

AccessNET

DICOM Conformance Statement version 6.2



ASPYRA™

Extending Your Reach

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Implementation Model

0. Introduction

Aspyra's AccessNET System is a fully integrated system that provides the tools necessary to implement a filmless radiology department. The AccessSERVER is the component of the AccessNET that manages the long-term storage of images, reports, and other objects related to a medical examination. Depending on the customer's need, the AccessSERVER can be configured to include CD-ROM writers, Disk Arrays, Tape Drives, and Jukeboxes. The AccessSERVER manages archival and retrieval of data between the various storage devices. The AccessSERVER also manages workflow and data conversion, where required.

The AccessSERVER uses a number of protocols to interface to the external world, one of which is DICOM. The AccessSERVER accepts DICOM association requests for the purpose of storing images and for image query and retrieval. The AccessSERVER will initiate DICOM association requests for the purpose of sending images to an external device, either for storage or printing.

MedVIEW® is a software module within AccessNET utilized by the user to interface with the system. It functions as a diagnostic quality viewing station that can interface with the AccessSERVER via a proprietary interface or via a DICOM interface. It can also access other DICOM compatible image archives.

MedCAP® is a software module utilized by AccessNET to capture images from non-DICOM modality devices and store those images to an AccessSERVER or any DICOM compatible archive.

1. Implementation Model

Please refer to the application flow diagrams, which follow.

1.1 Application Flow Diagrams

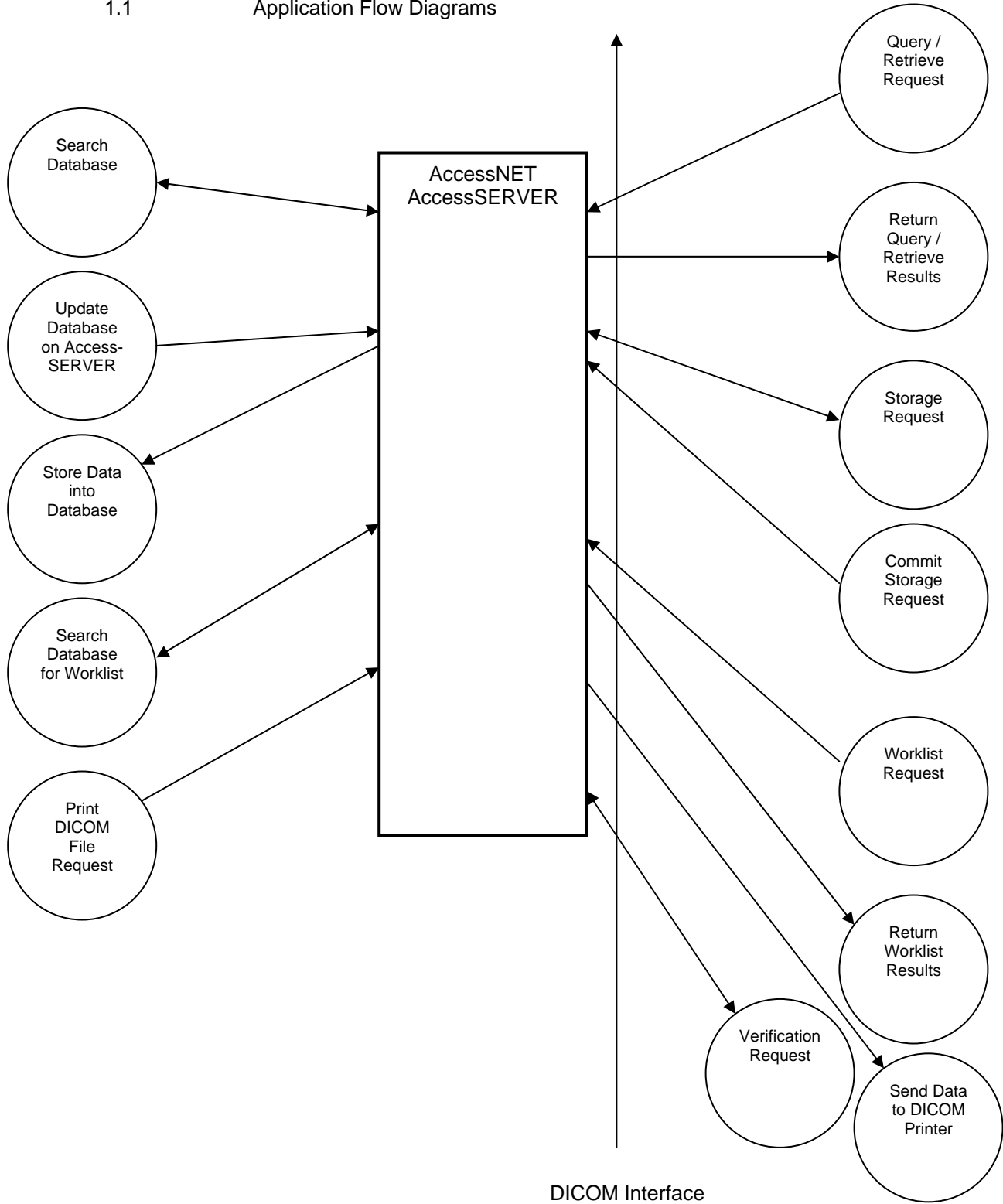


Figure 1.1-1 Implementation Data Flow Diagram for AccessSERVER

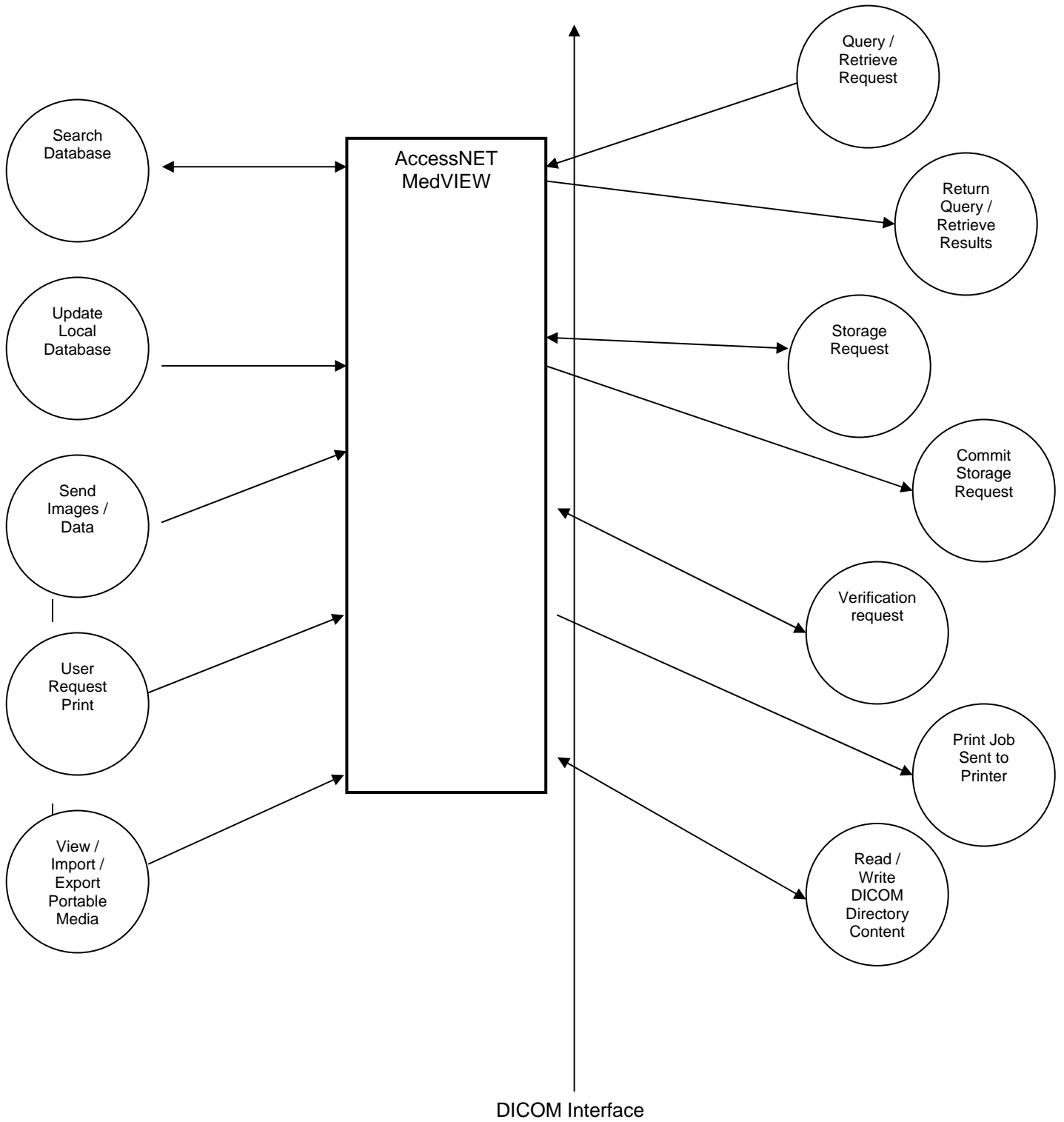


Figure 1.1-2 Implementation Data Flow Diagram for MedVIEW

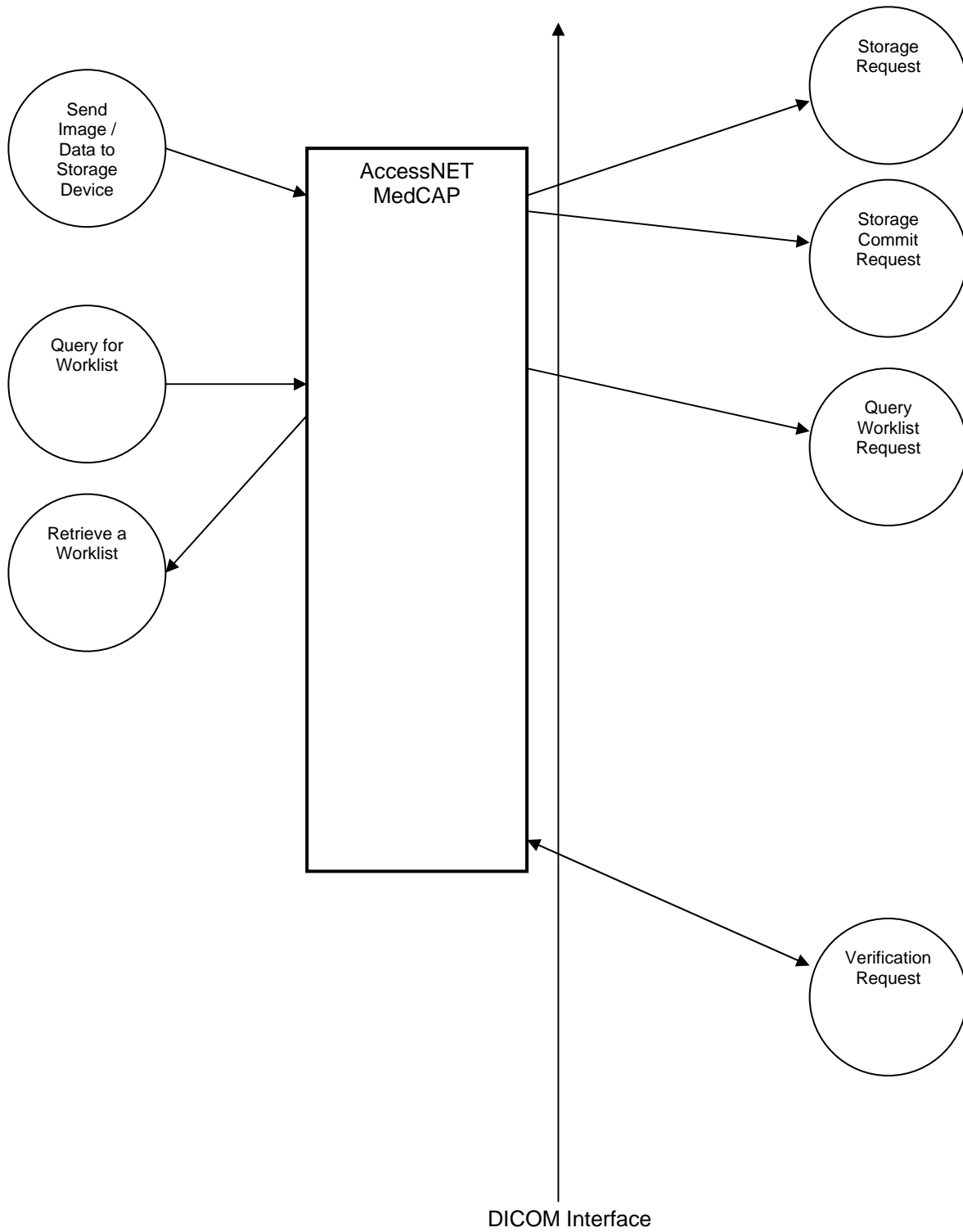


Figure 1.1-3 Implementation Data Flow Diagram for MedCAP

1.2 Functional Definition of Application Entities

1.2.1 AccessSERVER

AccessSERVER is the Application Entity that is the interface for the AccessNET database. It supports the following Service Classes:

Service Class	Role
Storage	SCU SCP
Storage Commitment	SCP
Query / Retrieve	SCP
Verification	SCP
Basic Worklist Management	SCP
Basic Grayscale Print Management Meta SOP Class	SCU
Modality Performed Procedure Step SOP Class	SCP

1.2.2 MedVIEW

MedVIEW is the user interface for viewing, retrieving, and sending images and data. It supports the following Service Classes:

Service Class	Role
Storage	SCU SCP
Query / Retrieve	SCU
Verification	SCP
Basic Grayscale Print Management Meta SOP Class	SCU

1.2.3 MedCAP

MedCAP is the user interface for capturing image data and storing or sending that data to another device. It supports the following Service Classes:

Service Class	Role
Storage	SCU
Storage Commitment	SCU
Basic Worklist Management	SCU

1.3 Sequencing of Real-World Activities

Not Applicable

2. AE Specifications

2.1 AccessSERVER Specification

This Application Entity provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCU:

SOP Class Name	SOP Class UID
Verification SOP Class	1.2.840.10008.1.1
CR Image Storage	1.2.840.10008.5.1.4.1.1.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Multi-Frame Single Bit Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.1
Multi-Frame Grayscale Byte Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.2
Multi-Frame Grayscale Word Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.3
Multi-Frame True Color Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.4
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2
X-Ray Angio Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
PET Image Storage	1.2.840.10008.5.1.4.1.1.128
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1
Digital Mammo X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammo X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.2.1
Digital Intra-oral X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.3
Digital Intra-oral X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.3.1
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9

This Application Entity provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCP:

SOP Class Name	SOP Class UID
Verification SOP Class	1.2.840.10008.1.1
CR Image Storage	1.2.840.10008.5.1.4.1.1.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Multi-Frame Single Bit Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.1
Multi-Frame Grayscale Byte Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.2
Multi-Frame Grayscale Word Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.3
Multi-Frame True Color Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.4
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2
X-Ray Angio Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
PET Image Storage	1.2.840.10008.5.1.4.1.1.128
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1
Digital Mammo X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammo X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.2.1
Digital Intra-oral X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.3
Digital Intra-oral X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.3.1
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65
Patient Root Query/Retrieve Info Model - FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Info Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Info Model - FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Info Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2
Patient/Study Only Query/Retrieve Info Model - FIND	1.2.840.10008.5.1.4.1.2.3.1
Patient/Study Only Query/Retrieve Info Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2
Storage Commitment Push Model	1.2.840.10008.1.20.1
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3

2.1.1 Association Establishment Policies

2.1.1.1 General

The AccessSERVER both initiates and accepts associations. It will initiate associations in response to a C-MOVE request from another device. It may initiate an association in response to a storage commitment request if configured to return results on a separate association. It will also initiate an association to a print SCP to perform basic grayscale print functions.

The AccessSERVER can be configured to accept associations from any application entity or it can be configured to only allow associations to specific entities based upon their AE title.

2.1.1.2 Number of Associations

The AccessSERVER can support any number of simultaneous connections. The only technical limit is based upon system resources. However, licensing restrictions limit the allowed number of simultaneous connections for a particular customer site.

2.1.1.3 Asynchronous Nature

No Asynchronous support is provided.

2.1.1.4 Implementation Identifying Information

Implementation Class UID	1.2.840.114164.6.0
Implementation Version Name	ACCESSNET60-45B

Table 2.1.1.4-1 Implementation Identifying Information

2.1.2 Association Initiation by Real-World Activity

2.1.2.1 User Requested Print

2.1.2.1.1 Associated Real-World Activity

A user running the MedVIEW application can submit a print request to an AccessSERVER that will cause the AccessSERVER to print an exam's images (or a subset) to a specific print device. The AccessSERVER will initiate an association with the specified print device (Print SCP) and send appropriate instructions to cause the desired images to print.

2.1.2.1.2 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Note 1	Note 1	SCU	None

Note 1: This presentation context currently supports implicit VR little endian transfer syntax only.

Name	UID
Implicit VR Little Endian	1.2.840.10008.1.2

Table 2.1.2.1.2-1 Transfer Syntax Priority

2.1.2.1.3 Basic Grayscale Print Management Meta SOP Class Conformance

The following describes the optional attributes that may be configured to be included as part of a print job. If a particular value is not supplied in the configuration, the tag will not be included as part of the IOD sent to the Print SCP. There is no validation of configuration values supplied. Any value supplied will be sent unchanged to the Print SCP. This allows printers that make use of extended values to be configured.

Optional Basic Film Session Attributes

Attribute Name	Tag	Default	Options
Number of Copies	(2000,0010)	1	Any positive integer
Print Priority	(2000,0020)	HIGH	HIGH, MEDIUM, LOW, any string
Medium Type	(2000,0030)	None	PAPER, CLEAR FILM, BLUE FILM, any string
Film Destination	(2000,0040)	None	MAGAZINE, PROCESSOR, any string
Film Session Label	(2000,0050)	AccessNET	
Memory Allocation	(2000,0060)	None	Any positive integer

Optional Basic Film Box Attributes

Attribute Name	Tag	Default	Options
Image Display Format	(2010,0010)	STANDARD\2,2	STANDARD \ row, col
Film Orientation	(2010,0040)	PORTRAIT	PORTRAIT, LANDSCAPE
Film Size ID	(2010,0050)	None	8INX10IN, 10INX12IN, 10INX14IN, 11INX14IN, 14INX14IN, 14INX17IN, 24CMX24CM, 24CMX30CM, any string
Magnification Type	(2010,0060)	Cubic, if available	REPLICATE, BILINEAR, CUBIC, NONE, any string
Border Density	(2010,0100)	BLACK	BLACK, WHITE, any string
Empty Image Density	(2010,0110)	BLACK	BLACK, WHITE, any string
Trim	(2010,0140)	None	YES, NO, any string
Smoothing Type	(2010,0080)	None	Any positive integer
Configuration Information	(2010,0150)	None	Any string
Minimum Density	(2010,0120)	None	Any positive integer
Maximum Density	(2010,0130)	None	Any positive integer

Optional Basic Grayscale Image Box Attributes

Attribute Name	Tag	Default	Options
Polarity	(2020,0020)	NORMAL	NORMAL, REVERSE

2.1.2.2 User Requested Send

2.1.2.2.1 Associated Real-World Activity

There are two primary means by which the AccessSERVER can be instructed to send an exam and its images, reports, and other objects to another system. The first of which is as a result of a DICOM C-MOVE command. The second method is by a user running the MedVIEW application submitting a SEND job to the AccessSERVER. The end result is the same; the AccessSERVER will initiate an association with the target host device and perform one or more C-STORE commands.

2.1.2.2.2 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Note 2	Note 2	SCU	None
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	Note 2	Note 2	SCU	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Note 2	Note 2	SCU	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Note 2	Note 2	SCU	None
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Note 2	Note 2	SCU	None
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Note 2	Note 2	SCU	None
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6	Note 2	Note 2	SCU	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Note 2	Note 2	SCU	None
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3	Note 2	Note 2	SCU	None
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Note 2	Note 2	SCU	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Note 2	Note 2	SCU	None
Multi-Frame Single Bit Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.1	Note 2	Note 2	SCU	None
Multi-Frame Grayscale Byte Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.2	Note 2	Note 2	SCU	None
Multi-Frame Grayscale Word Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.3	Note 2	Note 2	SCU	None
Multi-Frame True Color Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.4	Note 2	Note 2	SCU	None
X-Ray	1.2.840.10008.5.1.4.1.1.12.1	Note 2	Note 2	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Angiographic Image Storage					
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Note 2	Note 2	SCU	None
X-Ray Angio Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Note 2	Note 2	SCU	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Note 2	Note 2	SCU	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Note 2	Note 2	SCU	None
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Note 2	Note 2	SCU	None
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Note 2	Note 2	SCU	None
Digital Mammo X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.2	Note 2	Note 2	SCU	None
Digital Mammo X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.2.1	Note 2	Note 2	SCU	None
Digital Intra-oral X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.3	Note 2	Note 2	SCU	None
Digital Intra-oral X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.3.1	Note 2	Note 2	SCU	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Note 2	Note 2	SCU	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Note 2	Note 2	SCU	None
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Note 2	Note 2	SCU	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Note 2	Note 2	SCU	None
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29	Note 2	Note 2	SCU	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Note 2	Note 2	SCU	None
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Note 2	Note 2	SCU	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Note 2	Note 2	SCU	None
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Note 2	Note 2	SCU	None
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Note 2	Note 2	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Note 2	Note 2	SCU	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Note 2	Note 2	SCU	None

Note 2: The following transfer syntax options will be proposed in the order of preference shown.

Name	UID	Class
JPEG 2000 Lossless	1.2.840.10008.1.2.4.90	A
JPEG 2000 Lossy	1.2.840.10008.1.2.4.91	B
JPEG Lossless First Order Pred	1.2.840.10008.1.2.4.70	C
JPEG Lossless	1.2.840.10008.1.2.4.57	C
JPEG Baseline (8 bit)	1.2.840.10008.1.2.4.50	C
JPEG Extended (12 bit)	1.2.840.10008.1.2.4.51	C
Explicit VR Big Endian	1.2.840.10008.1.2.2	C
Explicit VR Little Endian	1.2.840.10008.1.2.1	D
Implicit VR Little Endian	1.2.840.10008.1.2	D

Table 2.1.2.2.2-1 Transfer Syntax Priority

Class A: JPEG 2000 Lossless Transfer Syntax is proposed if the transfer request specifies a 3:1 compression should be used.

Class B: JPEG 2000 Lossy Transfer Syntax is proposed if the transfer request specifies greater than 3:1 compression should be used.

Class C: Various JPEG compression or Big Endian Transfer Syntax is proposed, as defined by the transfer syntax in which the objects are currently stored.

Class D: Default Transfer Syntax.

2.1.3 Association Acceptance Policy

AccessSERVER will accept associations provided two (2) conditions are met:

- 1) The maximum number of simultaneous associations as defined by the system is not exceeded.
- 2) The AE wishing to make the association has been defined in AccessSERVER, or the AccessSERVER has been configured to accept associations from any AE.

2.1.3.1 Query for Exam Information

2.1.3.1.1 Associated Real-World Activity

A user wants to locate exam information stored on an AccessSERVER. The user queries the server using one of the DICOM information model query methods. The AccessSERVER will extract the information submitted, execute the query on its database, and return the results to the calling system.

2.1.3.1.2 Presentation Context Table

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Info Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Note 3	Note 3	SCP	None
Study Root Query/Retrieve Info Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Note 3	Note 3	SCP	None
Patient/Study Only Query/Retrieve Info Model - FIND	1.2.840.10008.5.1.4.1.2.3.1	Note 3	Note 3	SCP	None

Note 3: The following transfer syntax options are supported in the order of preference shown.

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

Table 2.1.3.1.2-1 Transfer Syntax Priority

2.1.3.1.3 FIND Conformance

The AccessSERVER supports queries of all levels supported by all three of the information models: Patient Root, Study Root, and Patient/Study Only Root. It does not support relational queries.

The following table lists all supported search/match keys.

Description	Tag
SOP Instance UID	(0008,0018)
Study Date	(0008,0020)
Study Time	(0008,0030)
Accession Number	(0008,0050)
Modality	(0008,0060)
Patient Name	(0010,0010)
Patient ID	(0010,0020)
Study ID	(0020,0010)
Series Number	(0020,0011)
Image Number	(0020,0013)
Study Instance UID	(0020,000D)
Series Instance UID	(0020,000E)

2.1.3.1.4 Presentation Context Acceptance Criterion

There are no rules for presentation context acceptance other than those described in section 2.1.3 regarding association acceptance.

2.1.3.1.5 *Transfer Syntax Selection Policies*

The selection of the transfer syntax will follow the order of the Transfer Syntaxes described in table 2.1.3.1.2-1.

2.1.3.2 *User Requested Send / Move*

2.1.3.2.1 *Associated Real-World Activity*

Typically, after a user has queried the AccessSERVER for exam information, the AccessSERVER will request that an exam’s images or a subset be sent or moved to another station.

2.1.3.2.2 *Presentation Context Table*

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Info Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Note 3	Note 3	SCP	None
Study Root Query/Retrieve Info Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Note 3	Note 3	SCP	None
Patient/Study Only Query/Retrieve Info Model – MOVE	1.2.840.10008.5.1.4.1.2.3.2	Note 3	Note 3	SCP	None

Note 3: See table 2.1.3.1.2-1 for the list of transfer syntax options supported.

2.1.3.2.3 *MOVE Conformance*

All levels of support are provided for the MOVE command, PATIENT, STUDY, SERIES, and IMAGE for all three of the supported information models, Patient Root, Study Root, and Patient/Study Only Root.

If the MOVE command references an application entity that has been configured on the AccessSERVER, a new association will be established as described in section 2.1.2.2. As long as the association that issued the MOVE command remains active, MOVE status messages will be returned showing the number of successful operations, number of failures, etc. If the requesting association is terminated, the MOVE command does not terminate, but will continue processing until completion.

2.1.3.2.4 *Presentation Context Acceptance Criterion*

There are no rules for presentation context acceptance other than those described in section 2.1.3 regarding association acceptance.

2.1.3.2.5 *Transfer Syntax Selection Policies*

The selection of the transfer syntax will follow the order of the Transfer Syntaxes described in table 2.1.3.1.2-1.

2.1.3.3 Request to Store Images or Other Objects

2.1.3.3.1 Associated Real-World Activity

A modality or other image creation / acquisition device sends images to the AccessSERVER for storage.

2.1.3.3.2 Presentation Context Table

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	Note 4	Note 4	SCP	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Note 4	Note 4	SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Note 4	Note 4	SCP	None
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Note 4	Note 4	SCP	None
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Note 4	Note 4	SCP	None
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6	Note 4	Note 4	SCP	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Note 4	Note 4	SCP	None
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3	Note 4	Note 4	SCP	None
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Note 4	Note 4	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Note 4	Note 4	SCP	None
Multi-Frame Single Bit Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.1	Note 4	Note 4	SCP	None
Multi-Frame Grayscale Byte Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.2	Note 4	Note 4	SCP	None
Multi-Frame Grayscale Word Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.3	Note 4	Note 4	SCP	None
Multi-Frame True Color Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.4	Note 4	Note 4	SCP	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Note 4	Note 4	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Note 4	Note 4	SCP	None
X-Ray Angio Bi-	1.2.840.10008.5.1.4.1.1.12.3	Note 4	Note 4	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Plane Image Storage					
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Note 4	Note 4	SCP	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Note 4	Note 4	SCP	None
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Note 4	Note 4	SCP	None
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Note 4	Note 4	SCP	None
Digital Mammo X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.2	Note 4	Note 4	SCP	None
Digital Mammo X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.2.1	Note 4	Note 4	SCP	None
Digital Intra-oral X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.3	Note 4	Note 4	SCP	None
Digital Intra-oral X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.3.1	Note 4	Note 4	SCP	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Note 4	Note 4	SCP	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Note 4	Note 4	SCP	None
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Note 4	Note 4	SCP	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Note 4	Note 4	SCP	None
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29	Note 4	Note 4	SCP	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Note 4	Note 4	SCP	None
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Note 4	Note 4	SCP	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Note 4	Note 4	SCP	None
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Note 4	Note 4	SCP	None
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Note 4	Note 4	SCP	None
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Note 4	Note 4	SCP	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Note 4	Note 4	SCP	None

Note 4: The following transfer syntax options are supported in the order of preference shown.

Name	UID
Explicit VR Little Endian	1.2.840.10008.1.2.1
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Big Endian	1.2.840.10008.1.2.2
JPEG Baseline (8 bit)	1.2.840.10008.1.2.4.50
JPEG Extended (12 bit)	1.2.840.10008.1.2.4.51
JPEG Lossless	1.2.840.10008.1.2.4.57
JPEG Lossless First Order Pred	1.2.840.10008.1.2.4.70
JPEG2000 Lossless	1.2.840.10008.1.2.4.90
JPEG2000 Lossy	1.2.840.10008.1.2.4.91

Table 2.1.3.3.2-1 Transfer Syntax Priority

2.1.3.3.3 Storage Conformance

The AccessSERVER always provides level 2 (full) conformance. That is, all type 1, type 2, and type 3 attributes are retained and stored with the image or other object. In addition, if the association utilizes explicit VR, the AccessSERVER will also retain and store private attributes. Private attributes with unknown VR are discarded prior to storage.

Though the AccessSERVER does retain all attributes sent with the object, it is possible for the objects to be stored with an exam that has a different Study Instance UID. If an object is stored to the AccessSERVER and there is already an exam with the same Study Instance UID, that object will be attached to that exam. However, if there is no matching Study Instance UID, the object will be attached to an exam with the same patient ID and accession number, if one exists. If this occurs, the object's effective Study Instance UID will be changed to match the exam the object was actually attached to.

Regarding SR conformance, the AccessSERVER does not display or render SR documents in any way. It merely stores them for retrieval by other systems.

The same applies to support for grayscale softcopy presentation state storage. The AccessSERVER never attempts to display images so presentation states are not utilized in this manner. However, all attributes are stored and can be retrieved for display by a display SCP such as MedVIEW.

If any error code is returned from the C-STORE command, then that object has NOT been stored on the AccessSERVER. It must be resent if it needs to be stored. If a warning code is returned, then the object has been stored and does not need to be resent.

In the event that the same object is sent multiple times to the AccessSERVER, only the first instance is actually stored. However, the AccessSERVER does return a successful status code to indicate to the sender that the store has succeeded.

AccessSERVER may return the following error codes:

- A700** – Out of resources – DICOM interface could not connect to AccessSERVER.
- A701** – Out of resources – Failure storing object – AccessSERVER possibly full or DICOM interface no longer has permissions required to stored objects.
- A702** – Out of resources – Failure allocating memory.
- A705** – Out of resources – Maximum license count exceeded.
- A900** – SOP instance invalid – Required elements missing (normally UIDs).
- A901** – Image instance invalid – Required image parameters missing or invalid.

2.1.3.3.4 *Presentation Context Acceptance Criterion*

There are no rules for presentation context acceptance other than those described in section 2.1.3 regarding association acceptance.

2.1.3.3.5 *Transfer Syntax Selection Policies*

The selection of the transfer syntax will follow the order of the Transfer Syntaxes described in table 2.1.3.3.2-1.

2.1.3.4 Request for Worklist

2.1.3.4.1 *Associated Real-World Activity*

An Application Entity, typically a modality, requests a list of those exams that are to be performed. This is done to extract proper patient demographics and exam order information without the need to re-key the information.

2.1.3.4.2 *Presentation Context Table*

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	Note 3	Note 3	SCP	None

Note 3: See table 2.1.3.1.2-1 for the list of transfer syntax options supported.

2.1.3.4.3 *Worklist Conformance*

In order for the AccessSERVER to be able to provide modality worklist information, it must receive appropriate worklist information via the HL7 links to the department scheduling system. AccessSERVER does not provide scheduling services. It only acts as a translation service to receive scheduling information via HL7 and support queries for that information via DICOM.

The worklist service supports the following optional matching keys.

Description	Tag
Accession Number	(0008,0050)
Scheduled Station Name	(0040,0010)
Scheduled Procedure Step Location	(0040,0011)
Requested Procedure Id	(0040,1001)

The worklist service supports the following optional return keys.

Description	Tag
Accession Number	(0008,0050)
Referring Physician Name	(0008,0090)
Patient Birth Date	(0010,0030)

Description	Tag
Patient Sex	(0010,0040)
Requesting Physician	(0032,1032)
Current Patient Location	(0038,0300)
Scheduled Station Name	(0040,0010)
Scheduled Procedure Step Location	(0040,0011)
Requested Procedure Id	(0040,1001)

2.1.3.4.4 *Presentation Context Acceptance Criterion*

There are no rules for presentation context acceptance other than those described in section 2.1.3 regarding association acceptance.

2.1.3.4.5 *Transfer Syntax Selection Policies*

The selection of the transfer syntax will follow the order of the Transfer Syntaxes described in table 2.1.3.1.2-1.

2.1.3.5 Request for Storage Commitment

2.1.3.5.1 *Associated Real-World Activity*

After an application entity has stored images to the AccessSERVER, it can request the AccessSERVER take responsibility for those images by issuing a Storage Commitment request. After a successful response from the AccessSERVER, the caller knows the images are safely stored and it is free to remove its copy of the images.

2.1.3.5.2 *Presentation Context Table*

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Note 3	Note 3	SCP	None

Note 3: See table 2.1.3.1.2-1 for the list of transfer syntax options supported.

2.1.3.5.3 *Storage Commitment Conformance*

The AccessSERVER provides the same level of storage commitment to all objects stored, whether the Storage Commitment request is made or not. The AccessSERVER configuration for long-term storage is site dependent and is beyond the scope of this document. Some sites may be configured with no long-term archive and will be able to provide only limited archival services. Other sites may provide a permanent archive providing near-line and off-line storage support.

Upon receipt of the Storage Commitment request, the AccessSERVER verifies that it can access all listed entities. The results of this search are returned to the caller to inform him as to what entities can be considered as safely stored. This search is performed immediately upon receipt

of the request. If the Storage Commitment request is performed prior to storing the objects, the results will be returned showing a failure for each entity that could not be located.

By default, these results are returned on the same association as the request was made. Some systems require these results be returned on a new association initiated by the AccessSERVER. This behavior can be configured by application entity title. When a storage commitment is executed by the AccessSERVER, it examines an internal table to determine how the results should be returned. If there is no entry for the caller, the results are returned on the same association. If there is an entry in the table, that information is loaded which can specify the IP address, port, and AE title of the system that should receive the results. Consult the AccessNET installation and configuration documentation for details on performing this configuration.

2.1.3.5.4 *Presentation Context Acceptance Criterion*

There are no rules for presentation context acceptance other than those described in section 2.1.3 regarding association acceptance.

2.1.3.5.5 *Transfer Syntax Selection Policies*

The selection of the transfer syntax will follow the order of the Transfer Syntaxes described in table 2.1.3.1.2-1.

2.1.3.6 Request for Verification

2.1.3.6.1 *Associated Real-World Activity*

An Application Entity is attempting to verify that it can make a DICOM connection to the AccessSERVER.

2.1.3.6.2 *Presentation Context Table*

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Note 3	Note 3	SCP	None

Note 3: See table 2.1.3.1.2-1 for the list of transfer syntax options supported.

2.1.3.6.3 *Presentation Context Acceptance Criterion*

There are no rules for presentation context acceptance other than those described in section 2.1.3 regarding association acceptance.

2.1.3.6.4 *Transfer Syntax Selection Policies*

The selection of the transfer syntax will follow the order of the Transfer Syntaxes described in table 2.1.3.1.2-1.

2.1.3.7 MPPS Notification

2.1.3.7.1 *Associated Real-World Activity*

A modality or other MPPS manager application has notified the AccessSERVER that a modality performed procedure step has been started, canceled, or completed.

2.1.3.7.2 *Presentation Context Table*

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3	Note 3	Note 3	SCP	None

Note 3: See table 2.1.3.1.2-1 for the list of transfer syntax options supported.

2.1.3.7.3 *MPPS Conformance*

The AccessSERVER will support and retain all attributes of a specific SOP instance created via the N-CREATE command. This instance and all of its attributes will be retained until the procedure step is abandoned or completed or until a configurable time has elapsed.

Any updateable attribute may be changed via the N-SET command. Again, these changes are retained until the procedure step is completed or until a configurable time has elapsed.

The AccessSERVER can be configured to act as an MPPS manager in that any MPPS transactions received can be forwarded to another device. In this manner, the AccessSERVER will act as an SCU but only for the purposes of forwarding the N-CREATE or N-SET commands. The AccessSERVER will never create new SOP instances.

If the AccessSERVER is configured to forward MPPS transactions, it will not remove any MPPS data until either the transaction has been forwarded or until a configurable time has elapsed. If the AccessSERVER is unable to forward a transaction, it will continue to retry the transaction until it is successful or the configured expiration time has elapsed.

2.1.3.7.4 *Presentation Context Acceptance Criterion*

There are no rules for presentation context acceptance other than those described in section 2.1.3 regarding association acceptance.

2.1.3.7.5 *Transfer Syntax Selection Policies*

The selection of the transfer syntax will follow the order of the Transfer Syntaxes described in table 2.1.3.1.2-1.

2.2 MedVIEW Specification

MedVIEW provides standard conformance to the following DICOM V3.0 SOP Classes as an SCU:

SOP Class Name	SOP Class UID
Verification SOP Class	1.2.840.10008.1.1
CR Image Storage	1.2.840.10008.5.1.4.1.1.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Multi-Frame Single Bit Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.1
Multi-Frame Grayscale Byte Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.2
Multi-Frame Grayscale Word Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.3
Multi-Frame True Color Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.4
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2
X-Ray Angio Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
PET Image Storage	1.2.840.10008.5.1.4.1.1.128
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1
Digital Mammo X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammo X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.2.1
Digital Intra-oral X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.3
Digital Intra-oral X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.3.1
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65
Patient Root Query/Retrieve Info Model - FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Info Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Info Model - FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Info Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2
Patient/Study Only Query/Retrieve Info Model - FIND	1.2.840.10008.5.1.4.1.2.3.1
Patient/Study Only Query/Retrieve Info Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1

MedVIEW provides standard conformance to the following DICOM V3.0 SOP Classes as an SCP:

SOP Class Name	SOP Class UID
Verification SOP Class	1.2.840.10008.1.1
CR Image Storage	1.2.840.10008.5.1.4.1.1.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
Multi-Frame Single Bit Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.1
Multi-Frame Grayscale Byte Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.2
Multi-Frame Grayscale Word Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.3
Multi-Frame True Color Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.4
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2
X-Ray Angio Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
PET Image Storage	1.2.840.10008.5.1.4.1.1.128
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1
Digital Mammo X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammo X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.2.1
Digital Intra-oral X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.3
Digital Intra-oral X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.3.1
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65

MedVIEW provides image rendering on color display devices configured for 8, 24, or 32 bit output and grayscale display devices configured for 8 bit output using a static gray palette for the following transfer syntaxes:

Name	UID
Explicit VR Little Endian	1.2.840.10008.1.2.1
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Big Endian	1.2.840.10008.1.2.2
JPEG Baseline (8 bit)	1.2.840.10008.1.2.4.50
JPEG Extended (12 bit)	1.2.840.10008.1.2.4.51

Name	UID
JPEG Lossless	1.2.840.10008.1.2.4.57
JPEG Lossless First Order Pred	1.2.840.10008.1.2.4.70
JPEG2000 Lossless	1.2.840.10008.1.2.4.90
JPEG2000 Lossy	1.2.840.10008.1.2.4.91

2.2.1 Association Establishment Policies

2.2.1.1 General

MedVIEW both initiates and accepts associations. It primarily operates as an SCU that initiates associations for the purposes of querying a device or executing a print job. It will also act as an SCP and accept associations when images or other objects are stored to it, typically as a result of a MedVIEW initiated MOVE request.

MedVIEW can be configured to accept associations from any application entity, or it can be configured to allow associations only to specific entities based upon their AE title. The default behavior is to allow associations from any AE.

2.2.1.2 Number of Associations

MedVIEW can support any number of simultaneous connections. However, it is designed and optimized for a single inbound association. Multiple MedVIEW initiated associations are limited only by system resources.

2.2.1.3 Asynchronous Nature

No Asynchronous support is provided.

2.2.1.4 Implementation Identifying Information

Implementation Class UID	1.2.840.114164.6.0
Implementation Version Name	ACCESSNET60-45B

Table 2.2.1.4-1 Implementation Identifying Information

2.2.2 Association Initiation by Real-World Activity

2.2.2.1 User Requested Print

2.2.2.1.1 Associated Real-World Activity

A user running the MedVIEW application can open an exam and print all or a subset of the exam's images. MedVIEW will initiate an association with the specified print device (Print SCP) and send appropriate instructions to cause the desired images to print.

2.2.2.1.2 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Note 1	Note 1	SCU	None

Note 1: This presentation context currently supports only implicit VR little endian transfer syntax.

Name	UID
Implicit VR Little Endian	1.2.840.10008.1.2

Table 2.2.2.1.2-1 Transfer Syntax Priority

2.2.2.1.3 Basic Grayscale Print Management Meta SOP Class Conformance

The following describes the optional attributes that may be configured to be included as part of a print job. If a particular value is not supplied in the configuration, the tag will not be included as part of the IOD sent to the Print SCP. There is no validation of configuration values supplied. Any value supplied will be sent unchanged to the Print SCP. This allows printers that make use of extended values to be configured.

Optional Basic Film Session Attributes

Attribute Name	Tag	Default	Options
Number of Copies	(2000,0010)	1	Any positive integer
Print Priority	(2000,0020)	HIGH	HIGH, MEDIUM, LOW, any string
Medium Type	(2000,0030)	None	PAPER, CLEAR FILM, BLUE FILM, any string
Film Destination	(2000,0040)	None	MAGAZINE, PROCESSOR, any string
Film Session Label	(2000,0050)	AccessNET	
Memory Allocation	(2000,0060)	None	Any positive integer

Optional Basic Film Box Attributes

Attribute Name	Tag	Default	Options
Image Display Format	(2010,0010)	STANDARD\2,2	STANDARD \ row, col
Film Orientation	(2010,0040)	PORTRAIT	PORTRAIT, LANDSCAPE
Film Size ID	(2010,0050)	None	8INX10IN, 10INX12IN, 10INX14IN, 11INX14IN, 14INX14IN, 14INX17IN, 24CMX24CM, 24CMX30CM, any string
Magnification Type	(2010,0060)	Cubic, if available	REPLICATE, BILINEAR, CUBIC, NONE, any string
Border Density	(2010,0100)	BLACK	BLACK, WHITE, any string
Empty Image Density	(2010,0110)	BLACK	BLACK, WHITE, any string
Trim	(2010,0140)	None	YES, NO, any string
Smoothing Type	(2010,0080)	None	Any positive integer
Configuration Information	(2010,0150)	None	Any string
Minimum Density	(2010,0120)	None	Any positive integer

Attribute Name	Tag	Default	Options
Maximum Density	(2010,0130)	None	Any positive integer

Optional Basic Grayscale Image Box Attributes

Attribute Name	Tag	Default	Options
Polarity	(2020,0020)	NORMAL	NORMAL, REVERSE

2.2.2.2 Query for Exam Information

2.2.2.2.1 Associated Real-World Activity

A MedVIEW user wishes to locate an exam and its images that reside on a DICOM compatible archive. The user queries the archive using one of the DICOM information model query methods.

2.2.2.2.2 Presentation Context Table

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root Query/Retrieve Info Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Note 3	Note 3	SCU	None

Note 3: The following transfer syntax options are supported in the order of preference shown.

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

Table 2.2.2.2.2-1 Transfer Syntax Priority

2.2.2.2.3 FIND Conformance

MedVIEW performs all queries using the Study Root information model. It will, however, perform different queries at the STUDY, SERIES, and IMAGE levels of that model.

MedVIEW does not generate relational queries.

The following table lists all supported search/match keys MedVIEW may attempt to utilize.

Description	Tag
SOP Instance UID	(0008,0018)
Study Date	(0008,0020)
Study Time	(0008,0030)
Accession Number	(0008,0050)
Modality	(0008,0060)
Patient Name	(0010,0010)
Patient ID	(0010,0020)
Study ID	(0020,0010)
Series Number	(0020,0011)

Description	Tag
Image Number	(0020,0013)
Study Instance UID	(0020,000D)
Series Instance UID	(0020,000E)

2.2.2.3 Request to Move Exam Images & Reports

2.2.2.3.1 *Associated Real-World Activity*

A MedVIEW user wishes to locate an exam and its images and reports that reside on a DICOM compatible archive. The user queries the archive using one of the DICOM information model query methods. Once the user has located the exam, the user opens the exam, which causes a MOVE command to be executed to instruct the archive to copy the exam’s images, presentation states, and reports to the viewing station.

2.2.2.3.2 *Presentation Context Table*

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root Query/Retrieve Info Model – MOVE	1.2.840.10008.5.1.4.1.2.2.1	Note 3	Note 3	SCU	None

Note 3: See table 2.2.2.2.2-1 for the list of transfer syntax options supported.

2.2.2.3.3 *MOVE Conformance*

When the MedVIEW user opens an exam, a MOVE operation will be performed. If the exam contains Grayscale Presentation States, separate SERIES level MOVE operations will be performed in order to control the order in which these objects are received. If any Key Object (KO) series exist, the user will be given the option to only retrieve these. In this case, IMAGE level MOVE operations will be performed to retrieve only those objects referenced by the Key Object Selection Document. In all other cases, STUDY level MOVE commands are performed.

If any of the retrieved series are SR series, they will be loaded as report documents, separate from the images received.

2.2.2.4 User Requested Send

2.2.2.4.1 *Associated Real-World Activity*

The MedVIEW station can send any exam and its images or a subset along with its SR documents to another DICOM compatible system utilizing a series of one or more DICOM C-STORE commands.

2.2.2.4.2 *Proposed Presentation Contexts*

Presentation Context Table

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	Note 4	Note 4	SCU	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Note 4	Note 4	SCU	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Note 4	Note 4	SCU	None
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Note 4	Note 4	SCU	None
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Note 4	Note 4	SCU	None
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6	Note 4	Note 4	SCU	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Note 4	Note 4	SCU	None
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3	Note 4	Note 4	SCU	None
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Note 4	Note 4	SCU	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Note 4	Note 4	SCU	None
Multi-Frame Single Bit Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.1	Note 4	Note 4	SCU	None
Multi-Frame Grayscale Byte Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.2	Note 4	Note 4	SCU	None
Multi-Frame Grayscale Word Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.3	Note 4	Note 4	SCU	None
Multi-Frame True Color Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.4	Note 4	Note 4	SCU	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Note 4	Note 4	SCU	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Note 4	Note 4	SCU	None
X-Ray Angio Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Note 4	Note 4	SCU	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Note 4	Note 4	SCU	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Note 4	Note 4	SCU	None
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Note 4	Note 4	SCU	None
Digital X-Ray Image Storage –	1.2.840.10008.5.1.4.1.1.1.1.1	Note 4	Note 4	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
For Processing					
Digital Mammo X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.2	Note 4	Note 4	SCU	None
Digital Mammo X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.2.1	Note 4	Note 4	SCU	None
Digital Intra-oral X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.3	Note 4	Note 4	SCU	None
Digital Intra-oral X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.3.1	Note 4	Note 4	SCU	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Note 4	Note 4	SCU	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Note 4	Note 4	SCU	None
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Note 4	Note 4	SCU	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Note 4	Note 4	SCU	None
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29	Note 4	Note 4	SCU	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Note 4	Note 4	SCU	None
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Note 4	Note 4	SCU	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Note 4	Note 4	SCU	None
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Note 4	Note 4	SCU	None
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Note 4	Note 4	SCU	None
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Note 4	Note 4	SCU	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Note 4	Note 4	SCU	None

Note 4: The following transfer syntax options are supported in the order of preference shown.

Name	UID	Class
JPEG 2000 Lossless	1.2.840.10008.1.2.4.90	A
JPEG 2000 Lossy	1.2.840.10008.1.2.4.91	B
JPEG Lossless First Order Pred	1.2.840.10008.1.2.4.70	C
JPEG Lossless	1.2.840.10008.1.2.4.57	C
JPEG Baseline (8 bit)	1.2.840.10008.1.2.4.50	C
JPEG Extended (12 bit)	1.2.840.10008.1.2.4.51	C
Explicit VR Big Endian	1.2.840.10008.1.2.2	C
Explicit VR Little Endian	1.2.840.10008.1.2.1	D

Name	UID	Class
Implicit VR Little Endian	1.2.840.10008.1.2	D

Table 2.2.2.4.2-1 Transfer Syntax Priority

Class A: JPEG 2000 Lossless Transfer Syntax is proposed if the transfer request specifies a 3:1 compression should be used.

Class B: JPEG 2000 Lossy Transfer Syntax is proposed if the transfer request specifies greater than 3:1 compression should be used.

Class C: Various JPEG compression or Big Endian Transfer Syntax is proposed as defined by the transfer syntax the objects are currently stored.

Class D: Default Transfer Syntax.

2.2.2.4.3 Storage Conformance

MedVIEW is able to send any SOP instance it has received to another station. It also has the capability to create new object instances using a number of different processes. A new series is created as well. Both the new series and the new image instances receive new instance UIDs.

MedVIEW will automatically save presentation state information with the exam whenever the exam is saved with the *Save Layout* checkbox marked. Presentation states will be created based upon the current view settings of each image. Presentation state information can reference instances of any of the SOP classes in the table above, as long as those instances are grayscale images.

2.2.3 Association Acceptance Policy

MedVIEW will accept associations provided two (2) conditions are met:

- 1) The maximum number of associations as defined by the system is not exceeded.
- 2) The AE wishing to make the association has been defined in MedVIEW DICOM configuration or it has been configured to accept associations from any AE.

The default configuration is for MedVIEW to accept associations from any application entity. Consult the MedVIEW configuration documentation for detailed information on changing this behavior.

2.2.3.1 Request to Store Images or Other Objects

2.2.3.1.1 Associated Real-World Activity

A modality or other image creation / acquisition device sends images to the MedVIEW station for viewing. Alternatively, MedVIEW may request a DICOM archive to MOVE an exam and its images to MedVIEW.

2.2.3.1.2 Presentation Context Table

Presentation Context Table

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	Note 5	Note 5	SCP	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Note 5	Note 5	SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Note 5	Note 5	SCP	None
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Note 5	Note 5	SCP	None
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Note 5	Note 5	SCP	None
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6	Note 5	Note 5	SCP	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Note 5	Note 5	SCP	None
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3	Note 5	Note 5	SCP	None
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Note 5	Note 5	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Note 5	Note 5	SCP	None
Multi-Frame Single Bit Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.1	Note 5	Note 5	SCP	None
Multi-Frame Grayscale Byte Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.2	Note 5	Note 5	SCP	None
Multi-Frame Grayscale Word Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.3	Note 5	Note 5	SCP	None
Multi-Frame True Color Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.4	Note 5	Note 5	SCP	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Note 5	Note 5	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Note 5	Note 5	SCP	None
X-Ray Angio Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Note 5	Note 5	SCP	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Note 5	Note 5	SCP	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Note 5	Note 5	SCP	None
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Note 5	Note 5	SCP	None
Digital X-Ray Image Storage –	1.2.840.10008.5.1.4.1.1.1.1.1	Note 5	Note 5	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
For Processing					
Digital Mammo X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.2	Note 5	Note 5	SCP	None
Digital Mammo X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.2.1	Note 5	Note 5	SCP	None
Digital Intra-oral X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.3	Note 5	Note 5	SCP	None
Digital Intra-oral X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.3.1	Note 5	Note 5	SCP	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Note 5	Note 5	SCP	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Note 5	Note 5	SCP	None
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Note 5	Note 5	SCP	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Note 5	Note 5	SCP	None
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29	Note 5	Note 5	SCP	None
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Note 5	Note 5	SCP	None
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Note 5	Note 5	SCP	None
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Note 5	Note 5	SCP	None
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Note 5	Note 5	SCP	None
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Note 5	Note 5	SCP	None
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Note 5	Note 5	SCP	None
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Note 5	Note 5	SCP	None

Note 5: The following transfer syntax options are supported in the order of preference shown.

Name	UID
Explicit VR Little Endian	1.2.840.10008.1.2.1
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Big Endian	1.2.840.10008.1.2.2
JPEG Baseline (8 bit)	1.2.840.10008.1.2.4.50
JPEG Extended (12 bit)	1.2.840.10008.1.2.4.51
JPEG Lossless	1.2.840.10008.1.2.4.57
JPEG Lossless First Order Pred	1.2.840.10008.1.2.4.70
JPEG2000 Lossless	1.2.840.10008.1.2.4.90

Name	UID
JPEG2000 Lossy	1.2.840.10008.1.2.4.91

Table 2.2.3.1.2-1 Transfer Syntax Priority

2.2.3.1.3 Storage Conformance

MedVIEW always provides level 2 (full) conformance. That is, all type 1, type 2, and type 3 attributes are retained and stored with the image or other object. In addition, if the association utilizes explicit VR, MedVIEW will also retain and store private attributes. Private attributes with unknown VR are discarded prior to storage.

MedVIEW does not coerce any UIDs.

MedVIEW is able to render all attributes included in a Basic Text SR document. SR documents are treated as reports in MedVIEW. MedVIEW supports including references to images in the document as well as the ability to link image references to the displayed image itself.

Any grayscale softcopy presentation state series received is treated in the same manner as any other series. If the user selects to view images from the PR series, MedVIEW will locate the proper image instance and apply the proper presentation state information for display. Any grayscale image instances from any of the SOP classes listed above are supported.

If any error code is returned from the C-STORE command, then that object has NOT been stored on the MedVIEW station. It must be resent if it needs to be stored. If a warning code is returned, then the object has been stored and does not need to be resent.

In the event that the same object is sent multiple times to MedVIEW, only the first instance is actually stored. However, MedVIEW does return a successful status code to indicate to the sender that the store has succeeded.

MedVIEW may return the following error codes:

- A700** – Out of resources – DICOM interface could not connect to MedVIEW LocalSERVER.
- A701** – Out of resources – Failure storing object – hard disk likely full.
- A702** – Out of resources – Failure allocating memory.
- A705** – Out of resources – Maximum license count exceeded.
- A900** – SOP instance invalid – Required elements missing (normally UIDs).
- A901** – Image instance invalid – Required image parameters missing or invalid.

2.2.3.1.4 Presentation Context Acceptance Criterion

There are no rules for presentation context acceptance other than those described in section 2.1.3 regarding association acceptance.

2.2.3.1.5 Transfer Syntax Selection Policies

The selection of the transfer syntax will follow the order of the Transfer Syntaxes described in table 2.2.2.2-1.

2.2.3.2 Request for Verification

2.2.3.2.1 *Associated Real-World Activity*

An Application Entity is attempting to verify that it can make a DICOM connection to the AccessSERVER.

2.2.3.2.2 *Presentation Context Table*

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Note 3	Note 3	SCP	None

Note 3: See table 2.2.2.2.2-1 for the list of transfer syntax options supported.

2.2.3.2.3 *Presentation Context Acceptance Criterion*

There are no rules for presentation context acceptance other than those described in section 2.1.3 regarding association acceptance.

2.2.3.2.4 *Transfer Syntax Selection Policies*

The selection of the transfer syntax will follow the order of the Transfer Syntaxes described in table 2.2.3.1.2-1.

2.2.4 *Interchange Media Support*

MedVIEW is able to transfer images and associated information with other conforming AEs using the Interchange Option of the DICOM Media Storage Service Class. Information is typically transferred using data-bearing removable media, such as a CD, DVD, or USB Flash Drive. MedVIEW supports the roles of File-set Creator (FSC), File-set Reader (FSR), and File-set Updater (FSU) within the DICOM Media Storage Service Class.

2.2.4.1 File-set Creator (FSC) / File-set Updater (FSU)

2.2.4.1.1 *Associated Real-World Activity*

A user in MedVIEW copies an open exam to a 'DICOM Folder' or to a 'DICOM CD'. The user may optionally specify which components of the exam to copy. These options include which image series and/or series images to copy, whether to copy the current image presentations, and which, if any, of the structured reports to copy. The user may also specify whether the images should be copied with or without compression.

The user may copy the exam to a location that already contains a valid DICOMDIR to insert images and associated information into the existing File-set. The user may copy the exam to an "empty" location to create a new File-set.

2.2.4.1.2 *Media Storage Service Conformance*

MedVIEW supports the creation and update of the Media Storage Directory SOP Class within a DICOMDIR File for the purpose of data interchange. MedVIEW creates the DICOMDIR File containing a Directory Information Module that includes Record Types listed in Table 2.2.4.1.2-1. MedVIEW can update existing DICOMDIR Files that contain a Directory Information Module with Record Types listed in Table 2.2.4.1.2-1. Any Record Types in a DICOMDIR File not listed will be retained but ignored.

Directory Record Type		
PATIENT	STUDY	SERIES
IMAGE	PRESENTATION	SR DOCUMENT

Table 2.2.4.1.2-1 DICOMDIR Record Types

2.2.4.1.3 Media Storage SOP Classes

Abstract Syntax		Transfer Syntax	
Name	UID	Name List	UID List
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	Note 6	Note 6
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Note 6	Note 6
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Note 6	Note 6
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Note 6	Note 6
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Note 6	Note 6
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6	Note 6	Note 6
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Note 6	Note 6
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3	Note 6	Note 6
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Note 6	Note 6
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Note 6	Note 6
Multi-Frame Single Bit Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.1	Note 6	Note 6
Multi-Frame Grayscale Byte Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.2	Note 6	Note 6
Multi-Frame Grayscale Word Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.3	Note 6	Note 6
Multi-Frame True Color Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.4	Note 6	Note 6
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Note 6	Note 6
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Note 6	Note 6
X-Ray Angio Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Note 6	Note 6
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Note 6	Note 6
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Note 6	Note 6
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Note 6	Note 6
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Note 6	Note 6

Abstract Syntax		Transfer Syntax	
Name	UID	Name List	UID List
Digital Mammo X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.2	Note 6	Note 6
Digital Mammo X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.2.1	Note 6	Note 6
Digital Intra-oral X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.3	Note 6	Note 6
Digital Intra-oral X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.3.1	Note 6	Note 6
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Note 6	Note 6
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Note 6	Note 6
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Note 6	Note 6
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Note 6	Note 6
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29	Note 6	Note 6
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.1.1	Note 6	Note 6
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.2.2	Note 6	Note 6
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.3.3	Note 6	Note 6
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.5.0	Note 6	Note 6
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.5.9	Note 6	Note 6
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.6.5	Note 6	Note 6
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Note 6	Note 6

Note 6: The selection of the transfer syntax will follow the order of the Transfer Syntaxes described in table 2.2.4.1.3-1 when images are copied without compression and table 2.2.4.1.3-2 when copied with compression.

Name	UID
Explicit VR Little Endian	1.2.840.10008.1.2.1
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Big Endian	1.2.840.10008.1.2.2

Table 2.2.4.1.3-1 Transfer Syntax Priority

Name	UID
JPEG2000 Lossless	1.2.840.10008.1.2.4.90
JPEG Lossless	1.2.840.10008.1.2.4.57
JPEG Lossless First Order Pred	1.2.840.10008.1.2.4.70

Table 2.2.4.1.3-2 Transfer Syntax Priority

2.2.4.2 File-set Reader (FSR)

2.2.4.2.1 Associated Real-World Activity

Using the 'Explore Exams' feature in MedVIEW, a user can display a list of studies within an Interchange Directory containing a valid DICOMDIR File. Each study can be opened to reveal its content. From an open exam, the images and associated information can be displayed, printed, or imported into the AccessNET system.

2.2.4.2.2 Media Storage Service Conformance

MedVIEW supports the reading of the Media Storage Directory SOP Class within a DICOMDIR File for the purpose of data interchange. MedVIEW can read existing DICOMDIR Files containing a Directory Information Module that include Record Types listed in Table 2.2.4.2.2-1. Any Record Types found in a DICOMDIR File not listed will be ignored.

Directory Record Type		
PATIENT	STUDY	SERIES
IMAGE	PRESENTATION	SR DOCUMENT

Table 2.2.4.2.2-1 DICOMDIR Record Types

2.2.4.2.3 Media Storage SOP Classes

Name	Abstract Syntax	Transfer Syntax	
	UID	Name List	UID List
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	Note 7	Note 7
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Note 7	Note 7
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Note 7	Note 7
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Note 7	Note 7
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Note 7	Note 7
Ultrasound Image Storage (retired)	1.2.840.10008.5.1.4.1.1.6	Note 7	Note 7
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Note 7	Note 7
Ultrasound Multi-Frame Image Storage (retired)	1.2.840.10008.5.1.4.1.1.3	Note 7	Note 7
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Note 7	Note 7
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Note 7	Note 7
Multi-Frame Single Bit Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.1	Note 7	Note 7
Multi-Frame Grayscale Byte Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.2	Note 7	Note 7
Multi-Frame Grayscale Word Sec Capture Storage	1.2.840.10008.5.1.4.1.1.7.3	Note 7	Note 7
Multi-Frame True Color Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7.4	Note 7	Note 7
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Note 7	Note 7
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Note 7	Note 7
X-Ray Angio Bi-Plane Image	1.2.840.10008.5.1.4.1.1.12.3	Note 7	Note 7

Abstract Syntax		Transfer Syntax	
Name	UID	Name List	UID List
Storage			
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Note 7	Note 7
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Note 7	Note 7
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Note 7	Note 7
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Note 7	Note 7
Digital Mammo X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.2	Note 7	Note 7
Digital Mammo X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.2.1	Note 7	Note 7
Digital Intra-oral X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.3	Note 7	Note 7
Digital Intra-oral X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.3.1	Note 7	Note 7
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Note 7	Note 7
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Note 7	Note 7
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Note 7	Note 7
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Note 7	Note 7
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29	Note 7	Note 7
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Note 7	Note 7
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Note 7	Note 7
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Note 7	Note 7
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Note 7	Note 7
Key Object Selection Document	1.2.840.10008.5.1.4.1.1.88.59	Note 7	Note 7
Chest CAD SR	1.2.840.10008.5.1.4.1.1.88.65	Note 7	Note 7
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Note 7	Note 7

Note 7: The following transfer syntax options are supported.

Name	UID
Explicit VR Little Endian	1.2.840.10008.1.2.1
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Big Endian	1.2.840.10008.1.2.2
JPEG Baseline (8 bit)	1.2.840.10008.1.2.4.50
JPEG Extended (12 bit)	1.2.840.10008.1.2.4.51
JPEG Lossless	1.2.840.10008.1.2.4.57
JPEG Lossless First Order Pred	1.2.840.10008.1.2.4.70
JPEG2000 Lossless	1.2.840.10008.1.2.4.90
JPEG2000 Lossy	1.2.840.10008.1.2.4.91

Table 2.2.4.2.3-1 Transfer Syntax

2.3 MedCAP Specification

MedCAP provides standard conformance to the following DICOM V3.0 SOP Classes as an SCU:

SOP Class Name	SOP Class UID
CR Image Storage	1.2.840.10008.5.1.4.1.1.1
CT Image Storage	1.2.840.10008.5.1.4.1.1.2
MR Image Storage	1.2.840.10008.5.1.4.1.1.4
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2
X-Ray Angio Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
PET Image Storage	1.2.840.10008.5.1.4.1.1.128
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1
Digital Mammo X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.2
Digital Mammo X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.2.1
Digital Intra-oral X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.3
Digital Intra-oral X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.3.1
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29
Storage Commitment Push Model	1.2.840.10008.1.20.1
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31

2.3.1 Association Establishment Policies

2.3.1.1 General

The MedCAP station initiates only associations. It does not accept associations initiated from other stations. It initiates these associations for two purposes. The first is to provide a modality worklist to the MedCAP operator. The second is for the purpose of storing the images acquired by the MedCAP station to a viewing station or archive.

2.3.1.2 Number of Associations

The MedCAP station will establish only one association at a time. It does not accept associations.

2.3.1.3 Asynchronous Nature

No Asynchronous support is provided.

2.3.1.4 Implementation Identifying Information

Implementation Class UID	1.2.840.114164.4.3
Implementation Version Name	ACCESSNET43-45B

Table 2.3.1.4-1 Implementation Identifying Information

2.3.2 Association Initiation by Real-World Activity

2.3.2.1 Request for Worklist

2.3.2.1.1 Associated Real-World Activity

The MedCAP user will initiate a refresh of the worklist presented. The function will query the configured worklist provider for a new worklist. Information returned will be presented to the user on the exam list screen.

2.3.2.1.2 Presentation Context Table

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	Note 3	Note 3	SCU	None

Note 3: See table 2.2.2.2.2-1 for the list of transfer syntax options supported.

2.3.2.1.3 Worklist Conformance

The MedCAP station provides the user with two different types of queries. The user can query for specific patient information or worklist information.

MedCAP supports queries on the following optional matching keys.

Description	Tag
Requested Procedure Id	(0040,1001)
Accession Number	(0008,0050)

MedCAP supports the following optional return keys.

Description	Tag
Scheduled Station Name	(0040,0010)
Scheduled Procedure Step Location	(0040,0011)
Patient Sex	(0010,0040)
Patient Birth Date	(0010,0030)
Referring Physician Name	(0008,0090)
Code Meaning	(0008,0104)

2.3.2.2 User Requested Send

2.3.2.2.1 *Associated Real-World Activity*

The MedCAP station will acquire images through the configured acquisition device, e.g. film digitizer, frame grabber, etc. The user will provide quality control on the images and send them to either a viewing station or a DICOM archive.

Technically, the MedCAP station is compatible with numerous SOP classes and can forward entities it did not actually acquire. However, it will primarily acquire Secondary Capture IODs.

2.3.2.2.2 *Proposed Presentation Contexts*

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Note 3	Note 3	SCU	None
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	Note 3	Note 3	SCU	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Note 3	Note 3	SCU	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Note 3	Note 3	SCU	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Note 3	Note 3	SCU	None
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Note 3	Note 3	SCU	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Note 3	Note 3	SCU	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Note 3	Note 3	SCU	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Note 3	Note 3	SCU	None
X-Ray Angio Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Note 3	Note 3	SCU	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Note 3	Note 3	SCU	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Note 3	Note 3	SCU	None
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Note 3	Note 3	SCU	None
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Note 3	Note 3	SCU	None
Digital Mammo X-Ray Image Storage – For Pres	1.2.840.10008.5.1.4.1.1.1.2	Note 3	Note 3	SCU	None
Digital Mammo X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.2.1	Note 3	Note 3	SCU	None
Digital Intra-oral X-	1.2.840.10008.5.1.4.1.1.1.3	Note 3	Note 3	SCU	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Ray Image Storage – For Pres					
Digital Intra-oral X-Ray Image Storage – For Proc	1.2.840.10008.5.1.4.1.1.1.3.1	Note 3	Note 3	SCU	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Note 3	Note 3	SCU	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Note 3	Note 3	SCU	None
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Note 3	Note 3	SCU	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Note 3	Note 3	SCU	None
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29	Note 3	Note 3	SCU	None

Note 3: See table 2.2.2.2.2-1 for the list of transfer syntax options supported.

2.3.3 Association Acceptance Policy

This AE does not accept any associations.

3 COMMUNICATION PROFILES

The AccessSERVER provides DICOM TCP/IP network communications support as defined in PS 3.8 Network Communication Support for Message Exchange.

3.1 *OSI Stack*

OSI stack is not supported.

3.2 *TCP/IP Stack*

TCP/IP stack is inherited from the operating system. It will support any of the TCP/IP protocols that are supported by the Windows NT® operating system.

3.3 *Point-to-Point Stack*

Point-to-Point stack is not supported.

4 EXTENSIONS / SPECIALIZATION / PRIVATIZATIONS

This implementation does not use any Standard Extended SOP classes, Specialized SOP classes, or Private SOP Classes.

5 CONFIGURATION

The majority of the configuration parameters are stored within the Windows Workstation or Server registry. Details on configuring and maintaining the DICOM options are detailed in the Aspyra Installation manuals for each AE.

Parameters for defining query or send devices are specified by setting up query or send target devices within the appropriate application, Management Station, MedVIEW, or MedCAP. Set up of these devices requires the device's IP address, the port, and the application entity title of the AE to which the application is connecting.

6 SUPPORT FOR EXTENDED CHARACTER SETS

6.1 *Overview*

The AccessNET system supports the storage, query, and display of single-byte Character Sets beyond the Default Character Repertoire in Network and Media Services. The system does not support code extension techniques.

Supported storage SOP classes containing any of the Character Sets listed below are accepted and stored. Any study matching operations performed using data dependant upon the specified Character Set must also match Character Sets.

Supported query SOP classes containing any of the Character Sets listed below are accepted. Query results will be returned using the original Character Set of each resultant.

Characters from Character Sets besides the default character set cannot be properly displayed. These characters are shown using their octal representation (i.e. \###). The default character set is that Character Set compatible with the language the AccessNET system, the SQL database, and the supporting Operating Systems are installed.

No specific support for sorting of strings other than in the default character set is provided.

6.2 Character Sets

In addition to the default character repertoire, the character sets listed below are supported:

ISO_IR 100 (ISO 8859-1 Latin Alphabet No. 1 supplementary set)
ISO_IR 101 (ISO 8859-2 Latin Alphabet No. 2 supplementary set)
ISO_IR 109 (ISO 8859-3 Latin Alphabet No. 3 supplementary set)
ISO_IR 110 (ISO 8859-4 Latin Alphabet No. 4 supplementary set)
ISO_IR 144 (ISO 8859-5 Latin/Cyrillic Alphabet supplementary set)
ISO_IR 127 (ISO 8859-6 Latin/Arabic Alphabet supplementary set)
ISO_IR 126 (ISO 8859-7 Latin/Greek Alphabet supplementary set)
ISO_IR 138 (ISO 8859-8 Latin/Hebrew Alphabet supplementary set)
ISO_IR 148 (ISO 8859-9 Latin Alphabet No. 5 supplementary set)

6.3 Character Set Configuration

There is no specific Character Set Configuration within AccessNET. For proper display of characters, the SQL database used and the Operating Systems on which AccessNET components are installed must be set to the collation and language that properly matches the DICOM information received.