentation context for the Storage Commitment Push Model.

STORAGE-SCU does not send the optional Storage Media File Set ID and UID Attributes or the Referenced Study Component Sequence Attribute in the N-ACTION. The behavior of Storage AE when encountering status codes in a N-ACTION response is summarized in the Table below.

Table 4.2.3.3.1.3.3-1

STORAGE COMMITMENT N-ACTION RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The request for storage comment is considered successfully sent.
*	*	Any other status code.	The Association is aborted using AP-ABORT.

4.2.3.4 Association Acceptance Policy

If the Called AE Title does not match the pre-configured AE Title shared by all the SCPs of UniSight, the association may be rejected.

4.2.3.4.1 Activity – Receive N-Event Report Request

4.2.3.4.1.1 Description and Sequencing of Activities

The STORAGE-SCU AE accepts Associations only if they have valid Presentation Contexts for Storage Commitment Push Model SOP Class. If STORAGE-SCU AE receives a report request (N-EVENT-REPORT-RQ) then the response will be sent over the same Association used to send the N-EVENT-REPORT-RQ.
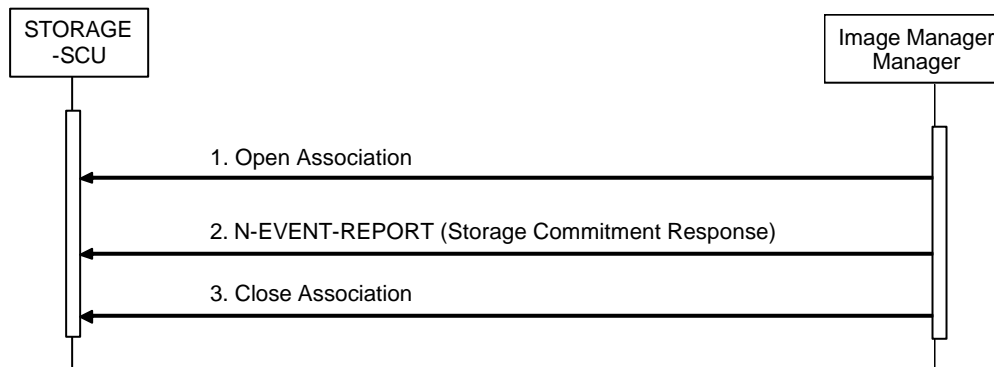
Figure 4.2.3.4.1.1-1

SEQUENCING OF ACTIVITY - RECEIVE STORAGE COMMITMENT RESPONSE

A possible sequence of interactions between the STORAGE-SCU and an Image Manager (e.g. a storage or archive device supporting Storage Commitment SOP Classes as an SCP) is illustrated in Figure 4.2.3.4.1.1-1:

1.   The Image Manager opens a new association with the STORAGE-SCU.

2. The Image Manager sends an N-EVENT-REPORT request notifying the STORAGE-SCU of the status of a previous Storage Commitment Request. The STORAGE-SCU replies with a N-EVENTREPORT response confirming receipt.

3. The Image Manager closes the association with the STORAGE-SCU.

4.2.3.4.1.2 Accepted Presentation Contexts

<div align="center">

Table 4.2.3.4.1.2-1

ACCEPTABLE PRESENTATION CONTEXTS FOR STORAGE-SCU

AND RECEIVE N-EVENT REPORT REQUEST

</div>

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended**
Name	**UID**	**Name**	**UID**		**Negotiation**
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	SCP Role
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	SCP Role

4.2.3.4.1.2.1 Extended Negotiation

STORAGE-SCU accepts extended negotiation for SCP Role.

4.2.3.4.1.3 SOP Specific Conformance

4.2.3.4.1.3.1 SOP Specific Conformance to Storage Commitment SOP Class

STORAGE-SCU provides standard conformance to the Storage Commitment Push Model SOP Class.

4.2.3.4.1.3.2 Presentation Context Acceptance Criterion

STORAGE-SCU 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.

4.2.3.4.1.3.3 Transfer Syntax Selection Policies

If multiple Transfer Syntaxes are proposed per Presentation Context, then only the first encountered and supported Transfer Syntax is accepted.

4.2.4 FIND-SCU

4.2.4.1 SOP Classes

FIND-SCU provides Standard Conformance to the following SOP Class:

Table 4.2.4.1-1

SOP CLASSES SUPPORTED BY FIND-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

4.2.4.2 Association Policies

4.2.4.2.1 General

FIND-SCU initiates but never accepts associations.

Table 4.2.4.2.1-1

MAXIMUM PDU SIZE RECEIVED AS A SCP FOR FIND-SCU

Maximum PDU size received	64k bytes

4.2.4.2.2 Number of Associations

Table 4.2.4.2.2-1

NUMBER OF ASSOCIATIONS AS A SCP FOR FIND-SCU

Maximum number of simultaneous associations	1

4.2.4.2.3 Asynchronous Nature

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

4.2.4.2.4 Implementation Identifying Information

Table 4.2.4.2.4-1

DICOM IMPLEMENTATION CLASS AND VERSION FOR FIND-SCU

Implementation Class UID	1.2.840.113820.4
Implementation Version Name	EBM_DICOM_30

4.2.4.3 Association Initiation Policy

FIND-SCU 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 Remote AE

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.

4.2.4.3.1.2 Proposed Presentation Contexts

Table 4.2.4.3.1.2-1

PROPOSED PRESENTATION CONTEXTS FOR FIND-SCU AND QUERY REMOTE AE

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended
Name	UID	Name	UID		Negotiation
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008 .5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	Relational Query
	1.2.840.10008 .5.1.4.1.2.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	Relational Query

FIND-SCU will propose a single Presentation Context with all supported Transfer Syntaxes.

4.2.4.3.1.2.1 Extended Negotiation

Extended negotiation is performed for relational queries, if user specifies one or more query key attributes at series level.

4.2.4.3.1.3 SOP Specific Conformance

4.2.4.3.1.3.1 SOP Specific Conformance to C-FIND SOP Classes

FIND-SCU provides standard conformance to the supported Query SOP Classes.

Only a single information model, Study Root, is supported.

If user specifies one or more series level query key, FIND-SCU negotiates for Relational Query during association establishment. If SCP accepts the Extended Negotiation, FIND-SCU initiates SERIES level query followed by recursive query consisting of STUDY, SERIES and IMAGE level queries.

If user does not specify any series level query key or SCP rejects Extended Negotiation for Relational Query, then all queries are initiated at the highest level of the information model (the STUDY level), and then for each response received, recursively repeated at the next lower levels (the SERIES and then IMAGE levels), 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. Non-matching responses returned by the SCP due to unsupported (hopefully optional) matching keys are not filtered locally by the FIND-SCU and thus will still be presented in the browser. No attempt is made to filter out duplicate responses.

Specific Character Set may be included at any query level, if identifier contains multi-byte characters. If present in the response, Specific Character Set will be used to identify character sets other than the default character set for display of strings in the browser.

Table 4.2.4.3.1.3.1-1

STUDY ROOT REQUEST IDENTIFIER FOR FIND-SCU

Name	Tag	Type of Matching
STUDY level		
Patient ID	(0010,0020)	S, *, U
Patient's Name	(0010,0010)	S, *, U
Patient's Birth Date	(0010,0030)	S, *, U, R
Patient's Sex	(0010,0040)	NONE
Study ID	(0020,0010)	S, *, U
Study Description	(0008,1030)	S, *, U
Study Date	(0008,0020)	S, *, U, R
Study Time	(0008,0030)	S, *, U, R
Referring Physician's Name	(0008,0090)	S, *, U
Accession Number	(0008,0050)	S, *, U
Study Instance UID	(0020,000D)	UNIQUE
SERIES level		
Series Number	(0020,0011)	NONE
Series Description	(0008,103E)	NONE
Modality	(0008,0060)	S, *, U
Body Part Examined	(0018,0015)	S, *, U
Series Instance UID	(0020,000E)	UNIQUE
IMAGE level		
Instance Number	(0020,0013)	NONE
Content Date	(0008,0023)	NONE
Content Time	(0008,0033)	NONE
Referenced Series Sequence	(0008,1115)	NONE
Number of Frames	(0028,0008)	NONE

SOP Instance UID	(0008,0018)	UNIQUE
Observation DateTime	(0040,A032)	NONE
Concept Name Code Sequence	(0040,A043)	NONE
Verifying Observer Sequence	(0040,A073)	NONE
Completion Flag	(0040,A491)	NONE
Verification Flag	(0040,A493)	NONE
Common to all query levels		
Specific Character Set	(0008,0005)	Note 1)

The types of Matching supported by the FIND-SCU:

An "S" indicates the identifier attribute uses Single Value Matching, an "R" indicates Range Matching, an "*" indicates wildcard matching, a 'U' indicates Universal Matching, and an 'L' indicates that UID lists are sent. "NONE" indicates that no matching is supported, but that values for this Element are requested to be returned (i.e. universal matching), and "UNIQUE" indicates that this is the Unique Key for that query level, in which case Universal Matching or Single Value Matching is used depending on the query level.

Note 1)

Specific Character Set (0008,0005) shall not be treated as matching key or return key. Query SCP shall include Specific Character Set (0008,0005) in response, when returning identifier that contains one or more character sets other than DICOM default character set.

FIND-SCU will behave as described in Table 4.2.4.4.1.3.1-2 in response to the status returned in the C-FIND response command message(s).

Table 4.2.4.3.1.3.1-2

RESPONSE STATUS FOR FIND-SCU AND QUERY REMOTE AE REQUEST

Service Status	Further Meaning	Status Codes	Behavior
Refused	Out of Resources	A700	Current query is terminated; remaining queries continue
Error	Identifier does not match SOP Class	A900	Current query is terminated; remaining queries continue
	Unable to process	Cxxx	Current query is terminated; remaining queries continue
Cancel	Matching terminated due to Cancel request	FE00	Ignored (should never occur, since cancels never issued)
Success	Matching is complete - No final Identifier is supplied	0000	Current query is terminated; remaining queries continue
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys	FF00	Identifier used to populate browser and trigger recursive lower level queries
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or matching for this Identifier	FF01	Identifier used to populate browser and trigger recursive lower level queries

4.2.4.4 Association Acceptance Policy

FIND-SCU does not accept associations.

4.2.5 MOVE-SCU

4.2.5.1 SOP Classes

MOVE-SCU provides Standard Conformance to the following SOP Class:

Table 4.2.5.1-1

SOP CLASSES SUPPORTED BY MOVE-SCU

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

4.2.5.2 Association Policies

4.2.5.2.1 General

MOVE-SCU initiates but never accepts associations.

Table 4.2.5.2.1-1

MAXIMUM PDU SIZE RECEIVED AS A SCP FOR MOVE-SCU

Maximum PDU size received	64k bytes

4.2.5.2.2 Number of Associations

Table 4.2.5.2.2-1

NUMBER OF ASSOCIATIONS AS A SCP FOR MOVE-SCU

Maximum number of simultaneous associations	1

4.2.5.2.3 Asynchronous Nature

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

4.2.5.2.4 Implementation Identifying Information

Table 4.2.5.2.4-1

DICOM IMPLEMENTATION CLASS AND VERSION FOR MOVE-SCU

Implementation Class UID	1.2.840.113820.4
Implementation Version Name	EBM_DICOM_30

4.2.5.3 Association Initiation Policy

MOVE-SCU attempts to initiate a new association when the user performs the retrieve action from the user interface.

4.2.5.3.1 Activity – Retrieve From Remote AE

4.2.5.3.1.1 Description and Sequencing of Activities

For the entity (study, series or instance) selected from the user interface to be retrieved, a single attempt will be made to retrieve it from the selected remote AE. If the retrieve fails, for whatever reason, no retry will be performed.

4.2.5.3.1.2 Proposed Presentation Contexts

Table 4.2.5.3.1.2-1

PROPOSED PRESENTATION CONTEXTS FOR MOVE-SCU

AND RETRIEVE FROM REMOTE AE

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended
Name	UID	Name	UID		Negotiation
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008. 5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
	1.2.840.10008. 5.1.4.1.2.2.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None

MOVE-SCU will propose a single Presentation Contexts with all of the supported Transfer Syntaxes.

4.2.5.3.1.2.1 Extended Negotiation

No extended negotiation is performed.

4.2.5.3.1.3 SOP Specific Conformance

4.2.5.3.1.3.1 SOP Specific Conformance to C-MOVE SOP Classes

MOVE-SCU provides standard conformance to the supported Retrieve SOP Classes. Only a single information model, Study Root, is supported.

Retrieval will be performed at the STUDY, SERIES or IMAGE level depending on what level of entity has been selected by the user in the browser.

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 local database by specifying the destination as the AE Title of the STORE-SCP AE. This implies that the remote Retrieve 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, so no pre-configuration of

the local application to accept from the remote AE is necessary (except in so far as it was necessary to configure FIND-SCU).

Table 4.2.5.3.1.3.1-1

STUDY ROOT REQUEST IDENTIFIER FOR MOVE-SCU

Name	Tag	Unique, Matching or Return Key
STUDY level		
Study Instance UID	(0020,000D)	U, L
SERIES level		
Series Instance UID	(0020,000E)	U, L
IMAGE level		
SOP Instance UID	(0008,0018)	U, L

The types of Matching supported by the MOVE-SCU:

A 'U' indicates Universal Matching and an 'L' indicates that UID lists are sent.

MOVE-SCU will behave as described in Table 4.2.5.4.1.3.3-2 in response to the status returned in the C-MOVE response command message(s).

Table 4.2.5.3.1.3.3-2

RESPONSE STATUS FOR MOVE-SCU AND RETRIEVE FROM REMOTE AE REQUEST

Service Status	Further Meaning	Status Codes	Behavior
Refused	Out of Resources - Unable to calculate number of matches	A701	Retrieval is terminated
	Out of Resources - Unable to perform sub-operations	A702	Retrieval is terminated
	Move Destination unknown	A801	Retrieval is terminated
Failed	Identifier does not match SOP Class	A900	Retrieval is terminated
	Unable to process	Cxxx	Retrieval is terminated
Cancel	Sub-operations terminated due to Cancel Indication	FE00	Retrieval is terminated (should never occur, since cancels never issued)
Warning	Sub-operations Complete - One or more Failures	B000	Retrieval is terminated
Success	Sub-operations Complete - No Failures	0000	Retrieval is terminated
Pending	Sub-operations are continuing	FF00	Retrieval continues

Since the C-MOVE operation is dependent on completion of C-STORE

sub-operations that are occurring on a separate association, the question of failure of operations on the other association(s) must be considered.

MOVE-SCU completely ignores whatever activities are taking place in relation to the STORAGE-SCP AE that is receiving the retrieved instances. Once the 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 to confirm that instances have actually been successfully received or locally stored.

Whether or not completely or partially successfully retrievals are made available in the local database to the user is purely dependent on the success or failure of the C-STORE sub-operations, not on any explicit action by MOVE-SCU.

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

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

4.2.5.4 Association Acceptance Policy

MOVE-SCU does not accept associations.

4.2.6 Print SCU

4.2.6.1 SOP Classes

UniSight provides Standard Conformance to the following SOP Classes:

Table 4.2.6.1-1

SOP CLASSES FOR PRINT-SCU

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
Presentation LUT	1.2.840.10008.5.1.1.23	Yes	No

4.2.6.2 Association Establishment Policy

4.2.6.2.1 General

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

Table 4.2.6.2.1-1

DICOM APPLICATION CONTEXT FOR PRINT-SCU

Application Context Name	1.2.840.10008.3.1.1.1

4.2.6.2.2 Number of Associations

UniSight initiates one Association at a time for each configured hardcopy device. Multiple hardcopy devices can be configured.

Table 4.2.6.2.2-1

NUMBER OF ASSOCIATIONS INITIATED FOR PRINT-SCU

Maximum number of simultaneous Associations	1

4.2.6.2.3 Asynchronous Nature

PRINT-SCU will only allow a single outstanding operation on an Association.

4.2.6.2.4 Implementation Identifying Information

The implementation information for this Application Entity is:

Table 4.2.6.2.4-1

DICOM IMPLEMENTATION CLASS AND VERSION FOR PRINT-SCU

Implementation Class UID	1.2.840.113820.4
Implementation Version Name	EBM_DICOM_30

4.2.6.3 Association Initiation Policy

4.2.6.3.1 Activity – Film Images

4.2.6.3.1.1 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. Each print-job is forwarded to the job queue and processed individually. The PRINT-SCU is invoked by the print control interface that is responsible for processing network tasks. If no association to the printer can be established, the print-job is switched to a failed state and the user informed.

```
PRINT-SCU                                              Printer

    |                                                     |
    |          1. Open Association                        |
    |---------------------------------------------------->|
    |          2. N-GET (Printer)                         |
    |---------------------------------------------------->|
    |          3. N-CREATE (Film Session)                 |
    |---------------------------------------------------->|
    |          4. N-CREATE (Presentation LUT)             |
    |---------------------------------------------------->|
    |          5. N-CREATE (Film Box)                     |
    |---------------------------------------------------->|
    |          6. N-SET (Image Box)                       |
    |---------------------------------------------------->|
    |                                                     |  7. Set Images
    |          8. N-ACTION (Film Box)                     |
    |---------------------------------------------------->|
    |                                                     |  9. Print film sheets
    |          10. N-DELETE (Film Session)                |
    |---------------------------------------------------->|
    |          11. Close Association                      |
    |---------------------------------------------------->|
    |                                                     |
```
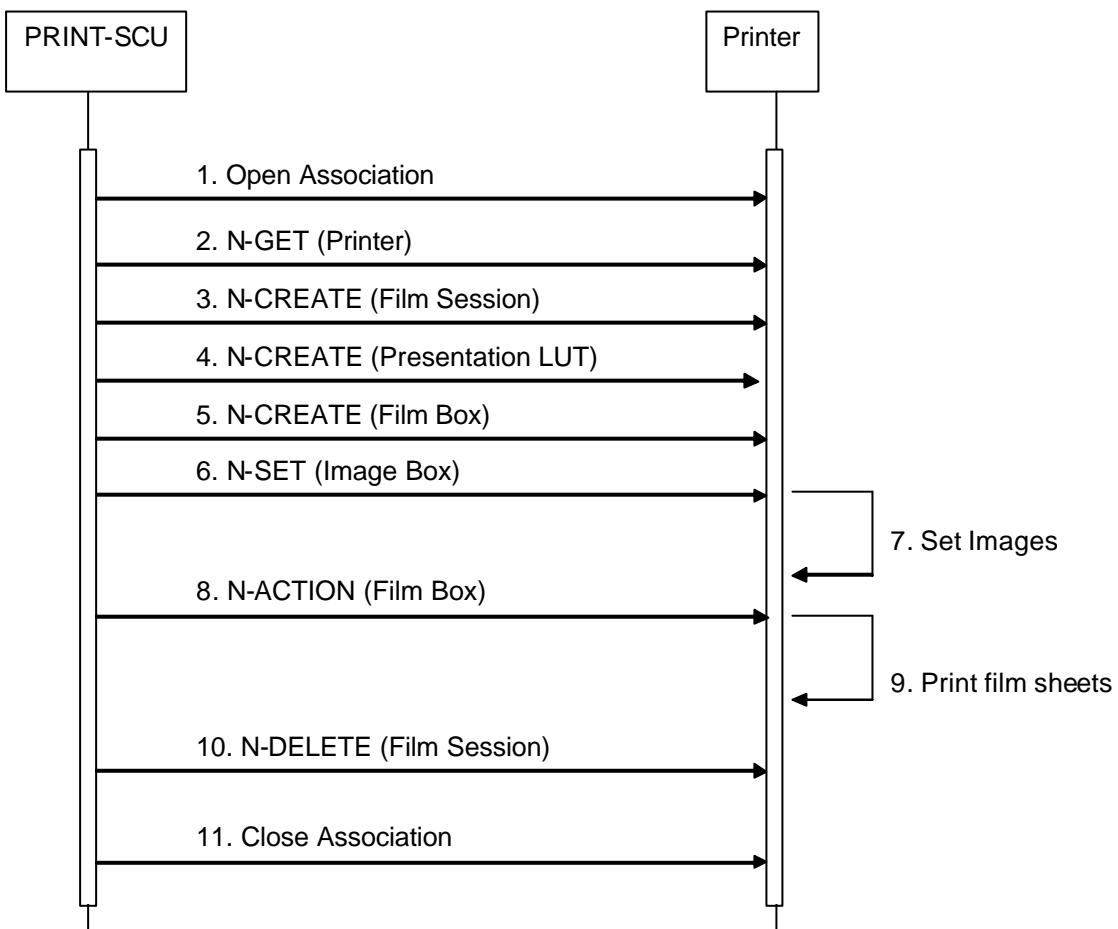
Figure 4.2.6.3.1.1-1

SEQUENCING OF ACTIVITY – FILM IMAGES

A typical sequence of DIMSE messages sent over an association between PRINT-SCU and a Printer is illustrated in Figure 4.2.6.3.1.1-1:

1. PRINT-SCU opens an association with the Printer

2. N-GET on the Printer SOP Class is used to obtain current printer status information. If the Printer reports a status of FAILURE, the print-job is switched to a failed state and the user informed.

3. N-CREATE on the Film Session SOP Class creates a Film Session.

4. N-CREATE on the Presentation LUT SOP Class creates a Presentation LUT (if supported by the printer).

5. N-CREATE on the Film Box SOP Class creates a Film Box linked to the Film Session. One or more Image Box will be created as the result of this operation.

6. N-SET on the Image Box SOP Class transfers the contents of the film sheet to the printer. If the printer does not support the Presentation LUT SOP Class, the image data will be passed through a printer-specific correction LUT before being sent.

7. PRINT-SCU repeats N-SET on the Image Box SOP Class for the number of images on the Film Box.

8. N-ACTION on the Film Box SOP Class instructs the printer to print the Film Box

9. The printer prints the requested number of film sheets

11. PRINT-SCU closes the association with the Printer

Status of the print-job is reported through the job control interface. Only one job will be active at a time for each separate hardcopy device. If any Response from the remote Application contains a status other than Success or Warning, the Association is aborted. It can be restarted any time by user interaction.

4.2.6.3.1.2 Proposed Presentation Contexts

UniSight is capable of proposing the Presentation Contexts shown in Table 4.2.6.3.1.2-1:

TABLE 4.2.6.3.1.2

PROPOSED PRESENTATION CONTEXTS FOR ACTIVITY FILM IMAGES

Presentation Context Table					
Abstract Syntax		Transfer Syntax			
Name	UID	Name List	UID List	Role	Ext. Neg.
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
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
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
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
Presentation LUT	1.2.840.10008 .5.1.1.23	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

4.2.6.3.1.3 Common SOP Specific Conformance for all Print SOP Classes

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

Table 4.2.6.3.1.3-1

PRINT-SCU COMMUNICATION FAILURE BEHAVIOR

Exception	Behavior
Timeout	The Association is aborted using AP-ABORT and the failure is indicated to the user.
Association aborted by the SCP or network layers	The status of failure is indicated to the user.

4.2.6.3.1.4 SOP Specific Conformance for the Printer SOP Class

PRINT-SCU supports the following DIMSE operations and notifications for the Printer SOP Class:

– N-GET

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

4.2.6.3.1.4.1 Printer SOP Class Operations (N-GET)

PRINT-SCU 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 Table below.

Table 4.2.6.3.1.4.1-1

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

The Printer Status information is evaluated as follows:

1. If Printer status (2110,0010) is NORMAL, the print operation continues.

2. If Printer status (2110,0010) is FAILURE, the print operation is terminated.

3. If Printer status (2110,0010) is WARNING, the print operation continues.

The behavior of PRINT-SCU when encountering status codes in an N-GET response is summarized in Table below.

Table 4.2.6.3.1.4.1-2

PRINTER SOP CLASS N-GET RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The request to get printer status information was success.
*	*	Any other status code.	The Association is aborted using AP-ABORT. This is treated as permanent failure

4.2.6.3.1.5 SOP Specific Conformance for the Film Session SOP Class

PRINT-SCU supports the following DIMSE operations for the Film Session SOP Class:
–   N-CREATE

–   N-ACTION

–   N-DELETE

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

4.2.6.3.1.5.1 Film Session SOP Class Operations (N-CREATE)

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

Table 4.2.6.3.1.5.1-1

FILM SESSION SOP CLASS N-CREATE REQUEST ATTRIBUTES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Number of Copies	(2000,0010)	IS	1 .. 10	ALWAYS	USER
Priority	(2000,0020)	CS	MED	ALWAYS	AUTO
Medium Type	(2000,0030)	CS	BLUE FILM, CLEAR FILM or PAPER	ANAP	USER
Film Destination	(2000,0040)	CS	MAGAZINE or PROCESSOR	ANAP	USER
Film Session Label	(2000,0050)	LO	User defined label	ANAP	USER

The behavior of PRINT-SCU, when encountering status codes in an N-CREATE response, is summarized in the Table below.

Table 4.2.6.3.1.5.1-2

FILM SESSION SOP CLASS N-CREATE RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Warning	Attribute Value Out of Range	0116H	The N-CREATE operation is considered successful.
Warning	Attribute List Error	0107H	The N-CREATE operation is considered successful.
*	*	Any other status code.	The Association is aborted using AP-ABORT. This is treated as permanent failure.

4.2.6.3.1.5.2 Film Session SOP Class Operations (N-ACTION)

An N-ACTION Request is issued to instruct the Print SCP to print the contents of the Film Session. The Action Reply argument in an N-ACTION response is not evaluated. The behavior of PRINT-SCU when encountering status codes in an N-ACTION response is summarized in the Table below:

Table 4.2.6.3.1.5.2-1

FILM SESSION SOP CLASS N-ACTION RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Warning	Film session printing (collation) is not supported	B601H	The Association is aborted using AP-ABORT. This is treated as permanent failure.
Warning	Film Session SOP Instance hierarchy does not contain Image Box SOP Instances (empty page)	B602H	The Association is aborted using AP-ABORT. This is treated as permanent failure.
Warning	Image size is larger than image box size, the image has been de-magnified.	B604H	The N-ACTION operation is considered successful.
Warning	Image size is larger than Image Box size. The image has been cropped to fit.	B609H	The N-ACTION operation is considered successful.
Warning	Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit.	B60AH	The N-ACTION operation is considered successful.
Failure	Film Session SOP Instance hierarchy does not contain Film Box SOP Instances.	C600	The Association is aborted using AP-ABORT. This is treated as permanent failure.
Failure	Unable to create Print Job SOP Instance; print queue is full.	C601	The Association is aborted using AP-ABORT. This is treated as permanent failure.
Failure	Image size is larger than Image Box size.	C603	The Association is aborted using AP-ABORT. This is treated as permanent failure.
Failure	Combined Print Image Size is larger than Image Box size.	C613	The Association is aborted using AP-ABORT. This is treated as permanent failure.
*	*	Any other status code.	The Association is aborted using AP-ABORT. This is treated as permanent failure.

4.2.6.3.1.5.3 Film Session SOP Class Operations (N-DELETE)

The behavior of PRINT-SCU when encountering status codes in a N-DELETE response is summarized in the Table below.

Table 4.2.6.3.1.5.3-1

FILM SESSION SOP CLASS N-DELETE RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
*	*	Any other status code.	The Association is aborted using AP-ABORT. This is treated as permanect failure.

4.2.6.3.1.6 SOP Specific Conformance for the Presentation LUT SOP Class

PRINT-SCU supports the following DIMSE operations for the Presentation LUT SOP Class:

– N-CREATE

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

4.2.6.3.1.6.1 Presentation LUT SOP Class Operations (N-CREATE)

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

Table 4.2.6.3.1.6.1-1

PRESENTATION LUT SOP CLASS N-CREATE REQUEST ATTRIBUTES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Presentation LUT Shape	(2050,0020)	CS	IDENTITY	ALWAYS	AUTO

The behavior of PRINT-SCU, when encountering status codes in an N-CREATE response, is summarized in the Table below.

Table 4.2.6.3.1.6.1-1

PRESENTATION LUT SOP CLASS N-CREATE RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error 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	B605H	The N-CREATE operation is considered successful.
*	*	Any other status code.	The Association is aborted using AP-ABORT. This is treated as permanent failure.

4.2.6.3.1.7 SOP Specific Conformance for the Film Box SOP Class

PRINT-SCU supports the following DIMSE operations for the Film Box SOP Class:

– N-CREATE

– N-ACTION

– N-DELETE

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

4.2.6.3.1.7.1 Film Box SOP Class Operations (N-CREATE)

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

Table 4.2.6.3.1.7.1-1

FILM BOX SOP CLASS N-CREATE REQUEST ATTRIBUTES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Display Format	(2010,0010)	CS	STANDARD¥C,R	ALWAYS	USER
Film Orientation	(2010,0040)	CS	PORTRAIT or LANDSCAPE	ALWAYS	USER
Film Size ID	(2010,0050)	CS	14INX17IN, 14INX14IN, 11INX14IN, 8INX10IN, 10INX12IN, 10INX14IN, 24CMX24CM, 24CMX30CM	ANAP	USER
Magnification Type	(2010,0060)	CS	REPLICATE, BILINEAR, CUBIC or NONE	ANAP	USER
Border Density	(2010,0100)	CS	BLACK or WHITE	ANAP	USER
Empty Image Density	(2010,0110)	CS	BLACK or WHITE	ANAP	USER
Min Density	(2010,0120)	US	0 or greator	ANAP	USER
Max Density	(2010,0130)	US	0 or greator	ANAP	USER
Trim	(2010,0140)	CS	YES	ANAP	USER
Configuration Information	(2010,0150)	ST	User defined text	ANAP	USER
Illumination	(2010,015E)	US	150 or 2000, depending on Medium Type value set for the Film Session.	ANAP	AUTO
Reflective Ambient Light	(2010,0160)	US	10	ANAP	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

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>Referenced SOP Instance UID	(0008,1155)	UI	From created Film Session SOP Instance	ALWAYS	AUTO
Referenced Presentation LUT Sequence	(2050,0500)	SQ	Only sent if Presentation LUT SOP Class has been negotiated.	ANAP	AUTO
>Referenced SOP Class UID	(0008,1150)	UI	1.2.840.10008.5.1.1.23	ANAP	AUTO
>Referenced SOP Instance UID	(0008,1155)	UI	From created Presentation LUT SOP Instance	ALWAYS	AUTO

The behavior of PRINT-SCU, when encountering status codes in an N-CREATE response, is summarized in the Table below.

Table **4.2.6.3.1.7.1-2**

FILM BOX SOP CLASS N-CREATE RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error 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	B605H	The N-CREATE operation is considered successful.
*	*	Any other status code.	The Association is aborted using AP-ABORT. This is treated as permanent failure.

4.2.6.3.1.7.2 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 PRINT-SCU when encountering status codes in an N-ACTION response is summarized in the Table below.

Table **4.2.6.3.1.7.2-1**

FILM BOX SOP CLASS N-ACTION RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Warning	Film Box SOP Instance hierarchy does not contain Image Box SOP Instances (empty page)	B603H	The Association is aborted using AP-ABORT. This is treated as permanent failure.

Warning	Image size is larger than Image Box size. The image has been demagnified.	B604H	The N-ACTION operation is considered successful.
Warning	Image size is larger than Image Box size. The image has been cropped to fit.	B609H	The N-ACTION operation is considered successful.
Warning	Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit.	B60AH	The N-ACTION operation is considered successful.
Failure	Unable to create Print Job SOP Instance; print queue is full.	C602	The Association is aborted using AP-ABORT. This is treated as permanent failure.
Failure	Image size is larger than Image Box size.	C603	The Association is aborted using AP-ABORT. This is treated as permanent failure.
Failure	Combined Print Image Size is larger than Image Box size.	C613	The Association is aborted using AP-ABORT. This is treated as permanent failure.
*	*	Any other status code.	The Association is aborted using AP-ABORT. This is treated as permanent failure.

4.2.6.3.1.7.3 Film Box SOP Class Operations (N-DELETE)

The behavior of PRINT-SCU when encountering status codes in a N-DELETE response is summarized in the Table below.

Table 4.2.6.3.1.5.3-1

FILM BOX SOP CLASS N-DELETE RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
*	*	Any other status code.	The Association is aborted using AP-ABORT. This is treated as permanect failure.

4.2.6.3.1.8 SOP Specific Conformance for the Basic Grayscale Image Box SOP Class

PRINT-SCU supports the following DIMSE operations for the Basic Grayscale Image Box SOP Class:

– N-SET

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

4.2.6.3.1.8.1 Basic Grayscale Image Box SOP Class Operations (N-SET)

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

Table 4.2.6.3.1.8.1-1

BASIC GRAYSCALE IMAGE BOX SOP CLASS N-SET REQUEST ATTRIBUTES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Position	(2020,0010)	US	1 or greator	ALWAYS	AUTO
Reverse	(2020,0020)	CS	NORMAL or REVERSE	ALWAYS	USER
Requested Image Size	(2020,0030)	DS	Value for true size printing	ANAP	USER
Requested Decimate/Crop Behavior	(2020,0040)	CS	CROP	ANAP	AUTO
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	Depends on image size	ALWAYS	AUTO
>Columns	(0028,0011)	US	Depends on image size	ALWAYS	AUTO
>Pixel Aspect Ratio	(0028,0034)	IS	Depends on image Aspect Ratio	ALWAYS	AUTO
>Bits Allocated	(0028,0100)	US	8 or 16	ALWAYS	AUTO
>Bits Stored	(0028,0101)	US	8 or 12	ALWAYS	AUTO
>High Bit	(0028,0102)	US	7 or 11	ALWAYS	AUTO
>Pixel Representation	(0028,0103)	US	0	ALWAYS	AUTO
>Pixel Data	(7FE0,0010)	OB	Pixels of rendered film sheet	ALWAYS	AUTO

The behavior of PRINT-SCU when encountering status codes in an N-SET response is summarized in the Table below.

Table 4.2.6.3.1.8.1-2
BASIC GRAYSCALE IMAGE BOX SOP CLASS N-SET RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Warning	Image size is larger than Image Box size. The image has been demagnified.	B604H	The N-SET operation is considered successful.
Warning	Requested Min Density or Max Density outside of printer's operating range.	B605H	The N-SET operation is considered successful.
Warning	Image size is larger than Image Box size. The image has been cropped to fit.	B609H	The N-SET operation is considered successful.
Warning	Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit.	B60AH	The N-SET operation is considered successful.
Failure	Image size is larger than Image Box size.	C603	The Association is aborted using AP-ABORT. This is treated as permanent failure.
Failure	Insufficient memory in printer to store the image.	C605	The Association is aborted using AP-ABORT. This is treated as permanent failure.
Failure	Combined Print Image Size is larger than Image Box size.	C613	The Association is aborted using AP-ABORT. This is treated as permanent failure.
*	*	Any other status code.	The Association is aborted using AP-ABORT. This is treated as permanent failure.

4.2.6.3.1.9 SOP Specific Conformance for the Basic Color Image Box SOP Class

PRINT-SCU supports the following DIMSE operations for the Basic Color Image Box SOP Class:

– N-SET

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

4.2.6.3.1.9.1 Basic Color Image Box SOP Class Operations (N-SET)

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

Table 4.2.6.3.1.9.1-1

BASIC COLOR IMAGE BOX SOP CLASS N-SET REQUEST ATTRIBUTES

Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Position	(2020,0010)	US	1 or greator	ALWAYS	AUTO
Reverse	(2020,0020)	CS	NORMAL	ALWAYS	AUTO
Requested Image Size	(2020,0030)	DS	Value for true size printing	ANAP	USER
Requested Decimate/Crop Behavior	(2020,0040)	CS	CROP	ANAP	AUTO
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 Configuration	(0028,0006)	US	1	ALWAYS	AUTO
>Rows	(0028,0010)	US	Depends on image size	ALWAYS	AUTO
>Columns	(0028,0011)	US	Depends on image size	ALWAYS	AUTO
>Pixel Aspect Ratio	(0028,0034)	IS	Depends on image Aspect Ratio	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	Pixels of rendered film sheet	ALWAYS	AUTO

The behavior of PRINT-SCU when encountering status codes in an N-SET response is summarized in the Table below.

Table 4.2.6.3.1.9.1-2

BASIC COLOR IMAGE BOX SOP CLASS N-SET RESPONSE STATUS HANDLING BEHAVIOR

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The SCP has completed the operation successfully.
Warning	Image size is larger than Image Box size. The image has been demagnified.	B604H	The N-SET operation is considered successful.

Warning	Requested Min Density or Max Density outside of printer's operating range.	B605H	The N-SET operation is considered successful.
Warning	Image size is larger than Image Box size. The image has been cropped to fit.	B609H	The N-SET operation is considered successful.
Warning	Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit.	B60AH	The N-SET operation is considered successful.
Failure	Image size is larger than Image Box size.	C603	The Association is aborted using AP-ABORT. This is treated as permanent failure.
Failure	Insufficient memory in printer to store the image.	C605	The Association is aborted using AP-ABORT. This is treated as permanent failure.
Failure	Combined Print Image Size is larger than Image Box size.	C613	The Association is aborted using AP-ABORT. This is treated as permanent failure.
*	*	Any other status code.	The Association is aborted using AP-ABORT. This is treated as permanent failure.

4.2.6.4 Association Acceptance Policy

PRINT-SCU does not accept Associations.

4.3 Physical Network Interfaces

4.3.1 Supported Communications Stacks

UniSight DICOM AEs provide DICOM 3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.3.1.1 TCP/IP Stack

UniSight DICOM AEs inherit their TCP/IP stack from the Windows XP Operating System upon which they execute.

4.3.2 Physical Network Interface

The UniSight supports a single network interface. One of the following physical network interfaces will be available depending on ardware options:

Table 4.3.2-1

SUPPORTED PHYSICAL NETWORK INTERFACES

Ethernet 1000baseT
Ethernet 100baseTX
Ethernet 10baseT

4.3.3 Additional Protocols

UniSight does not support additional protocols.

4.4 Configuration

4.4.1 AE Title/Presentation Address Mapping

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 4.4.1.1-1

DEFAULT APPLICATION ENTITY CHARACTERISTICS

Application Entity	Role	Default AE Title	Default TCP/IP Port
PRINT-SCU	SCU	UniSight	None
FIND-SCU			
MOVE-SCU			
STORAGE-SCU			
STORAGE-SCP	SCP		104
ECHO-SCP			

4.4.1.2 Remote AE Title/Presentation Address Mapping

The mapping of external AE Titles to TCP/IP addresses and ports is configurable and set at the time of installation by Installation Personnel. This mapping is necessary for resolving the IP address and port of C-STORE Destination Application Entities. The mapping is also necessary for resolving the IP address and port of Query/Retrieve SCP Application Entities for FIND-SCU and MOVE-SCU to transmit C-FIND-RQ and C-MOVE-RQ.

4.4.2 Parameters

Table 4.4.2-1

DEFAULT PARAMETERS

Parameter	Configurable	Default Value
General Parameters		
Maximum PDU size I can receive	Yes	64kbytes
Maximum PDU size I can send	Yes	64kbytes
Time-out waiting for A-ASSOCIATE RQ PDU on open TCP/IP connection. (ARTIM timeout)	No	5 minutes
Time-out waiting for acceptance or rejection response to an Association Open Request. (Application Level timeout)	No	5 minutes
All SCU AE Parameters		
Maximum number of simultaneous Associations.	No	1
SCU AE time-out waiting for a Response to a command. (DIMSE timeout)	No	5 minutes
STORAGE-SCU AE number of times a failed send job to a destination is automatically retried.	No	0
All SCP AE Parameters		
Maximum PDU Size	Yes	16384
Maximum number of simultaneous Associations	No	8
SCP AE time-out waiting on an open Association for the next message. (DIMSE timeout)	No	5 minutes

5. MEDIA

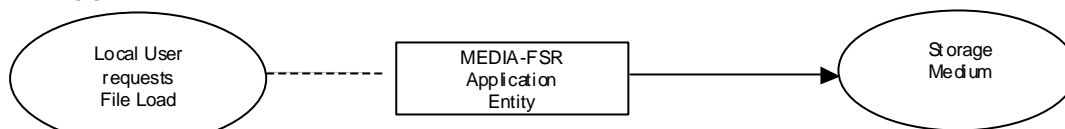## 5.1 Implementation Model

5.1.1 Application Data Flow

Figure 5.1.1-1.
IMPLEMENTATION MODEL

UniSight provides a user interface, network support and media support as a File Set Reader, File Set Creator and File Set Updator.

Conceptually it may be modeled as the following AEs:

– MEDIA-FSR, which loads a user-selected PS 3.10 compliant file, which may be a DICOMDIR or an image or presentation state object, either from the local file system or from PS 3.12 compliant media according to one of the General Purpose Media Application Profiles of PS 3.11 (CD-R or DVD-RAM)

– MEDIA-FSC, which copies user-selected PS 3.10 compliant files of image or presentation state objects from the local file system or from PS 3.12 compliant media according to one of the General Purpose Media Application Profiles of PS 3.11 (CD-R or DVD-RAM) and creates DICOMDIR file.

– MEDIA-FSU, which additionally copies user-selected PS 3.10 compliant files of image or presentation state objects from the local file system or from PS 3.12 compliant media according to one of the General Purpose Media Application Profiles of PS 3.11 (CD-R or DVD-RAM) and updates DICOMDIR file

In effect, UniSight is media-neutral, since the user is required to browse and locate the DICOMDIR file. Furthermore, any DICOM image or presentation state object encoded in one of the standard uncompressed Transfer Syntaxes may be loaded, even in the absence of a PS 3.10 compliant meta-information header, in which case Transfer Syntax will be assumed to be DICOM default Transfer Syntax, Implicit VR Little Endian.

5.1.2 Functional Definitions of AE's

5.1.2.1 MEDIA-FSR

MEDIA-FSR is activated through the user interface to select directories, images and presentation state for display, import into the local database or network transmission.

5.1.2.2 MEDIA-FSC

MEDIA-FSC is activated through the user interface to store images and presentation state on a user selected media.

5.1.2.3 MEDIA-FSU

MEDIA-FSU is activated through the user interface to update DICOMDIR on a user selected media.

5.1.3 Sequencing of Real-World Activities

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

5.2 AE Specifications

5.2.1 Application Entity Specifications

MEDIA-FSR provides standard conformance to DICOM Interchange Option of the Media Storage Service Class.

Table 5.2.1-1

APPLICATION PROFILES, ACTIVITIES, AND ROLES

Application Profiles Supported	Real World Activity	Role	SC Option
STD-GEN-CD	Load directory or file	FSR	Interchange
	Save directory and file	FSC	Interchange
	Update directory	FSU	Interchange
STD-GEN-DVD-RAM	Load directory or file	FSR	Interchange
	Save directory and file	FSC	Interchange
	Update directory	FSU	Interchange
STD-XABC-CD STD-XA1K-CD	Load directory or file	FSR	Interchange
	Save directoryand file	FSC	Interchange
	Update directory	FSU	Interchange
STD-US-ID/SC/CC-SF/MF	Load directory or file	FSR	Interchange
	Save directory and file	FSC	Interchange
	Update directory	FSU	Interchange

STD-CTMR-CD	Load directory or file	FSR	Interchange
	Save directory and file	FSC	Interchange
	Update directory	FSU	Interchange

Note: UniSight is media neutral and dependent on the underlying hardware. Any (non-secure) General Purpose Profile can be supported.

5.2.2 File Meta Information

TABLE 5.2.2-1

FILE META INFORMATION

File Meta Information Version	00 01
Implementation Class UID	1.2.840.113820.1
Source Application Entity Title	N/A

5.2.3 Media Application Profiles

TABLE 5.2.2-2

STD-XABC-CD SOP CLASSES AND TRANSFER SYNTAX'S

Information Object Definitions	SOP Class UID	Transfer Syntax and UID
Basic Directory	1.2.840.10008.1.3.10	Explicit VR Little Endian 1.2.840.10008.1.2.1
X-Ray Angiographic Image	1.2.840.10008.5.1.4.1.1.12.1	JPEG Lossless Process 14 Selection value 1 1.2.840.10008.1.2.4.70

TABLE 5.2.2-3

STD-XA1K-CD SOP CLASSES AND TRANSFER SYNTAX'S

Information Object Definitions	SOP Class UID	Transfer Syntax and UID
Basic Directory	1.2.840.10008.1.3.10	Explicit VR Little Endian 1.2.840.10008.1.2.1
X-Ray Angiographic Image	1.2.840.10008.5.1.4.1.1.12.1	JPEG Lossless Process 14 Selection value 1 1.2.840.10008.1.2.4.70
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian 1.2.840.10008.1.2.1

TABLE5.2.2-4 STD-US-ID/SC/CC-SF/MF SOP CLASSES AND TRANSFER SYNTAX'S

Information Object Definitions	SOP Class UID	Photometric Interpretation	Transfer Syntax and UID
Basic Directory	1.2.840.10008.1.3.10		Explicit VR Little Endian 1.2.840.10008.1.2.1
Ultrasound Image	1.2.840.10008.5.1.4.1.1.3.1	MONO-CHROME2	Explicit VR Little Endian 1.2.840.10008.1.2.1 RLE Lossless Compression 1.2.840.10008.1.2.5
		RGB	Explicit VR Little Endian 1.2.840.10008.1.2.1 RLE Lossless Compression 1.2.840.10008.1.2.5
		PALETTE COLOR	Explicit VR Little Endian 1.2.840.10008.1.2.1 RLE Lossless Compression 1.2.840.10008.1.2.5
		YBR_FULL	RLE Lossless Compression 1.2.840.10008.1.2.5
		YBR_FULL_422	Explicit VR Little Endian 1.2.840.10008.1.2.1 JPEG Lossy Process 1 1.2.840.10008.1.2.4.50
		YBR_PARTIAL_422	Explicit VR Little Endian 1.2.840.10008.1.2.1 JPEG Lossy Process 1 1.2.840.10008.1.2.4.50
Ultrasound Multi-frame Image	1.2.840.10008.5.1.4.1.1.6.1	MONO-CHROME2	Explicit VR Little Endian 1.2.840.10008.1.2.1 RLE Lossless Compression 1.2.840.10008.1.2.5
		RGB	Explicit VR Little Endian 1.2.840.10008.1.2.1 RLE Lossless Compression 1.2.840.10008.1.2.5
		PALETTE COLOR	Explicit VR Little Endian 1.2.840.10008.1.2.1 RLE Lossless Compression 1.2.840.10008.1.2.5
		YBR_FULL	RLE Lossless Compression 1.2.840.10008.1.2.5
		YBR_FULL_422	Explicit VR Little Endian 1.2.840.10008.1.2.1 JPEG Lossy Process 1 1.2.840.10008.1.2.4.50
		YBR_PARTIAL_422	Explicit VR Little Endian 1.2.840.10008.1.2.1 JPEG Lossy Process 1 1.2.840.10008.1.2.4.50

TABLE 5.2.2-5

STD-CTMR-CD SOP CLASSES AND TRANSFER SYNTAX'S

Information Object Definitions	SOP Class UID	Transfer Syntax and UID
Basic Directory	1.2.840.10008.1.3.10	Explicit VR Little Endian 1.2.840.10008.1.2.1
CT Image	1.2.840.10008.1.4.1.1.2	Explicit VR Little Endian 1.2.840.10008.1.2.1 JPEG Lossless Process 14 Selection value 1 1.2.840.10008.1.2.4.70
MR Image	1.2.840.10008.1.4.1.1.4	Explicit VR Little Endian 1.2.840.10008.1.2.1 JPEG Lossless Process 14 Selection value 1 1.2.840.10008.1.2.4.70
SC Image (grayscale)	1.2.840.10008.1.4.1.1.7	Explicit VR Little Endian 1.2.840.10008.1.2.1 JPEG Lossless Process 14 Selection value 1 1.2.840.10008.1.2.4.70
SC Image (palette color)	1.2.840.10008.1.4.1.1.7	Explicit VR Little Endian 1.2.840.10008.1.2.1 JPEG Lossless Process 14 Selection value 1 1.2.840.10008.1.2.4.70

TABLE5.2.2-6

STD-GEN-CD SOP CLASSES AND TRANSFER SYNTAX'S

Information Object Definitions	SOP Class UID	Transfer Syntax and UID
Basic Directory	1.2.840.10008.1.3.10	Explicit VR Little Endian 1.2.840.10008.1.2.1
Composite Image & Stand-alone Storage	Refer to **Table 4.2.2.4.1.2-1** for SOPs UID definitions	Explicit VR Little Endian 1.2.840.10008.1.2.1

5.3 Augmented and Private Profiles

5.3.1 Augmented Profiles

None.

5.3.2 Private Profiles

None.

5.4 Configuration

None.

6. SUPPORT OF EXTENDED CHARACTER SETS

UniSight supports DICOM default character set ISO 2022 IR 6.

7 SECURITY

7.1 Security Profiles

None supported.

7.2 Association level security

None supported.

Any Calling AE Titles and/or IP addresses may open an Association.

7.3 Application level security

None supported.

8 ANNEXES

8.1 IOD Contents

8.1.1 Created SOP Instances

UniSight creates instances of the following SOP Classes

- Grayscale Softcopy Presentation State Storage

- Key Object Selection Document

8.1.2 Usage of attributes from received IOD's

No SOP Class specific fields are required.

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

8.1.3 Attribute Mapping

Not applicable.

8.1.4 Coerced/Modified fields

No coercion is performed.

8.2 Data Dictionary of Private Attributes

No private attributes are defined.

8.3 Coded Terminology and Templates

The value for Code Meaning will be displayed for all code sequences. No local lexicon is provided to look up alternative code meanings.

8.4 Grayscale Image Consistency

The high resolution display monitor attached optionally available for UniSight can be calibrated according to the Grayscale Standard Display Function.

8.6 Standard Extended/Specialized/Private SOP Classes

None

8.7 Private Transfer Syntaxes

None.