

OnePacs Diagnostic Workstation, version 8.0

Dicom Conformance Statement

1. CONFORMANCE STATEMENT OVERVIEW

The application 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.

All image storage SOP Classes defined as of DICOM 2002 can be received, stored and transmitted by the application. All single and multiframe images of any photometric interpretation may be displayed. Transfer Syntax support is limited to uncompressed transfer syntaxes, though RLE, JPEG, and JPEG2000 compressed images can be imported and viewed. (The OnePacs Study Retriever software will decompress compressed image formats prior to forwarding the studies to OnePacs Workstation.) Only hierarchical study root query and retrieval at the study level is supported.

Table 1-1
NETWORK SERVICES

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Transfer	-	-
Basic Text SR	Stored and Viewed	Yes
Basic Voice Audio Waveform Storage	Stored only	Yes
Color Softcopy Presentation State Storage SOP Class	Stored and Viewed	Yes
Comprehensive SR	Stored and Viewed (Text Only)	Yes
Computed Radiography Image Storage	Stored and Viewed	Yes
Chest CAD SR	Stored and Viewed (Text Only)	Yes
CT 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
Enhanced CT Image Storage	Stored and Limited Viewing	Yes
Enhanced MR Image Storage	Stored and Limited Viewing	Yes
Enhanced SR	Stored and Viewed (Text Only)	Yes
Enhanced XA Image Storage	Stored and Limited Viewing	Yes
Enhanced XRF Image Storage	Stored and Limited Viewing	Yes
Grayscale Softcopy Presentation	Stored and Viewed	Yes

State Storage SOP Class		
Key Object Selection Document Storage	Stored and Viewed (Image Only)	Yes
Mammography CAD SR	Stored and Viewed	Yes
MR Image Storage	Stored and Viewed	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	Stored only	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	Stored only	Yes
Multi-frame Single Bit Secondary Capture Image Storage	Stored only	Yes
Multi-frame True Color Secondary Capture Image Storage	Stored only	Yes
Nuclear Medicine Image Storage	Stored and Viewed	Yes
Nuclear Medicine Image Storage (Retired)	Stored and Viewed	Yes
Ophthalmic Photography 16 Bit Image Storage	Stored and Viewed	Yes
Ophthalmic Photography 8 Bit Image Storage	Stored and Viewed	Yes
Ophthalmic Tomography Image Storage	Stored only	Yes
Positron Emission Tomography Image Storage	Stored and Viewed	Yes
RT Image Storage	Stored and Viewed	Yes
Secondary Capture Image Storage	Stored and Viewed	Yes
Ultrasound Image Storage	Stored and Viewed	Yes
Ultrasound Image Storage (Retired)	Stored and Viewed	Yes
Ultrasound Multi-frame Image Storage	Stored and Viewed	Yes
Ultrasound Multi-frame Image Storage (Retired)	Stored and Viewed	Yes
Video Endoscopic Image Storage	Stored only	Yes
Video Microscopic Image Storage	Stored only	Yes
Video Photographic Image Storage	Stored only	Yes
VL Endoscopic Image Storage	Stored only	Yes
VL Microscopic Image Storage	Stored only	Yes
VL Photographic Image Storage	Stored only	Yes
VL Slide-Coordinates Microscopic Image Storage	Stored only	Yes
X-Ray 3D Angiographic Image Storage	Stored only	Yes
X-Ray 3D Craniofacial Image Storage	Stored only	Yes
X-Ray Angiographic Image	Stored and Viewed	Yes

Storage		
X-Ray Angiographic Bi-Plane Image Storage (Retired)	Stored and Viewed	Yes
X-Ray Radiofluoroscopic Image Storage	Stored and Viewed	Yes
XRay Radiation Dose SR	Stored and Viewed (Text Only)	Yes
Query/Retrieve	-	-
Study Root Information Model FIND	Yes – Hierarchical only at the study level	Yes
Study Root Information Model MOVE	Yes – Hierarchical only at the study level	Yes

Table 1-2
MEDIA SERVICES

Media Storage Application Profile	Write Files (FSC or FSU)	Read Files (FSR)
Compact Disk - Recordable	-	-
General Purpose CD-R	No	Yes – Not DICOMDIR
DVD	-	-
General Purpose DVD-RAM	No	Yes – Not DICOMDIR

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3. INTRODUCTION

3.1 REVISION HISTORY

Document Version	Date of Issue	Description
2.0	April 11, 2018	Update SOP Class UIDs and configuration parameters
1.0	December 21, 2008	Initial version of conformance statement

3.2 REMARKS

The reader is asked to kindly report any errors or omissions to info@onepacs.com

4. NETWORKING

4.1.1 Application Data Flow

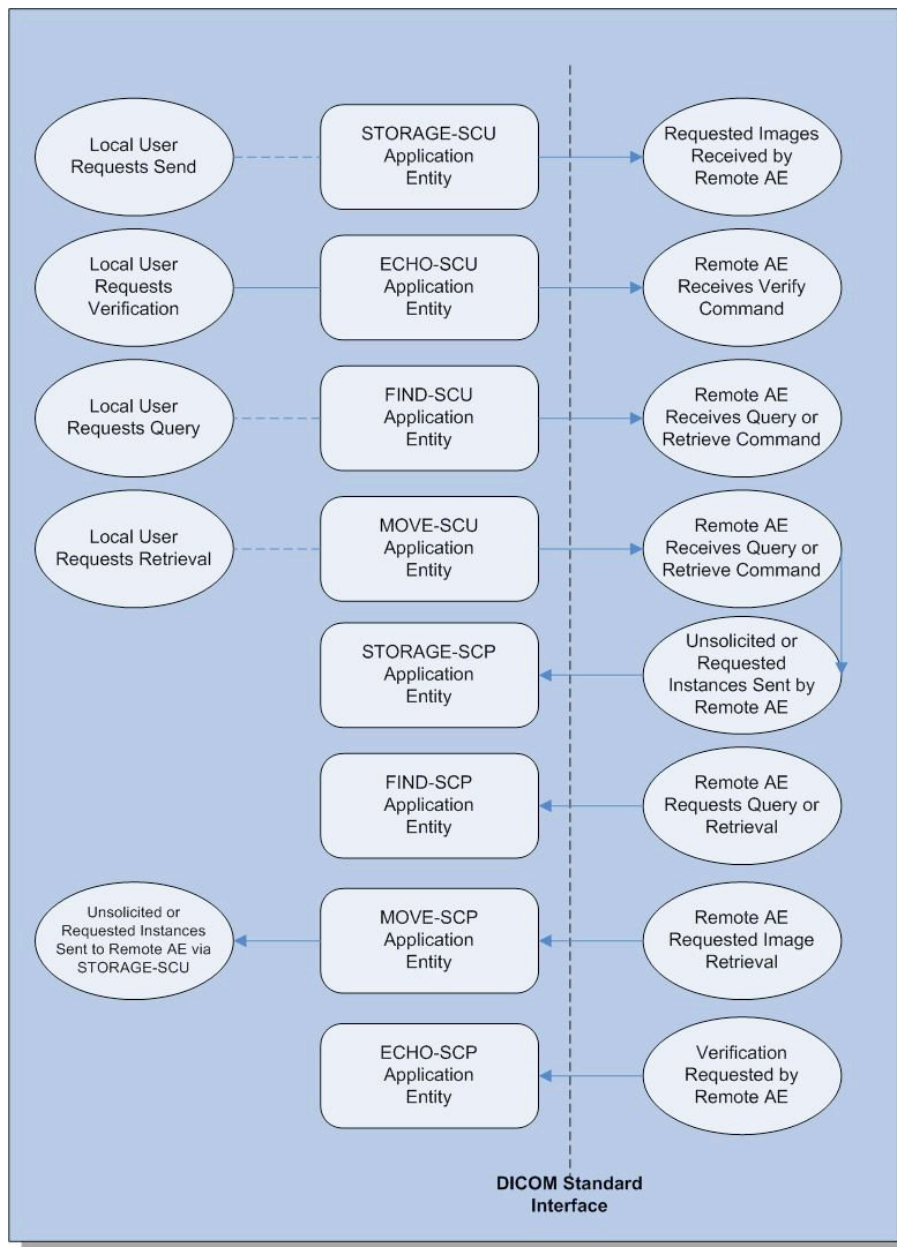


Figure 4.1-1
IMPLEMENTATION MODEL

4.1 IMPLEMENTATION MODEL

The application is a .NET 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
- ECHO-SCU, which sends a verification request
- STORAGE-SCP, which receives incoming images and other composite instances
- STORAGE-SCU, which sends outbound images and other composite instances
- FIND-SCP, which receives incoming queries for lists of studies
- FIND-SCU, which queries remote AEs for lists of studies
- MOVE-SCP, which responds to requests for studies
- MOVE-SCU, which retrieves selected studies.

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 ECHO-SCU

ECHO-SCU is activated through the user interface when a user selects a remote AE to verify (from a pre-configured list), then initiates a verification.

4.1.2.3 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.

4.1.2.4 STORAGE-SCU

STORAGE-SCU is activated through the user interface when a user selects studies from the local database and requests that they be sent to a remote AE (selected from a pre-configured list).

4.1.2.5 FIND-SCP

FIND-SCP waits in the background for connections, will accept associations with Presentation Contexts for SOP Class of the Study Root Query/Retrieve Information Model – FIND Service Class, and will respond successfully to query requests.

4.1.2.6 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.

4.1.2.7 MOVE-SCP

MOVE-SCP waits in the background for connections, will accept associations with Presentation Contexts for SOP Class of the Study Root Query/Retrieve Information Model – MOVE Service Class, and will respond successfully to retrieve requests by initiating storage of instances to the remote Application Entity.

4.1.2.8 MOVE-SCU

MOVE-SCU is activated through the user interface when a user selects a study 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.

4.1.3 Sequencing of Real-World Activities

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

All SCU activities are initiated through the user interface. ECHO-SCU and FIND-SCU activities are synchronous and blocking, whereas STORAGE-SCU and MOVE-SCU activities are asynchronous and non-blocking.

4.2 AE SPECIFICATIONS

4.2.1 ECHO-SCP

4.2.1.1 SOP Classes

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

Table 4.2-1
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 4.2-2
MAXIMUM PDU SIZE RECEIVED AS A SCP FOR ECHO-SCP

Maximum PDU size received	~114kB
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4.2.1.2.2 Number of Associations

Table 4.2-3
NUMBER OF ASSOCIATIONS AS A SCP FOR ECHO-SCP

Maximum number of simultaneous associations	Unlimited
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4.2.1.2.3 Asynchronous Nature

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

4.2.1.2.4 Implementation Identifying Information

Table 4.2-4
DICOM IMPLEMENTATION CLASS AND VERSION FOR ECHO-SCP

Implementation Class UID	1.2.276.0.7230010.3.0.3.5.4
Implementation Version Name	OFFIS_DCMTK_354

4.2.1.3 Association Initiation Policy ECHO-SCP does not initiate associations.

4.2.1.4 Association Acceptance Policy

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

4.2.1.4.1 Activity – Receive Echo Request

4.2.1.4.1.1 Description and Sequencing of Activities As requests are received they are responded to immediately.

4.2.1.4.1.2 Accepted Presentation Contexts

Table 4.2-5
ACCEPTABLE PRESENTATION CONTEXTS FOR ECHO-SCP AND RECEIVE ECHO REQUEST

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None

4.2.1.4.1.2.1 Extended Negotiation No extended negotiation is performed.

4.2.1.4.1.3 SOP Specific Conformance

4.2.1.4.1.3.1 SOP Specific Conformance to Verification SOP Class 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

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

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

ECHO-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 ECHO-SCU

4.2.2.1 SOP Classes

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

Table 4.2-6
SOP CLASSES SUPPORTED BY ECHO-SCU

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

4.2.2.2 Association Policies

4.2.2.2.1 General

ECHO-SCU initiates but never accepts associations.

Table 4.2-7
MAXIMUM PDU SIZE RECEIVED AS A SCP FOR ECHO-SCU

Maximum PDU size received	~114kB
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4.2.2.2.2 Number of Associations

Table 4.2-8
NUMBER OF ASSOCIATIONS AS A SCP FOR ECHO-SCU

Maximum number of simultaneous associations	1
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4.2.2.2.3 Asynchronous Nature

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

4.2.2.2.4 Implementation Identifying Information

Table 4.2-9
DICOM IMPLEMENTATION CLASS AND VERSION FOR ECHO-SCU

Implementation Class UID	1.2.276.0.7230010.3.0.3.5.4
Implementation Version Name	OFFIS_DCMTK_354

4.2.2.3 Association Initiation Policy

ECHO-SCU attempts to initiate a new association when the user performs the verify action from the user interface to either a single remote AE or a group of remote AE's.

4.2.2.3.1 Activity – Send Echo Request

4.2.2.3.1.1 Description and Sequencing of Activities

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

4.2.2.3.1.2 Proposed Presentation Contexts

Table 4.2-10
ACCEPTABLE PRESENTATION CONTEXTS FOR ECHO-SCU AND RECEIVE ECHO REQUEST

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

4.2.2.3.1.2.1 Extended Negotiation No extended negotiation is performed.

4.2.2.3.1.3 SOP Specific Conformance

4.2.2.3.1.3.1 SOP Specific Conformance to Verification SOP Class ECHO-SCU provides standard conformance to the Verification Service Class.

4.2.2.3.1.3.2 Presentation Context Acceptance Criterion ECHO-SCU does not accept associations.

4.2.2.3.1.3.3 Transfer Syntax Selection Policies

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

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

4.2.2.4 Association Acceptance Policy

ECHO-SCU does not accept associations.

4.2.3 STORAGE-SCP

4.2.3.1 SOP Classes

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

Table 4.2-11
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	1.2.840.10008.5.1.4.1.1.1.1.1	No	Yes

Processing			
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
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	No	Yes
Ultrasound Multi-frame Image 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
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	No	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	No	Yes
Ultrasound 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 Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	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
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 Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.1	No	Yes
VL Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.2	No	Yes
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	No	Yes
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	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
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

4.2.3.2 Association Policies

4.2.3.2.1 General

STORAGE-SCP accepts but never initiates associations.

Table 4.2-12
MAXIMUM PDU SIZE RECEIVED AS A SCP FOR STORAGE-SCP

Maximum PDU size received	~114kB
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4.2.3.2.2 Number of Associations

Table 4.2-13
NUMBER OF ASSOCIATIONS AS A SCP FOR STORAGE-SCP

Maximum number of simultaneous associations	Unlimited
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4.2.3.2.3 Asynchronous Nature

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

4.2.3.2.4 Implementation Identifying Information

Table 4.2-14
DICOM IMPLEMENTATION CLASS AND VERSION FOR STORAGE-SCP

Implementation Class UID	1.2.276.0.7230010.3.0.3.5.4
Implementation Version Name	OFFIS_DCMTK_354

4.2.3.3 Association Initiation Policy STORAGE-SCP does not initiate associations.

4.2.3.4 Association Acceptance Policy

When STORAGE-SCP accepts an association, it will respond to storage requests.

4.2.3.4.1 Activity – Receive Storage Request

4.2.3.4.2 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.

4.2.3.4.2.1 Accepted Presentation Contexts

Table 4.2-15
ACCEPTABLE PRESENTATION CONTEXTS FOR STORAGE-SCP AND RECEIVE STORAGE REQUEST

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See Table 4.2-11	See Table 4.2-11	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

-	-	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None

4.2.3.4.2.1.1 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

4.2.3.4.2.2 SOP Specific Conformance

4.2.3.4.2.2.1 SOP Specific Conformance to Storage SOP Classes STORAGE-SCP provides standard conformance to the Storage Service Class.

4.2.3.4.2.2.2 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.

4.2.3.4.2.2.3 Transfer Syntax Selection Policies

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

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

STORAGE-SCP 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.

4.2.3.4.2.2.4 Response Status

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

Table 4.2-16
RESPONSE STATUS FOR STORAGE-SCP AND RECEIVE STORAGE REQUEST

Service Status	Further Meaning	Status Codes	Reason
Refused	Out of Resources	A7xx	Never sent
Error	Data Set does not match SOP Class	A9xx	Never sent – data set is not checked prior to storage
	Cannot understand	Cxxx	Never sent

Warning	Coercion of Data Elements	B000	Never sent - no coercion is ever performed
	Data Set does not match SOP Class Elements	B007	Never sent - data set is not checked prior to storage
	Discarded	B006	Never sent – all elements are always stored
Success		0000	

4.2.4 STORAGE-SCU

4.2.4.1 SOP Classes

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

Table 4.2-17
SOP CLASSES SUPPORTED BY STORAGE-SCU

SOP Class Name	SOP Class UID	SCU	SCP
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	No
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	No
Digital 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
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	No
Ultrasound Multi-frame Image 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
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Yes	No
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	No
Ultrasound 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 Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	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
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 Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.1	Yes	No
VL Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.77.2	Yes	No
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	No
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	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
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	No

4.2.4.2 Association Policies

4.2.4.2.1 General

STORAGE-SCU initiates but never accepts associations.

Table 4.2-18
MAXIMUM PDU SIZE RECEIVED AS A SCP FOR STORAGE-SCU

Maximum PDU size received	~114kB
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4.2.4.2.2 Number of Associations

Table 4.2-19
NUMBER OF ASSOCIATIONS AS A SCP FOR STORAGE-SCU

Maximum number of simultaneous associations	Unlimited
---	-----------

4.2.4.2.3 Asynchronous Nature

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

4.2.4.2.4 Implementation Identifying Information

Table 4.2-20
DICOM IMPLEMENTATION CLASS AND VERSION FOR STORAGE-SCU

Implementation Class UID	1.2.276.0.7230010.3.0.3.5.4
Implementation Version Name	OFFIS_DCMTK_354

4.2.4.3 Association Initiation Policy

STORAGE-SCU attempts to initiate a new association for all study instances selected by the user..

4.2.4.3.1 Activity – Send Storage Request

4.2.4.3.1.1 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.

4.2.4.3.1.2 Proposed Presentation Contexts

Table 4.2-21
PROPOSED PRESENTATION CONTEXTS FOR STORAGE-SCU AND RECEIVE STORAGE
REQUEST

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See Table 4.2-17	See Table 4.2-17	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

STORAGE-SCU will propose Presentation Contexts only for the SOP Class(es) of the instances that are to be transferred.

For that SOP Class, STORAGE-SCU will propose multiple Presentation Contexts, one for each of the supported Transfer Syntaxes, and an additional Presentation Context with all of the supported Transfer Syntaxes, in order to determine which Transfer Syntaxes the remote SCP supports, and which it prefers.

4.2.4.3.1.2.1 Extended Negotiation No extended negotiation is performed.

4.2.4.3.1.3 SOP Specific Conformance

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

4.2.4.3.1.3.2 Presentation Context Acceptance Criterion
STORAGE-SCU does not accept associations.

4.2.4.3.1.3.3 Transfer Syntax Selection Policies

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

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

4.2.4.3.1.3.4 Response Status

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

Table 4.2-22
RESPONSE STATUS FOR STORAGE-SCU AND RECEIVE STORAGE REQUEST

Service Status	Further Meaning	Status Codes	Behavior
Refused	Out of Resources	A7xx	Ignored
Error	Data Set does not match SOP Class	A9xx	Ignored
	Cannot understand	Cxxx	Ignored
Warning	Coercion of Data Elements	B000	Ignored
	Data Set does not match SOP Class	B007	Ignored
	Elements Discarded	B006	Ignored
Success		0000	Ignored

4.2.4.4 Association Acceptance Policy

STORAGE-SCU does not accept associations.

4.2.5 FIND-SCP

4.2.5.1 SOP Classes

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

Table 4.2-23
SOP CLASSES SUPPORTED BY FIND-SCP

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	No	Yes

4.2.4.2 Association Policies

4.2.5.1.1 General

FIND-SCP accepts but never initiates associations.

Table 4.2-24
Maximum PDU size received as a SCP for FIND-SCP

Maximum PDU size received	~114kB
---------------------------	--------

4.2.5.1.2 Number of Associations

Table 4.2-25
Number of Associations as a SCP for FIND-SCP

Maximum number of simultaneous associations	Unlimited
---	-----------

4.2.5.1.3 Asynchronous Nature

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

4.2.5.1.4 Implementation Identifying Information

Table 4.2-26
DICOM Implementation Class and Version for FIND-SCP

Implementation Class UID	1.2.276.0.7230010.3.0.3.5.4
Implementation Version Name	OFFIS_DCMTK_354

4.2.5.2 Association Initiation Policy

FIND-SCP does not initiate associations.

4.2.5.3 Association Acceptance Policy

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

4.2.5.3.1 Activity – Receive Query Request

4.2.5.3.1.1 Description and Sequencing of Activities

When a query is received, the local database is queried for the result set. Any Series or Image level queries are ignored.

4.2.5.3.1.2 Accepted Presentation Contexts

Table 4.2-27
Acceptable Presentation Contexts for FIND-SCP and Incoming Query from Remote AE

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See Table 4.2-23	See Table 4.2-23	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None

4.2.5.3.1.2.1 Extended Negotiation No extended negotiation is performed. In particular, relational queries are not supported.

4.2.5.3.1.3 SOP Specific Conformance

4.2.5.3.1.3.1 SOP Specific Conformance to C-FIND SOP Classes FIND-SCP provides standard conformance to the supported C-FIND SOP Classes.

Only a single information model, Study Root, is supported. Only queries at the highest level of the information model, the STUDY level, are responded to.

Only those attributes that are requested are returned in a C-FIND response. Some optional requested attributes will be returned as per Table 4.2-28.

Table 4.2-28
STUDY ROOT RESPONSE IDENTIFIER FOR FIND-SCP

Name	Tag	Types of Matching
STUDY Level	-	-
Patient's ID	(0010,0020)	S,*,U
Patient's Name	(0010,0010)	S,*,U
Patient's Birth Date	(0010,0030)	U
Patient's Sex	(0010,0040)	S,*,U
Study ID	(0020,0010)	S,*,U
Study Description	(0008,1030)	S,*,U
Modalities In Study	(0008,0061)	S,*,U
Study Date	(0008,0020)	S,*,U,R
Study Time	(0008,0030)	U
Accession Number	(0008,0050)	S,*,U
Study Instance UID	(0020,000D)	UNIQUE
SERIES Level	-	-
N/A	-	-
IMAGE Level	-	-
N/A	-	-
Common to all query levels	-	-
Specific Character Set	(0008,0005)	U

Types of Matching:

An "S" indicates the identifier attribute uses Single Value Matching, an "R" indicates Range Matching, a "*" 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.

4.2.5.3.1.3.2 Presentation Context Acceptance Criterion

FIND-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.

4.2.5.3.1.3.3 Transfer Syntax Selection Policies

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

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

FIND -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.

4.2.5.3.1.3.4 Response Status

FIND-SCP will behave as described in Table 4.2-29 in response to the status returned in the C-FIND response command message(s).

Table 4.2-29
RESPONSE STATUS FOR FIND-SCP AND RECEIVE QUERY REQUEST

Service Status	Further Meaning	Status Codes	Behavior
Refused	Out of Resources	A700	Never sent
Error	Identifier does not match SOP Class	A900	Never sent
	Unable to process	Cxxx	Sent if internal database query is unsuccessful.
Cancel	Matching terminated due to Cancel request	FE00	Never sent
Success	Matching is complete	0000	
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys	FF00	Sent
Pending	Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or matching for this	FF01	Never sent

	Identifier		
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4.2.6 FIND-SCU

4.2.6.1 SOP Classes

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

Table 4.2-30
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

4.2.6.1.1 General

FIND-SCU initiates but never accepts associations.

Table 4.2-31
Maximum PDU size received as a SCP for FIND-SCU

Maximum PDU size received	~114kB
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4.2.6.1.2 Number of Associations

Table 4.2-32
Number of Associations as a SCP for FIND-SCU

Maximum number of simultaneous associations	1
---	---

4.2.6.1.3 Asynchronous Nature

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

4.2.6.1.4 Implementation Identifying Information

Table 4.2-33
DICOM Implementation Class and Version for FIND-SCU

Implementation Class UID	1.2.276.0.7230010.3.0.3.5.4
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4.2.6.2 Association Initiation Policy

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

4.2.6.2.1 Activity – Query Remote AE

4.2.6.2.1.1 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.

4.2.6.2.1.2 Proposed Presentation Contexts

Table 4.2-34
Proposed Presentation Contexts for FIND-SCU and Query Remote AE

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See Table 4.2-30	See Table 4.2-30	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

FIND-SCU will propose multiple Presentation Contexts, one for each of the supported Transfer Syntaxes, and an additional Presentation Context with all of the supported Transfer Syntaxes, in order to determine which Transfer Syntaxes the remote SCP supports, and which it prefers.

4.2.6.2.1.2.1 Extended Negotiation No extended negotiation is performed.

In particular, relational queries are not supported.

4.2.6.2.1.3 SOP Specific Conformance

4.2.6.2.1.3.1 SOP Specific Conformance to C-FIND SOP Classes FIND-SCU provides standard conformance to the supported C-FIND SOP Classes.

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

All queries are initiated at the highest level of the information model (the STUDY level).

No CANCEL requests are ever issued.

Unexpected attributes returned in a C-FIND response (those not requested) are listed in the browser at the appropriate level if present in the dictionary. Requested return attributes not returned by the SCP are ignored. In general 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, with the exception of Modalities in Study.

Specific Character Set will always be included at every query level. 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 4.2-35
STUDY ROOT REQUEST IDENTIFIER FOR FIND-SCU

Name	Tag	Types of Matching
STUDY Level	-	-
Patient's ID	(0010,0020)	S,*,U
Patient's Name	(0010,0010)	S,*,U
Patient's Birth Date	(0010,0030)	U
Study Description	(0008,1030)	S,*,U
Modalities In Study	(0008,0061)	S,*,U
Study Date	(0008,0020)	S,*,U,R
Accession Number	(0008,0050)	S,*,U
Study Instance UID	(0020,000D)	UNIQUE
SERIES Level	-	-
N/A	-	-
IMAGE Level	-	-
N/A	-	-
Common to all query levels	-	-
Specific Character Set	(0008,0005)	U

Types of Matching:

An "S" indicates the identifier attribute uses Single Value Matching, an "R" indicates Range Matching, a "*" 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.

4.2.6.2.1.3.2 Presentation Context Acceptance Criterion FIND-SCU does not accept associations.

4.2.6.2.1.3.3 Transfer Syntax Selection Policies

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

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

4.2.6.2.1.3.4 Response Status

FIND-SCU will behave as described in Table 4.2-29 in response to the status returned in the C-FIND response command message(s).

Table 4.2-36
 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, association is closed
Error	Identifier does not match SOP Class	A900	Current query is terminated, association is closed
	Unable to process	Cxxx	Current query is terminated, association is closed
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	association is closed
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys	FF00	Ignored (lower level queries are never performed)
	Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or matching for this Identifier	FF01	Ignored (lower level queries are never performed)

4.2.6.3 Association Acceptance Policy

FIND-SCU does not accept associations.

4.2.7 MOVE-SCP

4.2.7.1 SOP Classes

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

Table 4.2-37
 SOP CLASSES SUPPORTED BY MOVE-SCP

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	No	Yes

4.2.7.2 Association Policies

4.2.7.2.1 General

MOVE-SCP accepts but never initiates associations.

Table 4.2-38
MAXIMUM PDU SIZE RECEIVED AS A SCP FOR MOVE-SCP

Maximum PDU size received	~114kB
---------------------------	--------

4.2.7.2.2 Number of Associations

Table 4.2-39
NUMBER OF ASSOCIATIONS AS A SCP FOR MOVE-SCP

Maximum number of simultaneous associations	Unlimited
---	-----------

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

4.2.7.2.4 Implementation Identifying Information

Table 4.2-40
DICOM IMPLEMENTATION CLASS AND VERSION FOR MOVE-SCP

Implementation Class UID	1.2.276.0.7230010.3.0.3.5.4
Implementation Version Name	OFFIS_DCMTK_354

4.2.7.3 Association Initiation Policy

When MOVE-SCP accepts an association, it will respond to move requests.

4.2.7.3.1 Activity – Receive Move Request

4.2.7.3.1.1 Description and Sequencing of Activities

As requests are received a STORAGE-SCU operation is initiated to send the requested study to the specified remote AE. The remote AE details are stored in the local database. If the remote AE is unknown the STORAGE-SCU operation is not performed.

4.2.7.3.1.2 Proposed Presentation Contexts

Table 4.2-41
ACCEPTABLE PRESENTATION CONTEXTS FOR MOVE-SCP AND RECEIVE RETRIEVE REQUEST

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See Table 4.2-37	See Table 4.2-37	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None

4.2.7.3.1.2.1 Extended Negotiation

No extended negotiation is performed, through MOVE-SCP.

In particular, relational retrievals are not supported.

4.2.7.3.1.3 SOP Specific Conformance

4.2.7.3.1.3.1 SOP Specific Conformance to C-MOVE SOP Classes MOVE-SCP provides standard conformance to the supported C-MOVE SOP Classes.

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

Moves will be performed at the STUDY level.

The move is performed to the destination AE Title specified in the original request. The local application's database must be preconfigured so that the presentation address corresponding to the destination STORE-SCP AE can be determined.

Table 4.2-34
STUDY ROOT REQUEST IDENTIFIER FOR MOVE-SCP

Name	Tag	Unique, Matching or Return Key
STUDY level		
Study Instance UID	(0020,000D)	U

4.2.7.3.1.3.2 Presentation Context Acceptance Criterion

MOVE-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

4.2.7.3.1.3.3 Transfer Syntax Selection Policies

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

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

MOVE-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

4.2.7.3.1.3.4 Response Status

MOVE-SCP will behave as described in the Table below when generating the C-MOVE response command message.

Table 4.2-35
RESPONSE STATUS FOR MOVE-SCP AND SEND TO REMOTE AE REQUEST

Service Status	Further Meaning	Status Codes	Related Fields	Behavior
Refused	Out of Resources - Unable to calculate number of matches	A701	(0000,0902)	Never sent
	Out of Resources - Unable to perform sub-operations	A702	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	Never sent
	Move Destination unknown	A801	(0000,0902)	Sent if the destination AE title has not been preconfigured.
Failed	Identifier does not match SOP Class	A900	(0000,0901) (0000,0902)	Never sent
	Unable to process	Cxxx	(0000,0901) (0000,0902)	Sent if Study Instance Uid is not included in the move request, or if the local database query fails
Cancel	Sub-operations terminated due to Cancel Indication	FE00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	Sent if Move association is cancelled. However, sub-operations are not cancelled.
Warning	Sub-operations Complete - One or more Failures	B000	(0000,1020) (0000,1022) (0000,1023)	Never sent
Success	Sub-operations Complete - No Failures	0000	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	-
Pending	Sub-operations are continuing	FF00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	-

4.2.7.3.1.3.5 Sub-operation dependent behavior

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-SCP initiates a C-STORE sub-operation for each request. The responses from the MOVE-SCP are purely dependent on the success or failure of the C-STORE sub-operations, not on any explicit action by MOVE-SCP.

Whether or not the remote AE accepts the 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.

4.2.8 MOVE-SCU

4.2.8.1 SOP Classes

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

Table 4.2-30
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

4.2.8.2 Association Policies

4.2.8.2.1 General

MOVE-SCU initiates but never accepts associations.

Table 4.2-31
MAXIMUM PDU SIZE RECEIVED AS A SCP FOR MOVE-SCU

Maximum PDU size received	~114kB
---------------------------	--------

4.2.8.2.2 Number of Associations

Table 4.2-32
NUMBER OF ASSOCIATIONS AS A SCP FOR MOVE-SCU

Maximum number of simultaneous associations	Unlimited
---	-----------

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

4.2.8.2.4 Implementation Identifying Information

Table 4.2-33
DICOM IMPLEMENTATION CLASS AND VERSION FOR MOVE-SCU

Implementation Class UID	1.2.276.0.7230010.3.0.3.5.4
Implementation Version Name	OFFIS_DCMTK_354

4.2.8.3 Association Initiation Policy

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

4.2.8.3.1 Activity – Retrieve From Remote AE

4.2.8.3.1.1 Description and Sequencing of Activities

For the study 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.

4.2.8.3.1.2 Proposed Presentation Contexts

Table 4.2-34
PROPOSED PRESENTATION CONTEXTS FOR MOVE-SCU AND RETRIEVE FROM REMOTE AE

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See Table 4.2-30	See Table 4.2-30	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None

MOVE-SCU will propose multiple Presentation Contexts, one for each of the supported Transfer Syntaxes, and an additional Presentation Context with all of the supported Transfer Syntaxes, in order to determine which Transfer Syntaxes the remote SCP supports, and which it prefers.

4.2.8.3.1.2.1 Extended Negotiation No extended negotiation is performed.

In particular, relational retrievals are not supported.

4.2.8.3.1.3 SOP Specific Conformance

4.2.8.3.1.3.1 SOP Specific Conformance to C-MOVE SOP Classes MOVE-SCU provides standard conformance to the supported C-MOVE SOP Classes.

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

Retrievals will be performed at the STUDY level.

No CANCEL requests are ever issue

The retrieval is performed from the AE that was queried by FIND-SCU, rather than the AE specified in the Retrieve AE attribute of the C-FIND response. The instances are retrieved to the current application's local database by specifying the destination as the AE Title of the STORE-SCP AE of the local application. This implies that the remote C-MOVE SCP must be preconfigured to determine the presentation address corresponding to the STORE-SCP AE. The STORE-SCP AE will accept storage requests addressed to it from anywhere, 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 4.2-34
STUDY ROOT REQUEST IDENTIFIER FOR MOVE-SCU

Name	Tag	Unique, Matching or Return Key
STUDY level		
Study Instance UID	(0020,000D)	U

4.2.8.3.1.3.2 Presentation Context Acceptance Criterion MOVE-SCU does not accept associations.

4.2.8.3.1.3.3 Transfer Syntax Selection Policies

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

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

4.2.8.3.1.3.4 Response Status

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

Table 4.2-35
RESPONSE STATUS FOR MOVE-SCU AND SEND TO REMOTE AE REQUEST

Service Status	Further Meaning	Status Codes	Related Fields	Behavior
Refused	Out of Resources - Unable to calculate number of matches	A701	(0000,0902)	Ignored
	Out of Resources - Unable to perform sub-operations	A702	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	Ignored
	Move Destination unknown	A801	(0000,0902)	Ignored
Failed	Identifier does not match SOP Class	A900	(0000,0901) (0000,0902)	Ignored
	Unable to process	Cxxx	(0000,0901) (0000,0902)	Ignored
Cancel	Sub-operations terminated due to Cancel Indication	FE00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	N/A
Warning	Sub-operations Complete - One or more Failures	B000	(0000,1020) (0000,1022) (0000,1023)	N/A
Success	Sub-operations Complete - No Failures	0000	(0000,1020) (0000,1021) (0000,1022)	N/A

-	-	-	(0000,1023)	-
Pending	Sub-operations are continuing	FF00	(0000,1020) (0000,1021) (0000,1022) (0000,1023)	N/A

4.2.8.3.1.3.5 Sub-operation dependent behavior

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 successful 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.

4.2.8.4 Association Acceptance Policy

MOVE-SCU does not accept associations.

4.3 NETWORK INTERFACES

4.3.1 Physical Network Interface

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

4.3.2 Additional Protocols

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

4.3.3 IPv4 and IPv6 Support

This product supports both IPv4 and IPv6. It does not utilize any of the optional configuration identification or security features of IPv6.

4.4 CONFIGURATION

All configuration is performed through the use of configuration files stored in pre-defined locations that are specific to the underlying operating system.

4.4.1 AE Title/Presentation Address Mapping

The Calling AE Title of the local application is configurable in the configuration file. The mapping of the logical

name by which remote AEs are described in the user interface to Called AE Titles as well as presentation address (hostname or IP address and port number) is configurable in the configuration file.

4.4.2 Parameters

Table 4.4-1
CONFIGURATION PARAMETERS TABLE

Parameter	Configurable	Default Value
General Parameters		
PDU Size	No	-
Time-out waiting for acceptance or rejection Response to an Association Open Request. (Application Level timeout)	Yes	36,000,000 ms
General DIMSE level time-out values	No	None
Time-out waiting for response to TCP/IP connect() request. (Low-level timeout)	Yes	30,000 ms
Time-out waiting for acceptance of a TCP/IP message over the network. (Low-level timeout)	Yes	10,000 ms
Time-out for waiting for data between TCP/IP packets. (Low-level timeout)	No	None
Any changes to default TCP/IP settings, such as configurable stack parameters.	No	None
AE Specific Parameters (all AEs)		
Size constraint in maximum object size	No	None
Maximum PDU size the AE can receive	Yes	116,794 bytes
Maximum PDU size the AE can send	Yes	116,794 bytes
AE specific DIMSE level time-out values	No	None
Number of simultaneous Associations by Service and/or SOP Class	No	-
SOP Class support	Yes	All supported SOP Classes always proposed and accepted
Transfer Syntax support	Yes	All supported Transfer Syntaxes always proposed and accepted
Other parameters that are configurable	No	None

5. MEDIA INTERCHANGE

5.1 IMPLEMENTATION MODEL

5.1.1 Application Data Flow



Figure 5.1-1.
IMPLEMENTATION MODEL

The application is a .NET application that provides a user interface, network support and media support as a File Set Reader.

Conceptually it may be modeled as the following single AE:

- MEDIA-FSR, which loads a user-selected PS 3.10 compliant file, which may be an image only, 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).

Any DICOM image encoded in one of the standard uncompressed or RLE Transfer Syntaxes may be loaded. DICOMDIR is not supported at this time.

Only the RLE Compressed Transfer Syntax is supported, which limits the Media Application Profiles supported.

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 and images for display or import into the local database or to be opened for viewing.

5.1.3 Sequencing of Real-World Activities

All FSR 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 MEDIA-FSR

MEDIA-FSR provides standard conformance to the Media Storage Service Class.

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

Application Profiles Supported	Real World Activity	Role	
STD-GEN-CD	Load directory or file	FSR	
STD-GEN-DVD-RAM	Load directory or file	FSR	

Note: The application is media neutral and dependent on the underlying hardware. Any (non-secure) General Purpose Profile can be supported. DICOMDIR files are not supported.

5.2.1.1 File Meta Information for the Application Entity Not applicable, since MEDIA-FSR is not an FSC or FSU.

5.2.1.2 Real World Activities

5.2.1.2.1 Activity – Load Directory or File

MEDIA-FSR is activated through the user interface when a user selects the File import or open operation. Images will be imported into the database or loaded and displayed, respectively.

5.2.1.2.1.1 Application Profile Specific Conformance There are no extensions or specializations.

5.3 AUGMENTED AND PRIVATE PROFILES

5.3.1 Augmented Profiles

None.

5.3.2 Private Profiles

None.

5.4 MEDIA CONFIGURATION

None.

6. SUPPORT OF CHARACTER SETS

6.1 OVERVIEW

The application supports all extended character sets defined in the DICOM 2002 standard, including single-byte and multi-byte character sets as well as code extension techniques using ISO 2022 escapes.

Support extends to correctly decoding and displaying the correct symbol for all names and strings found in storage instances from media and received over the network, and in the local database.

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

6.2 CHARACTER SETS

In addition to the default character repertoire, the Defined Terms for Specific Character Set in Table 6.2-1 are supported:

Table 6.2-1
SUPPORTED SPECIFIC CHARACTER SET DEFINED TERMS

Character Set Description	Defined Term
Latin alphabet No. 1	ISO_IR 100
Latin alphabet No. 2	ISO_IR 101
Latin alphabet No. 3	ISO_IR 109
Latin alphabet No. 4	ISO_IR 110
Cyrillic	ISO_IR 144
Arabic	ISO_IR 127
Greek	ISO_IR 126
Hebrew	ISO_IR 138
Latin alphabet No. 5	ISO_IR 148
Japanese	ISO_IR 13
Thai	ISO_IR 166
Default repertoire	ISO 2022 IR 6
Latin alphabet No. 1	ISO 2022 IR 100
Latin alphabet No. 2	ISO 2022 IR 101
Latin alphabet No. 3	ISO 2022 IR 109
Latin alphabet No. 4	ISO 2022 IR 110
Cyrillic	ISO 2022 IR 144
Arabic	ISO 2022 IR 127
Greek	ISO 2022 IR 126
Hebrew	ISO 2022 IR 138
Latin alphabet No. 5	ISO 2022 IR 148
Japanese	ISO 2022 IR 13
Thai	ISO 2022 IR 166
Japanese	ISO 2022 IR 87

Japanese	ISO 2022 IR 159
Korean	ISO 2022 IR 149

6.3 CHARACTER SET CONFIGURATION

Whether or not characters are displayed correctly depends on the presence of font support in the underlying operating system. Typically it may be necessary for the user to add one of the “all Unicode” fonts to their system configuration in order to correctly display characters that would not typically be used in the default locale.

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

Username and password authentication against the OnePacs Web Servers is supported.

8. ANNEXES

8.1 IOD CONTENTS

8.1.1 Created SOP Instances

DICOM Grayscale and Color Presentation States are supported.

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 value for Patient ID, 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 to the product can be calibrated according to the Grayscale Standard Display Function (GSDF). The Service/Installation Tool is used together with a luminance meter to measure the Characteristic Curve of the display system and the current ambient light. See the product Service Manual for details on the calibration procedure and supported calibration hardware. The result of the calibration procedure is a Monitor Correction LUT that will be active within the display subsystem after a system reboot.

8.5 STANDARD EXTENDED/SPECIALIZED/PRIVATE SOP CLASSES

None

8.6 PRIVATE TRANSFER SYNTAXES

None.