GE Medical Systems

Technical Publications

Direction 009870
Revision 2

Image Vault 4.0
DICOM CONFORMANCE STATEMENT

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1. INTRODUCTION

1.1 OVERVIEW

This DICOM Conformance Statement is divided into Sections as described below:

Section 1 (Introduction), which describes the overall structure, intent, and references for this Conformance Statement

Section 2 (Network Conformance Statement), which specifies the GEMS equipment compliance to the DICOM requirements for the implementation of Networking features.

Section 3 (Query/Retrieve Information Model), which specifies the GEMS equipment compliance to DICOM requirements for the implementation of the Query/Retrieve services.

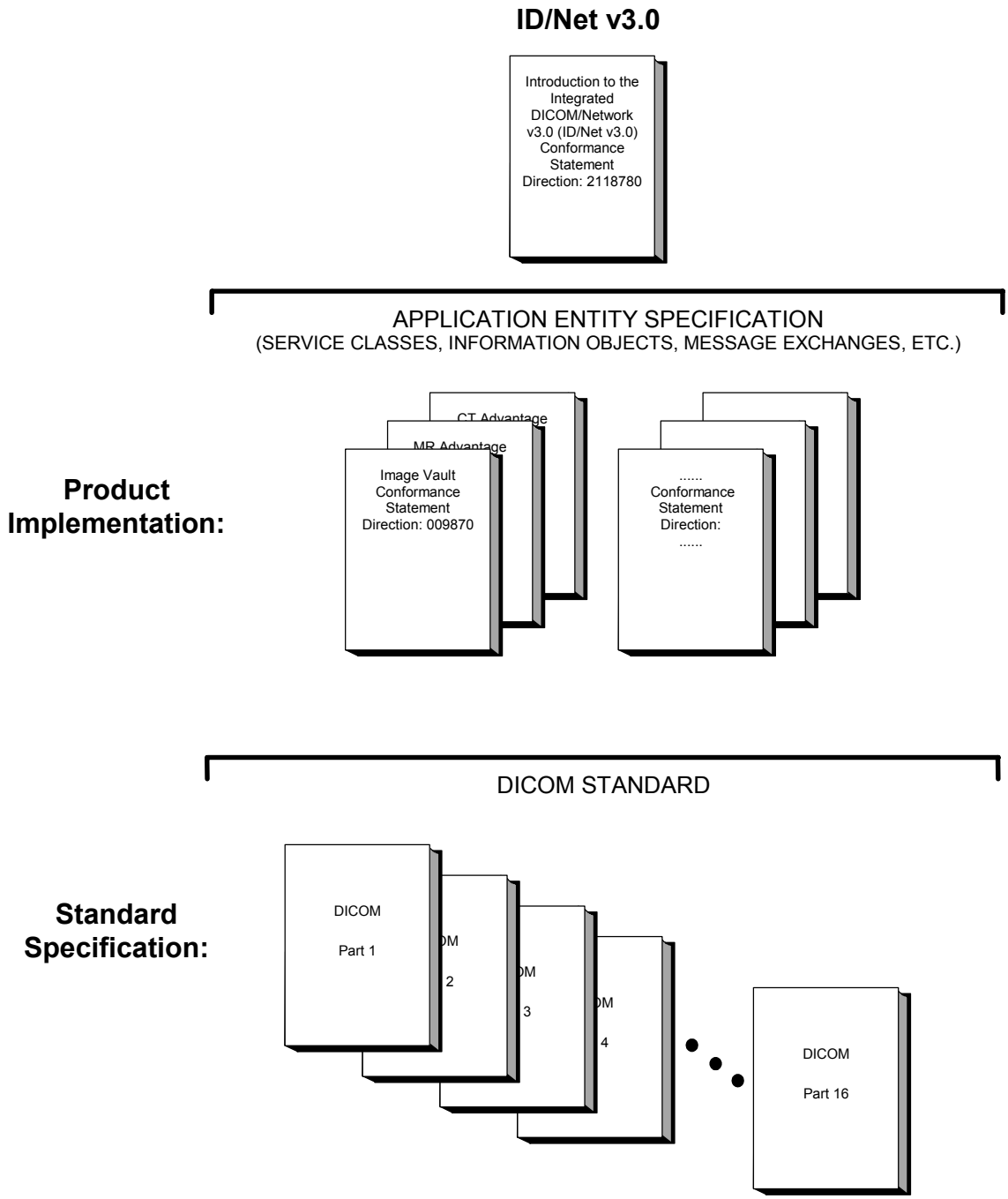
Section 4 (Modality Worklist Information Model), which specifies the GEMS equipment compliance to DICOM requirements for the implementation of the Modality Worklist service.

Section 5 (Modality Performed Procedure Step Information Model), which specifies the GEMS equipment compliance to DICOM requirements for the implementation of the Modality Performed Procedure Step service.

Section 6 (Storage Commitment Information Model), which specifies the GEMS equipment compliance to DICOM requirements for the implementation of the Storage Commitment service.

1.2 OVERALL DICOM CONFORMANCE STATEMENT DOCUMENT STRUCTURE

The Documentation Structure of the GEMS Conformance Statements and their relationship with the DICOM v3.0 Conformance Statements is shown in the Illustration below.



This document specifies the DICOM implementation. It is entitled:

Image Vault 4.0
Conformance Statement for DICOM
Direction ***009870***

This DICOM Conformance Statement documents the DICOM Conformance Statement and Technical Specification required to interoperate with the GEMS network interface. Introductory information, which is applicable to all GEMS Conformance Statements, is described in the document:

Introduction to the Integrated DICOM/Network v3.0 (ID/Net v3.0)
Conformance Statement
Direction: 2118780

This Introduction familiarizes the reader with DICOM terminology and general concepts. It should be read prior to reading the individual products' GEMS Conformance Statements.

The GEMS Conformance Statement, contained in this document, also specifies the Lower Layer communications which it supports (e.g., TCP/IP). However, the Technical Specifications are defined in the DICOM Part 8 standard.

For more information including Network Architecture and basic DICOM concepts, please refer to the Introduction.

For more information regarding DICOM, copies of the Standard may be obtained on the Internet at http://medical.nema.org. Comments on the Standard may be addressed to:

DICOM Secretariat
NEMA
1300 N. 17th Street, Suite 1847
Rosslyn, VA 22209
USA
Phone: +1.703.841.3200

1.3 INTENDED AUDIENCE

The reader of this document is concerned with software design and/or system integration issues. It is assumed that the reader of this document is familiar with the DICOM Standard and with the terminology and concepts which are used in that Standard.

If readers are unfamiliar with DICOM terminology they should first refer to the document listed below, then read the DICOM Standard itself, prior to reading this DICOM Conformance Statement document.

Introduction to the Integrated DICOM/Network v3.0 (ID/Net v3.0)
Conformance Statement
Direction: 2118780

1.4 SCOPE AND FIELD OF APPLICATION

It is the intent of this document, in conjunction with the *Introduction to the Integrated DICOM/Network v3.0 (ID/Net v3.0) Conformance Statement, Direction: 2118780*, to provide an unambiguous specification for GEMS implementations. This specification, called a Conformance Statement, includes a DICOM Conformance Statement and is necessary to ensure proper processing and interpretation of GEMS medical data exchanged using DICOM v3.0. The GEMS Conformance Statements are available to the public.

The reader of this DICOM Conformance Statement should be aware that different GEMS devices are capable of using different Information Object Definitions. For example, a GEMS CT Scanner may send images using the CT Information Object, MR Information Object, Secondary Capture Object, etc.

Included in this DICOM Conformance Statement are the Module Definitions which define all data elements used by this GEMS implementation. If the user encounters unspecified private data elements while parsing a GEMS Data Set, the user is well advised to ignore those data elements (per the DICOM standard). Unspecified private data element information is subject to change without notice. If, however, the device is acting as a "full fidelity storage device", it should retain and re-transmit all of the private data elements which are sent by GEMS devices.

1.5 IMPORTANT REMARKS

The use of these DICOM Conformance Statements, in conjunction with the DICOM Standards, is intended to facilitate communication with GE imaging equipment. However, **by itself, it is not sufficient to ensure that inter-operation will be successful**. The **user (or user's agent)** needs to proceed with caution and address at least four issues:

- **Integration** - The integration of any device into an overall system of interconnected devices goes beyond the scope of standards (DICOM v3.0), and of this introduction and associated DICOM Conformance Statements when interoperability with non-GE equipment is desired. The responsibility to analyze the applications requirements and to design a solution that integrates GE imaging equipment with non–GE systems is the **user's** responsibility and should not be underestimated. The **user** is strongly advised to ensure that such an integration analysis is correctly performed.

- **Validation** - Testing the complete range of possible interactions between any GE device and non–GE devices, before the connection is declared operational, should not be overlooked. Therefore, the **user** should ensure that any non–GE provider accepts full responsibility for all validation required for their connection with GE devices. This includes the accuracy of the image data once it has crossed the interface between the GE imaging equipment and the non–GE device and the stability of the image data for the intended applications.

  Such a validation is required before any clinical use (diagnosis and/or treatment) is performed. It applies when images acquired on GE imaging equipment are processed/displayed on a non-GE device, as well as when images acquired on non-GE equipment is processed/displayed on a GE console or workstation.

- **Future Evolution** - GE understands that the DICOM Standard will evolve to meet the user's growing requirements. GE is actively involved in the development of the DICOM Standard. DICOM will incorporate new features and technologies and GE may follow the evolution of the Standard. The GEMS protocol is based on DICOM

as specified in each DICOM Conformance Statement. Evolution of the Standard may require changes to devices which have implemented DICOM. **In addition, GE reserves the right to discontinue or make changes to the support of communications features (on its products) described by these DICOM Conformance Statements**. The **user** should ensure that any non–GE provider, which connects with GE devices, also plans for the future evolution of the DICOM Standard. Failure to do so will likely result in the loss of function and/or connectivity as the DICOM Standard changes and GE Products are enhanced to support these changes.

- **Interaction** - It is the sole responsibility of the **non–GE provider** to ensure that communication with the interfaced equipment does not cause degradation of GE imaging equipment performance and/or function.

1.6 REFERENCES

A list of references which is applicable to all GEMS Conformance Statements is included in the *Introduction to the Integrated DICOM/Network v3.0 (ID/Net v3.0) Conformance Statement, Direction: 2118780*.

1.7 DEFINITIONS

A set of definitions which is applicable to all GEMS Conformance Statements is included in *the Introduction to the Integrated DICOM/Network v3.0 (ID/Net v3.0) Conformance Statement, Direction: 2118780*.

1.8 SYMBOLS AND ABBREVIATIONS

A list of symbols and abbreviations which is applicable to all GEMS Conformance Statements is included in the *Introduction to the Integrated DICOM/Network v3.0 (ID/Net v3.0) Conformance Statement, Direction: 2118780*.

2. NETWORK CONFORMANCE STATEMENT

2.1 INTRODUCTION

This section of the DICOM Conformance Statement specifies the Image Vault compliance to DICOM requirements for **Networking** features.

The Image Vault provides high performance short term and archival storage for digital medical images and augments user workflow by centralizing patient information. It provides immediate access to images in active review (recently stored or retrieved), and automatic long term archival to mass storage for permanent image retention. The Image Vault provides associated services for managing and retrieving the stored images, including automatic retrieval from mass storage locations, and workflow enhancements including image pre-fetching and worklist maintenance.

The Image Vault is an open system, with all of its interfaces defined by international and industry standards. DICOM is the fundamental standard through which the Image Vault communicates with other devices. DICOM protocols are used for sending image data to the Image Vault for storage and archiving, for querying the image and worklist database, and for retrieving images

Note that the format of this section strictly follows the format defined in DICOM Standard PS 3.2 (Conformance). Please refer to that part of the standard while reading this section.

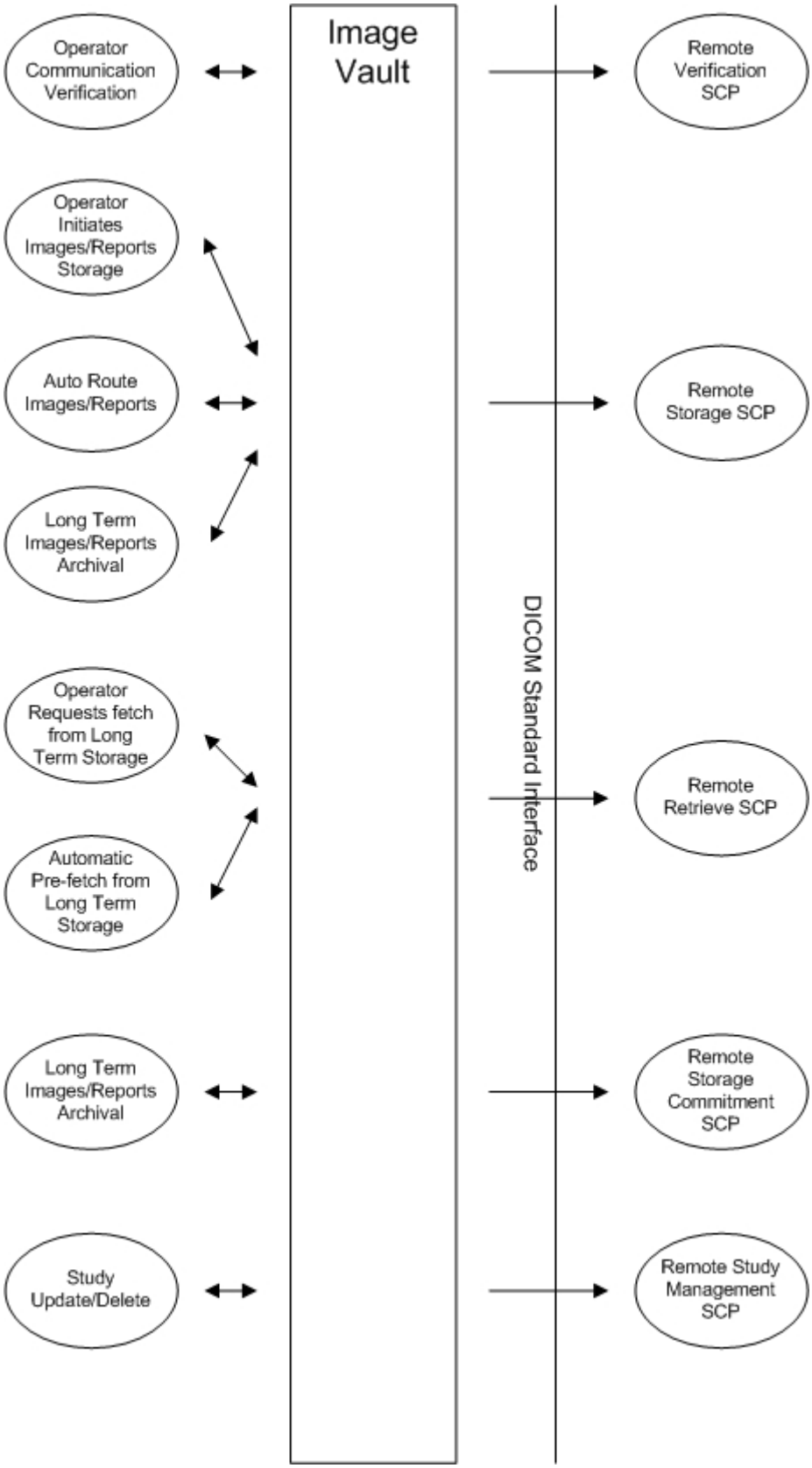
2.2 IMPLEMENTATION MODEL

2.2.1 Application Data Flow Diagram

The network application model for the Image Vault is shown in the following Illustrations:

ILLUSTRATION 2–11

IMAGE VAULT NETWORK APPLICATION MODEL AND DATA FLOW DIAGRAM – SERVICE CLASS USER MODEL



The Image Vault can perform DICOM Verification to remote applications that support the verification service. An operator of the Image Vault can invoke the verification through the user interface to test DICOM communication with a remote DICOM system.

The Image Vault can perform DICOM Storage to remote applications that support the requisite storage services. An operator of the Image Vault can invoke the storage of images and/or reports through the user interface. Additionally, images or reports received by the Image Vault can be automatically routed to remote DICOM Storage providers based on rules that can be configured through the user interface. The Image Vault may also be configured to archive data to a DICOM-based long term storage application. This activity occurs automatically as necessary.

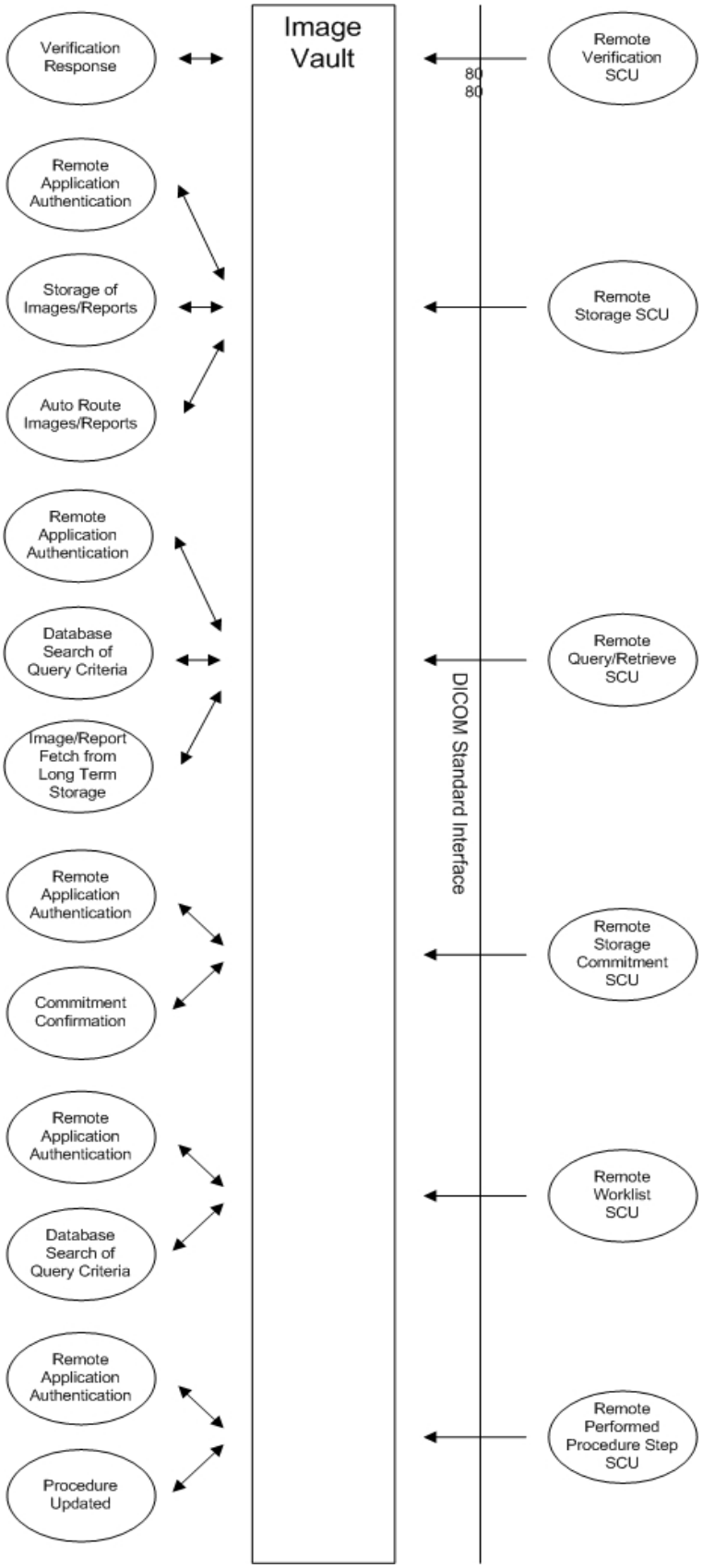
The Image Vault can request data from a DICOM-based long term storage application. This request is triggered either from a user requesting access to data that has been stored on a DICOM-based long term storage application or by the system performing a data pre-fetch from a DICOM-based long term storage application.

The Image Vault can request that a DICOM-based long term storage application take responsibility for archiving data sent to it using the Storage Commitment service. This request is made after the images have been sent to the DICOM-based long term storage application.

The Image Vault can request that a DICOM-based long term storage application perform study updates using the Remote Study Management service. This request is made after the images have been sent to the DICOM-based long term storage application.

ILLUSTRATION 2–2

IMAGE VAULT NETWORK APPLICATION MODEL AND DATA FLOW DIAGRAM – SERVICE CLASS PROVIDER MODEL



The Image Vault can respond to a DICOM Verification request from a remote application requesting the verification service. No remote application authentication is performed for verification services.

The Image Vault can accept storage from remote applications for the purposes of temporary storage, archiving, and/or distribution of images and reports. The remote application must be configured on the Image Vault system for the remote application authentication to complete. Auto-routing of images and reports is based upon rules configured through the Image Vault user interface.

The Image Vault can accept Query and Retrieve requests from remote applications for the purposes of finding and accessing of images and reports stored on the Image Vault. The remote application must be configured on the Image Vault system for the remote application authentication to complete. If the requested images or reports have been migrated to long term storage, the Image Vault will automatically fetch them for the remote application.

The Image Vault can accept Storage Commitment requests from remote applications. The remote application must be configured on the Image Vault system for the remote application authentication to complete. If the requested images or reports have been migrated to long term storage, the Image Vault will confirm the commitment request to the remote application.

The Image Vault can accept Modality Worklist Query requests from remote applications for the purposes of getting patient demographics for automatic entry into an acquisition device. The remote application must be configured on the Image Vault system for the remote application authentication to complete.

The Image Vault can accept Modality Performed Procedure Step notifications from remote applications for the purposes of managing procedure status. The remote application must be configured on the Image Vault system for the remote application authentication to complete.

2.2.2 Functional Definition of AE's

The Image Vault contains one Application Entity. It provides a general archival storage service and workflow management service for medical images and reports, particularly for cardiology applications, and associated services for managing and retrieving those images and reports.

Standard DICOM network communications is used to send images to the Image Vault for storage and archival (Storage and Storage Commitment Services), to query the Image Vault for information about stored images and reports (Query Service), to retrieve stored images and reports (Retrieve and Storage Services), and to obtain modality worklists (Modality Worlist Service). The Image Vault also initiates and responds to DICOM echo requests (Verification Service).

The Image Vault uses extensions to standard DICOM services (in conformance with the DICOM Standard) to provide additional system functionality. The Image Vault supports retrieval of image storage related attributes as part of the query response (Standard Extended Query Service) and additional study management operations (Study Content Management Service).

2.2.3 Sequencing of Real-World Activities

The only sequencing constraints are those that arise from the required existence of data prior to its access (e.g., images/reports must be archived prior to their access through the Remote Query/Retrieve Request activity).

2.3 AE SPECIFICATIONS

2.3.1 Image Vault AE Specification

The Image Vault Application Entity provides Standard Conformance to the following DICOM SOP Classes as an **SCU**:

SOP Class Name	SOP Class UID
Verification SOP Class	1.2.840.10008.1.1
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
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
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128

Standalone PET Curve Storage	1.2.840.10008.5.1.4.1.1.129
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2
Storage Commitment Push Model	1.2.840.10008.1.20.1
Detached Study Management	1.2.840.10008.3.1.2.3.1

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

SOP Class Name	SOP Class UID
Verification SOP Class	1.2.840.10008.1.1
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
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
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128
Standalone PET Curve Storage	1.2.840.10008.5.1.4.1.1.129
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2
Storage Commitment Push Model	1.2.840.10008.1.20.1
Detached Study Management	1.2.840.10008.3.1.2.3.1
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

2.3.1.1 Association Establishment Policies

2.3.1.1.1 General

The DICOM Application Context Name (ACN), which is always proposed, is:

Application Context Name	**1.2.840.10008.3.1.1.1**

The maximum length PDU receive size for the Image Vault is:

Maximum Length PDU	**1 048 576**

2.3.1.1.2 Number of Associations

The Image Vault will initiate a maximum of 16 simultaneous associations to remote nodes.

The Image Vault will support a maximum of 32 simultaneous associations initiated by remote nodes.

2.3.1.1.3 Asynchronous Nature

Asynchronous mode is not supported. All operations will be performed synchronously.

2.3.1.1.4 Implementation Identifying Information

The Implementation UID for this DICOM Implementation is:

Image Vault Implementation UID	**1.2.840.113619.6.210**

The Implementation Version Name for this DICOM Implementation is:

Image Vault Implementation Version Name	**Image_Vault_4_0**

2.3.1.2 Association Initiation Policy

When the Image Vault Application Entity initiates an Association for any Real-World Activity, it will propose the Presentation Contexts for all Real-World Activities; i.e., there is only a single, comprehensive Presentation Context Negotiation proposed for the AE.

The Image Vault proposes only a single Transfer Syntax in each Presentation Context; i.e., for each Abstract Syntax in the following Presentation Context Tables, the AE proposes one Presentation Context for each specified Transfer Syntax.

2.3.1.2.1 Real-World Activity Remote Verification

2.3.1.2.1.1 Associated Real-World Activity

An operator requests that the Image Vault system perform a DICOM Verification to a remote application entity by using the Image Vault user interface. Upon initiating a the verification request by pressing the "DICOM Echo" button on the Image Vault user interface, the Image Vault sends a verification request to test DICOM communications with a remote DICOM system. The operator is then notified whether the DICOM Verification request was responded to properly.

2.3.1.2.1.2 Proposed Presentation Context Table

Presentation Context Table – Proposed by AE Image Vault for Activity Remote Verification					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

2.3.1.2.2 Real-World Activity Remote Storage

2.3.1.2.2.1 Associated Real-World Activity

The Image Vault performs Remote Storage as a result of any of the following actions: operator initiated by using the Image Vault user interface, automatic routing based on a configured rule set, and automatic archiving to a DICOM storage or PACS system. Once the Remote Storage activity is invoked, the Image Vault attempts to connect to the remote storage provider and send the desired study or instances over that association. The progress of the auto-routing and archiving can be monitored using the Image Vault user interface. Any errors will be written to the Image Vault error log. Errors when attempting to auto-route instances will cause the Image Vault to keep retrying the activity over the following day, if the activity does not succeed, the operation will fail. Errors when attempting to archive instances will cause the Image Vault to keep retrying indefinitely.

2.3.1.2.2.2 Proposed Presentation Context Table

Presentation Context Table – Proposed by Image Vault for Activity Remote Storage			
Abstract Syntax	**Transfer Syntax**	**Role**	**Extended**

Name	UID	Name List	UID List		Negotiation
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian Explicit VR Little Endian JPEG Baseline Lossy 8-Bit RLE Lossless	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.5	SCU	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian Explicit VR Little Endian JPEG Baseline Lossy 8-Bit RLE Lossless	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.5	SCU	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian Explicit VR Little Endian JPEG Lossless Non-Hierarchical, First Order Prediction JPEG Baseline Lossy 8-Bit	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.70 1.2.840.10008.1.2.4.50	SCU	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Implicit VR Little Endian Explicit VR Little Endian JPEG Lossless Non-Hierarchical, First Order Prediction	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.70	SCU	None
X-Ray Radioflouroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Implicit VR Little Endian Explicit VR Little Endian JPEG Lossless Non-Hierarchical, First Order Prediction	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.70	SCU	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None
Standalone PET Curve Storage	1.2.840.10008.5.1.4.1.1.129	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None

2.3.1.2.2.2.1 SOP Specific DICOM Conformance Statement for the Basic Text Structured Reporting and Enhanced Structured Reporting Storage SOP Classes

The Image Vault supports transmission of Structured Reporting SOP Instances referencing Instances of the following Storage SOP Classes:

SOP Class Name	SOP Class UID
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1
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

2.3.1.2.3 Real-World Activity Remote Retrieve

2.3.1.2.3.1 Associated Real-World Activity

The Image Vault performs Remote Retrieve as a result of any of the following actions: operator requests data be restored from a remote DICOM long term storage system by invoking the action using the user interface or from an EchoPAC PC client and automatic pre-fetching data from a remote DICOM long term storage system based upon scheduled patient exams. Once the Remote Retrieve activity is invoked, the Image Vault attempts to connect to the remote storage provider and request for retrieval the desired study or instances over that association. Any errors will be written to the Image Vault error log.

2.3.1.2.3.2 Proposed Presentation Context Table

Presentation Context Table – Proposed by AE Image Vault for Activity Remote Retrieve					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None

2.3.1.2.3.2.1 SOP Specific DICOM Conformance Statement for the Study Root Query/Retrieve Information Model - MOVE SOP Class

The C-MOVE-RQ will use the AE Title of the Image Vault Application Entity as the Move Destination AE Title.

Following are the status codes that are more specifically processed when receiving messages from a **Retrieve** SCP equipment:

Service Status	Status Code	Further Meaning	Application Behavior When Receiving Status Code
Failure	A701	Refused: Out of resources - Unable to calculate number of matches	Message logged to error log. If action was due to a pre-fetch, request will be re-attempted.
	A702	Refused: Out of resources - Unable to perform sub-operations	
	A801	Refused: Move Destination Unknown	
	A900	Error: Identifier does not match SOP Class	
	Cxxx	Error: Unable to process	
Cancel	FE00	Sub-operations terminated due to a Cancel indication	
Warning	B000	Sub-operations Complete - One or more Failures.	
Success	0000	Sub-operations Complete - No Failure.	Data access provided to operator.
Pending	FF00	Sub-operations are continuing -	Data access provided to operator for data that has been retrieved.

2.3.1.2.4 Real-World Activity Remote Storage Commitment

2.3.1.2.4.1 Associated Real-World Activity

The Image Vault performs Remote Storage Commitment automatically when archiving data to a DICOM storage or PACS system. After the Remote Storage activity successfully sends data to a DICOM long-term storage system, the Image Vault invokes the Remote Storage Commitment activity to that system. Any errors will be written to the Image Vault error log. Errors when attempting to perform remote storage commitment for archiving purposes will cause the Image Vault to keep retrying.

2.3.1.2.4.2 Proposed Presentation Context Table

Presentation Context Table – Proposed by AE Image Vault for Activity Remote Storage Commitment					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		

Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None

2.3.1.2.4.2.1 SOP Specific DICOM Conformance Statement for the Storage Commitment Push Model SOP Class SCU

The Image Vault uses DICOM network storage services to transfer SOP Instances which are to be committed. It does not support the optional Storage Media File-Set ID and UID Attributes in the Storage Commitment N-ACTION for transfer of SOP Instances by media for Storage Commitment.

The Image Vault may request Storage Commitment for Instances of any of the Composite SOP Classes it supports as an SCU. After the Image Vault issues the Storage Commitment request, it closes the association. Since the Image Vault does not wait for a reply from the SCP, the N-EVENT-REPORT must occur on a different association.

If the N-EVENT-REPORT indicates that the data is successfully committed, the Image Vault considers the activity successful and the data may be removed from the system at a later point in time.

2.3.1.2.5 Real-World Activity Remote Study Management

2.3.1.2.5.1 Associated Real-World Activity

The Image Vault performs Remote Study Management as a result of an operator modifying study information for data that has been stored on a remote DICOM long term storage system. The Image Vault will send a notification message to the remote storage system to ensure that the study is updated appropriately.

2.3.1.2.5.2 Proposed Presentation Context Table

Presentation Context Table – Proposed by AE Image Vault for Activity Remote Study Management					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Detached Study Management	1.2.840.10008.3.1.2.3.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None

2.3.1.2.5.2.1 SOP Specific DICOM Conformance Statement for Detached Study Management SOP Class

The Image Vault implements the Detached Study Management SOP Class with events for Study Updated and Study Deleted.

2.3.1.3 Association Acceptance Policy

2.3.1.3.1 Real-World Activity Verification Provider

2.3.1.3.1.1 Associated Real-World Activity

The Image Vault system automatically responds to remote DICOM Verification requests for any device requesting verification.

2.3.1.3.1.2 Accepted Presentation Context Table

Presentation Context Table - Accepted by AE Image Vault for Activity Verification Provider					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Verification SOP Class	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.3.1.3.1.3 Presentation Context Acceptance Criterion

The Image Vault evaluates each Presentation Context independently, and accepts any Presentation Context that matches an Abstract Syntax for any Real-World Activity.

2.3.1.3.1.4 Transfer Syntax Selection Policies

Within each Presentation Context, the Image Vault will accept the first proposed transfer syntax that it also supports for that Abstract Syntax.

2.3.1.3.2 Real-World Activity Storage Provider

2.3.1.3.2.1 Associated Real-World Activity

The Image Vault system will accept an association from a configured remote Application Entity to transfer images or reports to the Image Vault Application Entity for storage, redistribution, and archiving.

When an association request is received, the Image Vault Application Entity verifies that the remote Application Entity is properly configured before accepting the association. After the association is accepted, images and reports received by the Image Vault Application Entity are written to the system storage, indexed in the system database, and, if configured, queued to be sent to remote Application Entities (auto routing). Additionally, if the system has a long-term storage location configured, the images and reports are queued to be archived to the long-term storage.

2.3.1.3.2.2 Accepted Presentation Context Table

Presentation Context Table - Accepted by AE Image Vault for Activity Storage Provider

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Implicit VR Little Endian Explicit VR Little Endian JPEG Baseline Lossy 8-Bit RLE Lossless	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.5	SCP	None
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Implicit VR Little Endian Explicit VR Little Endian JPEG Baseline Lossy 8-Bit RLE Lossless	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.5	SCP	None
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian Explicit VR Little Endian JPEG Lossless Non-Hierarchical, First Order Prediction JPEG Baseline Lossy 8-Bit	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.70 1.2.840.10008.1.2.4.50	SCP	None
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Implicit VR Little Endian Explicit VR Little Endian JPEG Lossless Non-Hierarchical, First Order Prediction	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.70	SCP	None
X-Ray Radioflouroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Implicit VR Little Endian Explicit VR Little Endian JPEG Lossless Non-Hierarchical, First Order Prediction	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.70	SCP	None
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None
Standalone PET Curve Storage	1.2.840.10008.5.1.4.1.1.129	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None

2.3.1.3.2.2.1 SOP Specific DICOM Conformance Statement for all Storage SOP Classes

The Image Vault provides Level 2 (FULL) Conformance, and stores all standard and private data elements of received SOP Instances.

The Image Vault validates that the Attributes of the SOP Instance meet the requirements of the IOD with respect to Value Representation, presence of Type 1 and 2 elements, valid values, and consistency between image attributes and pixel data.

The AE provides Digital Signature Level 0 support, as it does not provide Level 2 (FULL) Conformance.

Successfully received SOP Instances may be accessed by DICOM network query retrieve.

Following are the status codes the Application may send back to the SCU Equipment after performing the requested **Storage**:

Service Status	Status Code	Further Meaning	Status Code Explanation	Related Fields Sent Back to the SCU
Failure	0110	Processing Failure	Disk Full. Disk File System Error Database Insert Error	None
Success	0000			None

2.3.1.3.2.3 Presentation Context Acceptance Criterion

The Image Vault evaluates each Presentation Context independently, and accepts any Presentation Context that matches an Abstract Syntax for any Real-World Activity.

2.3.1.3.2.4 Transfer Syntax Selection Policies

Within each Presentation Context, the Image Vault will accept the first proposed transfer syntax that it also supports for that Abstract Syntax.

2.3.1.3.3 Real-World Activity Query/Retrieve Provider

2.3.1.3.3.1 Associated Real-World Activity

The Image Vault system will accept an association from a configured remote Application Entity to query for information about stored images or reports to the Image Vault Application Entity and/or to retrieve images or reports from the Image Vault Application Entity.

When an association request is received, the Image Vault Application Entity verifies that the remote Application Entity is properly configured before accepting the association. After the association is accepted, the Image Vault Application Entity will process queries for results meeting the query criteria and match retrieve requests.

2.3.1.3.3.2 Accepted Presentation Context Table

Presentation Context Table - Accepted by AE Image Vault for Activity Query/Retrieve Provider					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian Explicit VR Little Endian Explicit VR Big Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCP	None

2.3.1.3.3.2.1 SOP Specific DICOM Conformance Statement for the Patient Root Query/Retrieve Information Model - FIND and Study Root Query/Retrieve Information Model - FIND SOP Classes

The Image Vault Application Entity provides matching against query keys as described in Section 3.

The AE does not support Relational Search.

The AE supports case-insensitive matching for the attributes of Value Representation PN.

Following are the status codes the Application may send back to the SCU Equipment while performing the requested **Query** :

Service Status	Status Code	Further Meaning	Status Code Explanation	Related Fields Sent Back to the SCU
Failure	C001	Error: Unable to process	Database Access Error Cannot Understand Request	(0000,0901) (0000,0902)

			Cannot Build Response	
Cancel	FE00	Matching terminated due to cancel	Cancel Response	None
Success	0000	Matching is complete - No final identifier is supplied		None
Pending	FF00	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.		Identifier
	FF01	Matches are continuing - Warning that one or more Optional Keys were not supported for existence and/or matching for this Identifier		Identifier

2.3.1.3.3.2.2 SOP Specific DICOM Conformance Statement for the Patient Root Query/Retrieve Information Model - MOVE and Study Root Query/Retrieve Information Model - MOVE SOP Classes

The Image Vault Application Entity supports Storage Sub-operations for Instances of any of the Composite SOP Classes it supports as an SCU (see Section 2.3.1.2.2).

Following are the status codes the Application may send back to the SCU Equipment while performing the requested **Retrieve** :

Service Status	Status Code	Further Meaning	Status Code Explanation	Related Fields Sent Back to the SCU
Failure	A701	Refused: Out of resources - Unable to calculate number of matches	System Error	None
	A801	Error: Move Destination Unknown	Unknown Remote Host	None
	Cxxx	Error: Unable to process	System Error	None
Cancel	FE00	Sub-operations terminated due to a Cancel indication	Cancel Response	(0000,1020) (0000,1021) (0000,1022) (0000,1023)
Warning	B000	Sub-operations Complete - One or more Failures.		(0000,1021) (0000,1022) (0000,1023)

Success	0000	Sub-operations Complete - No Failure.		(0000,1021) (0000,1022) (0000,1023)
Pending	FF00	Sub-operations are continuing -		(0000,1020) (0000,1021) (0000,1022) (0000,1023)

2.3.1.3.3.3 Presentation Context Acceptance Criterion

The Image Vault evaluates each Presentation Context independently, and accepts any Presentation Context that matches an Abstract Syntax for any Real-World Activity.

2.3.1.3.3.4 Transfer Syntax Selection Policies

Within each Presentation Context, the Image Vault will accept the first proposed transfer syntax that it also supports for that Abstract Syntax.

2.3.1.3.4 Real-World Activity Storage Commitment Provider

2.3.1.3.4.1 Associated Real-World Activity

The Image Vault system will accept an association from a configured remote Application Entity to request committed storage to the Image Vault Application Entity.

When an association request is received, the Image Vault Application Entity verifies that the remote Application Entity is properly configured before accepting the association. After the association is accepted, the Image Vault Application Entity will process storage commitment requests and respond to the requesting Application Entity.

2.3.1.3.4.2 Accepted Presentation Context Table

Presentation Context Table - Accepted by AE Image Vault for Activity Storage Commitment Provider					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None

2.3.1.3.4.2.1 SOP Specific DICOM Conformance Statement for the Storage Commitment Push Model SOP Class SCP

The Image Vault supports only DICOM network storage services to receive SOP Instances which are to be committed. It does not support the optional Storage Media File-Set ID and UID Attributes in the Storage Commitment N-ACTION.

Storage commitment requests are persistent based on a configurable amount of elapsed time (default = 1 week).

The Image Vault supports only DICOM network query/retrieve and storage services to retrieve SOP Instances that have been committed. It returns the AE Title of the Image Vault in the Retrieve AE Title (0008,0054) Attribute in the Storage Commitment N-EVENT-REPORT. It does not support the optional Storage Media File-Set ID and UID Attributes in the N-EVENT-REPORT.

The AE generates Failure Reason (0008,1197) codes as described in the table:

Failure Reason	Meaning	Failure Reason Explanation
0110H	Processing failure	Cannot insert into database Cannot parse message
0131H	Duplicate transaction UID	Duplicate Transaction UID

The N-EVENT-REPORT will always be sent on a different association as the N-ACTION.

2.3.1.3.4.3 Presentation Context Acceptance Criterion

The Image Vault evaluates each Presentation Context independently, and accepts any Presentation Context that matches an Abstract Syntax for any Real-World Activity.

2.3.1.3.4.4 Transfer Syntax Selection Policies

Within each Presentation Context, the Image Vault will accept the first proposed transfer syntax that it also supports for that Abstract Syntax.

2.3.1.3.5 Real-World Activity Modality Worklist Provider

2.3.1.3.5.1 Associated Real-World Activity

The Image Vault system will accept an association from a configured remote Application Entity to query for information about Modality Worklist items known to the Image Vault Application Entity based upon received order messages.

When an association request is received, the Image Vault Application Entity verifies that the remote Application Entity is properly configured before accepting the association. After the association is accepted, the Image Vault Application Entity will process Modality Worklist queries for results meeting the query criteria.

2.3.1.3.5.2 Accepted Presentation Context Table

Presentation Context Table - Accepted by AE Image Vault for Activity Modality Worklist Provider					
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	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None

2.3.1.3.5.2.1 SOP Specific DICOM Conformance Statement for the Modality Worklist SOP Class

The Image Vault Application Entity provides matching against query keys as described in Section 4.

The AE does not support Relational Search.

The AE supports case-insensitive matching for the attributes of Value Representation PN.

Following are the status codes the Application may send back to the SCU Equipment while performing the requested **Query** :

Service Status	Status Code	Further Meaning	Status Code Explanation	Related Fields Sent Back to the SCU
Failure	C001	Error: Unable to process	Database Access Error Cannot Understand Request Cannot Build Response	(0000,0901) (0000,0902)
Cancel	FE00	Matching terminated due to cancel	Cancel Response	None
Success	0000	Matching is complete - No final identifier is supplied		None
Pending	FF00	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.		Identifier
	FF01	Matches are continuing - Warning that one or more Optional Keys were not		Identifier

		supported for existence and/or matching for this Identifier		

2.3.1.3.5.3 Presentation Context Acceptance Criterion

The Image Vault evaluates each Presentation Context independently, and accepts any Presentation Context that matches an Abstract Syntax for any Real-World Activity.

2.3.1.3.5.4 Transfer Syntax Selection Policies

Within each Presentation Context, the Image Vault will accept the first proposed transfer syntax that it also supports for that Abstract Syntax.

2.3.1.3.6 Real-World Activity Modality Procedure Step Provider

2.3.1.3.6.1 Associated Real-World Activity

The Image Vault system will accept an association from a configured remote Application Entity for procedure updates to Modality Worklist items known to the Image Vault Application Entity.

When an association request is received, the Image Vault Application Entity verifies that the remote Application Entity is properly configured before accepting the association. After the association is accepted, the Image Vault Application Entity will process the Performed Procedure Step information against in order to manage procedure state and corresponding modality worklist items..

2.3.1.3.6.2 Accepted Presentation Context Table

Presentation Context Table - Accepted by AE Image Vault for Activity Modality Procedure Step Provider					
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	Implicit VR Little Endian Explicit VR Little Endian	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCP	None

2.3.1.3.6.2.1 SOP Specific DICOM Conformance Statement for the Modality Performed Procedure Step SOP Class

The Image Vault Application Entity processes Modality Performed Procedure Step requests as described in Section 5.

2.3.1.3.6.3 Presentation Context Acceptance Criterion

The Image Vault evaluates each Presentation Context independently, and accepts any Presentation Context that matches an Abstract Syntax for any Real-World Activity.

2.3.1.3.6.4 Transfer Syntax Selection Policies

Within each Presentation Context, the Image Vault will accept the first proposed transfer syntax that it also supports for that Abstract Syntax.

2.4 COMMUNICATION PROFILES

2.4.1 Supported Communication Stacks

The DICOM Upper Layer Protocol is supported using TCP/IP, as specified in DICOM PS3.8.

The TCP/IP stack is inherited from the Microsoft Windows Server 2003 Operating System.

2.4.2 Physical Media Support

The product is provided with a 10/100 Mb/s auto-sensing Ethernet interface, as well as a 1 Gb/s Ethernet interface. Additional or alternate network interfaces may be available.

Note: For more information about the Physical Media available on Image Vault Dimension Server, please refer to the Product Data Sheet.

2.5 CONFIGURATION

2.5.1 Configurable Parameters

The following fields are configurable for this AE (local):

- Local AE Title
- Local IP Address
- Local Listening Port Number
- Local IP Netmask

The following fields are configurable:

- Association Establishment Timer
- Store, Find, Move, Timers

- Inactivity Timers
- Maximum Length PDU
- Number of simultaneous associations

Note: All configurations must be performed by a GE Field Engineer.

2.6 SUPPORT OF EXTENDED CHARACTER SETS

The Image Vault Dimension Server is configurable with a single single-byte extended character set, either the default ISO_IR 100 (Latin alphabet Number 1 supplementary set), or the alternate ISO_IR 101 (Latin alphabet Number 2 supplementary set).

As a Storage SCP, the product will accept SOP Instances with any value of Specific Character Set (0008,0005). However, it will display in the user interface only characters specified as within ISO_IR 6 (ASCII) or the configured extended character set.

The product user interface will allow the user to enter characters from the console keyboard that are within ASCII or the configured extended character set. If any such extended characters are included in SOP Instances or in query identifier matching fields, the product will appropriately specify the extended character set in Specific Character Set (0008,0005).

2.7 CODES AND CONTROLLED TERMINOLOGY

The product uses no coded terminology.

2.8 SECURITY PROFILES

The product does not conform to any defined DICOM Security Profiles.

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

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

Any communications with external hosts and services outside the locally secured environment use appropriate secure network channels (such as a Virtual Private Network (VPN))

3. QUERY IMPLEMENTATION

3.1 IMAGE VAULT DIMENSION SERVER MAPPING OF DICOM ENTITIES

The Image Vault Dimension Server maps DICOM Information Entities to local Information Entities in the product's database.

TABLE 3.1-1
MAPPING OF DICOM ENTITIES TO IMAGE VAULT DIMENSION SERVER ENTITIES

DICOM	Image Vault Dimension Server Entity
Patient	Patient
Study	Exam or Study
Series	Series
Image	Image, Loop, or Run

3.2 INFORMATION MODEL KEYS

Please refer to DICOM Standard PS 3.4 (Service Class Specifications) for a description of each of the levels contained within the Query/Retrieve Information Model.

3.2.1 Common Query Keys

The query key attributes specified in this section are used at all levels and in all classes of query.

TABLE 3.2-2
Q/R PATIENT LEVEL COMMON RETRIEVE ATTRIBUTES

Attribute Name	Tag	Type	SCP Use
Specific Character Set	(0008,0005)	-	See 3.2.1.1.1
Query Retrieve Level	(0008,0052)	-	Matched to level of query
Retrieve AE Title	(0008,0054)	-	Always returned with AE Title of Image Vault

3.2.1.1 Q/R Common Attribute Descriptions

3.2.1.1.1 Specific Character Set

As an SCP, if the attribute Specific Character Set (0008,0005) is received with a value not equal to the configured extended character set, all non-ASCII characters in key attributes will be converted to wild card matching characters for processing. Specific Character Set will

not be sent in Query responses unless an item text attribute, including patient and physician names, includes a non-ASCII character; in that case, the configured extended character set identifier will be sent.

3.2.2 Patient Level

This section defines the keys at the Patient Level of the Patient Root and Patient/Study Only Query/Retrieve Information Models that are supported by this implementation.

TABLE 3.2-1
PATIENT LEVEL ATTRIBUTES FOR THE PATIENT ROOT QUERY/RETRIEVE INFORMATION MODEL

Attribute Name	Tag	Type	SCP Use
Patient's Name	(0010,0010)	R	Single Value Matching, Universal Matching, Wild Card Matching
Patient ID	(0010,0020)	U	Single Value Matching, Universal Matching, Wild Card Matching
Patient's Birth Date	(0010,0030)	O	Single Value Matching, Universal Matching, Wild Card Matching, Range Matching
Patient's Sex	(0010,0040)	O	Single Value Matching, Universal Matching, Wild Card Matching
Other Patient IDs	(0010,1000)	O	Return
Number of Patient Related Studies	(0020,1200)	O	Return
Number of Patient Related Series	(0020,1202)	O	Return
Number of Patient Related Instances	(0020,1204)	O	Return

3.2.3 Study Level – Patient Root

This section defines the keys at the Study Level of the Patient Root and Patient/Study Only Query/Retrieve Information Models that are supported by this implementation.

TABLE 3.2-2
STUDY LEVEL ATTRIBUTES FOR THE PATIENT ROOT QUERY/RETRIEVE INFORMATION MODEL

Attribute Name	Tag	Type	SCP Use
Study Date	(0008,0020)	R	Single Value Matching, Universal Matching, Wild Card Matching, Range Matching
Study Time	(0008,0030)	R	Single Value Matching, Universal Matching, Wild Card Matching, Range Matching
Accession Number	(0008,0050)	R	Single Value Matching, Universal Matching, Wild Card Matching
Study ID	(0020,0010)	R	Single Value Matching, Universal Matching, Wild Card Matching
Study Instance UID	(0020,000D)	U	Single Value Matching, Universal Matching, Wild Card Matching
Modalities in Study	(0008,0061)	O	Single Value Matching, Universal Matching, Wild Card Matching
Referring Physician's Name	(0008,0090)	O	Single Value Matching, Universal Matching, Wild Card Matching
Study Description	(0008,1030)	O	Single Value Matching, Universal Matching, Wild Card Matching
Name of Physician(s) Reading Study	(0008,1060)	O	Single Value Matching, Universal Matching, Wild Card Matching
Admitting Diagnoses Description	(0008,1080)	O	Single Value Matching, Universal Matching, Wild Card Matching
Patient’s Size	(0010,1020)	O	Single Value Matching, Universal Matching, Wild Card Matching
Patient’s Weight	(0010,1030)	O	Single Value Matching, Universal Matching, Wild Card Matching
Number of Study Related Series	(0020,1206)	O	Return
Number of Study related Images	(0020,1208)	O	Return

3.2.4 Study Level – Study Root

This section defines the keys at the Study Level of the Study Root Query/Retrieve Information Model that are supported by this implementation.

TABLE 3.2-3
STUDY LEVEL ATTRIBUTES FOR THE STUDY ROOT QUERY/RETRIEVE INFORMATION MODEL

Attribute Name	Tag	Type	SCP Use
Study Date	(0008,0020)	R	Single Value Matching, Universal Matching, Wild Card Matching, Range Matching
Study Time	(0008,0030)	R	Single Value Matching, Universal Matching, Wild Card Matching, Range Matching
Accession Number	(0008,0050)	R	Single Value Matching, Universal Matching, Wild Card Matching
Study ID	(0020,0010)	R	Single Value Matching, Universal Matching, Wild Card Matching
Patient's Name	(0010,0010)	R	Single Value Matching, Universal Matching, Wild Card Matching
Patient ID	(0010,0020)	R	Single Value Matching, Universal Matching, Wild Card Matching
Study Instance UID	(0020,000D)	U	Single Value Matching, Universal Matching, Wild Card Matching
Modalities in Study	(0008,0061)	O	Single Value Matching, Universal Matching, Wild Card Matching
Referring Physician's Name	(0008,0090)	O	Single Value Matching, Universal Matching, Wild Card Matching
Study Description	(0008,1030)	O	Single Value Matching, Universal Matching, Wild Card Matching
Name of Physician(s) Reading Study	(0008,1060)	O	Single Value Matching, Universal Matching, Wild Card Matching

Admitting Diagnoses Description	(0008,1080)	O	Single Value Matching, Universal Matching, Wild Card Matching
Patient's Size	(0010,1020)	O	Single Value Matching, Universal Matching, Wild Card Matching
Patient's Weight	(0010,1030)	O	Single Value Matching, Universal Matching, Wild Card Matching
Number of Study Related Series	(0020,1206)	O	Return
Number of Study related Images	(0020,1208)	O	Return
Patient's Birth Date	(0010,0030)	O	Single Value Matching, Universal Matching, Wild Card Matching, Range Matching
Patient's Sex	(0010,0040)	O	Single Value Matching, Universal Matching, Wild Card Matching
Other Patient IDs	(0010,1000)	O	Return
Number of Patient Related Studies	(0020,1200)	O	Return
Number of Patient Related Series	(0020,1202)	O	Return
Number of Patient Related Instances	(0020,1204)	O	Return

3.2.5 Series Level

This section defines the keys at the Series Level of the Patient Root and Study Root Query/Retrieve Information Models that are supported by this implementation.

TABLE 3.2-4
SERIES LEVEL ATTRIBUTES FOR THE QUERY/RETRIEVE INFORMATION MODEL

Attribute Name	Tag	Type	SCP Use
Modality	(0008,0060)	R	Single Value Matching, Universal Matching, Wild Card Matching
Series Number	(0020,0011)	R	Single Value Matching, Universal Matching, Wild Card Matching
Series Instance UID	(0020,000E)	U	Single Value Matching, Universal Matching, Wild Card Matching
Number of Series Related Instances	(0020,1209)	O	Return

3.2.6 Image Level

This section defines the keys at the Image Level of the Patient Root and Study Root Query/Retrieve Information Models that are supported by this implementation.

TABLE 3.2-5
IMAGE LEVEL ATTRIBUTES FOR THE QUERY/RETRIEVE INFORMATION MODEL

Attribute Name	Tag	Type	SCP Use
Instance Number	(0020,0013)	R	Single Value Matching, Universal Matching, Wild Card Matching
SOP Instance UID	(0008,0018)	U	Single Value Matching, Universal Matching, Wild Card Matching
SOP Class UID	(0008,0016)	O	Single Value Matching, Universal Matching, Wild Card Matching

4. MODALITY WORKLIST QUERY IMPLEMENTATION

4.1 IMAGE VAULT DIMENSION SERVER MAPPING OF DICOM ENTITIES

The Image Vault Dimension Server maps DICOM Information Entities to local Information Entities in the product's database.

TABLE 4.1-1
MAPPING OF DICOM ENTITIES TO IMAGE VAULT DIMENSION SERVER ENTITIES

DICOM	Image Vault Dimension Server Entity
Scheduled Procedure Step	Procedure
Requested Procedure	Exam
Imaging Service Request	Exam
Visit	Visit
Patient	Patient

4.2 WORKLIST QUERY MODULE TABLE

See DICOM PS 3.3 and PS 3.4 for a complete definition of the entities, modules, and attributes.

TABLE 4.2-1
MODALITY WORKLIST INFORMATION MODEL MODULES

Entity Name	Module Name	Reference
Scheduled Procedure Step	SOP Common	4.3.1
	Scheduled Procedure Step	4.3.2
Requested Procedure	Requested Procedure	4.3.3
Imaging Service Request	Imaging Service Request	4.3.4
Visit	Visit Identification	4.3.5
	Visit Status	4.3.6
	Visit Relationship	4.3.7
	Visit Admission	4.3.8
Patient	Patient Relationship	4.3.9
	Patient Identification	4.3.10
	Patient Demographic	4.3.11
	Patient Medical	4.3.12

4.3 WORKLIST QUERY MODULE DEFINITIONS

Please refer to DICOM Standard PS 3.3. (Information Object Definitions) for a description of each of the query key attributes contained within the Modality Worklist Information Model.

4.3.1 SOP Common Module

TABLE 4.3-1
SOP COMMON MODULE ATTRIBUTES

Attribute Name	Tag	Expected Matching Key Type	Expected Returned Key Type	Use
Specific Character Set	(0008,0005)	O	1C	Not Used

4.3.1.1 SOP Common Module Attribute Descriptions

4.3.1.1.1 Specific Character Set

The attribute Specific Character Set (0008,0005) will not be sent, unless Patient Name is sent with a matching key that includes a non-ASCII character; in that case, the configured extended character set identifier will be sent. Only non-ASCII characters that may be entered from the console keyboard, as described in Section 2.6, may be included in the matching key value.

The AE will use any Specific Character Set value returned in a Scheduled Procedure Step Identifier in the images created pursuant to that Scheduled Procedure Step. Text attributes, including Patient and Physician names, that include non-ASCII characters will be displayed as described in Section 2.6.

4.3.2 Scheduled Procedure Step Module

TABLE 4.3-2
SCHEDULED PROCEDURE STEP MODULE ATTRIBUTES

Attribute Name	Tag	Expected Matching Key Type	Expected Returned Key Type	Use
Scheduled Procedure Step Sequence	(0040,0100)	R	1	
>Scheduled Station AE Title	(0040,0001)	R	1	Single Value Matching, Universal Matching, Wild Card Matching
>Scheduled Procedure Step Start Date	(0040,0002)	R	1	Single Value Matching, Universal Matching, Wild Card Matching, Range Matching

>Scheduled Procedure Step Start Time	(0040,0003)	R	1	Single Value Matching, Universal Matching, Wild Card Matching, Range Matching
>Scheduled Procedure Step End Date	(0040,0004)	O	3	Not Used
>Scheduled Procedure Step End Time	(0040,0005)	O	3	Not Used
>Modality	(0008,0060)	R	1	Single Value Matching, Universal Matching, Wild Card Matching
>Scheduled Performing Physician's Name	(0040,0006)	R	2	Single Value Matching, Universal Matching, Wild Card Matching
>Scheduled Procedure Step Description	(0040,0005)	O	1C	Single Value Matching, Universal Matching, Wild Card Matching
>Scheduled Station Name	(0040,0010)	O	2	Single Value Matching, Universal Matching, Wild Card Matching
>Scheduled Procedure Step Location	(0040,0011)	O	2	Not Used
>Scheduled Protocol Code Sequence	(0040,0008)	O	1C	Not Used
>> *'Code Sequence Macro'*				Not Used
>Scheduled Procedure Step ID	(0040,0009)	O	1	Single Value Matching, Universal Matching, Wild Card Matching
>Pre-Medication	(0040,0012)	O	2C	Not Used
>Scheduled Procedure Step Status	(0040,0020)	O	1	Not Used
>Comments on the Scheduled Procedure Step	(0040,0400)	O	3	Not Used
>Requested Contrast Agent	(0032,1070)	O	2C	Not Used

4.3.3 Requested Procedure Module

TABLE 4.3-3
REQUESTED PROCEDURE MODULE ATTRIBUTES

Attribute Name	Tag	Expected Matching Key Type	Expected Returned Key Type	Use
Requested Procedure ID	(0040,1001)	O	1	Not Used

Requested Procedure Description	(0032,1060)	O	1C	Not Used
Requested Procedure Code Sequence	(0032,1064)	O	1C	Not Used
> *'Code Sequence Macro'*				Not Used
Study Instance UID	(0020,000D)	O	1	Not Used
Referenced Study Sequence	(0008,1110)	O	2	Not Used
>Referenced SOP Class UID	(0008,1150)	O	1C	Not Used
>Referenced SOP Instance UID	(0008,1155)	O	1C	Not Used
Requested Procedure Priority	(0040,1003)	O	2	Not Used
Patient Transport Arrangements	(0040,1004)	O	2	Not Used
Requested Procedure Location	(0040,1005)	O	3	Not Used
Confidentiality Code	(0040,1008)	O	3	Not Used
Reporting Priority	(0040,1009)	O	3	Not Used
Names of Intended Recipients of Results	(0040,1010)	O	3	Not Used
Reason for the Requested Procedure	(0040,1002)	O	3	Not Used
Requested Procedure Comments	(0040,1400)	O	3	Not Used

4.3.4 Imaging Service Request Module

TABLE 4.3-4
IMAGING SERVICE REQUEST MODULE ATTRIBUTES

Attribute Name	Tag	Expected Matching Key Type	Expected Returned Key Type	Use
Accession Number	(0008,0050)	O	2	Single Value Matching, Universal Matching, Wild Card Matching
Requesting Physician	(0032,1032)	O	2	Not Used
Referring Physician's Name	(0008,0090)	O	2	Not Used
Requesting Service	(0032,1033)	O	3	Not Used

Reason for the Imaging Service Request	(0040,2001)	O	3	Not Used
Imaging Service Request Comments	(0040,2400)	O	3	Not Used
Issue Date of Imaging Service Request	(0040,2004)	O	3	Not Used
Issue Time of Imaging Service Request	(0040,2005)	O	3	Not Used
Placer Order Number / Imaging Service Request	(0040,2016)	O	3	Not Used
Filler Order Number / Imaging Service Request	(0040,2017)	O	3	Not Used
Order entered by ...	(0040,2008)	O	3	Not Used
Order Enterer's Location	(0040,2009)	O	3	Not Used
Order Callback Phone Number	(0040,2010)	O	3	Not Used

4.3.5 Visit Identification

TABLE 4.3-5
VISIT IDENTIFICATION MODULE ATTRIBUTES

Attribute Name	Tag	Expected Matching Key Type	Expected Returned Key Type	Note
Admission ID	(0038,0010)	O	2	Not Used
Institution Name	(0008.0080)	O	3	Not Used
Institution Address	(0008,0081)	O	3	Not Used
Institution Code Sequence	(0008,0082)	O	3	Not Used
> 'Code Sequence Macro'				Not Used
Issuer of Admission ID	(0038,0011)	O	3	Not Used

4.3.6 Visit Status

TABLE 4.3-6
VISIT STATUS MODULE ATTRIBUTES

Attribute Name	Tag	Expected Matching Key Type	Expected Returned Key Type	Note
Current Patient Location	(0038,0300)	O	2	Not Used
Visit Status ID	(0038,0008)	O	3	Not Used
Patient's Institution Residence	(0038,0400)	O	3	Not Used
Visit Comments	(0038,4000)	O	3	Not Used

4.3.7 Visit Relationship

TABLE 4.3-7
VISIT RELATIONSHIP MODULE ATTRIBUTES

Attribute Name	Tag	Expected Matching Key Type	Expected Returned Key Type	Note
Referenced Patient Sequence	(0008,1120)	O	2	Not Used
>Referenced SOP Class UID	(0008,1150)	O	1C	Not Used
>Referenced SOP Instance UID	(0008,1155)	O	1C	Not Used

4.3.8 Visit Admission

TABLE 4.3-8
VISIT ADMISSION MODULE ATTRIBUTES

Attribute Name	Tag	Expected Matching Key Type	Expected Returned Key Type	Note
Referring Physician's Address	(0008,0092)	O	3	Not Used
Referring Physician's Phone Numbers	(0008,0094)	O	3	Not Used
Admitting Diagnoses Description	(0008,1080)	O	3	Not Used
Admitting Diagnoses Code Sequence	(0008,1084)	O	3	Not Used
> *'Code Sequence Macro'*				Not Used
Route of Admissions	(0038,0016)	O	3	Not Used
Admitting Date	(0038,0020)	O	3	Not Used
Admitting Time	(0038,0021)	O	3	Not Used

4.3.9 Patient Relationship

TABLE 4.3-9
PATIENT RELATIONSHIP MODULE ATTRIBUTES

Attribute Name	Tag	Expected Matching Key Type	Expected Returned Key Type	Note
Referenced Visit Sequence	(0008,1125)	O	3	Not Used
>Referenced SOP Class UID	(0008,1150)	O	3	Not Used
>Referenced SOP Instance UID	(0008,1155)	O	3	Not Used
Referenced Patient Alias Sequence	(0038,0004)	O	3	Not Used

>Referenced SOP Class UID	(0008,1150)	O	3	Not Used
>Referenced SOP Instance UID	(0008,1155)	O	3	Not Used

4.3.10 Patient Identification

TABLE 4.3-2
PATIENT IDENTIFICATION MODULE ATTRIBUTES

Attribute Name	Tag	Expected Matching Key Type	Expected Returned Key Type	Note
Patient's Name	(0010,0010)	R	1	Single Value Matching, Universal Matching, Wild Card Matching
Patient ID	(0010,0020)	R	1	Single Value Matching, Universal Matching, Wild Card Matching
Issuer of Patient ID	(0010,0021)	O	3	Not Used
Other Patient IDs	(0010,1000)	O	3	Not Used
Other Patient Names	(0010,1001)	O	3	Not Used
Patient's Birth Name	(0010,1005)	O	3	Not Used
Patient's Mother's Birth Name	(0010,1060)	O	3	Not Used
Medical Record Locator	(0010,1090)	O	3	Not Used

4.3.11 Patient Demographic

TABLE 4.3-3
PATIENT DEMOGRAPHIC MODULE ATTRIBUTES

Attribute Name	Tag	Expected Matching Key Type	Expected Returned Key Type	Note
Patients Birth Date	(0010,0030)	O	2	Single Value Matching, Universal Matching, Wild Card Matching, Range Matching
Patient's Sex	(0010,0040)	O	2	Single Value Matching, Universal Matching, Wild Card Matching
Patient's Weight	(0010,1030)	O	2	Not Used
Confidentiality constraint on patient data	(0040,3001)	O	2	Not Used
Patient's Size	(0010,1020)	O	3	Not Used
Patient's Address	(0010,1040)	O	3	Not Used
Patient's Telephone Numbers	(0010,2154)	O	3	Not Used
Patient's Age	(0010,1010)	O	3	Not Used
Occupation	(0010,2180)	O	3	Not Used
Patient's Birth Time	(0010,0032)	O	3	Not Used
Patient's Insurance Plan Code Sequence	(0010,0050)	O	3	Not Used
> 'Code Sequence Macro'				
Patient's Primary Language Code Sequence	(0010,0101)	O	3	Not Used
> 'Code Sequence Macro'				
> Patient's Primary Language Code Modifier Sequence	(0010,0102)	O	3	Not Used
>> 'Code Sequence Macro'				

Military Rank	(0010,1080)	O	3	Not Used
Branch of Service	(0010,1081)	O	3	Not Used
Country of Residence	(0010,2150)	O	3	Not Used
Region of Residence	(0010,2152)	O	3	Not Used
Patient's Telephone Numbers	(0010,2154)	O	3	Not Used
Ethnic Group	(0010,2160)	O	3	Not Used
Patient's Religious Preference	(0010,21F0)	O	3	Not Used
Patient Comments	(0010,4000)	O	3	Not Used

4.3.12 Patient Medical

TABLE 4.3-4
PATIENT MEDICAL MODULE ATTRIBUTES

Attribute Name	Tag	Expected Matching Key Type	Expected Returned Key Type	Note
Patient State	(0038,0500)	O	2	Not Used
Pregnancy Status	(0010,21C0)	O	2	Not Used
Medical Alerts	(0010,2000)	O	2	Not Used
Contrast Allergies	(0010,2110)	O	2	Not Used
Special Needs	(0038,0050)	O	2	Not Used
Smoking Status	(0010,21A0)	O	3	Not Used
Additional Patient History	(0010,21B0)	O	3	Not Used
Last Menstrual Date	(0010,21D0)	O	3	Not Used

5. MODALITY PERFORMED PROCEDURE STEP IMPLEMENTATION

5.1 MODALITY PERFORMED PROCEDURE STEP MODULE TABLE

See DICOM PS 3.3 and PS 3.4 for a complete definition of the entities, modules, and attributes.

TABLE 5.1-1
MODALITY PERFORMED PROCEDURE STEP MODULES

Module Name	Reference
SOP Common	5.2.1
Performed Procedure Step Relationship	5.2.2
Performed Procedure Step Information	5.2.3
Image Acquisition Results	5.2.4
Radiation Dose	5.2.5
Billing and Material Management Codes	5.2.6

5.2 MODALITY PERFORMED PROCEDURE STEP MODULE DEFINITIONS

Please refer to DICOM Standard PS 3.3. (Information Object Definitions) for a description of each of the attributes contained within the Modality Performed Procedure Step Information Object Definition.

5.2.1 SOP Common Module

TABLE 5.2-1
SOP COMMON MODULE ATTRIBUTES

Attribute Name	Tag	Type for SCU N-CREATE	Type for SCU N-SET	Use
Specific Character Set	(0008,0005)	1C	1C	Not Used

5.2.2 Performed Procedure Step Relationship Module

TABLE 5.2-2
PERFORMED PROCEDURE STEP RELATIONSHIP MODULE ATTRIBUTES

Attribute Name	Tag	Type for SCU N-CREATE	Type for SCU N-SET	Use
Patient's Name	(0010,0010)	2	-	Not Used
Patient ID	(0010,0020)	2	-	Not Used
Patient's Birth Date	(0010,0030)	2	-	Not Used
Patient's Sex	(0010,0040)	2	-	Not Used
Referenced Patient Sequence	(0008,1120)	2	-	Not Used
>Referenced SOP Class UID	(0008,1150)			Not Used
>Referenced SOP Instance UID	(0008,1155)			Not Used
Scheduled Step Attributes Sequence	(0040,0270)	1	-	Not Used
>Study Instance UID	(0020,000D)	1	-	Stored in Database
>Referenced Study Sequence	(0008,1110)	2	-	Not Used
>>Referenced SOP Class UID	(0008,1150)			Not Used
>>Referenced SOP Instance UID	(0008,1155)			Not Used
>Accession Number	(0008,0050)	2	-	Stored in Database
>Placer Order Number/Imaging Service Request	(0040,2016)	3	-	Not Used
>Filler Order Number/Imaging Service Request	(0040,2017)	3	-	Not Used
>Requested Procedure ID	(0040,1001)	2	-	Not Used
>Requested Procedure Description	(0032,1060)	2	-	Not Used
>Scheduled Procedure Step ID	(0040,0009)	2	-	Not Used
>Scheduled Procedure Step Description	(0040,0007)	2	-	Not Used
>Scheduled Protocol Code Sequence	(0040,0008)	2	-	Not Used
>> 'Code Sequence Macro'				Not Used

5.2.3 Performed Procedure Step Information Module

TABLE 5.2-3
PERFORMED PROCEDURE STEP INFORMATION MODULE ATTRIBUTES

Attribute Name	Tag	Type for SCU N-CREATE	Type for SCU N-SET	Use
Performed Station AE Title	(0040,0241)	1	-	Stored in Database
Performed Station Name	(0040,0242)	2	-	Not Used
Performed Location	(0040,0243)	2	-	Not Used
Performed Procedure Step Start Date	(0040,0244)	1	-	Stored in Database
Performed Procedure Step Start Time	(0040,0245)	1	-	Stored in Database
Performed Procedure Step ID	(0040,0253)	1	-	Stored in Database
Performed Procedure Step End Date	(0040,0250)	2	3	Not Used
Performed Procedure Step End Time	(0040,0251)	2	3	Not Used
Performed Procedure Step Status	(0040,0252)	1	3	Stored in Database
Performed Procedure Step Description	(0040,0254)	2	3	Not Used
Comments on the Performed Procedure Step	(0040,0280)	3	3	Not Used
Performed Procedure Type Description	(0040,0255)	2	3	Not Used
Procedure Code Sequence	(0008,1032)	2	3	Not Used
> *'Code Sequence Macro'*	(0040,2016)			Not Used
Performed Procedure Step Discontinuation Reason Code Sequence	(0040,0281)	3	3	Not Used
> *'Code Sequence Macro'*				

5.2.4 Image Acquisition Results Module

TABLE 5.2-4
IMAGE ACQUISITION RESULTS MODULE ATTRIBUTES

Attribute Name	Tag	Type for SCU N-CREATE	Type for SCU N-SET	Use
Modality	(0008,0060)	1	-	Stored in Database
Study ID	(0020,0010)	2	-	Not Used
Performed Protocol Code Sequence	(0040,0260)	2	3	Not Used
> *'Code Sequence Macro'*				
Performed Series Sequence	(0040,0340)	2	3	Not Used
>Performing Physician's Name	(0008,1050)	2	2	Not Used
>Operator's Name	(0008,1070)	2	2	Not Used
>Protocol Name	(0018,1030)	1	1	Not Used
>Series Instance UID	(0020,000E)	1	1	Not Used
>Series Description	(0008,103E)	2	2	Not Used
>Retrieve AE Title	(0008,0054)	2	2	Not Used
>Referenced Image Sequence	(0008,1140)	2	2	Not Used
>>Referenced SOP Class UID	(0008,1150)	1	1	Not Used
>>Referenced SOP Instance UID	(0008,1155)	1	1	Not Used
>Referenced Non-Image Composite SOP Instance Sequence	(0040,0220)	2	2	Not Used
>>Referenced SOP Class UID	(0008,1150)	1	1	Not Used
>>Referenced SOP Instance UID	(0008,1155)	1	1	Not Used

5.2.5 Radiation Dose Module

TABLE 5.2-5
RADIATION DOSE MODULE ATTRIBUTES

Attribute Name	Tag	Type for SCU N-CREATE	Type for SCU N-SET	Use
Anatomic Structure, Space or Region Sequence	(0008,2229)	3	3	Not Used
> *'Code Sequence Macro'*	(0020,0010)	3	3	Not Used

Total Time of Fluoroscopy	(0040,0300)	3	3	Not Used
Total Number of Exposures	(0040,0301)	3	3	Not Used
Distance Source to Detector (SID)	(0018,1110)	3	3	Not Used
Distance Source to Entrance	(0040,0306)	3	3	Not Used
Entrance Dose	(0040,0302)	3	3	Not Used
Entrance Dose in mGy	(0040,8302)	3	3	Not Used
Exposed Area	(0040,0303)	3	3	Not Used
Image Area Dose Product	(0018,115E)	3	3	Not Used
Comments on Radiation Dose	(0040,0310)	3	3	Not Used
Exposure Dose Sequence	(0040,030E)	3	3	Not Used
>Radiation Mode	(0018,115A)	3	3	Not Used
>KVp	(0018,0060)	3	3	Not Used
>X-ray Tube Current in μA	(0018,8151)	3	3	Not Used
>Exposure Time	(0018,1150)	3	3	Not Used
>Filter Type	(0018,1160)	3	3	Not Used
>Filter Material	(0018,7050)	3	3	Not Used

5.2.6 Billing and Material Management Codes Module

TABLE 5.2-6
BILLING AND MATERIAL MANAGEMENT CODES MODULE ATTRIBUTES

Attribute Name	Tag	Type for SCU N-CREATE	Type for SCU N-SET	Use
Billing Procedure Step Sequence	(0040,0320)	3	3	Not Used
> 'Code Sequence Macro'	(0020,0010)	3	3	Not Used
Film Consumption Sequence	(0040,0321)	3	3	Not Used
>Number of Films	(2100,0170)	3	3	Not Used
>Medium Type	(2000,0030)	3	3	Not Used
>Film Size ID	(2010,0050)	3	3	Not Used
Billing Supplies and Devices Sequence	(0040,0324)	3	3	Not Used
>Billing Item Sequence	(0040,0296)	3	3	Not Used
>> 'Code Sequence Macro'	(0040,0303)	3	3	Not Used
>Quantity Sequence	(0040,0293)	3	3	Not Used
>>Quantity	(0040,0294)	3	3	Not Used
>>Measuring Units Sequence	(0040,0295)	3	3	Not Used

>>> *'Code Sequence Macro'*	(0018,115A)	3	3	Not Used

6. STORAGE COMMITMENT PUSH MODEL IMPLEMENTATION

6.1 STORAGE COMMITMENT PUSH MODEL INFORMATION OBJECT DEFINITION

Please refer to DICOM Part 3 (Information Object Definitions) for a description of each of the attributes contained within the Storage Commitment Information Object.

The Storage Commitment Information Object is used both for N-ACTION Storage Commitment Requests by the SCU and N-EVENT-REPORT Storage Commitment Notifications by the SCP.

6.1.1 STORAGE COMMITMENT MODULE FOR N-ACTION

TABLE 6.1-1
STORAGE COMMITMENT MODULE FOR N-ACTION

Attribute Name	Tag	SCU Use	SCP Use
Transaction UID	(0008,1195)	Automatically Generated	Key for Transaction
Storage Media File-Set ID	(0088,0130)	Not used	Not used
Storage Media File-Set UID	(0088,0140)	Not used	Not used
Referenced SOP Sequence	(0008,1199)		
>Referenced SOP Class UID	(0008,1150)		
>Referenced SOP Instance UID	(0008,1155)		
>Storage Media File-Set ID	(0088,0130)	Not used	Not used
>Storage Media File-Set UID	(0088,0140)	Not used	Not used

6.1.2 STORAGE COMMITMENT MODULE FOR N-EVENT-REPORT

TABLE 6.1-1
STORAGE COMMITMENT MODULE FOR N-EVENT-REPORT

Attribute Name	Tag	SCP Use	SCU Use
Transaction UID	(0008,1195)		
Retrieve AE Title	(0008,0054)		
Storage Media File-Set ID	(0088,0130)	Not used	Not used
Storage Media File-Set UID	(0088,0140)	Not used	Not used
Referenced SOP Sequence	(0008,1199)		
>Referenced SOP Class UID	(0008,1150)		

>Referenced SOP Instance UID	(0008,1155)		
>Retrieve AE Title	(0008,0054)		
>Storage Media File-Set ID	(0088,0130)	Not used	Not used
>Storage Media File-Set UID	(0088,0140)	Not used	Not used
Failed SOP Sequence	(0008,1198)		
>Referenced SOP Class UID	(0008,1150)		
>Referenced SOP Instance UID	(0008,1155)		
>Failure Reason	(0008,1197)		