



DICOM Conformance Statement
Nucleus Image Management System

Version 16.0 and Above

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2 Change Summary

- Updated Storage Application Entity (AE) Specification for Query/Retrieve to include Patient's Birth Date in the attributes included in the C-FIND SCU.

3 Conformance Statement Overview

This is DICOM conformance statement is for NucleusHealth, LLC's Nucleus Image Management System, which provides the ability to upload medical images and data from external media (e.g. CD's, DVD's, file system, etc.), receive images sent by C-STORE SCUs, view images, download images to client media, and send image to C-STORE SCPs. Table 1-1 below provides an overview of the DICOM objects that can be uploaded to, displayed by, and downloaded from the Nucleus Image Management System.

Table 1-1: DICOM objects that can be uploaded, displayed and downloaded from the Nucleus Image Management System

SOP Class Name	SOP Class UID	Upload	Download	Display
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	Yes	Yes
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Yes	Yes	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	Yes	Yes
Digital Intra Oral Image Storage -Presentation	1.2.840.10008.5.1.4.1.1.1.3	Yes	Yes	Yes
Digital Intra Oral Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	Yes	Yes
Digital Mammo Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes	Yes
Digital Mammo Image Storage -Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes	Yes
Digital X-Ray Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes	Yes
Digital X-Ray Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	Yes	Yes
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes	Yes
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes	Yes

NM Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	Yes	Yes
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	Yes	Yes
SC Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes	Yes
Multiframe Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes	Yes
Multiframe Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	Yes	Yes
Multiframe Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	Yes	Yes
Multiframe True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes	Yes
GraySoftCopyPresStateStorage	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes	No
UsImgRetStorage	1.2.840.10008.5.1.4.1.1.6	Yes	Yes	Yes
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes	Yes
UsMultImgRetStorage	1.2.840.10008.5.1.4.1.1.3	Yes	Yes	Yes
US Multi Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes	Yes
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	Yes	Yes
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	Yes	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	Yes	Yes
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Yes	Yes	Yes
SrBasicText	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes	No
SrEnhanced	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes	No
SrComprehensive	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes	No
SrMammoCad	1.2.840.10008.5.1.4.1.1.88.50	Yes	Yes	No
KeyObjSelDoc	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes	No
SrChestCad	1.2.840.10008.5.1.4.1.1.88.65	Yes	Yes	No
X-Ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Yes	Yes	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes	Yes
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes	Yes

4 Application Entity (AE) Specifications

4.1 Modality Worklist Application Entity (AE) Specification

4.1.1 SOP Classes

The Modality Worklist AE provides standard conformance to the DICOM SOP Classes in Table 5-1.

Table 5-1: SOP Classes for Modality Worklist AE

SOP Class Name	SOP Class UID	SCP	SCU
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	No	Yes

4.1.2 Association Policies

4.1.2.1 General

The DICOM standard application context name for DICOM 3.0 is always proposed: 1.2.840.10008.3.1.1.1

Table 5-2: Maximum PDU size received by the Modality Worklist AE

Maximum PDU size Received	128K (64K default)
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4.1.2.2 Number of Associations

The number of simultaneous associations that will be established by as a Modality Worklist SCU. The practical maximum number of supported associations is determined by the number of user requests and will only be limited by available resources (CPU, memory, hard disk size) available to the system running Modality Worklist SCU services.

4.1.2.3 Asynchronous Nature

The Modality Worklist AE does not support asynchronous communication (multiple outstanding transactions over a single association).

4.1.2.4 Implementation Identifying Information

The implementation information for the Modality Worklist AE is defined in Table 5-3 below:

Table 5-3: DICOM Implementation Class and Version for Nucleus Image Management System's Echo SCU

Implementation Class UID	1.3.6.1.4.1.28309.2.0.5585.16029
Implementation Version Name	NucleusHealth

4.1.2.5 Association Initiation Policy

The Modality Worklist AE initiates associations as a DICOM C-FIND SCU.

4.1.2.6 Proposed Presentation Contexts

The Modality Worklist AE will propose Presentation Contexts as shown in the following table:

Table 5-4: Proposed Presentation Contexts for C-FIND SCU

Presentation Context Table			
Abstract Syntax	Transfer Syntax		

Name	UID	Name List	UID List	Role	Ext. Neg.
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	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

DICOM C-FIND SCU Association and Proposed Presentation Context Notes:

- The Modality Worklist AE will initiate an association through which to send DICOM C-FIND request, and release the association once complete.
- If the DICOM C-FIND request times out, The association is released and the failure is logged and reported to the user.

The default attributes included in the C-FIND operation are presented in the table below:

Table 5-5: Attributes included in the C-FIND operation

Attribute Description	Tag
Accession Number	0008,0050
Patient's Name	0010,0010
Patient ID	0010,0020
Patient's Birth Date	0010,0030
Study Instance UID	0020,000D
Scheduled Procedure Step Sequence	0040,0100
> Scheduled Procedure Step Start Date	0040,0002
> Scheduled Procedure Step Start Time	0040,0003
> Scheduled Procedure Step Description	0040,0007
> Scheduled Procedure Step Status	0040,0020

4.2 Query/Retrieve Application Entity (AE) Specification

4.2.1 SOP Classes

The Query/Retrieve AE provides standard conformance to the DICOM SOP Classes in Table 4-1.

Table 4-1: SOP Classes for Query/Retrieve AE

SOP Class Name	SOP Class UID	SCP	SCU
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes
Study Root Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.2.3	Yes	No

4.2.2 Association Policies

4.2.2.1 General

The DICOM standard application context name for DICOM 3.0 is always proposed: 1.2.840.10008.3.1.1.1

Table 4-2: Maximum PDU size received by the Query/Retrieve AE

Maximum PDU size Received	128K (64K default)
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4.2.2.2 Number of Associations

The number of simultaneous associations that will be established by as a Query/Retrieve SCU. The practical maximum number of supported associations is determined by the number of user requests and will only be limited by available resources (CPU, memory, hard disk size) available to the system running Query/Retrieve SCU services.

4.2.2.3 Asynchronous Nature

The Query/Retrieve AE does not support asynchronous communication (multiple outstanding transactions over a single association).

4.2.2.4 Implementation Identifying Information

The implementation information for the Query/Retrieve AE is defined in Table 4-3 below:

Table 4-3: DICOM Implementation Class and Version for Nucleus Image Management System's Echo SCU

Implementation Class UID	1.3.6.1.4.1.28309.2.0.5585.16029
Implementation Version Name	NucleusHealth

4.2.2.5 Association Initiation Policy

The Query/Retrieve AE initiates associations as a DICOM C-FIND SCU or a DICOM C-MOVE SCU.

4.2.3 SOP Specific Conformance: Study Root Query/Retrieve Information Model - FIND SOP Class

4.2.3.1 Proposed Presentation Contexts

The C-FIND SCU will propose Presentation Contexts as shown in the following table:

Table 4-4: Proposed Presentation Contexts for C-FIND SCU

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Presentation Context Table					
Abstract Syntax		Transfer Syntax			
Name	UID	Name List	UID List	Role	Ext. Neg.
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None

DICOM C-FIND SCU Association and Proposed Presentation Context Notes:

- The Query/Retrieve AE will initiate an association through which to send DICOM C-FIND request, and release the association once complete.
- If the DICOM C-FIND request times out, The association is released and the failure is logged and reported to the user.
- Only Study Root/Study Level queries are generated. Hierarchical and Relational searches are not supported.

The attributes included in the C-FIND operation are presented in the table below:

Table 4-5: Attributes included in the C-FIND operation

Attribute Description	Tag
Study Date	0008,0020
Study Time	0008,0030
Accession Number	0008,0050
Query/Retrieve Level	0008,0052
Modalities in Study	0008,0061
Study Description	0008,1030
Number of Study Related Instances	0008,1208
Patient's Name	0010,0010
Patient ID	0010,0020
Patient's Birth Date	0010,0030
Study Instance UID	0020,000D

4.2.3.2 Accepted Presentation Contexts

The C-FIND SCP will accept Presentation Contexts as shown in the following table:

Table 4-5: Accepted Presentation Contexts for C-FIND SCP

Presentation Context Table					
Abstract Syntax		Transfer Syntax			
Name	UID	Name List	UID List	Role	Ext. Neg.
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None

DICOM C-FIND SCP Association and Accepted Presentation Context Notes:

- The Query/Retrieve AE supports queries for all unique and required patient, study, series and instance level keys/attributes.

The attributes supported in the C-FIND operation are presented in the table below:

Table 4-6: Attributes included in the C-FIND operation

Attribute Description	Tag
Study Date	0008,0020
Study Time	0008,0030
Accession Number	0008,0050
Query/Retrieve Level	0008,0052
Modalities in Study	0008,0061
Study Description	0008,1030
Patient's Name	0010,0010
Patient ID	0010,0020
Study Instance UID	0020,000D
Study ID	0020,0010
Series Instance UID	0020,000E

The C-FIND SCP when generating the response command message, will provide the information in the table below:

Table 4-7: Response status for C-FIND-SCP requests

Service Status	Further Meaning	Status Codes
Refused	Out of Resources	A700
Failed	Identifier does not match SOP Class	A900
Failed	Unable to process	Cxxx
Cancel	Matching terminated due to Cancel request	FE00
Success	Matching is complete	0000
Pending	Matches are continuing	FF00

4.2.4 SOP Specific Conformance: Study Root Query/Retrieve Information Model - MOVE SOP Class

4.2.4.1 Proposed Presentation Contexts

The C-MOVE SCU will propose Presentation Contexts as shown in the following table:

Table 4-8: Proposed Presentation Contexts for C-MOVE SCU

Presentation Context Table			
Abstract Syntax	Transfer Syntax		

Name	UID	Name List	UID List	Role	Ext. Neg.
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None

DICOM C-MOVE SCU Association and Proposed Presentation Context Notes:

- The Query/Retrieve AE will initiate an association through which to send DICOM C-MOVE request, and release the association once complete.
- If the DICOM C-MOVE request times out, The association is released and the failure is logged and reported to the user.
- The DICOM C-MOVE provides Destination AE title from the Dicom Move Service configuration as the move destination for the request.
- The Query/Retrieve AE only supports Study and Series Level Moves
 - For Study Level Move, the Study Instance UID is provided
 - For Series Level Move, the Study Instance UID and Series Instance UID are provided

4.2.4.2 Accepted Presentation Contexts

The C-MOVE SCP will accept Presentation Contexts as shown in the following table:

Table 4-9: Accepted Presentation Contexts for C-MOVE SCP

Presentation Context Table					
Abstract Syntax		Transfer Syntax			
Name	UID	Name List	UID List	Role	Ext. Neg.
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None

DICOM C-MOVE SCP Association and Accepted Presentation Context Notes:

- The Query/Retrieve AE supports all SOP classes listed in Table 3-5.
- A C-STORE SCU connection is built after the C-MOVE request. For C-STORE conformance, see the Storage Application Entity (AE) Specification section.
- The Query/Retrieve AE sends intermediate C-MOVE responses with status pending.

The C-MOVE SCP when generating the response command message, will provide the information in the table below:

Table 4-10: Response status for C-MOVE-SCP requests

Service Status	Further Meaning	Status Codes
Refused	Out of Resources	A700
Failed	Identifier does not match SOP Class	A900

Failed	Unable to process	Cxxx
Cancel	Matching terminated due to Cancel request	FE00
Success	Matching is complete	0000
Pending	Matches are continuing	FF00

The C-GET SCP will accept Presentation Contexts as shown in the following table:

Table 4-11: Accepted Presentation Contexts for C-GET SCP

Presentation Context Table					
Abstract Syntax		Transfer Syntax			
Name	UID	Name List	UID List	Role	Ext. Neg.
Study Root Query/Retrieve Information Model – GET	1.2.840.10008.5.1.4.1.2.2.3	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

DICOM C-GET SCP Association and Accepted Presentation Context Notes:

- The Query/Retrieve AE supports all SOP classes listed in Table 3-5.
- The Query/Retrieve AE sends intermediate C-GET responses with status pending.

The C-GET SCP when generating the response command message, will provide the information in the table below:

Table 4-12: Response status for C-GET-SCP requests

Service Status	Further Meaning	Status Codes
Refused	Out of Resources	A700
Failed	Identifier does not match SOP Class	A900
Failed	Unable to process	Cxxx
Cancel	Matching terminated due to Cancel request	FE00
Success	Matching is complete	0000
Pending	Matches are continuing	FF00

4.3 Storage Application Entity (AE) Specification

4.3.1 SOP Classes

The Nucleus Image Management System's Storage AE provides Standard Conformance to the SOP Classes in Table 3-1.

Table 3-1: SOP Classes for Storage AE

SOP Class Name	SOP Class UID	SCP	SCU
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	Yes
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Yes	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	Yes
Digital Intra Oral Image Storage -Presentation	1.2.840.10008.5.1.4.1.1.1.3	Yes	Yes
Digital Intra Oral Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	Yes
Digital Mammo Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes
Digital Mammo Image Storage -Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes
Digital X-Ray Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes
Digital X-Ray Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	Yes
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes
NM Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	Yes
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	Yes
SC Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
Multiframe Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes
Multiframe Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	Yes
Multiframe Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	Yes
Multiframe True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes
GraySoftCopyPresStateStorage	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes
UsImgRetStorage	1.2.840.10008.5.1.4.1.1.6	Yes	Yes
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes
UsMultiImgRetStorage	1.2.840.10008.5.1.4.1.1.3	Yes	Yes
US Multi Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	Yes
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	Yes
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Yes	Yes

SrBasicText	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes
SrEnhanced	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes
SrComprehensive	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes
SrMammoCad	1.2.840.10008.5.1.4.1.1.88.50	Yes	Yes
KeyObjSelDoc	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes
SrChestCad	1.2.840.10008.5.1.4.1.1.88.65	Yes	Yes
X-Ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Yes	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes

4.3.2 SOP Specific Conformance for Storage SOP Class

In case the Storage AE receives a Key Object Selection (KOS) Document (SOP Class UID: 1.2.840.10008.5.1.4.1.1.88.59) with a Code Value tag in the root level of Concept Name Code Sequence which matches one of the supported Rejection Note Code Values, the object will be treated as Rejection Note and the instances referenced by the object will be marked as rejected. The Key Selection Object Document itself is stored on the storage backend as other objects received from the Storage AE.

The supported KOS Rejection Note Code Values specified by Imaging Object Change Management (IOCM) are defined in Table 3-2 below:

Table 3-2: Supported KOS Rejection Note Code Values

Code Value	Coding Scheme Designator	Code Meaning
110514	DCM	Incorrect Worklist Entry Selected
113001	DCM	Rejected for Quality Reasons
113037	DCM	Rejected for Patient Safety Reasons
113038	DCM	Incorrect Modality Worklist Entry
113039	DCM	Data Retention Rejected for Quality Reasons

4.3.3 Association Policies

4.3.3.1 General

The DICOM standard application context name for DICOM 3.0 is always proposed: 1.2.840.10008.3.1.1.1

Table 3-3: Maximum PDU size received by the Storage AE

Maximum PDU size Received	128K (64K default)
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4.3.3.2 Number of Associations

The number of simultaneous associations supported by the Storage AE is not limited. The practical maximum number of supported associations is determined by the amount of resources (CPU, memory, hard disk size) available to the running Storage AE instance.

4.3.3.3 Asynchronous Nature

The Storage AE does not support asynchronous communication (multiple outstanding transactions over a single association).

4.3.3.4 Implementation Identifying Information

The implementation information for the Storage AE is defined in Table 3-4 below:

Table 3-4: DICOM Implementation Class and Version for Nucleus Image Management System's Storage AE

Implementation Class UID	1.3.6.1.4.1.28309.2.0.5585.16029
Implementation Version Name	NucleusHealth

4.3.4 Association Initiation Policy

The Storage AE initiates associations as a DICOM C-STORE SCU.

4.3.4.1 Proposed Presentation Contexts

The Storage AE will propose Presentation Contexts as shown in the following table:

Table 3-5: Proposed Presentation Contexts for Storage AE

Presentation Context Table					
Abstract Syntax		Transfer Syntax			
Name	UID	Name List	UID List	Role	Ext. Neg.
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	See Table 3-7		SCU	None
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	See Table 3-7		SCU	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	See Table 3-7		SCU	None
Digital Intra Oral Image Storage -Presentation	1.2.840.10008.5.1.4.1.1.1.3	See Table 3-7		SCU	None
Digital Intra Oral Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.3.1	See Table 3-7		SCU	None
Digital Mammo Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.2	See Table 3-7		SCU	None
Digital Mammo Image Storage -Processing	1.2.840.10008.5.1.4.1.1.1.2.1	See Table 3-7		SCU	None
Digital X-Ray Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.1	See Table 3-7		SCU	None
Digital X-Ray Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.1.1	See Table 3-7		SCU	None
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	See Table 3-7		SCU	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	See Table 3-7		SCU	None
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1	See Table 3-7		SCU	None
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	See Table 3-7		SCU	None
NM Image Storage	1.2.840.10008.5.1.4.1.1.20	See Table 3-7		SCU	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	See Table 3-7		SCU	None
SC Image Storage	1.2.840.10008.5.1.4.1.1.7	See Table 3-7		SCU	None
MultiSingleBitSclmgStorage	1.2.840.10008.5.1.4.1.1.7.1	See Table 3-7		SCU	None
MultiGrayByteSclmgStorage	1.2.840.10008.5.1.4.1.1.7.2	See Table 3-7		SCU	None
MultiGrayWordSclmgStorage	1.2.840.10008.5.1.4.1.1.7.3	See Table 3-7		SCU	None
MultiTrueColorSclmgStorage	1.2.840.10008.5.1.4.1.1.7.4	See Table 3-7		SCU	None
GraySoftCopyPresStateStorage	1.2.840.10008.5.1.4.1.1.11.1	See Table 3-7		SCU	None
UsImgRetStorage	1.2.840.10008.5.1.4.1.1.6	See Table 3-7		SCU	None

US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	See Table 3-7	SCU	None
UsMultiImgRetStorage	1.2.840.10008.5.1.4.1.1.3	See Table 3-7	SCU	None
US Multi Image Storage	1.2.840.10008.5.1.4.1.1.3.1	See Table 3-7	SCU	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	See Table 3-7	SCU	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	See Table 3-7	SCU	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	See Table 3-7	SCU	None
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	See Table 3-7	SCU	None
SrBasicText	1.2.840.10008.5.1.4.1.1.88.11	See Table 3-7	SCU	None
SrEnhanced	1.2.840.10008.5.1.4.1.1.88.22	See Table 3-7	SCU	None
SrComprehensive	1.2.840.10008.5.1.4.1.1.88.33	See Table 3-7	SCU	None
SrMammoCad	1.2.840.10008.5.1.4.1.1.88.50	See Table 3-7	SCU	None
KeyObjSelDoc	1.2.840.10008.5.1.4.1.1.88.59	See Table 3-7	SCU	None
SrChestCad	1.2.840.10008.5.1.4.1.1.88.65	See Table 3-7	SCU	None
X-Ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	See Table 3-7	SCU	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	See Table 3-7	SCU	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	See Table 3-7	SCU	None

DICOM C-STORE SCU Association and Proposed Presentation Context Notes:

- The Storage AE will initiate an association through which to send DICOM C-STORE requests, and release the association once complete. The Storage AE will try to resend failed instances up to 5 times, waiting 15 minutes between attempts. Failure status is reported to the requester through the Nucleus study list UI.
- The Storage AE as a DICOM C-STORE SCU will only propose transfer syntaxes of the instances stored in the Nucleus system along with Implicit VR Little Endian and Explicit VR Little Endian. Only the transfer syntax combinations need for IOD transfer will be utilized. Not all combinations will be used or supported.
- Instances that receive a warning response are considered accepted. Only actual rejections, unknowns, or errors are considered failures.

4.3.5 Association Acceptance Policy

When the Storage AE accepts an association as a DICOM C-STORE SCP, it will respond to storage or verification requests.

4.3.5.1 Accepted Presentation Contexts

The Storage AE will accept Presentation Contexts as shown in the following table:

Table 3-6: Accepted Presentation Contexts for Storage AE

Presentation Context Table					
Abstract Syntax		Transfer Syntax			
Name	UID	Name List	UID List	Role	Ext. Neg.
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	See Table 3-7		SCP	None
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	See Table 3-7		SCP	None
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	See Table 3-7		SCP	None

Digital Intra Oral Image Storage -Presentation	1.2.840.10008.5.1.4.1.1.1.3	See Table 3-7	SCP	None
Digital Intra Oral Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.3.1	See Table 3-7	SCP	None
Digital Mammo Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.2	See Table 3-7	SCP	None
Digital Mammo Image Storage -Processing	1.2.840.10008.5.1.4.1.1.1.2.1	See Table 3-7	SCP	None
Digital X-Ray Image Storage - Presentation	1.2.840.10008.5.1.4.1.1.1.1	See Table 3-7	SCP	None
Digital X-Ray Image Storage - Processing	1.2.840.10008.5.1.4.1.1.1.1.1	See Table 3-7	SCP	None
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	See Table 3-7	SCP	None
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	See Table 3-7	SCP	None
MR Enhanced Image Storage	1.2.840.10008.5.1.4.1.1.4.1	See Table 3-7	SCP	None
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	See Table 3-7	SCP	None
NM Image Storage	1.2.840.10008.5.1.4.1.1.20	See Table 3-7	SCP	None
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	See Table 3-7	SCP	None
SC Image Storage	1.2.840.10008.5.1.4.1.1.7	See Table 3-7	SCP	None
MultiSingleBitScImgStorage	1.2.840.10008.5.1.4.1.1.7.1	See Table 3-7	SCP	None
MultiGrayByteScImgStorage	1.2.840.10008.5.1.4.1.1.7.2	See Table 3-7	SCP	None
MultiGrayWordScImgStorage	1.2.840.10008.5.1.4.1.1.7.3	See Table 3-7	SCP	None
MultiTrueColorScImgStorage	1.2.840.10008.5.1.4.1.1.7.4	See Table 3-7	SCP	None
GraySoftCopyPresStateStorage	1.2.840.10008.5.1.4.1.1.11.1	See Table 3-7	SCP	None
UsImgRetStorage	1.2.840.10008.5.1.4.1.1.6	See Table 3-7	SCP	None
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	See Table 3-7	SCP	None
UsMultiImgRetStorage	1.2.840.10008.5.1.4.1.1.3	See Table 3-7	SCP	None
US Multi Image Storage	1.2.840.10008.5.1.4.1.1.3.1	See Table 3-7	SCP	None
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	See Table 3-7	SCP	None
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	See Table 3-7	SCP	None
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	See Table 3-7	SCP	None
VL Slide-Coord Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	See Table 3-7	SCP	None
SrBasicText	1.2.840.10008.5.1.4.1.1.88.11	See Table 3-7	SCP	None
SrEnhanced	1.2.840.10008.5.1.4.1.1.88.22	See Table 3-7	SCP	None
SrComprehensive	1.2.840.10008.5.1.4.1.1.88.33	See Table 3-7	SCP	None
SrMammoCad	1.2.840.10008.5.1.4.1.1.88.50	See Table 3-7	SCP	None
KeyObjSelDoc	1.2.840.10008.5.1.4.1.1.88.59	See Table 3-7	SCP	None
SrChestCad	1.2.840.10008.5.1.4.1.1.88.65	See Table 3-7	SCP	None
X-Ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	See Table 3-7	SCP	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	See Table 3-7	SCP	None
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	See Table 3-7	SCP	None

Table 3-7: Supported Transfer Syntaxes for Storage AE

Name	UID
Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2
RLE Lossless	1.2.840.10008.1.2.4.5
Deflated Explicit VR Big Endian	1.2.840.10008.1.2.1.99
JPEG 8-Bit Lossy, Baseline (Process 1)	1.2.840.10008.1.2.4.50
JPEG 12-Bit Lossy, Extended (Processes 2 & 4)	1.2.840.10008.1.2.4.51
JPEG Lossless, Non Hierarchical (Process 14)	1.2.840.10008.1.2.4.57
JPEG Lossless, First Order Prediction	1.2.840.10008.1.2.4.70
JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80
JPEG-LS Lossy (Near- Lossless) Image Compression	1.2.840.10008.1.2.4.81
JPEG 2000, Lossless	1.2.840.10008.1.2.4.90
JPEG 2000 Lossy	1.2.840.10008.1.2.4.91
JPEG 2000 Part 2 Multicomponent Image Compression (Lossless Only)	1.2.840.10008.1.2.4.92
JPEG 2000 Part 2 Multicomponent Image Compression	1.2.840.10008.1.2.4.93

4.3.6 Response Status

The Storage AE will provide the information in Table 3-8 when generating the C-STORE response command message.

Table 3-8: Response status for C-STORE-SCP requests to the Storage AE

Service Status	Further Meaning	Status Codes	Reason
Failure	Refused: Out of Resources	A700	Storage AE does not have enough filesystem space to store the incoming instance or Study being processed.
Success	Success	0000	Success

4.4 Verification Application Entity (AE) Specification

4.4.1 SOP Classes

The Verification AE provides standard conformance to the DICOM SOP Classes in Table 2-1.

Table 2-1: SOP Classes for Verification AE

SOP Class Name	SOP Class UID	SCP	SCU
Verification	1.2.840.10008.1.1	Yes	Yes

4.4.2 Association Policies

General

The DICOM standard application context name for DICOM 3.0 is always proposed: 1.2.840.10008.3.1.1.1

Table 2-2: Maximum PDU size received by the Verification AE

Maximum PDU size Received	128K (64K default)
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4.4.2.1 Number of Associations

The number of simultaneous associations supported by the Verification AE is not limited. The practical maximum number of supported associations is determined by the amount of resources (CPU, memory, hard disk size) available to the system running an Echo SCU instance.

4.4.2.2 Asynchronous Nature

The Verification AE does not support asynchronous communication (multiple outstanding transactions over a single association).

4.4.2.3 Implementation Identifying Information

The implementation information for the Verification AE is defined in Table 2-3 below:

Table 2-3: DICOM Implementation Class and Version for Nucleus Image Management System's Echo SCU

Implementation Class UID	1.3.6.1.4.1.28309.2.0.5585.16029
Implementation Version Name	NucleusHealth

4.4.3 Association Initiation Policy

The Verification AE initiates associations as a DICOM C-ECHO SCU.

4.4.3.1 Proposed Presentation Contexts

The Verification AE will propose Presentation Contexts as shown in the following table:

Table 2-4: Proposed Presentation Contexts for Verification AE

Presentation Context Table					
Abstract Syntax		Transfer Syntax			
Name	UID	Name List	UID List	Role	Ext. Neg.
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

Verification	1.2.840.10008.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
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DICOM C-ECHO SCU Association and Proposed Presentation Context Notes:

- The Verification AE will initiate an association through which to send DICOM C-ECHO request, and release the association once complete.
- If the DICOM C-ECHO request times out, The association is released and the failure is logged and reported to the user.

4.4.4 Association Acceptance Policy

The Verification AE will accept the Presentation Contexts in Table 2-4 above, and return a succes code.