S512-1011

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DICOM Conformance Statement

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Table of Contents

Acronyms, Abbreviations and Symbols 3
1 Introduction 4
1.1 Overview 4
1.2 References 5
1.3 Definitions 5
2. Implementation Model 6
2.1 Image Transfer 6
2.1.1. Application Data Flow 7
2.1.2 Functional Definition of Application Entities 10
2.1.3 Sequencing of Real-World Activities 10
2.2 Print 10
2.2.1 Application Data Flow 10
2.2.2 Functional definition of Application Entities 11
2.2.3 Sequencing of Real-World Activities 11
2.3 Modality Worklist 11
2.3.1 Application Data Flow 11
2.3.2 Functional Definition of Application Entities 12
2.3.3 Sequencing of Real-World Activities 12
3 I-Acquire Image Transfer AE Specification 13
3.1 Association Establishment Policy 14
3.1.1 General 14
3.1.2 Number of Associations 14
3.1.3 Asynchronous nature 14
3.1.4 Implementation Identifying Information 14
3.2 Association Initiation by Real World Activity 14
3.2.1 Verification Request 15
3.2.2 Export Image Request 15
3.2.3 Commit Image Request 17
3.2.4 Query Request 18
3.2.5 Move Image Request 22
3.3 Association Acceptance Policy 24
3.3.1 Remote ECHO Request 24
3.3.2 Remote STORE Request 25
3.3.3 Remote FIND Request 27
3.3.4 Remote MOVE Request 28
3.3.5 Remote ST.COMMIT Response 30
4 I-Acquire Print AE Specification 32
4.1 Association Establishment Policy 32
4.1.1. General 32
4.1.2. Number of Associations 32
4.1.3. Asynchronous nature 32
4.1.4. Implementation Identifying Information 32

4.2 Association Initiation by Real World Activity 33
4.2.1 Print Image 33
4.3 Association Acceptance Policy 38
5. I-Acquire MWL AE Specification 39
5.1 Association Establishment Policy 39
5.1.1 General 39
5.1.2 Number of Associations 39
5.1.3 Asynchronous nature 39
5.1.4 Implementation Identifying Information 39
5.2 Association Initiation by Real World Activity 39
5.2.1 Modality Worklist Retrieval Request 39
5.3 Association Acceptance Policy 40
6 Communication Profiles 40
6.1 Supported Communication Stacks 40
6.2 OSI Stack 40
6.3 TCP/IP Stack 40
6.3.1 API 40
6.3.2 Physical Media Support 40
6.4 Point to Point Stack 40
7 Configuration 41
7.1 I-ACQUIRE IMAGE TRANSFER AE Configuration 41
7.2 I-ACQUIRE PRINT AE Configuration 42
7.3 I-ACQUIRE MWL AE Configuration 42
8 Supported of Extended Character Sets 42
9 Annex A – Information Object Definitions 43
9.1 Digital Mammography (MG) Information Object Definition 43
9.1.1 Entity Module Definitions 43
9.1.2 Information Object Definitions 44
9.2 Grayscale Softcopy Presentation State IOD Information Object Definition 58
9.2.1 Entity Module Definitions 58
9.2.2. Information Object Definition 59
9.3 Secondary Capture (SC) Information Object Definition 68
9.3.1 Entity Module Definitions 68
9.3.2. Information Object Definition 69
補遺　Worklist での Matching-Key and Return-Key 76

Acronyms, Abbreviations and Symbols

ACC	American College of Cardiology
ACR	American College of Radiology
ASCII	American Standard Code for Information Interchange
AE	Application Entity
ANSI	American National Standards Institute
CD	Compact Disc
CR	Computed Radiography
DICOM	Digital Imaging and COmmunications in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DICOM Message Service Element-Composite
DIMSE-N	DICOM Message Service Element-Normalized
DX	Digital X-Ray
FSC	File-set Creator
FSR	File-set Reader
FSU	File-set Updater
GSPS	Grayscale Softcopy Presentation State
HD	Hard Disk
HIS	Hospital Information System
HL7	Health Level 7
IE	Information Entity
IOD	Information Object Definition
ISO	International Standard Organization
MG	Mammography
MOD	Magneto Optical Disc
MPPS	Modality Performed Procedure Step
MWL	Modality Worklist
MWM	Modality Worklist Management
PPS	Performed Procedure Step
NEMA	National Electrical Manufacturers Association
PDU	Protocol Data Unit
RIS	Radiology Information System
SC	Secondary capture
SCP	Service Object Pair
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier

1 Introduction

This document is a DICOM conformance Statement for the I-Acquire application.

This document is intended to provide the reader with the knowledge of how to integrate this product within a DICOM compliant network. It details DICOM Service Classes and Communication Protocols that are supported by I-Acquire.

I-Acquire supports following service classes:

- Verification Service Class (SCU/SCP)
- Storage Service Class (SCU/SCP)
- Storage Commitment Service Class (SCU/SCP)
- Query/Retrieve Service Class (SCU/SCP)
- Print Management Service Class (SCU)
- Modality Worklist Management Service Class (SCU)

If reader is unfamiliar with DICOM, it is recommended to read the DICOM Specification (referenced in section 1.2) prior to reading this conformance statement.

1.1 Overview

This document contains 9 sections (including this Section 1 – Introduction)

Section 2 presents the DICOM implementation model of the I-Acquire, supported by detailed application data flow diagram.

Section 3 provides definition of the Image Transfer Application Entity (AE) that is part of I-Acquire. Details are given in the AE Specification.

Section 4 provides definition of the Print AE that is part of I-Acquire. Details are given in the AE Specification.

Section 5 provides definition of the Modality Worklist AE that is part of I-Acquire. Details are given in the AE Specification.

Communication Profiles are discussed in section 6, and configuration required by I-Acquire is provided in Section 7. Section 8 indicates supported for Extended Character Sets.

Annex A provides Information Object Definition for the modalities supported by I-Acquire and the Grey Scale Presentation State (GSPS) IOD.

1.2 References

ACR-NEMA Digital Imaging and Communications in Medicine, DICOM V3.0. 1999-2000.

1.3 Definitions

- **Association Establishment** – An association Establishment is the first phase of communication between two DICOM Application Entities. The AEs use the Association Establishment to negotiate how data will be encoded and the type of data to be exchanged.
- **Called Application Entity Title** – The Called AE Title defines the intended receiver of an Association.
- **Calling Application Entity Title** – The Calling AE Title defines the requestor of an Association.
- **DICOM Message Service Element (DIMSE)** – A DIMSE defines the services and protocols utilized by an Application Entity to exchange messages.
- **I-Acquire** – universal acquisition console for multiple modalities.
- **I-Acquire/MG** – version of I-Acquire that supports Digital Mammography.
- **Information Object Definition (IOD)** – An IOD is a data model, which is an abstraction of real-world information. This data model defines the nature and attributes relevant to the class of real-world object represented.
- **Service Class Provider (SCP)** – A Service Class Provider plays the "server" role to perform operations and invoke notifications during an Association. An example of a Storage Service Class Provider would be an image storage device. In this case, the image storage device is storing the image that was sent by a Service Class User.
- **Service Class User (SCU)** – A Service Class User plays the "client" role to invoke operations and perform notification during an Association. An example of a Storage Service Class User would be an image acquisition device. In this case, the image acquisition device will create and send a DICOM image by requesting that a Service Class Provider store that image.
- **Service/Object Pair (SOP) Class** – A SOP Class is defined by the union of an Information Object Definition and a set of DIMSE Services. A DICOM Application Entity may support one or more SOP Classes. Each SOP Class is uniquely identified by a SOP Class UID.
- **SOP Instance** – A specific occurrence of an Information Object.
- **Transfer Syntax** – The Transfer Syntax is a set of encoding rules that allow DICOM Application Entities to negotiate the encoding techniques (e.g. data element structure, byte ordering, compression) they are able to support. The Transfer Syntax is negotiated during Association Negotiation.
- **Unique Identifier (UID)** – A Unique Identifier is a globally unique, ISO compliant, ASCII-numeric string. It guarantees uniqueness across multiple countries, site, vendors and equipment.

2. Implementation Model

I-Acquire is universal acquisition console that supports multiple modalities. During the installation of the system only one modality is enabled based on the type of device that I-Acquire is being configured for. I-Acquire is currently being offered in the following configurations:

1. I-Acquire/MG – acquisition console that interfaces to Digital Mammography device, i.e. MG Detectors and generators.

The I-Acquire application encompasses the following DICOM Application Entities:

- I-ACQUIRE IMAGE TRANSFER AE – to exchange images with other Application Entities by the means of DICOM network exchange. It implements the following Service Classes:
  - Storage as SCU/SCP
  - Query/Retrieve as SCU/SCP
  - Verification as SCU/SCP
  - Storage Commitment as SCU
- I-ACQUIRE PRINT AE – to print images to remote DICOM hardcopy devices. It implements the following Service Classes:
  - DICOM Print SCU
- I-ACQUIRE MWL AE – to fetch modality worklist from worklist manager. It implements the following Service Classes:
  - DICOM Modality Worklist SCU

2.1 Image Transfer

I-ACQUIRE TRANSFER AE is implemented as a single application entity and performs the following services:

- sends/exports images to remote DICOM storage devise (acts as Storage SCU)
- commits images in remote DICOM storage devices (acts as Strage Commitment SCU)
- queries/browses other DICOM devices (acts as Query/Retrieve SCU + Storage SCP)
- allows other DICOM devices to send images to it (acts as Query/Retrieve SCP)
- allows other devices to send images it (acts as Storage SCP)
- sends Verification Requests to other devices (acts as Verification SCU)
- responds to Verification Requests sent by other devices (acts as Verification SCP)

2.1.1. Application Data Flow

Figure 1 illustrates the following scenarios:

- Send an **ECHO Request** to a remote DICOM AE in response to I-Acquire application **Verification Request**.
- Send a **STORE Request** to a remote DICOM AE in response to I-Acquire application **Export Image Request**.
- Initiate an **ST.COMMIT Request** to a remote DICOM AE in response to I-Acquire application **Commit Image Request**.
- Initiate an **FIND Request** to a remote DICOM AE in response to I-Acquire application **Query Request**.
- Initiate a **MOVE Request** operation to a remote DICOM AE in response to I-Acquire application **Move Image Request**.
- Respond to a **Remote FIND Request** sent by another DICOM AE. This is done by I-ACQUIRE IMAGE TRANSFER AE transparently to I-Acquire application.
- Save an Information Object passed in the **Remote STORE Request** in the local repository. This is done by I-ACQUIRE IMAGE TRANSFER AE transparently to I-Acquire application.
- Respond to a **Remote MOVE Request** sent by another DICOM AE. The I-ACQUIRE IMAGE TRANSFER AE retrieves the relevant Information Objects from the local repository and sends each of them to the remote DICOM AE in a **STORE Request**. This is done by I-ACQUIRE IMAGE TRANSFER AE transparently to I-Acquire application.
- Process the **Remote ST.COMMIT Response** and update the local repository accordingly. This is done by I-ACQUIRE IMAGE TRANSFER AE transparently to I-Acquire application.
- Process a **Remote ECHO Request**. This is done by I-ACQUIRE IMAGE TRANSFER AE transparently to I-Acquire application.

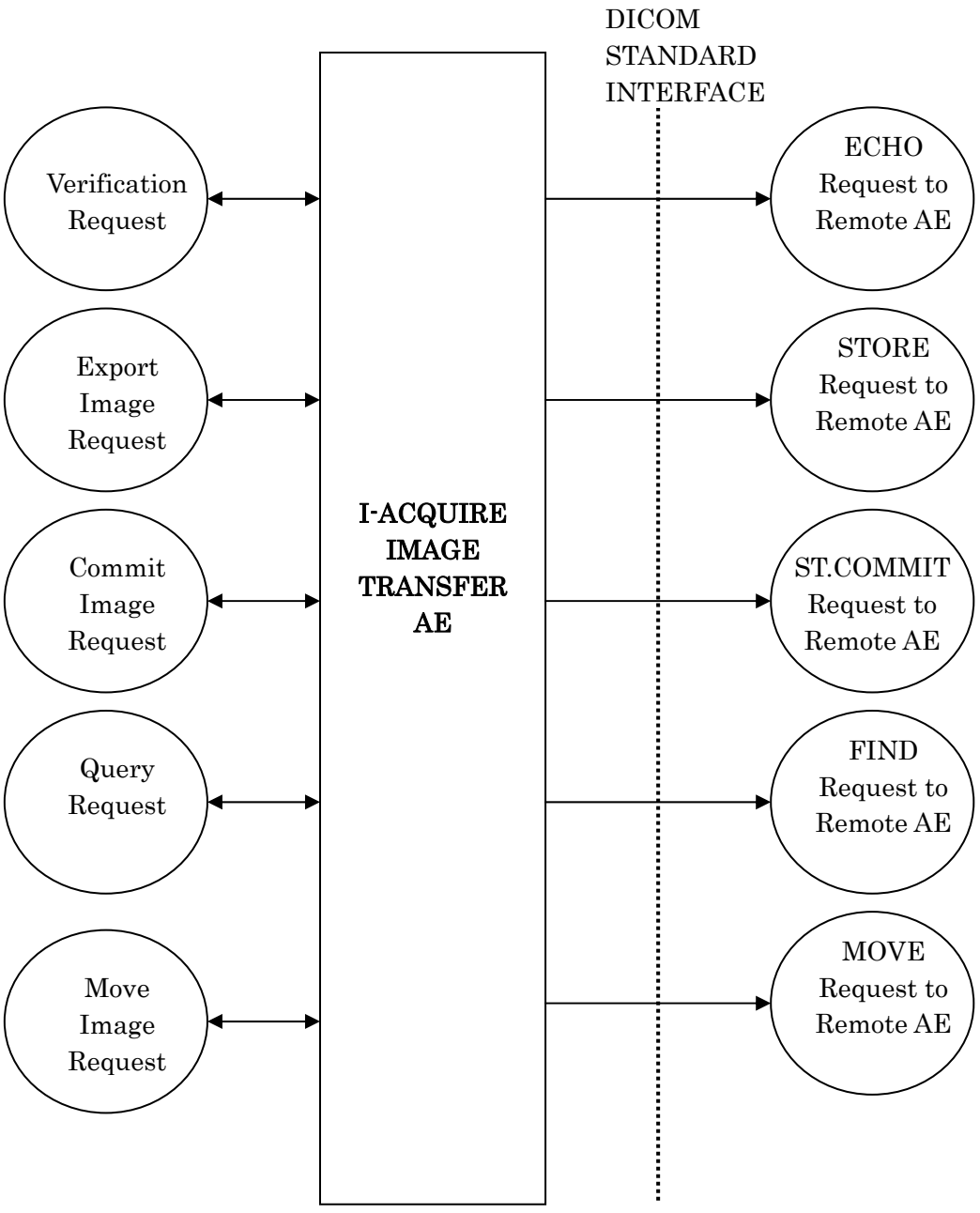

Figure 1: Image Transfer Data Flow Diagram

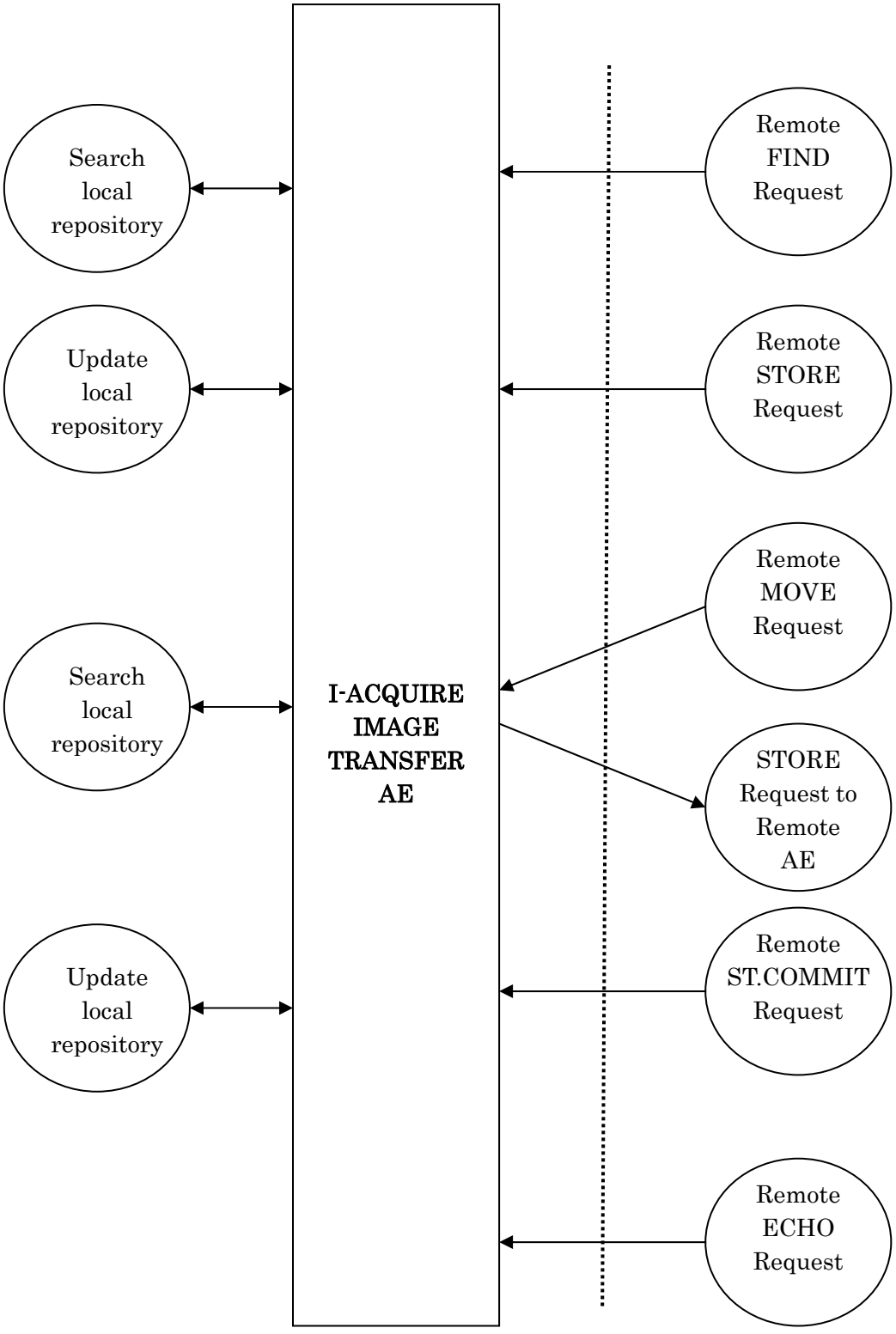

Figure 1: Image Transfer Data Flow Diagram (continued)

2.1.2 Functional Definition of Application Entities

The I-ACQUIRE IMAGE TRANSFER AE component operates as a daemon. The startup of the I-Acquire system initiates its execution. The daemon is shut down when the I-Acquire application is uninstalled.

I-ACQUIRE IMAGE TRANSFER AE uses a configuration file that contains information used to describe both local as well as remote Application Entities. After the configuration is loaded I-ACQUIRE IMAGE TRANSFER AE listens on the configured port for association requests. I-ACQUIRE IMAGE TRANSFER AE stores all received information Object Instances in the local repository. The data remains in the local repository until removed by the I-Acquire application.

I-ACQUIRE IMAGE TRANSFER AE logs its errors and warning indications to the Windows Application Event Log.

2.1.3 Sequencing of Real-World Activities

It is expected that requests for ST.COMMIT will only be made by the I-Acquire application after successful Export Image Request of the related SOP Instances to a remote AE.

2.2 Print

2.2.1 Application Data Flow

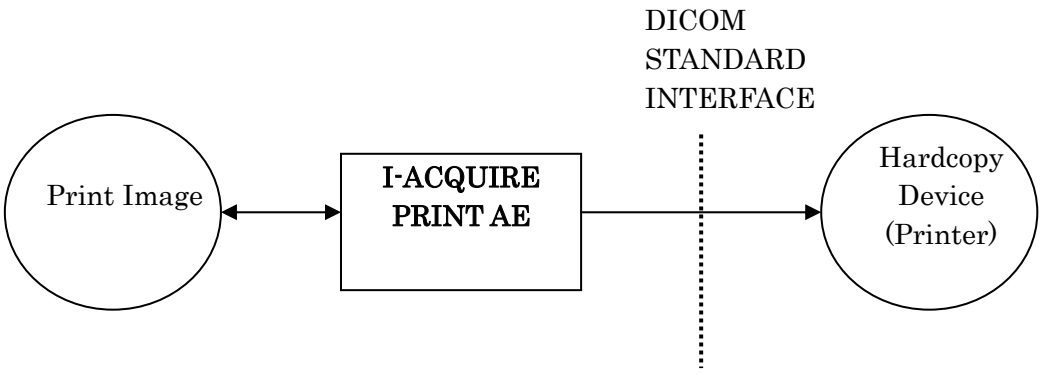

Figure 2: Print Management Data Flow Diagram

2.2.2 Functional definition of Application Entities

I-ACQUIRE PRINT AE is used to request to Print studies/images to a remote DICOM hardcopy device. It therefore performs the following tasks:

- Builds DICOM Basic Grayscale or Color Print Objects
- Performs transmit of DICOM Basic Grayscale or Color Print Objects to a remote DICOM Hardcopy device.

I-ACQUIRE PRINT AE is a service class user (SCU) for print.

The I-ACQUIRE PRINT AE component operates as a daemon. The startup sequence of the I-Acquire system initiates its execution. The daemon is shut down when the I-Acquire application is uninstalled.

I-ACQUIRE PRINT AE uses a configuration file that contains information used to configure association attempts from Remote Application entities.

I-ACQUIRE PRINT AE logs its errors and warning indications to the Windows Application Event Log.

2.2.3 Sequencing of Real-World Activities

Not applicable.

2.3 Modality Worklist

2.3.1 Application Data Flow

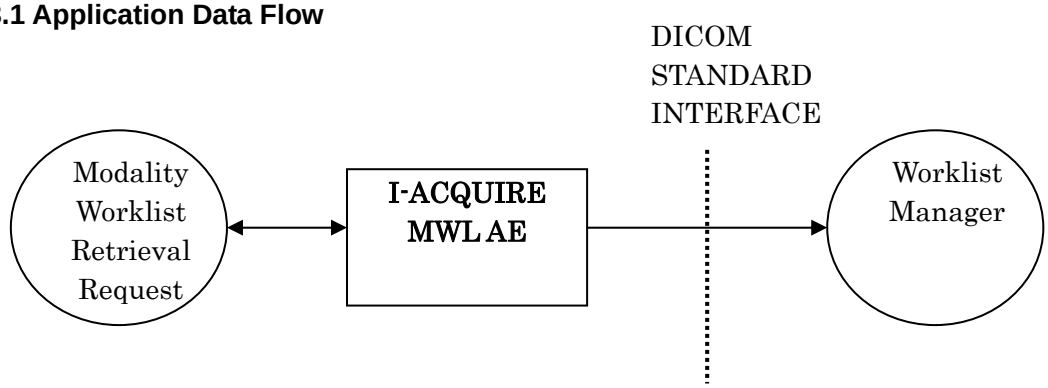

Figure 3: Modality Worklist Data Flow Diagram

2.3.2 Functional Definition of Application Entities

I-ACQUIRE MWL AE is used to query modality worklist information from a remote DICOM worklist manager. It therefore performs the following tasks:

- Issues a request for a worklist to a remote DICOM worklist manager.
- Retrieves Modality Worklist from a remote DICOM worklist manager.

I-ACQUIRE MWL AE component operates as part of I-Acquire application. It is shut down when the application terminates.

I-ACQUIRE MWL AE logs its errors and warning indications to the Windows Application Event Log.

2.3.3 Sequencing of Real-World Activities

Not applicable.

3 I-Acquire Image Transfer AE Specification

I-ACQUIRE IMAGE TRANSFER AE provides Standard Conformance to the following DICOM SOP Class as an SCU:

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
Patient Root Query/Retrieve Model – FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Model – FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2
Storage Commitment Push Model	1.2.840.10008.5.1.20.1
MG Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2
MG Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1
Secondary Capture (SC) Image Storage	1.2.840.10008.5.1.4.1.1.7
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1

I-ACQUIRE IMAGE TRANSFER AE provides Standard Conformance to the following DICOM SOP Class as an SCP:

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
Patient Root Query/Retrieve Model – FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Model – FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2
MG Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2
MG Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1
Secondary Capture (SC) Image Storage	1.2.840.10008.5.1.4.1.1.7
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1

3.1 Association Establishment Policy

3.1.1 General

The user of the I-Acquire User Interface can select which Application Entity to associate with for Query, Move, Store, and Storage Commitment operations.

The I-ACQUIRE IMAGE TRANSFER AE will respond to association requests from remote AEs, however, it will only accept associations from those remote AEs on which it has knowledge. It will only accept those Presentation Contexts that it is configured to support for the specific requesting AE. The AEs can be configured to allow or deny any service on a per remote AE basis.

The maxmum length of PDU that the I-ACQUIRE IMAGE TRANSFER AE will receive is 65536.

3.1.2 Number of Associations

The I-ACQUIRE IMAGE TRANSFER AE can initiate multiple associations concurrently. There is no limit on the number of associations maintained simultaneously with one or different DICOM SCPs.

3.1.3 Asynchronous nature

The I-ACQUIRE IMAGE TRANSFER AE allows a single outstanding operation on any association. Therefore, I-Acquire AE does not support asynchronous operations and will not perform asynchronous window negotiation, other than the default as specified by the DICOM specification.

3.1.4 Implementation Identifying Information

The I-ACQUIRE IMAGE TRANSFER AE is identified by the following ids:

Implementation Class UID: 2.16.124.113531.1.1.1

Implementation Version Name: CDMDcS V1.0

3.2 Association Initiation by Real World Activity

This section details the action of the I-ACQUIRE IMAGE TRANSFER AE SCU component as a result of user initiated activity on the I-Acquire Application User Interface and “transparent” activity (STORE Request to Remote AE).

3.2.1 Verification Request

3.2.1.1. Associated Real World Activity

The user of I-Acquire Application specifies the remote DICOM AE to which all acquired images and Softcopy Presentation State objects will be forwarded. The causes I-ACQUIRE IMAGE TRANSFER AE to send a Verification message to the remote DICOM AE.

3.2.1.2 Proposed Presentation Contexts

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

3.2.1.3 SOP Specific Conformance

Not applicable.

3.2.2 Export Image Request

3.2.2.1 Associated Real World Activity

Automatic export:

The user configures the I-Acquire application to automatically export a study after it has been performed. The user sets up the default destination and no further intervention on the user part is required. The I-ACQUIRE IMAGE TRANSFER AE transfers the images in the background.

Manual export:

The user of the I-Acquire application selects one or more patients or studies from a list presented as a result of previous Query operation. The user then selects the "Send" operation on the user interface to initiate the Export operation. The destination Entity Title is selectable on the User Interface.

Unsolicited export:

An image can be exported as a result of a C-MOVE request issued by a remote DICOM AE. Such an export is possible only if the remote DICOM AE has been

configured in the I-Acquire application. Unsolicited exports are transparent to the user of the I-Acquire application.

3.2.2.2 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name List**	**UID List**		
MG Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		JPEG Lossless *	1.2.840.10008.1.2.4.70		
MG Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		JPEG Lossless *	1.2.840.10008.1.2.4.70		
SC Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		JPEG Lossless *	1.2.840.10008.1.2.4.70		
GSPS Storage	1.2.840.10008.5.1.4.1.1.11.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

* Support for JPEG Lossless Transfer Syntax requires a separate license.

3.2.2.3 SOP Specific Conformance

This implementation supports transfers as an SCU as described in NEMA PS3.4(2000) Annex B.

This Information Object attributes that encapsulated in a dataset and sent with the C-STORE request are specified in Annex A of this document.

3.2.3 Commit Image Request

3.2.3.1 Associated Real World Activity

I-Acquire application automatically commits Information Objects in a remote DICOM AE. This can be disabled/enabled the I-Acquire application GUI. Information Objects are automatically committed after they have been successfully transferred AE.

3.2.3.2 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

3.2.3.3 SOP Specific Conformance

The I-ACQUIRE IMAGE TRANSFER AE can be request storage commitment for any SOP Instance in the local repository. The I-ACQUIRE IMAGE TRANSFER AE does not support the optional Storage Media File-Set ID and UID attributes in the storage commitment request.

3.2.4 Query Request

3.2.4.1 Associated Real World Activity

In order to browse a remote DICOM AE the user of the I-Acquire Application selects the Query operation button on the user interface. The DICOM transfer utility GUI is launched that allows the user to define their search criteria. The user can specify wild card or specific information for Patient Name, Patient ID, Study ID, Study Date range or Referring Physician.

Wild card queries can result in excessive number of response. The user interface is able to restrict the number of patients displayed. A warning dialog is displayed to indicate that too many matches were found. A query cancel command is sent the limit is reached.

The DICOM transfer utility defaults to using Study Root Query Model when query request. The query model used can be changed to Patient Root Query Model by changing a configuration parameter.

3.2.4.2 Proposed Presentation Contexts

The following table describes the Presentation Contexts that may be presented for the Query request.

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query / Retrieve Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Study Root Query / Retrieve 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

3.2.4.3 SOP Specific Conformance for Patient Root Query/Retrieve Model – FIND

The I-ACQUIRE IMAGE TRANSFER AE does not use Relational Queries.
The I-ACQUIRE IMAGE TRANSFER AE does not use Extended Negotiation.
The Keys supported are listed below:

Patient Level Keys

Description	Tag	Type
Patient Name *	(0010,0010)	R
Patient ID	(0010,0020)	U
Patient's Birth Date	(0010,0030)	O
Patient's Birth Time	(0010,0032)	O
Patient's Sex	(0010,0040)	O
Other Patient IDs	(0010,1000)	O
Other Patient Name	(0010,1001)	O
Ethnic Group	(0010,2160)	O
Patient Comments	(0010,4000)	O

Study Level Keys

Description	Tag	Type
Study Date *	(0008,0020)	R
Study Time *	(0008,0030)	R
Accession Number	(0008,0050)	R
Study ID *	(0020,0010)	R
Study Instance UID	(0020,000D)	U
Referring Physician's Name *	(0008,0090)	O
Study Description	(0008,1030)	O
Name of Physician(s) Reading Study	(0008,1060)	O
Admitting Diagnoses Description	(0008,1080)	O
Patient's Age	(0010,1010)	O
Patient's Size	(0010,1020)	O
Patient's Weight	(0010,1030)	O
Occupation	(0010,2180)	O
Additional Patient History	(0010,21B0)	O
Other Study Numbers	(0020,1070)	O
Interpretation Author	(4008,010C)	O

Series Level Keys

Description	Tag	Type
Modality *	(0008,0060)	R
Series Number *	(0020,0011)	R
Series Instance UID	(0020,000E)	U

Image Level Keys

Description	Tag	Type
Image Number	(0020,0013)	R
SOP Instance UID	(0008,0018)	U

* The keys marked with asterisk are displayed in the DICOM transfer utility

3.2.4.4 SOP Specific Conformance for Study Root Query/Retrieve Model – FIND

The I-ACQUIRE IMAGE TRANSFER AE does not use Relational Queries.
The I-ACQUIRE IMAGE TRANSFER AE does not use Extended Negotiation.
The Keys supported are listed below:

Study Level Keys

Description	Tag	Type
Study Date *	(0008,0020)	R
Study Time *	(0008,0030)	R
Accession Number	(0008,0050)	R
Patient's Name *	(0010,0010)	R
Patient ID *	(0010,0020)	R
Study ID *	(0020,0010)	R
Study Instance UID	(0020,000D)	U
Referring Physician's Name *	(0008,0090)	O
Study Description	(0008,1030)	O
Name of Physician(s) Reading Study	(0008,1060)	O
Admitting Diagnoses Description	(0008,1080)	O
Patient's Birth Date	(0010,0030)	O
Patient's Birth Time	(0010,0032)	O
Patient's Sex	(0010,0040)	O
Other Patient IDs	(0010,1000)	O
Other Patient Name	(0010,1001)	O
Patient's Age	(0010,1010)	O
Patient's Size	(0010,1020)	O
Patient's Weight	(0010,1030)	O
Ethnic Group	(0010,2160)	O
Occupation	(0010,2180)	O
Additional Patient History	(0010,21B0)	O
Patient Comments	(0010,4000)	O
Other Study Numbers	(0020,1070)	O
Number of Study Related Images	(0020,1208)	O
Interpretation Author	(4008,010C)	O

Series Level Keys

Description	Tag	Type
Modality *	(0008,0060)	R
Series Number *	(0020,0011)	R
Series Instance UID	(0020,000E)	U

Image Level Keys

Description	Tag	Type
Image Number	(0020,0013)	R
SOP Instance UID	(0008,0018)	U

The keys marked with asterisk are displayed in the DICOM transfer utility

3.2.5 Move Image Request

3.2.5.1 Associated Real World Activity

In order to move an image the user selects one or more studies and/or series within from a list presented as a result of the browsing operation – see Query Request (3.2.4).

The user of the I-Acquire Application then selects the Send button on the user interface to initiate the move of an image. Thus triggers the I-ACQUIRE IMAGE TRANSFER AE to send a C-MOVE request to the remote DICOM AE. The Destination Application Entity Title is selectable on the User Interface.

3.2.5.2 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query / Retrieve Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Study Root Query / Retrieve 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

3.2.5.3 SOP Specific Conformance for Patient Root Query/Retrieve Model – Move

This implementation supports transfers against the Patient Query/Retrieve Information Model described in Section C.6.1.1 of NEMA PS3.4(2000) Annex C using the C-MOVE SCU behavior described in Section C.4.2.2 of NEMA PS3.4(2000) Annex C.

3.2.5.4 SOP Specific Conformance for Study Root Query/Retrieve Model – Move

This implementation supports transfers against the Study Query/Retrieve Information Model described in Section C.6.2.1 of NEMA PS3.4(2000) Annex C using the C-MOVE SCU behavior described in Section C.4.2.2 of NEMA PS3.4(2000) Annex C.

3.3 Association Acceptance Policy

I-ACQUIRE TRANSFER AE accepts associations at any avtivated time for

- Verification
  Accept C-ECHO requests from a remote DICOM AE in order to respond to Remote Echo Request.

- Storage
  Accept C-STORE requests from a remote DICOM AE in order to update local repository.

- Query/Retrieve
  Accept C-FIND and C-MOVE requests to allow remote DICOM AEs to browse the content of the local repository and trigger Image Exports.

Parameters in the I-ACQUIRE IMAGE TRANSFER AE configuration file determine association acceptance. Association acceptance can be controlled on the basis of Called Application Entity Title, Calling Application Title, and SOP Class UID matching.

A configuration parameter can be set to limit the number of accepted associations to specific value.

3.3.1 Remote ECHO Request

3.3.1.1. Associated Real World Activity

The I-ACQUIRE IMAGE TRANSFER AE receives an association request for verification service from a remote AE. The I-ACQUIRE IMAGE TRANSFER AE will respond to a verification request transparently to the user of the application.

3.3.1.2 Accepted Presentation Contexts

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

3.3.1.3 Presentation Context Acceptance Criterion

The I-ACQUIRE IMAGE TRANSFER AE accepts Verification SOP Class Presentation Contexts if they are configured for a given Application Entity in the I-ACQUIRE IMAGE TRANSFER AE configuration file. The possible Presentation Contexts are listed in section 3.3.1.2.

3.3.1.4. Transfer Syntax Selection Policies

The I-ACQUIRE IMAGE TRANSFER AE is configured by default to support only the default DICOM transfer syntax, i.e., Implicit VR Little-Endian.
A configuration option is available to allow other transfer syntaxes.

3.3.2 Remote STORE Request

3.3.2.1. Associated Real World Activity

The I-ACQUIRE IMAGE TRANSFER AE receives an association request for storage service from a remote AE.

The I-ACQUIRE IMAGE TRANSFER AE stores the Information Objects received on the accepted association into its local repository.

This is done transparently to the I-Acquire application user.

3.3.2.2 Accepted Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
MG Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Lossless *	1.2.840.10008.1.2.4.70		
MG Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Lossless *	1.2.840.10008.1.2.4.70		
SC Image Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		JPEG Lossless *	1.2.840.10008.1.2.4.70		
GSPS Storage	1.2.840.10008.5.1.4.1.1.11.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

* Support for JPEG Lossless Transfer Syntax requires a separate license.

3.3.2.3. SOP Specific Conformance for Remote Storage Requests

I-Acquire AE Conforms to the DICOM Storage Service Class at Level 2 (FULL). No elements are generated by I-Acquire AE. In the event of a successful C-STORE operation, the image is stored in local repository.

I-Acquire AE returns one of the following status code.

Service Status	Further Meaning	Protocol Codes	Description
Refused	Out of Resources	0xA700	Indicates that there was not enough storage space to store the image.
Error	Data Set does not match SOP Class	0xA900	Indicates that the Data Set does not encode an instance of the SOP Class specified.
	Failed	0xC000	The Operation was not successful.
	Duplicate SOP Instance UID	0xD000	
Warning	Data set does not match SOP Class	0xB007	Indicates that the Data Set does not match the SOP Class.
Success	Success	0x000	Operation performed properly.

3.3.2.4. Presentation Context Acceptance Criterion

The I-ACQUIRE IMAGE TRANSFER AE accepts Storage SOP Class Presentation Contexts if they are configured for a given Application Entity in the I-ACQUIRE TRANSFER AE configuration file. The possible Presentation Contexts are listed in section 3.3.2.2.

3.3.1.4. Transfer Syntax Selection Policies

The I-ACQUIRE IMAGE TRANSFER AE is configured by default to support only the default DICOM transfer syntax, i.e., Implicit VR Little-Endian.
A configuration option is available to allow other transfer syntaxes.

3.3.3 Remote FIND Request

3.3.3.1 Associated Real World Activity

The I-ACQUIRE IMAGE TRANSFER AE receives an association request from a remote AE to search local repository.

The I-ACQUIRE IMAGE TRANSFER AE searches the local repository for requested Information Objects described in the C-FIND identifier and returns a response for each match.

This is done transparently to the I-Acquire application user.

3.3.3.2 Accepted Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Patient Root Query / Retrieve Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Study Root Query / Retrieve 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

3.3.3.3. SOP Specific Conformance for Patient Root Query/Retrieve Model – FIND

The I-ACQUIRE IMAGE TRANSFER AE conforms to the DICOM Patient Root Query/Retrieve Service Class as an SCP for the Abstract Syntax's listed in the table in section 3.3.3.2. A response is returned for each match found in the local repository.

Possible response status values are:

Refused	Out of resources	A700
Failed	Unable to Process	C000
Cancel	Terminated due to Cancel Request	FE00
Success	matching completed	0000
Pending	Matches are continuing	FF00

3.3.3.4. SOP Specific Conformance for Study Root Query/Retrieve Model – FIND

The I-ACQUIRE IMAGE TRANSFER AE conforms to the DICOM Study Root Query/Retrieve Service Class as an SCP for the Abstract Syntax's listed in the table in section 3.3.3.2. A response is returned for each match found in the local repository.

Possible response status values are:

Refused	Out of resources	A700
Failed	Unable to Process	C000
Cancel	Terminated due to Cancel Request	FE00
Success	matching completed	0000
Pending	Matches are continuing	FF00

3.3.3.5. Presentation Context Acceptance Criterion

The I-ACQUIRE IMAGE TRANSFER AE accepts SOP Class contexts if they are configured for in the Application Entity configuration file. The possible Presentation Contexts are listed in section 3.3.3.2.

3.3.3.6. Transfer Syntax Selection Policies

The I-ACQUIRE IMAGE TRANSFER AE is configured by default to support only the default DICOM transfer syntax, i.e., Implicit VR Little-Endian.
A configuration option is available to allow other transfer syntaxes.

3.3.4 Remote MOVE Request

3.3.4.1. Associated Real World Activity

The I-ACQUIRE IMAGE TRANSFER AE receives an association request from a remote AE to search local repository and trigger STORE request to remote AE.

The I-ACQUIRE IMAGE TRANSFER AE initiates an association to the destination Application Entity specified in the C-MOVE command message. The I-ACQUIRE IMAGE TRANSFER AE then extracts the requested Information Objects described in the C-MOVE identifier from the local repository and performs C-STORE operations on the destination association.

This is done transparently to the I-Acquire application user.

3.3.4.2 Accepted Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Patient Root Query / Retrieve Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Study Root Query / Retrieve 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

3.3.4.3. SOP Specific Conformance for Patient Root Query/Retrieve Model – MOVE

The I-ACQUIRE IMAGE TRANSFER AE conforms to the DICOM Patient Root Query/Retrieve Service Class as an SCP for the Abstract Syntax's listed in the table in section 3.3.4.2. A response is returned for each match found in the local repository.

Possible response status values are:

Refused	Out of resources	A701
	Move Destination Unknown	A801
Failed	Unable to Process	C000
Cancel	Terminated due to Cancel Request	FE00
Success	Sub-operations completed	0000
Warning	Sub-operations completed, 1 or more failures	B000
Pending	Matches are continuing	FF00

3.3.4.4. SOP Specific Conformance for Study Root Query/Retrieve Model – MOVE

The I-ACQUIRE IMAGE TRANSFER AE conforms to the DICOM Study Root Query/Retrieve Service Class as an SCP for the Abstract Syntax's listed in the table in section 3.3.4.2. A response is returned for each match found in the local repository.

Possible response status values are:

Refused	Out of resources	A701
	Move Destination Unknown	A801
Failed	Unable to Process	C000
Cancel	Terminated due to Cancel Request	FE00
Success	Sub-operations completed	0000
Warning	Sub-operations completed, 1 or more failures	B000
Pending	Matches are continuing	FF00

3.3.3.5. Presentation Context Acceptance Criterion

The I-ACQUIRE IMAGE TRANSFER AE accepts SOP Class contexts if they are configured for in the Application Entity configuration file. The possible Presentation Contexts are listed in section 3.3.4.2.

3.3.4.6. Transfer Syntax Selection Policies

The I-ACQUIRE IMAGE TRANSFER AE is configured by default to support only the default DICOM transfer syntax, i.e., Implicit VR Little-Endian.
A configuration option is available to allow other transfer syntaxes.

3.3.5 Remote ST.COMMIT Response

3.3.5.1. Associated Real World Activity

The I-ACQUIRE IMAGE TRANSFER AE receives an association request from a Storage Commitment SCP that did not respond to a Storage Commitment request from the I-ACQUIRE IMAGE TRANSFER AE on the original association.

The I-ACQUIRE IMAGE TRANSFER AE updates the local repository to reflect commitment status for each SOP Instance.

This is done transparently to the I-Acquire application user.

3.3.5.2 Accepted Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Storage Commitment Push Model	1.2.840.10008.5.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	SCU/SCP Role Selection

3.3.5.3. Presentation Context Acceptance Criterion

The I-ACQUIRE IMAGE TRANSFER AE accepts Storage Commitment SOP Class Presentation Contexts if they are configured in the Application Entity configuration file. The possible Presentation Contexts are listed in section 3.3.5.2.

3.3.5.4. Transfer Syntax Selection Policies

The I-ACQUIRE IMAGE TRANSFER AE is configured by default to support only the default DICOM transfer syntax, i.e., Implicit VR Little-Endian.
A configuration option is available to allow other transfer syntaxes.

4 I-Acquire Print AE Specification

The I-ACQUIRE PRINT AE provides I-Acquire Application with print capabilities. I-ACQUIRE PRINT AE acts independently of other DICOM applications that may be running on the same system. It supports printing to multiple DICOM hardcopy devices at the same time, each hardcopy device being uniequely identified by an Application Entity Title.

The I-Acquire provides standard conformance to the following DICOM SOP Classes as an SCU:

SOP Class Name	SOP Class UID
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9

4.1 Association Establishment Policy

4.1.1. General

The I-ACQUIRE PRINT AE maintains a separate association with each DICOM SCP (printing device). Depending on the configuration it either releases association after each film is transferred to the hardcopy device or releases association if no operation is done on the association in a selected time period.

The I-ACQUIRE PRINT AE configuration file contains the configuration parameters such as host name, port number and AE title for each DICOM Print SCP.

4.1.2. Number of Associations

The I-ACQUIRE PRINT AE is capable of initiating multiple associations concurrently. There is no real limit on the number of associations that can be originated. There will be one association opened for each configured SCP.

4.1.3. Asynchronous nature

This release does not support asynchronous operations and will not perform asynchronous window negotiation.

4.1.4. Implementation Identifying Information

The I-ACQUIRE PRINT AE implementation class UID is 2.16.124.113531.1.1.1
The I-ACQUIRE PRINT AE implementation version name is ISG_HCS_V1.0.96.

4.2 Association Initiation by Real World Activity

4.2.1 Print Image

4.2.1.1. Associated Real World Activity

The User of the I-Acquire Application selects the "Print" operation on the user interface. The I-Acquire maintains a list of valid hardcopy device and can present that list to the users upon request. When a user submits a print job designated for a listed hardcopy device the I-ACQUIRE PRINT AE will request an association with the selected hardcopy device.

4.2.1.2. Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Basic Grayscale Print Management	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Grayscale Print Management	1.2.840.10008.5.1.1.9	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
Basic Grayscale Print Management	1.2.840.10008.5.1.1.9	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None

4.2.1.3. SOP Specific conformance to Basic Grayscale Print Management Meta SOP Class

The I-ACQUIRE PRINT AE supports the following mandatory SOP classes, which are defined under the Basic Grayscale Print Management Meta SOP Class.

SOP Class Name	SOP Class UID
Basic Film Session	1.2.840.10008.5.1.1.1
Basic film Box	1.2.840.10008.5.1.1.2
Basic Grayscale Image Box	1.2.840.10008.5.1.1.4
Printer	1.2.840.10008.5.1.1.16

The I-ACQUIRE PRINT AE supports the following SOP class attributes and DIMSE services for the Basic Grayscale Print Management Meta SOP Class.

SOP Class	DIMSE Service	Optional Attribute	Tag
Basic Film Session SOP Class	N-CREATE	Number of Copies	(2000,0010)
		Print Priority	(2000,0020)
		Medium Type	(2000,0030)
		Film Destination	(2000,0040)
		Film Session Label	(2000,0050)
		Memory Allocation	(2000,0060)
Basic film Box SOP Class	N-CREATE	Image Display Format	(2010,0010)
		Referenced Film Session Seq.	(2010,0500)
		> Referenced SOP Class UID	(0008,1150)
		> Referenced SOP Instance UID	(0008,1155)
		Film Orientation	(2010, 040)
		Film Size ID	(2010,0050)
		Magnification Type	(2010,0060)
		Max Density	(2010,0130)
		Configuration Information	(2010,0150)
		Smoothing Type	(2010,0080)
		Border Density	(2010,0100)
		Empty Image Density	(2010,0110)
		Min Density	(2010,0120)
		Trim	(2010,0140)
	N-DELETE		
Basic Grayscale Image Box SOP Class	N-SET	Image Position	(2020,0010)
		Polarity	(2020,0020)
		Magnification Type	(2010,0060)
		Smoothing Type	(2010,0080)
		Requested Image Size	(2020,0030)
		Basic Grayscale Image Sequence	(2020,0110)
		> Sample Per Pixel	(0028,0002)
		> Photometric Interpretation	(0028,0004)
		> Rows	(0028,0010)
		> Columns	(0028,0011)
		> Pixel Aspect Ratio	(0028,0034)
		> Bits Allocated	(0028,0100)
		> Bits Stored	(0028,0101)

SOP Class	DIMSE Service	Optional Attribute	Tag
		> High Bit	(0028,0102)
		> Pixel Representation	(0028,0103)
		> Pixel Data	(7FE0,0010)
Printer SOP Class	N-EVENT-REPORT	Printer Status Info	(2110,0020)
	N-GET	Printer Status	(2110,0010)
		Printer Status Info	(2110,0020)
		Printer Name	(2110,0030)
		Manufacturer	(0008,0070)
		Manufacturer Model Name	(0008,1090)
		Device Serial Number	(0018,1000)
		Software Versions	(0018,1020)

4.2.1.3.1. Basic Film Session SOP Class attributes

The I-ACQUIRE PRINT AE supports the following mandatory and optional attribute values in this SOP Class.

Attribute Name	Tag	Supported values
Number of Copies	(2000,0010)	Integer string
Print Priority	(2000,0020)	HIGH, MED,LOW
Medium Type	(2000,0030)	PAPER,CLEAR,FILM,BLUE FILM
Film Destination	(2000,0040)	MAGAZINE,PROCESSOR
Film Session Label	(2000,0050)	Long string
Mamory Allocation	(2000,0060)	Integer string

4.2.1.3.2. Basic Film Box SOP Class attributes

The I-ACQUIRE PRINT AE supports the following mandatory and optional attribute values in this SOP Class.

Attribute Name	Tag	Supported values
Image display Format	(2010,0010)	STANDARD, ROW, COL, SLIDE, SUPERSLIDE, CUSTOM
Referenced Film Session Sequence	(2010,0500)	Sequence of Items
> Referenced SOP Class UID	(0008,1150)	Unique Identifier (UID)
> Referenced SOP Instance UID	(0008,1155)	Unique Identifier (UID)
Film Orientation	(2010,0040)	PORTRAIT, LANDSCAPE
Film Size ID	(2010,0050)	8INX10IN, 10INX14IN, 14INX14IN, 24CMX24CM, 10INX12IN, 11INX14IN, 14INX17IN, 24CMX30CM
Magnification Type	(2010,0060)	REPLICATE, BILINEAR, CUBIC, ONE
Smoothing Type	(2010,0080)	SCP specific
Border Density	(2010,0100)	BLACK, WHITE, i where i represents the desired density in hundredths of OD
Empty Image Density	(2010,0110)	BLACK, WHITE, i where i represents the desired density in hundredths of OD
Min Density	(2010,0120)	Unsigned short
Max Density	(2010,0130)	Unsigned short
Trim	(2010,0140)	YES, NO
Configuration Information	(2010,0150)	SCP specific

4.2.1.3.3. Basic Grayscale Image Box SOP Class attributes

The I-ACQUIRE PRINT AE supports the following mandatory and optional attribute values in this SOP class.

Attribute Name	Tag	Supported values
Image Position	(2020,0010)	Unsigned short
Polarity	(2020,0020)	NORMAL, REVERSE
Magnification Type	(2010,0060)	REPLICATE, BILINEAR, CUBIC, NONE
Smoothing Type	(2010,0080)	SCP specific
Requested Image Size	(2020,0030)	Unsigned short
Performed Grayscale Image Sequence	(2020,0110)	
>Smaple per Pixel	(0028,0002)	1
>Photometric Interpretation	(0028,0004)	MONOCHROME1, MONOCHROME2
>Planar configuration	(0028,0006)	1
>Rows	(0028,0010)	Unsigned short
>Columns	(0028,0011)	Unsigned short
>Pixel Aspect Ratio	(0028,0034)	1:1
>Bits Allocated	(0028,0100)	8
>Bits Stored	(0028,0101)	8
>High Bit	(0028,0102)	7
>Pixel Representation	(0028,0103)	000H (unsigned integer)
>Pixel Data	(7FE0,0010)	Other Byte String

4.2.1.3.4. Printer SOP Class attributes

The I-ACQUIRE PRINT AE makes use of following attributes and attributes values in this SOP class.

Attribute Name	Tag	Supported values
Printer Status	(2110,0010)	NORMAL, WARNING, FAILURE
Printer Status Info	(2110,0020)	SUPPLY EMPTY, SUPPLY LOW, RECEIVER FULL, FILM JAM
Printer Name	(2110,0030)	Long string
Manufacturer	(0008,0070)	Long string
Manufacturer Model Name	(0008,1090)	Long string
Device Serial Number	(0008,1000)	Long string
Software Versions	(0018,1020)	Long string(s)

4.3 Association Acceptance Policy

The I-ACQUIRE PRINT AE does not accept association requests.

5. I-Acquire MWL AE Specification

5.1 Association Establishment Policy

5.1.1 General

When I-Acquire Application issues a request to receive a Modality Worklist, it initiates an association to the Modality Worklist SCP through the I-ACQUIRE MWL AE Component.

5.1.2 Number of Associations

I-ACQUIRE MWL AE initiates one association with the default remote Modality Worklist SCP. The association is released once the worklist has been fetched.

5.1.3 Asynchronous nature

This release does not support asynchronous operations and will not perform asynchronous window negotiation.

5.1.4 Implementation Identifying Information

The I-ACQUIRE MWL AE implementation class UID is 2.16.124.113531.1.1
The I-ACQUIRE MWL AE implementation version name is DciMsg V1.0.

5.2 Association Initiation by Real World Activity

5.2.1 Modality Worklist Retrieval Request

5.2.1.1. Associated Real World Activity

The user of the I-Acquire Application selects the Retrieve Worklist operation button on the user interface.

5.2.1.2. Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Modality Worklist Modal 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		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

5.3 Association Acceptance Policy

The I-ACQUIRE MWL AE does not accept association requests.

6 Communication Profiles

6.1 Supported Communication Stacks

The DICOM V3.0 TCP/IP Network Communication support as defined in Part 8 of the DICOM Standard is supported.

6.2 OSI Stack

Not applicable to this product.

6.3 TCP/IP Stack

6.3.1 API

The I-ACQUIRE IMAGE TRANSFER AE, I-ACQUIRE PRINT AE, I-ACQUIRE MWL AE implementations use Berkeley style sockets.

6.3.2 Physical Media Support

I-Acquire is indifferent to the physical medium over which TCP/IP executes; it inherits the medium from the computer system upon which it executes.

6.4 Point to Point Stack

Not applicable to this product.

7 Configuration

7.1 I-ACQUIRE IMAGE TRANSFER AE Configuration

I-Acquire Service Manual, supplied with the product, defines the available configuration parameters.

The Storage SOP Classes to accept are configurable, globally or Application Entity Title specific.

The Query/Retrieve and Storage SOP Classes to propose are configurable, globally or Application Entity Title specific.

The Transfer Syntax's are configurable for each SOP Class, globally or SOP Class specific.

A configuration parameter is supplied to control matching of Calling Application Entity Title to a value in the configuration file.

A configuration parameter is supplied to allow Application Entity Title specific association related tracing output to be created for connection troubleshooting.

A configuration parameter is supplied to allow Application Entity Title specific DIMSE tracing output to be created for message troubleshooting.

Application entity host name can be specified as either IP address or host name.

The number of associations that can be initiated is configurable.

The number of associations that can be accepted is configurable.

The port number to listen on for association requests is configurable.

Mapping between attributes in DICOM Information Objects and the target database is runtime configurable.

7.2 I-ACQUIRE PRINT AE Configuration

I-Acquire Service Manual, supplied with the product, defines the available configuration parameters.

Application entity host name can be specified as either IP address or host name.

The destination printer host name and port number is configurable. Multiple printers can be configured.

The film layout formats supported per printer are configurable.

The association timeout per printer is configurable.

7.3 I-ACQUIRE MWL AE Configuration

I-Acquire Service Manual, supplied with the product, defines the available configuration parameters.

Local AE title can be set.

Parameters of the remote MWL SCP can be set (i.e. AE title, host name or IP address)

8 Supported of Extended Character Sets

I-Acquire does not support extended character set for this release.

9 Annex A – Information Object Definitions

The Information Object Definition for Digital Mammography X-Ray (MG) image, Secondary Capture (SC) image and Grayscale Softcopy Presentation State object are described in this section.

9.1 Digital Mammography (MG) Information Object Definition

I-Acquire AE supports sending and receiving of MG images.

9.1.1 Entity Module Definitions

The information modules that I-Acquire AE supports for MG are defined below.

9.1.1.1 MG Image IOD Modules

Information Entity	Module	Reference	Usage[1]
Patient	Patient	9.1.2.1	M
	Specimen Identification	Not Used	U
Study	General Study	9.1.2.2	M
	Patient Study	9.1.2.3	U
Series	General Series	9.1.2.5	M
	DX Series	9.1.2.8	M
	MG Series	9.1.2.9	M
Frame of Reference	Frame of Reference	Not Used	U
Equipment	General Equipment	9.1.2.4	M
Image	General Image	9.1.2.6	M
	Image Pixel	9.1.2.7	M
	Contrast/Bolus	Not Used	U
	Display/Shutter	Not Used	U
	Device	Not Used	U
	Therapy	Not Used	U
	DX Anatomy Imaged	9.1.2.10	M
	DX Image	9.1.2.11	M
	DX Detector	9.1.2.12	M
	X-Ray Collimator	Not Used	U
	DX Positioning	9.1.2.13	U
	X-Ray Tomo Acquisition	Not Used	U
	X-Ray Acquisition Dose	9.1.2.14	U
	X-Ray Generation	9.1.2.15	U
	X-Ray Filtration	9.1.2.16	U

	X-Ray Grid	9.1.2.17	U
	Mammography Image	9.1.2.18	M
	Overlay Plane	Not Used	C Required if graphic annotation is present
	Curve	Not Used	U
	VOI LUT	9.1.2.19	C-Required if Presentation Intend Type (0008,0068) is for PRESENTATION
	Image Histogram	Not Used	U
	Acquisition Context	Not Used	M
	SOP Common	9.1.2.20	M

[1]M – Mandatory, C = Conditional, U = User option

9.1.2 Information Object Definitions

9.1.2.1. Patient Module Attributes

Attribute Name	Tag	Type	Attribute Description
Patient's Name	(0010,0010)	2	Always sent
Patient ID	(0010,0020)	2	Always sent
Patient's Birth Date	(0010,0030)	2	Value not sent when no entry is made
Patient's Sex	(0010,0040)	2	Value not sent when no entry is made
Referenced Patient Sequence	(0008,1120)	3	Not Sent
> Referenced SOP Class UID	(0008,1150)	1C	Required if Referenced Patient Sequence is set
> Referenced SOP Instance UID	(0008,1155)	1C	Required if Referenced Patient Sequence is set
Patient's Birth Time	(0010,0032)	3	Not Sent
Other Patient Names	(0010,1001)	3	Not Sent
Other Patient IDs	(0010,1000)	3	Value not sent when no entry is made
Ethnic Group	(0010,2160)	3	Value not sent when no entry is made
Patient Comments	(0010,4000)	3	Value not sent when no entry is made

9.1.2.2 General Study Module Attributes

Attribute Name	Tag	Type	Attribute Description
Study Instance UID	(0020,000D)	1	Always sent
Study Date	(0008,0020)	2	Always sent
Study Time	(0008,0030)	2	Always sent
Referring Physician's Name	(0008,0090)	2	Value not sent when no entry is made
Study ID	(0020,0010)	2	Always sent
Accession Number	(0008,0050)	2	Value not sent when no entry is made
Study Description	(0008,1030)	3	Value not sent when no entry is made
Physician(s) of Record	(0008,1048)	3	Not sent
Name of Physician(s) Reading Study	(0008,1060)	3	Value not sent when no entry is made
Referenced Study Sequence	(0008,1110)	3	Not sent
> Referenced SOP Class UID	(0008,1150)	1C	Required if Referenced Study Sequence is set
> Referenced SOP Instance UID	(0008,1155)	1C	Required if Referenced Study Sequence is set
Procedure Code Sequence	(0008,1032)	3	Not sent
>Code Value	(0008,0100)	1C	Required if Procedure Code Sequence present
>Coding Scheme Designator	(0008,0102)	1C	Required if Procedure Code Sequence present
>Coding Scheme Version	(0008,0103)	1C	Required if Procedure Code Sequence present and its value is available
> Code Meaning	(0008,0104)	1C	Required if Procedure Code Sequence present

9.1.2.3. Patient Study Module Attributes

Attribute Name	Tag	Type	Attribute Description
Admitting Diagnoses Description	(0008,1080)	3	Not Sent
Patient's Age	(0010,1010)	3	Value not sent when no entry is made
Patient's Size	(0010,1020)	3	Value not sent when no entry is made
Patient's Weight	(0010,1030)	3	Value not sent when no entry is made
Occupation	(0010,2180)	3	Value not sent when no entry is made
Additional Patient's History	(0010,21B0)	3	Value not sent when no entry is made

9.1.2.4. General Equipment Module Attributes

Attribute Name	Tag	Type	Attribute Description
Manufacturer	(0008,0070)	2	Always sent (from Registry)
Institution Name	(0008,0080)	3	Always sent (from configuration File)
Institution Address	(0008,0081)	3	Always sent (from configuration File)
Station Name	(0008,1010)	3	Always sent (from configuration File)
Institutional Department Name	(0008,1040)	3	Always sent (from configuration File)
Manufacturer's Model Name	(0008,1090)	3	Always sent (from configuration File)
Device Serial Number	(0018,1000)	3	Always sent (from configuration File)
Software Versions	(0018,1020)	3	Always sent
Spatial Resolution	(0018,1050)	3	Not sent
Date of Last Calibration	(0018,1200)	3	Not sent
Time of Last calibration	(0018,1201)	3	Not sent
Pixel Padding Value	(0028,0120)	3	Not sent

9.1.2.5. General Series Module Attributes

Attribute Name	Tag	Type	Attribute Description
Modality	(0008,0060)	1	Always sent (MG)
Series Instance UID	(0020,000E)	1	Always sent
Series Number	(0020,0011)	2	Always sent
Laterality	(0020,0060)	2C	Not sent
Series Date	(0008,0021)	3	Always sent
Series Time	(0008,0031)	3	Always sent
Performing Physician's Name	(0008,1050)	3	Value not sent when no entry is made
Protocol Name	(0018,1030)	3	Not sent
Series Description	(0008,103E)	3	Not sent
Operators' Name	(0008,1070)	3	Value not sent when no entry is made
Referenced Study Component Sequence	(0008,1111)	3	Not sent
> Referenced SOP Class UID	(0008,1150)	1C	Required if Referenced Study Component Sequence is present
> Referenced SOP Instance UID	(0008,1155)	1C	Required if Referenced Study Component Sequence is present
Body Part Examined	(0018,0015)	3	Always sent (BREAST)

Patient Position	(0018,5100)	3	Not sent
Smallest Pixel Value in Series	(0028,0108)	3	Not sent
Largest Pixel Value in Series	(0028,0109)	3	Not sent
Request Attributes Sequence	(0040,0275)	3	Not sent
>Requested Procedure ID	(0040,1001)	1C	Set if Request Attributes Sequence is present
>Scheduled Procedure Step ID	(0040,0009)	1C	Set if Request Attributes Sequence is present
>Scheduled Procedure Step Description	(0040,0007)	1C	Set if Request Attributes Sequence is present and value is available
>Scheduled Action Item Code Sequence	(0040,0008)	3	Not sent
>>Code Value	(0008,0100)	1C	Required if Scheduled Action Item Code Sequence is present
>>Coding Scheme Designator	(0008,0102)	1C	Required if Scheduled Action Item Code Sequence is present
>> Coding Scheme Version	(0008,0103)	1C	Required if Scheduled Action Item Code Sequence is present and its value is available
>>Code Meaning	(0008,0104)	1C	Required if Scheduled Action Item Code Sequence is present
Performed Procedure Step ID	(0040,0253)	3	Not sent
Performed Procedure Step Start Date	(0040,0244)	3	Not sent
Performed Procedure Step Start Time	(0040,0245)	3	Not sent
Performed Procedure Step Description	(0040,0254)	3	Not sent
Performed Action Item Code Sequence	(0040,0260)	3	Not sent
>Code Value	(0008,0100)	1C	Required if Performed Action Item Code Sequence is present
>Coding Scheme Designator	(0008,0102)	1C	Required if Performed Action Item Code Sequence is present
> Coding Scheme Version	(0008,0103)	1C	Required if Performed Action Item Code Sequence is present and its value is available
>Code Meaning	(0008,0104)	1C	Required if Performed Action Item Code Sequence is present

9.1.2.6. General Image Module Attributes

Attribute Name	Tag	Type	Attribute Description
Instance Number	(0020,0013)	2	Always sent
Patient Orientation	(0020,0020)	2C	Always sent
Content Date	(0008,0023)	2C	Always sent
Content Time	(0008,0033)	2C	Always sent
Image Type	(0008,0008)	3	Always sent (ORIGINAL\PRIMARY)
Acquisition Number	(0020,0012)	3	Always sent
Acquisition Date	(0008,0022)	3	Same as Content Date (i.e. 0008,0023)
Acquisition Time	(0008,0032)	3	Same as Content Date (i.e. 0008,0033)
Acquisition Datetime	(0008,002A)	3	Not sent
Referenced Image Sequence	(0008,1140)	3	Set for Corrected Image
> Referenced SOP Class UID	(0008,1150)	1C	Set for Corrected Image
> Referenced SOP Instance UID	(0008,1155)	1C	Set for Corrected Image
>Referenced Frame Number	(0008,1160)	3	Not sent
Derivation Description	(0008,2111)	3	Not sent
Source Image Sequence	(0008,2112)	3	Always sent (Enhanced image only)
> Referenced SOP Class UID	(0008,1150)	1C	Always sent (Enhanced image only)
> Referenced SOP Instance UID	(0008,1155)	1C	Always sent (Enhanced image only)
>Referenced Frame Number	(0008,1160)	3	Always sent (Enhanced image only)
Images in Acquisition	(0020,1002)	3	Not sent
Image Comments	(0020,4000)	3	Value not sent when no entry is made
Quality Control Image	(0028,0300)	3	Always sent (“YES” if the image was generated in QC mode, otherwise “NO”)
Burned in Annotation	(0028,0301)	3	Always sent (NO)
Lossy Image Compression	(0028,2110)	3	Always sent
Lossy Image Compression Ratio	(0028,2112)	3	Not sent

9.1.2.7. Image Pixel Module Attributes

Attribute Name	Tag	Type	Attribute Description
Samples per Pixel	(0028,0002)	1	Always sent (1)
Photometric Interpretation	(0028,0004)	1	Always sent
Rows	(0028,0010)	1	Always sent
Columns	(0028,0011)	1	Always sent
Bits Allocated	(0028,0100)	1	Always sent (16)
Bits Stored	(0028,0101)	1	Always sent
High Bit	(0028,0102)	1	Always sent
Pixel Representation	(0028,0103)	1	Always sent (0)
Pixel Data	(7FE0,0010)	1	Always sent
Planer Configuration	(0028,0006)	1C	Not sent
Pixel Aspect Ratio	(0028,0034)	1C	Not sent
Smallest Image Pixel Value	(0028,0106)	3	Not sent
Largest Image Pixel Value	(0028,0107)	3	Not sent
Red Pallette Color LUT Descriptor	(0028,1101)	3	Not sent
Green Pallette Color LUT Descriptor	(0028,1102)	3	Not sent
Blue Pallette Color LUT Descriptor	(0028,1103)	3	Not sent
Red Pallette Color LUT Data	(0028,1201)	3	Not sent
Green Pallette Color LUT Data	(0028,1202)	3	Not sent
Blue Pallette Color LUT Data	(0028,1203)	3	Not sent

9.1.2.8. DX Series Module Attributes

Attribute Name	Tag	Type	Attribute Description
Modality	(0008,0060)	1	Always sent (MG)
Referenced Study Component Sequence	(0008,1111)	3	Not sent
> Referenced SOP Class UID	(0008,1150)	1C	Set if Referenced Study Component Sequence is present
> Referenced SOP Instance UID	(0008,1155)	1C	Set if Referenced Study Component Sequence is present
Presentation Intent Type	(0008,0068)	1	Always sent

9.1.2.9. Mammography Series Module Attributes

Attribute Name	Tag	Type	Attribute Description
Modality	(0008,0060)	1	Always sent (MG)

9.1.2.10. DX Anatomy Imaged Module Attributes

Attribute Name	Tag	Type	Attribute Description
Image Laterality	(0020,0062)	1	Always sent
Anatomic Region Sequence	(0008,2218)	2	Always sent
>Code Value	(0008,0100)	1C	Always sent (T-04000)
>Coding Scheme Designator	(0008,0102)	1C	Always sent (SNM3)
>Code Meaning	(0008,0104)	3	Always sent (BREAST)
>Primary Anatomic Structure Modifier Sequence	(0008,2230)	3	Not sent

9.1.2.11. DX Image Module Attributes

Attribute Name	Tag	Type	Attribute Description
Image Type	(0008,0008)	1	Always sent (ORIGINAL\PRIMARY)
Samples per Pixel	(0028,0002)	1	Always sent (1)
Photometric Interpretation	(0028,0004)	1	Always sent
Bits Allocated	(0028,0100)	1	Always sent (16)
Bits Stored	(0028,0101)	1	Always sent
High Bit	(0028,0102)	1	Always sent
Pixel Representation	(0028,0103)	1	Always sent (0)
Pixel Intensity Relationship	(0028,1040)	1	Always sent
Pixel Intensity Relationship Sign	(0028,1041)	1	Always sent
Rescale Intercept	(0028,1052)	1	Always sent
Rescale Slope	(0028,1053)	1	Always sent
Rescale Type	(0028,1054)	1	Always sent
Presentation LUT Shape	(2050,0020)	1	Always sent
Lossy Image Compression	(0028,2110)	1	Always sent
Lossy Image Compression Ratio	(0028,2112)	1C	Not sent
Derivation Description	(0008,2111)	3	Not sent
Acquisition Device Processing Description	(0018,1400)	3	Not sent
Acquisition Device Processing Code	(0018,1401)	3	Not sent
Patient Orientation	(0020,0020)	1	Always sent
Calibration Image	(0050,0004)	3	Always sent ("YES" if a phantom was present and image is for calibration; "NO" otherwise)
Burned In Annotation	(0028,0301)	1	Always sent (NO)
VOI LUT Sequence	(0028,3010)	1C	Value not set if no entry is made
>LUT Descriptor	(0028,3002)	1C	Set if VOI LUT Sequence is present
>LUT Explanation	(0028,3003)	3	Set if VOI LUT Sequence is present
>LUT Data	(0028,3006)	1C	Set if VOI LUT Sequence is present
Window Center	(0028,1050)	1C	Always sent
Window Width	(0028,1051)	1C	Always sent
Window Center & Width Explanation	(0028,1055)	3	Not sent

9.1.2.12. DX Detector Module Attributes

Attribute Name	Tag	Type	Attribute Description
Detector Type	(0018,7004)	2	Always sent (DIRECT)
Detector Configuration	(0018,7005)	3	Not sent
Detector Description	(0018,7006)	3	Always sent
Detector Mode	(0018,7008)	3	Not sent
Detector ID	(0018,700A)	3	Always sent
Date of Last Detector Calibration	(0018,700C)	3	Always sent
Time of Last Detector Calibration	(0018,700E)	3	Always sent
Exposures on Detector Since Last Calibration	(0018,7010)	3	Not sent
Exposures on Detector Since Manufactured	(0018,7011)	3	Not sent
Detector Time Since Last Exposure	(0018,7012)	3	Not sent
Detector Active Time	(0018,7014)	3	Not sent
Detector Activation Offset From Exposure	(0018,7016)	3	Not sent
Detector Binning	(0018,701A)	3	Not sent
Detector Conditions Nominal Flag	(0018,7000)	3	Not sent
Detector Temperature	(0018,7001)	3	Not sent
Sensitivity	(0018,6000)	3	Not sent
Field of View Shape	(0018,1147)	3	Not sent
Field of View Dimension(s)	(0018,1149)	3	Not sent
Field of View Origin	(0018,7030)	1C	Not sent
Field of View Rotation	(0018,7032)	1C	Not sent
Field of View Horizontal Flip	(0018,7034)	1C	Not sent
Imager Pixel Spacing	(0018,1164)	1	Always sent
Detector Element Physical Size	(0018,7020)	3	Not sent
Detector Element Physical Spacing	(0018,7022)	3	Not sent
Detector Active Shape	(0018,7024)	3	Not sent
Detector Active Dimension(s)	(0018,7026)	3	Not sent
Detector Active Origin	(0018,7028)	3	Not sent

9.1.2.13. DX Positioning Module Attributes

Attribute Name	Tag	Type	Attribute Description
Projection Eponymous Name Code Sequence	(0018,5104)	3	Not sent
Patient Position	(0018,5100)	3	Not sent
View Position	(0018,5101)	3	Not sent
View Code Sequence	(0054,0220)	3	Always sent
>Code Value	(0008,0100)	1C	Always sent
>Coding Scheme Designator	(0008,0102)	1C	Always sent
>Code Meaning	(0008,0104)	3	Always sent
>View Modifier Code Sequence	(0054,0222)	3	Not sent
Patient Orientation Code Sequence	(0054,0410)	3	Not sent
Patient Gantry Relationship Code Sequence	(0054,0414)	3	Not sent
Distance Source to Patient	(0018,1111)	3	Not sent
Distance Source to Detector	(0018,1110)	3	Always sent
Estimated Radiographic Magnification Factor	(0018,1114)	3	Always sent
Positioner Type	(0018,1508)	2	Always sent
Positioner Primary Angle	(0018,1510)	3	Always sent
Positioner Secondary Angle	(0018,1511)	3	Not sent
Detector Primary Angle	(0018,1530)	3	Not sent
Detector Secondary Angle	(0018,1531)	3	Always sent
Column Angulation	(0018,1450)	3	Not sent
Table Type	(0018,113A)	3	Not sent
Table Angle	(0018,1138)	3	Not sent
Body Part Thickness	(0018,11A0)	3	Always sent
Compression Force	(0018,11A2)	3	Always sent

9.1.2.14. X-Ray Acquisition Dose Module Attributes

Attribute Name	Tag	Type	Attribute Description
KVP	(0018,0060)	3	Always sent
X-ray Tube Current	(0018,1151)	3	Always sent
X-ray Tube Current in uA	(0018,8151)	3	Not sent
Exposure Time	(0018,1150)	3	Always sent
Exposure Time in uS	(0018,8150)	3	Not sent
Exposure	(0018,1152)	3	Always sent
Exposure in uAs	(0018,1153)	3	Not sent
Distance Source to Patient	(0018,1111)	3	Not sent
Distance Source to Detector	(0018,1110)	3	Always sent
Image Are Dose Product	(0018,115E)	3	Not sent
Body Part Thickness	(0018,11A0)	3	Always sent
Relative X-Ray Exposure	(0018,1405)	3	Not sent
Entrance Dose	(0040,0302)	3	Not sent
Entrance Dose in mGy	(0040,8302)	3	Not sent
Exposed Area	(0040,0303)	3	Not sent
Distance Source to Entrance	(0040,0306)	3	Not sent
Comments on Radiation Dose	(0040,0310)	3	Not sent
X-Ray Output	(0040,0312)	3	Not sent
Half Value layer	(0040,0314)	3	Not sent
Organ Dose	(0040,0316)	3	Always sent
Organ Exposed	(0040,0318)	3	Always sent (BREAST)
Anode Target Material	(0018,1191)	3	Always sent
Filter Material	(0018,7050)	3	Always sent
Filter Thickness Minimum	(0018,7052)	3	Not sent
Filter Thickness Maximum	(0018,7054)	3	Not sent
Rectification Type	(0018,1156)	3	Always sent (CONST POTENTIAL)

9.1.2.15. X-Ray Generation Module Attributes

Attribute Name	Tag	Type	Attribute Description
KVP	(0018,0060)	3	Always sent
X-ray Tube Current	(0018,1151)	3	Always sent
X-ray Tube Current in uA	(0018,8151)	3	Not sent
Exposure Time	(0018,1150)	3	Always sent
Exposure Time in uS	(0018,8150)	3	Not sent
Exposure	(0018,1152)	3	Always sent
Exposure in uAs	(0018,1153)	3	Not sent
Exposure Control Mode	(0018,7060)	3	Always sent
Exposure Control Mode Description	(0018,7062)	3	Always sent
Exposure Status	(0018,7064)	3	Always sent
Phototimer Setting	(0018,7065)	3	Always sent
Focal Spot	(0018,1190)	3	Always sent
Anode Target Material	(0018,1191)	3	Always sent
Rectification Type	(0018,1156)	3	Always sent (CONST POTENTIAL)

9.1.2.16. X-Ray Filtration Module Attributes

Attribute Name	Tag	Type	Attribute Description
Filter Type	(0018,1160)	3	Always sent
Filter Material	(0018,7050)	3	Always sent
Filter Thickness Minimum	(0018,7052)	3	Not sent
Filter Thickness Maximum	(0018,7054)	3	Not sent

9.1.2.17. X-Ray Grid Module Attributes

Attribute Name	Tag	Type	Attribute Description
Grid	(0018,1166)	3	Always sent
Grid Absorbing Material	(0018,7040)	3	Not sent
Grid Spacing Material	(0018,7041)	3	Not sent
Grid Thickness	(0018,7042)	3	Not sent
Grid pitch	(0018,7044)	3	Not sent
Grid Aspect Ratio	(0018,7046)	3	Not sent
Grid Period	(0018,7048)	3	Not sent
Grid Focal Distance	(0018,704C)	3	Not sent

9.1.2.18. Mammography Image Module Attributes

Attribute Name	Tag	Type	Attribute Description
Positioner Type	(0018,1508)	1	Always sent
Positioner Primary Angle	(0018,1510)	3	Always sent
Positioner Secondary Angle	(0018,1511)	3	Not sent
Image Laterality	(0020,0062)	1	Always sent
Organ Exposed	(0040,0318)	1	Always sent (BREAST)
Implant Present	(0028,1300)	3	Always sent
Partial View	(0028,1350)	3	Always sent
Partial View Description	(0028,1351)	3	Always sent
Anatomic Region Sequence	(0008,2218)	1	Always sent
>Code Value	(0008,0100)	1C	Always sent (T-04000)
>Coding Scheme Designator	(0008,0102)	1C	Always sent (SNM3)
>Code Meaning	(0008,0104)	3	Always sent (BREAST)
View Code Sequence	(0054,0220)	1	Always sent
>Code Value	(0008,0100)	1C	Always sent
>Coding Scheme Designator	(0008,0102)	1C	Always sent
>Code Meaning	(0008,0104)	3	Always sent
>View Modifier Code Sequence	(0054,0222)	2	Always sent

9.1.2.19. VOI LUT Module Attributes

Attribute Name	Tag	Type	Attribute Description
VOI LUT Sequence	(0028,3010)	3	Value not sent if no entry is made
>LUT Descriptor	(0028,3002)	1C	Set if VOI LUT Sequence is present
>LUT Explanation	(0028,3003)	3	Set if VOI LUT Sequence is present
>LUT Data	(0028,3006)	1C	Set if VOI LUT Sequence is present
Window Center	(0028,1050)	3	Always sent
Window Width	(0028,1051)	1C	Always sent
Window Center & Width Explanation	(0028,1055)	3	Not sent

9.1.2.20. SOP Common MODULE

Attribute Name	Tag	Type	Attribute Description
SOP Class UID	(0008,0016)	1	Always sent
SOP Instance UID	(0008,0018)	1	Always sent
Specific Character Set	(0008,0005)	1C	Not sent

9.2 Grayscale Softcopy Presentation State IOD Information Object Definition

I-Acquire AE supports to store Grayscale Softcopy Presentation State (GSPS) IODs.

9.2.1 Entity Module Definitions

The information modules that I-Acquire AE supports are defined below.

9.2.1.1. Grayscale Softcopy Presentation State IOD Modules

Information Entity	Module	Reference	Usage[1]
Patient	Patient	9.2.2.1	M
Study	General Study	9.2.2.2	M
	Patient Study	9.2.2.3	U
Series	General Series	9.2.2.4	M
	Presentation Series	9.2.2.5	M
Equipment	General Equipment	9.2.2.6	M
Presentation State	Presentation State	9.2.2.7	M
	Mask	9.2.2.8	C
	Display Shutter	9.2.2.9	C
	Bitmap Display Shutter	Not Used	C
	Overlay Plane	Not Used	C
	Overlay/Curve Activation	Not Used	C
	Display Area	9.2.2.10	M
	Graphic Annotation	9.2.2.11	C
	Spatial Transformation	9.2.2.12	C
	Graphic Layer	9.2.2.13	C
	Modality LUT	Not Used	C
	Softcopy VOI LUT	9.2.2.14	C
	Softcopy Presentation LUT	9.2.2.15	M
	SOP Common	9.2.2.16	M

[1]M – Mandatory, C = Conditional, U = User option

9.2.2. Information Object Definition

9.2.2.1 Patient Module

Attribute Name	Tag	Type	Attribute Description
Patient's Name	(0010,0010)	2	Always sent
Patient ID	(0010,0020)	2	Always sent
Patient's Birth Date	(0010,0030)	2	Value not sent when no entry is made
Patient's Sex	(0010,0040)	2	Value not sent when no entry is made
Referenced Patient Sequence	(0008,1120)	3	Not Sent
> Referenced SOP Class UID	(0008,1150)	1C	Required if Referenced Patient Sequence is set
> Referenced SOP Instance UID	(0008,1155)	1C	Required if Referenced Patient Sequence is set
Patient's Birth Time	(0010,0032)	3	Not Sent
Other Patient IDs	(0010,1000)	3	Value not sent when no entry is made
Other Patient Names	(0010,1001)	3	Not Sent
Ethnic Group	(0010,2160)	3	Value not sent when no entry is made
Patient Comments	(0010,4000)	3	Value not sent when no entry is made

9.2.2.2 General Study Module

Attribute Name	Tag	Type	Attribute Description
Study Instance UID	(0020,000D)	1	Always sent
Study Date	(0008,0020)	2	Always sent
Study Time	(0008,0030)	2	Always sent
Referring Physician's Name	(0008,0090)	2	Value not sent when no entry is made
Study ID	(0020,0010)	2	Always sent
Accession Number	(0008,0050)	2	Value not sent when no entry is made
Study Description	(0008,1030)	3	Value not sent when no entry is made
Physician(s) of Record	(0008,1048)	3	Not sent
Name of Physician(s) Reading Study	(0008,1060)	3	Value not sent when no entry is made
Referenced Study Sequence	(0008,1110)	3	Not sent
> Referenced SOP Class UID	(0008,1150)	1C	Required if Referenced Study Sequence is set
> Referenced SOP Instance UID	(0008,1155)	1C	Required if Referenced Study Sequence is set
Procedure Code Sequence	(0008,1032)	3	Not sent

>Code Value	(0008,0100)	1C	Required if Procedure Code Sequence present
>Coding Scheme Designator	(0008,0102)	1C	Required if Procedure Code Sequence present
>Coding Scheme Version	(0008,0103)	1C	Required if Procedure Code Sequence present and its value is available
> Code Meaning	(0008,0104)	1C	Required if Procedure Code Sequence present

9.2.2.3. Patient Study Module

Attribute Name	Tag	Type	Attribute Description
Admitting Diagnoses Description	(0008,1080)	3	Not Sent
Patient's Age	(0010,1010)	3	Value not sent when no entry is made
Patient's Size	(0010,1020)	3	Value not sent when no entry is made
Patient's Weight	(0010,1030)	3	Value not sent when no entry is made
Occupation	(0010,2180)	3	Value not sent when no entry is made
Additional Patient's History	(0010,21B0)	3	Value not sent when no entry is made

9.2.2.4. General Series Module

Attribute Name	Tag	Type	Attribute Description
Modality	(0008,0060)	1	Always sent (PR)
Series Instance UID	(0020,000E)	1	Always sent
Series Number	(0020,0011)	2	Always sent
Laterality	(0020,0060)	2C	Not sent
Series Date	(0008,0021)	3	Not sent
Series Time	(0008,0031)	3	Not sent
Performing Physician's Name	(0008,1050)	3	Not sent
Protocol Name	(0018,1030)	3	Not sent
Series Description	(0008,103E)	3	Not sent
Operators' Name	(0008,1070)	3	Not sent
Referenced Study Component Sequence	(0008,1111)	3	Not sent
> Referenced SOP Class UID	(0008,1150)	1C	Required if Referenced Study Component Sequence is present
> Referenced SOP Instance UID	(0008,1155)	1C	Required if Referenced Study Component Sequence is present

Body Part Examined	(0018,0015)	3	Not sent
Patient Position	(0018,5100)	3	Not sent
Smallest Pixel Value in Series	(0028,0108)	3	Not sent
Largest Pixel Value in Series	(0028,0109)	3	Not sent
Request Attributes Sequence	(0040,0275)	3	Not sent
>Requested Procedure ID	(0040,1001)	1C	Set if Request Attributes Sequence is present
>Scheduled Procedure Step ID	(0040,0009)	1C	Set if Request Attributes Sequence is present
>Scheduled Procedure Step Description	(0040,0007)	1C	Set if Request Attributes Sequence is present and value is available
>Scheduled Action Item Code Sequence	(0040,0008)	3	Not sent
>>Code Value	(0008,0100)	1C	Required if Scheduled Action Item Code Sequence is present
>>Coding Scheme Designator	(0008,0102)	1C	Required if Scheduled Action Item Code Sequence is present
>> Coding Scheme Version	(0008,0103)	1C	Required if Scheduled Action Item Code Sequence is present and its value is available
>>Code Meaning	(0008,0104)	1C	Required if Scheduled Action Item Code Sequence is present
Performed Procedure Step ID	(0040,0253)	3	Not sent
Performed Procedure Step Start Date	(0040,0244)	3	Not sent
Performed Procedure Step Start Time	(0040,0245)	3	Not sent
Performed Procedure Step Description	(0040,0254)	3	Not sent
Performed Action Item Code Sequence	(0040,0260)	3	Not sent
>Code Value	(0008,0100)	1C	Required if Performed Action Item Code Sequence is present
>Coding Scheme Designator	(0008,0102)	1C	Required if Performed Action Item Code Sequence is present
> Coding Scheme Version	(0008,0103)	1C	Required if Performed Action Item Code Sequence is present and its value is available
>Code Meaning	(0008,0104)	1C	Required if Performed Action Item Code Sequence is present

9.2.2.5. Presentation Series Module

Attribute Name	Tag	Type	Attribute Description
Modality	(0008,0060)	1	Always sent (PR)

Note: Presentation states will be in different series from the images to which they apply, which will have different values for Modality.

9.2.2.6. General Equipment Module

Attribute Name	Tag	Type	Attribute Description
Manufacturer	(0008,0070)	2	Not sent
Institution Name	(0008,0080)	3	Not sent
Institution Address	(0008,0081)	3	Not sent
Station Name	(0008,1010)	3	Not sent
Institutional Department Name	(0008,1040)	3	Not sent
Manufacturer's Model Name	(0008,1090)	3	Not sent
Device Serial Number	(0018,1000)	3	Not sent
Software Versions	(0018,1020)	3	Not sent
Spatial Resolution	(0018,1050)	3	Not sent
Date of Last Calibration	(0018,1200)	3	Not sent
Time of Last calibration	(0018,1201)	3	Not sent
Pixel Padding Value	(0028,0120)	3	Not sent

9.2.2.7. Presentation State Module

Attribute Name	Tag	Type	Attribute Description
Instance Number	(0020,0013)	1	Always sent
Presentation Label	(0070,0080)	1	Always sent
Presentation Description	(0070,0081)	2	Always sent
Presentation Creation Date	(0070,0082)	1	Always sent
Presentation Creation Time	(0070,0083)	1	Always sent
Presentation Creator's Name	(0070,0084)	2	Always sent
Referenced Series Sequence	(0008,1115)	1	Always sent

>Series Instance UID	(0020,000E)	1C	Set if Referenced Series Sequence is present
>Retrieve AE Title	(0008,0054)	3	Not sent
>Storage Media File Set ID	(0088,0130)	3	Not sent
>Storage Media File Set UID	(0088,0140)	3	Not sent
>Referenced Image Sequence	(0008,1140)	1C	Always sent
>>Referenced SOP Class UID	(0008,1150)	1C	Always sent
>>Referenced SOP Instance UID	(0008,1155)	1C	Always sent
>>Referenced Frame Number	(0008,1160)	1C	Not sent
Shutter Presentation Value	(0018,1622)	1C	Always sent
Recommended Viewing Mode	(0028,1090)	1C	Always sent (NAT)
Mask Subtraction Sequence	(0028,6100)	1C	Not sent
>Mask Operation	(0028,6101)	1	Not sent
>Contrast Frame Averaging	(0028,6112)	1C	Not sent

9.2.2.8. Mask Module

Attribute Name	Tag	Type	Attribute Description
Recommended Viewing Mode	(0028,1090)	2	Always sent (NAT)

9.2.2.9. Display Shutter Module

Attribute Name	Tag	Type	Attribute Description
Shutter Shape	(0018,1600)	1	Always sent
Shutter Left Vertical Edge	(0018,1602)	1C	Always sent
Shutter Right Vertical Edge	(0018,1604)	1C	Always sent
Shutter Upper Horizontal Edge	(0018,1606)	1C	Always sent

Shutter Lower Horizontal Edge	(0018,1608)	1C	Always sent
Center of Circular Shutter	(0018,1610)	1C	Always sent
Radius of Circular Shutter	(0018,1612)	1C	Always sent
Vertices of the Polygonal Shutter	(0018,1620)	1C	Always sent
Shutter Presentation Value	(0018,1622)	3	Always sent

9.2.2.10. Display Area Module

Attribute Name	Tag	Type	Attribute Description
Display Area Selection Sequence	(0070,005A)	1	Always sent
>Referenced Image Sequence	(0008,1140)	1C	Not sent
>>Referenced SOP Class UID	(0008,1150)	1C	Not sent
>>Referenced SOP Instance UID	(0008,1155)	1C	Not sent
>>Referenced Frame Number	(0008,1160)	1C	Not sent
>Displayed Area Top Left Hand Corner	(0070,0052)	1	Always sent
>Displayed Area Bottom Right Hand Corner	(0070,0053)	1	Always sent
>Presentation Size Mode	(0070,0100)	1	Always sent (SCALE To FIT, TRUE SIZE or MAGNIFY)
>Presentation Pixel Spacing	(0070,0101)	1C	Set if Presentation Size Mode is TRUE SIZE
>Presentation Pixel Aspect Ratio	(0070,0102)	1C	Set if Presentation Pixel Spacing is not present
>Presentation Pixel Magnification Ratio	(0070,0103)	1C	Set if Presentation Size Mode is MAGNIFY

9.2.2.11. Graphic Annotation Module

Attribute Name	Tag	Type	Attribute Description
Graphic Annotation Sequence	(0070,0001)	1	Always sent
>Referenced Image Sequence	(0008,1140)	1C	Not sent
>>Referenced SOP Class UID	(0008,1150)	1C	Set if Referenced Image Sequence is present
>>Referenced SOP Instance UID	(0008,1155)	1C	Set if Referenced Image Sequence is present
>>Referenced Frame Number	(0008,1160)	1C	Not sent
>Graphic Layer	(0070,0001)	1	Always sent
>Text Object Sequence	(0070,0008)	1C	Set if the sequence item is present
>>Bounding Box Annotation Units	(0070,0003)	1C	Set if Text Object Sequence is present
>>Unformatted Text Value	(0070,0006)	1	Always sent
>>Bounding Box Top Left Hand Corner	(0070,0010)	1C	Always sent
>>Bounding Box Bottom Right Hand Corner	(0070,0011)	1C	Always sent
>>Bounding Box Text Horizontal Justification	(0070,0012)	1C	Always sent
>Graphic Object Sequence	(0070,0009)	1C	Set if the sequence item is present
>>Graphic Annotation Units	(0070,0005)	1	Always sent
>>Graphic dimensions	(0070,0020)	1	Always sent (2)
>>Number of Graphic Points	(0070,0021)	1	Always sent
>Graphic Data	(0070,0022)	1	Always sent
>Graphic Type	(0070,0023)	1	Always sent
>Graphic Filled	(0070,0024)	1C	Always sent

9.2.2.12. Spatial Transformation Module

Attribute Name	Tag	Type	Attribute Description
Image Rotation	(0070,0042)	1	Always sent
Image Horizontal Flip	(0070,0041)	1	Always sent

9.2.2.13. Graphic Layer Module

Attribute Name	Tag	Type	Attribute Description
Graphic Layer Sequence	(0070,0060)	1	Always sent
>Graphic Layer	(0070,0002)	1	Always sent
>Graphic Layer Order	(0070,0062)	1	Always sent
>Graphic Layer Recommended Display Grayscale Value	(0070,0066)	3	Always sent
>Graphic Layer Recommended Display RGB Value	(0070,0067)	3	Always sent
>Graphic Layer Description	(0070,0068)	3	Always sent

9.2.2.14. Softcopy VOI LUT Module

Attribute Name	Tag	Type	Attribute Description
Softcopy VOI LUT Sequence	(0028,3110)	1	Always sent
>VOI LUT Sequence	(0028,3010)	1C	Value not set if no entry is made
>>LUT Descriptor	(0028,3002)	1C	Set if VOI LUT Sequence is present
>>LUT Explanation	(0028,3003)	3	Set if VOI LUT Sequence is present
>>LUT Data	(0028,3002)	1C	Set if VOI LUT Sequence is present
>Window Center	(0028,1050)	1C	Always sent
>Window Width	(0028,1051)	1C	Always sent
Window Center & Width Description	(0028,1055)	3	Not sent

9.2.2.15. Softcopy Presentation LUT Module

Attribute Name	Tag	Type	Attribute Description
Presentation LUT Sequence	(2050,0010)	1C	Not sent
>LUT Descriptor	(0028,3002)	1C	Set if Presentation LUT Sequence is present
>LUT Explanation	(0028,3003)	3	Not sent
>LUT Data	(0028,3002)	1C	Set if Presentation LUT Sequence is present
Presentation LUT Shape	(2050,0020)	1C	Always sent

9.2.2.16. SOP Common MODULE

Attribute Name	Tag	Type	Attribute Description
SOP Class UID	(0008,0016)	1	Always sent
SOP Instance UID	(0008,0018)	1	Always sent
Specific Character Set	(0008,0005)	1C	Not sent

9.3 Secondary Capture (SC) Information Object Definition

I-Acquire AE supports to sending and receiving of SC images..

9.3.1 Entity Module Definitions

The information modules that I-Acquire AE supports for SC are defined below.

9.3.1.1. SC Image IOD Modules

Information Entity	Module	Reference	Usage[1]
Patient	Patient	9.3.2.1	M
Study	General Study	9.3.2.2	M
	Patient Study	9.3.2.3	U
Series	General Series	9.3.2.6	M
Equipment	General Equipment	9.3.2.4	U
	SC Equipment	9.3.2.5	M
Image	General Image	9.3.2.7	M
	Image Pixel	9.3.2.8	M
	SC Image	9.3.2.9	M
	Overlay Plane	Not Used	U
	Modality LUT	Not Used	U
	VOI LUT	9.3.2.10	U
	SOP Common	9.3.2.11	M

[1]M – Mandatory, C = Conditional, U = User option

9.3.2. Information Object Definition

9.3.2.1 Patient Module

Attribute Name	Tag	Type	Attribute Description
Patient's Name	(0010,0010)	2	Always sent
Patient ID	(0010,0020)	2	Always sent
Patient's Birth Date	(0010,0030)	2	Value not set when no entry is made
Patient's Sex	(0010,0040)	2	Value not set when no entry is made
Referenced Patient Sequence	(0008,1120)	3	Not Sent
> Referenced SOP Class UID	(0008,1150)	1C	Required if Referenced Patient Sequence is set
> Referenced SOP Instance UID	(0008,1155)	1C	Required if Referenced Patient Sequence is set
Patient's Birth Time	(0010,0032)	3	Not Sent
Other Patient IDs	(0010,1000)	3	Value not set
Other Patient Names	(0010,1001)	3	Not Sent
Ethnic Group	(0010,2160)	3	Value not set
Patient Comments	(0010,4000)	3	Value not set

9.3.2.2 General Study Module

Attribute Name	Tag	Type	Attribute Description
Study Instance UID	(0020,000D)	1	Always sent
Study Date	(0008,0020)	2	Always sent
Study Time	(0008,0030)	2	Always sent
Referring Physician's Name	(0008,0090)	2	Value not set when no entry is made
Study ID	(0020,0010)	2	Always sent
Accession Number	(0008,0050)	2	Value not set when no entry is made
Study Description	(0008,1030)	3	Value not set when no entry is made
Physician(s) of Record	(0008,1048)	3	Not sent
Name of Physician(s) Reading Study	(0008,1060)	3	Value not set when no entry is made
Referenced Study Sequence	(0008,1110)	3	Not sent
> Referenced SOP Class UID	(0008,1150)	1C	Required if Referenced Study Sequence is set
> Referenced SOP Instance UID	(0008,1155)	1C	Required if Referenced Study Sequence is set

Procedure Code Sequence	(0008,1032)	3	Not sent
>Code Value	(0008,0100)	1C	Required if Procedure Code Sequence present
>Coding Scheme Designator	(0008,0102)	1C	Required if Procedure Code Sequence present
>Coding Scheme Version	(0008,0103)	1C	Required if Procedure Code Sequence present and its value is available
> Code Meaning	(0008,0104)	1C	Required if Procedure Code Sequence present

9.3.2.3. Patient Study Module

Attribute Name	Tag	Type	Attribute Description
Admitting Diagnoses Description	(0008,1080)	3	Not Sent
Patient's Age	(0010,1010)	3	Value not set when no entry is made
Patient's Size	(0010,1020)	3	Value not set
Patient's Weight	(0010,1030)	3	Value not set
Occupation	(0010,2180)	3	Value not set
Additional Patient's History	(0010,21B0)	3	Value not set

9.3.2.4. General Equipment Module

Attribute Name	Tag	Type	Attribute Description
Manufacturer	(0008,0070)	2	Value not set
Institution Name	(0008,0080)	3	Value not set when no entry is made
Institution Address	(0008,0081)	3	Not sent
Station Name	(0008,1010)	3	Value not set when no entry is made
Institutional Department Name	(0008,1040)	3	Value not set when no entry is made
Manufacturer's Model Name	(0008,1090)	3	Not sent
Device Serial Number	(0018,1000)	3	Not sent
Software Versions	(0018,1020)	3	Not sent
Spatial Resolution	(0018,1050)	3	Not sent
Date of Last Calibration	(0018,1200)	3	Not sent
Time of Last calibration	(0018,1201)	3	Not sent
Pixel Padding Value	(0028,0120)	3	Not sent

9.3.2.4. SC Equipment Module

Attribute Name	Tag	Type	Attribute Description
Conversion Type	(0008,0064)	1	Always sent
Modality	(0008,0060)	3	Always sent
Secondary Capture Device ID	(0018,1010)	3	Always sent
Secondary Capture Device Manufacturer	(0018,1016)	3	Always sent
Secondary Capture Device Manufacturer's Modal Name	(0018,1018)	3	Always sent
Secondary Capture Device Software Version	(0018,1019)	3	Always sent
Video Image Format Acquired	(0018,1022)	3	Not sent
Digital Image Format Acquired	(0018,1023)	3	Not sent

9.3.2.6. General Series Module

Attribute Name	Tag	Type	Attribute Description
Modality	(0008,0060)	1	Always sent
Series Instance UID	(0020,000E)	1	Always sent
Series Number	(0020,0011)	2	Always sent
Laterality	(0020,0060)	2C	Not set
Series Date	(0008,0021)	3	Always sent
Series Time	(0008,0031)	3	Always sent
Performing Physician's Name	(0008,1050)	3	Not sent
Protocol Name	(0018,1030)	3	Value not set when no entry is made
Series Description	(0008,103E)	3	Not sent
Operators' Name	(0008,1070)	3	Value not set when no entry is made
Referenced Study Component Sequence	(0008,1111)	3	Not sent
> Referenced SOP Class UID	(0008,1150)	1C	Set if Referenced Study Component Sequence is present
> Referenced SOP Instance UID	(0008,1155)	1C	Set if Referenced Study Component Sequence is present
Body Part Examined	(0018,0015)	3	Value not set when no entry is made
Patient Position	(0018,5100)	3	Not sent

Smallest Pixel Value in Series	(0028,0108)	3	Not sent
Largest Pixel Value in Series	(0028,0109)	3	Not sent
Request Attributes Sequence	(0040,0275)	3	Not sent
>Requested Procedure ID	(0040,1001)	1C	Set if Request Attributes Sequence is present
>Scheduled Procedure Step ID	(0040,0009)	1C	Set if Request Attributes Sequence is present
>Scheduled Procedure Step Description	(0040,0007)	1C	Set if Request Attributes Sequence is present and value is available
>Scheduled Action Item Code Sequence	(0040,0008)	3	Not sent
>>Code Value	(0008,0100)	1C	Required if Scheduled Action Item Code Sequence is present
>>Coding Scheme Designator	(0008,0102)	1C	Required if Scheduled Action Item Code Sequence is present
>> Coding Scheme Version	(0008,0103)	1C	Required if Scheduled Action Item Code Sequence is present and its value is available
>>Code Meaning	(0008,0104)	1C	Required if Scheduled Action Item Code Sequence is present
Performed Procedure Step ID	(0040,0253)	3	Not sent
Performed Procedure Step Start Date	(0040,0244)	3	Not sent
Performed Procedure Step Start Time	(0040,0245)	3	Not sent
Performed Procedure Step Description	(0040,0254)	3	Not sent
Performed Action Item Code Sequence	(0040,0260)	3	Not sent
>Code Value	(0008,0100)	1C	Required if Performed Action Item Code Sequence is present
>Coding Scheme Designator	(0008,0102)	1C	Required if Performed Action Item Code Sequence is present
> Coding Scheme Version	(0008,0103)	1C	Required if Performed Action Item Code Sequence is present and its value is available
>Code Meaning	(0008,0104)	1C	Required if Performed Action Item Code Sequence is present

9.3.2.7. General Image Module

Attribute Name	Tag	Type	Attribute Description
Instance Number	(0020,0013)	2	Always sent
Patient Orientation	(0020,0020)	2C	Not sent
Content Date	(0008,0023)	2C	Always sent
Content Time	(0008,0033)	2C	Always sent
Image Type	(0008,0008)	3	Always sent
Acquisition Number	(0020,0012)	3	Not sent
Acquisition Date	(0008,0022)	3	Always sent
Acquisition Time	(0008,0032)	3	Always sent
Acquisition Datetime	(0008,002A)	3	Not sent
Referenced Image Sequence	(0008,1140)	3	Not sent
> Referenced SOP Class UID	(0008,1150)	1C	Required if Referenced Image Sequence is sent
> Referenced SOP Instance UID	(0008,1155)	1C	Required if Referenced Image Sequence is sent
>Referenced Frame Number	(0008,1160)	3	Not sent
Derivation Description	(0008,2111)	3	Not sent
Source Image Sequence	(0008,2112)	3	Not sent
> Referenced SOP Class UID	(0008,1150)	1C	Required if Source Image Sequence is sent
> Referenced SOP Instance UID	(0008,1155)	1C	Required if Source Image Sequence is sent
>Referenced Frame Number	(0008,1160)	3	Not sent
Images in Acquisition	(0020,1002)	3	Not sent
Image Comments	(0020,4000)	3	Not sent
Quality Control Image	(0028,0300)	3	Not sent
Burned in Annotation	(0028,0301)	3	Not sent
Lossy Image Compression Ratio	(0028,2112)	3	Not sent
Lossy Image Compression	(0028,2110)	3	Not sent

9.3.2.8. Image Pixel Module

Attribute Name	Tag	Type	Attribute Description
Samples per Pixel	(0028,0002)	1	Always sent (1)
Photometric Interpretation	(0028,0004)	1	Always sent
Rows	(0028,0010)	1	Always sent
Columns	(0028,0011)	1	Always sent
Bits Allocated	(0028,0100)	1	Always sent
Bits Stored	(0028,0101)	1	Always sent
High Bit	(0028,0102)	1	Always sent
Pixel Representation	(0028,0103)	1	Always sent (0)
Pixel Data	(7FE0,0010)	1	Always sent
Planer Configuration	(0028,0006)	1C	Not sent
Pixel Aspect Ratio	(0028,0034)	1C	Not sent
Smallest Image Pixel Value	(0028,0106)	3	Not sent
Largest Image Pixel Value	(0028,0107)	3	Not sent
Red Pallette Color LUT Descriptor	(0028,1101)	1C	Not sent
Green Pallette Color LUT Descriptor	(0028,1102)	1C	Not sent
Blue Pallette Color LUT Descriptor	(0028,1103)	1C	Not sent
Red Pallette Color LUT Data	(0028,1201)	1C	Not sent
Green Pallette Color LUT Data	(0028,1202)	1C	Not sent
Blue Pallette Color LUT Data	(0028,1203)	1C	Not sent

9.3.2.9. SC Image Module

Attribute Name	Tag	Type	Attribute Description
Date of Secondary Capture	(0018,1012)	3	Always sent
Time of Secondary Capture	(0018,1014)	3	Always sent

9.3.2.10. VOI LUT Module

Attribute Name	Tag	Type	Attribute Description
VOI LUT Sequence	(0028,3010)	3	Value not set if no entry is made
>LUT Descriptor	(0028,3002)	1C	Set if VOI LUT Sequence is present
>LUT Explanation	(0028,3003)	3	Set if VOI LUT Sequence is present
>LUT Data	(0028,3006)	1C	Set if VOI LUT Sequence is present
Window Center	(0028,1050)	3	Always sent
Window Width	(0028,1051)	1C	Always sent
Window Center & Width Explanation	(0028,1055)	3	Not sent

9.3.2.11. SOP Common Module

Attribute Name	Tag	Type	Attribute Description
SOP Class UID	(0008,0016)	1	Always sent
SOP Instance UID	(0008,0018)	1	Always sent
Specific Character Set	(0008,0005)	1C	Not sent

補遺　Worklist での Matching-Key and Return-Key

１．MWL Matching Key and Return Key

SEPIO NUANCE DT が Modality Worklist にて使用する Matching-Key 及び取得可能な Return-Key は下記属性である。

Attribute	Tag	Matching Key	Return Key
Patient Name	(0010,0010)	○	○
Patient ID	(0010,0020)	○	○
Patient Birth Date	(0010,0030)		○
Patient's Sex	(0010,0040)		○
Patient's Age	(0010,1010)		○
Scheduled Procedure Step Sequence	(0040,0100)		○
> Scheduled Procedure Step Start Date	(0040,0002)	○	○
> Scheduled Procedure Step Start Time	(0040,0003)		○
> Scheduled Procedure Step ID	(0040,0009)		○
> Scheduled Performing Physician's Name	(0040,0006)		○
> Scheduled Station AE Title	(0040,0001)	○	○
> Modality	(0008,0060)	○	○
Accession Number	(0008,0050)	○	○
Requested Procedure ID	(0040,1001)	○	○
Referring Physician	(0008,0090)		○
Institution Name	(0008,0080)		○
Study Instance UID	(0008,000D)		○