Brevera™
Breast Biopsy System

DICOM Conformance Statement
For CorLumina™ Imaging Technology
MAN-04570-001 Revision 001
DICOM Conformance Statement

For CorLumina™ Imaging Technology

Software Version 1.0

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Revision 001

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# Table of Contents

1.0  OVERVIEW ............................................................................................................................................... 5

2.0  INTRODUCTION ....................................................................................................................................... 6
   2.1. AUDIENCE ............................................................................................................................................... 6
   2.2. REMARKS ............................................................................................................................................... 6
   2.3. DEFINITIONS, TERMS AND ABBREVIATIONS .................................................................................. 6
   2.4. REFERENCES .......................................................................................................................................... 7

3.0  NETWORKING .......................................................................................................................................... 8
   3.1. IMPLEMENTATION MODEL .................................................................................................................. 8
   3.1.1 Application Data Flow ....................................................................................................................... 8
   3.1.2 Functional Definition of AEs ............................................................................................................ 9
   3.1.3 Sequencing of Real World Activities ............................................................................................... 10
   3.2. AE SPECIFICATIONS .......................................................................................................................... 11
   3.2.1 Modality Worklist Client AE ........................................................................................................... 11
   3.2.2 Print Client AE ................................................................................................................................ 15
   3.2.3 Storage Client AE .............................................................................................................................. 22
   3.2.4 Storage Commitment Client AE ....................................................................................................... 25
   3.2.5 Verification AE .................................................................................................................................. 28
   3.3. NETWORK INTERFACES ...................................................................................................................... 29
   3.3.1 Physical Network Interface ............................................................................................................... 29
   3.3.2 Additional Protocols ......................................................................................................................... 29
   3.4. CONFIGURATION ................................................................................................................................. 29
   3.4.1 AE Title/Presentation Address Mapping ......................................................................................... 30
   3.4.2 Configuration Parameters for Local AEs ......................................................................................... 32

4.0  MEDIA INTERCHANGE ............................................................................................................................ 33
   4.1. IMPLEMENTATION MODEL ................................................................................................................ 33
   4.1.1 Application Data Flow Diagram ....................................................................................................... 33
   4.1.2 Functional Definition of AEs ............................................................................................................ 33
   4.1.3 Sequencing of Real World Activities ............................................................................................... 33
   4.1.4 File Meta Information for Implementation Class Version ............................................................... 33
   4.2. AE SPECIFICATIONS .......................................................................................................................... 34
   4.2.1 Media Server AE Specification ......................................................................................................... 34
   4.3. AUGMENTED AND PRIVATE APPLICATION PROFILES .................................................................. 34
   4.4. MEDIA CONFIGURATION .................................................................................................................... 34

5.0  SUPPORT OF CHARACTER SETS ............................................................................................................. 35

6.0  SECURITY .................................................................................................................................................. 35
7.0 ANNEXES ........................................................................................................................................ 35

7.1. IOD CONTENTS ..................................................................................................................................35
  7.1.1 Created SOP Instance(s) ..................................................................................................................35
  7.1.2 Usage of Attributes from Received IODs ..........................................................................................45
  7.1.3 Attribute Mapping ............................................................................................................................46
  7.1.4 Coerced/Modified Attributes ............................................................................................................47

7.2. DATA DICTIONARY OF PRIVATE ATTRIBUTES ..................................................................................47

7.3. CODED TERMINOLOGY AND TEMPLATES .........................................................................................47

7.4. GRAYSCALE IMAGE CONSISTENCY .....................................................................................................47

7.5. STANDARD EXTENDED/SPECIALIZED/PRIVATE SOP CLASSES .............................................................47

7.6. PRIVATE TRANSFER SYNTAXES ............................................................................................................47
1.0 Overview

The CorLumina™ Imaging Technology Acquisition Workstation implements the necessary DICOM services to:

- Download work lists from an information system,
- Send acquired Digital Mammography For Processing, Digital Mammography For Presentation and created Secondary Capture images to a networked storage device or removable media,
- Request Storage Commitment from a networked storage device,
- Print to a networked hardcopy device.

Table 1-1 provides an overview of the network services supported by the CorLumina Acquisition Workstation.

Table 1-1

<table>
<thead>
<tr>
<th>SOP Classes</th>
<th>User of Service (SCU)</th>
<th>Provider of Service (SCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transfer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Mammography X-Ray Image Storage – For Presentation</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Digital Mammography X-Ray Image Storage – For Processing</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Secondary Capture Image Storage</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Print Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Grayscale Print Management Meta SOP Class</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Print Job SOP Class</td>
<td>Option</td>
<td>No</td>
</tr>
<tr>
<td>Presentation LUT SOP Class</td>
<td>Option</td>
<td>No</td>
</tr>
<tr>
<td><strong>Workflow Management</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modality Worklist Information Model – FIND</td>
<td>Option</td>
<td>No</td>
</tr>
<tr>
<td>Storage Commitment Push Model SOP Class</td>
<td>Option</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 1-2 provides an overview of the Media Storage Application Profiles supported by the CorLumina Acquisition Workstation.

Table 1-2

<table>
<thead>
<tr>
<th>Media Storage Application Profile</th>
<th>Write Files (FSC or FSU)</th>
<th>Read Files (FSR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Purpose USB 2.0</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
2.0 Introduction

Hologic®, Inc. develops and markets a full line of mammography products including CorLumina Imaging Technology.

The CorLumina Acquisition Workstation is a component of Brevera™ Breast Biopsy System with CorLumina™ Imaging Technology. It provides an interface to the amorphous selenium X-ray detector as an image acquisition device, routing acquired breast specimen images and accompanying information to output devices through DICOM interfaces. The Acquisition Workstation uses a graphical user interface (GUI) with a monitor, keyboard, and pointing device (mouse).

2.1. Audience

This document contains the DICOM conformance claim for the CorLumina Acquisition Workstation. This document is intended to aid in connecting the Acquisition Workstation to other components that make use of the DICOM standard for interconnecting networked imaging devices.

The information within this document applies to CorLumina Imaging Technology Acquisition Workstation Software version 1.0. The reader of this document should be familiar with the DICOM standard and PACS components that utilize the standard.

2.2. Remarks

A DICOM conformance statement—the structure and content of which are stipulated by the DICOM standard, is intended to aid in determining the suitability of interconnecting digital imaging devices. References to specific functionality in a conformance statement are not sufficient to guarantee interoperability between components. The following should be considered when evaluating interoperability:

- The Acquisition Workstation conformance statement provides a starting point for ascertaining whether the product can communicate with other systems.
- The only way to know for certain whether the Acquisition Workstation can interoperate with other systems is to perform connectivity testing.
- This document represents a best effort to document the functionality of commercial versions of the Acquisition Workstation and is not a functional specification of any Hologic component or product. Hologic reserves the right to make changes at any time to the functionality of the DICOM components described herein, and is committed to following the evolution of the DICOM standard.

2.3. Definitions, Terms and Abbreviations

ACR: American College of Radiology
AE: Application Entity
AWS: Acquisition Workstation
DICOM: Digital Imaging and Communications in Medicine
DIMSE: DICOM Message Service Element
Direct Capture: Technique used to convert X-ray energy directly into electrical signals without using intensifying screens or scintillation.
FSC: File-set Creator
FSR: File-set Reader
HIPAA: Health Insurance Portability and Accountability Act
IOD: Information Object Definition
JPEG: Joint Photographic Experts Group (data compression techniques)
LUT: Lookup Table
MWL: Modality Worklist

NEMA: National Electrical Manufacturers Association

PACS: Picture Archive and Communications System (image management and long-term storage)

PDU: Protocol Data Unit

SCP: Service Class Provider

SCU: Service Class User

SOP: Service Object Pair

TCP/IP: Transmission Control Protocol/Internet Protocol

UID: Unique Identifier

2.4. References

3.0 Networking

3.1 Implementation Model

3.1.1 Application Data Flow

- The Modality Worklist Client Application Entity requests and receives Worklist information from a remote AE containing patient schedule and procedure information. It is associated with the local real-world activity “Select Patient”. “Select Patient” is performed as a result of a user request or can be performed automatically at specific time intervals. The Modality Worklist Client queries a remote AE for worklist items and provides to the user the set of worklist items matching the query request.

- The Print Client Application Entity prints images to film on a remote AE (Printer). It is associated with the local real-world activities “Acquire Images” and “Print or Send Images”. When a user performs the “Acquire Images” local real-world activity, remote Print AE destinations will receive images upon closing the patient. “Print or Send Images” can be performed upon a user request for a selected procedure or specific images. This allows the user to automatically print images based on system configurable parameters. When a selected remote AE is a Printer, the Print Client creates a print job within the print queue containing one or more virtual film sheets composed from the acquired or selected images.
• The Storage Client Application Entity sends images to a remote AE. It is associated with the local real-world activities "Acquire Images" and "Print or Send Images". When a user performs the "Acquire Images" local real-world activity, remote AE destinations are selected to receive images as a group upon closing the patient. "Print or Send Images" is performed upon user request for a selected procedure or specific images to be sent to one or more remote AEs. If the remote AE is configured as an archive device with storage commitment enabled, the "Commit Images" local real-world activity is triggered.

• The Verification Application Entity sends an echo request to a remote AE. The Verification Application Entity is available as part of the CorLumina Service Tool utility.

3.1.2 Functional Definition of AEs

Multiple local Application Entities may be active simultaneously.

3.1.2.1 Functional Definition of Modality Worklist Client Application Entity

The Modality Worklist Client AE attempts to download a worklist from a remote node. If the Modality Worklist Client establishes an Association to a remote AE, it will accept all worklist item responses via the open Association. User interactive and automated query results are displayed and stored in a worklist. The resulting worklist is updated from subsequent automated worklist queries. While receiving the worklist responses, if the configurable limit of items is exceeded, an error is reported to the user. Those items that exceeded the configurable limit are not displayed.

3.1.2.3 Functional Definition of Print Client Application Entity

When an internal request to create a hardcopy of image data is generated, the Print Client AE will become active. The print job is created and resides in the Print Queue. The Print Client then attempts to establish an association with the remote printer. If the printer is operating normally, the film sheets described within the print job will be printed. Changes in printer status (e.g., out of film) are detected and reported to the user. If the printer is not operating normally, the print job will be set to an error state and retried. The retry timer and retry count can be configured for the Print Client. Upon reaching the retry limit, the user is notified and the print job remains in the queue with a status of stopped. The user may view the status of the print job in the Print Queue and restart the job via a job control interface.

When the Print Job SOP Class is configured, a configured print job timeout controls how long Associations remain open waiting for the print job to complete. When the Print Job SOP Class is not used, the established Association remains open until the printer responds to a status request that is sent after print action is requested, or until the Print Client times out waiting for a response.

3.1.2.4 Functional Definition of Storage Client Application Entity

The existence of a store job in the output queue will activate the Storage Client AE. An association request is sent to the destination AE and upon successful negotiation of a Presentation Context the image transfer is started. If the association cannot be opened or the store request fails, the related store job is set to an error state and can be restarted by the user via job control interface. For some error conditions, such as timeouts, the Storage Client will attempt to retry a failed store job automatically. The retry timer and retry count can be configured for the Storage Client. Upon reaching the retry limit, the user is notified and the store job remains in the queue with a status of stopped. The user is notified when a store job does not complete successfully. The user may view the status of store jobs in the output queue.

3.1.2.5 Functional Definition of Storage Commitment Client Application Entity

The existence of a commit job in the output queue will activate the Storage Commitment Client AE. An association request is sent to the destination AE and upon successful negotiation of a Presentation Context the image transfer is started. If the association cannot be opened or the store request fails, the related store job is set to an error state and can be restarted by the user via job control interface. For some error conditions, such as timeouts, the Storage Client will attempt to resend a failed commit job request automatically. The retry timer and retry count can be configured for the Storage Commitment Client. The user is notified if the remote AE does not accept a commit job request. The user may also view the status of output queues.
3.1.2.8 Functional Definition of Verification Application Entity

The Verification AE is available to the user as a DICOM troubleshooting tool in the Service Tool utility. It is available to test all remote SCP devices.

3.1.3 Sequencing of Real World Activities

A user initiates DICOM storage or print by selecting one or more output devices from a list, acquiring one or more specimen images, and then closing the patient. The images are transmitted to the selected remote AE when the user closes the patient. When Storage Commitment is enabled, a storage commitment request is sent for each image that is stored successfully. The user may also initiate DICOM storage or print separate from the image acquisition procedure by selecting one or more images from the currently open patient and selecting a destination.

In cases where error(s) occur during transmission, the affected job(s) will be retried if the error condition is temporary—otherwise it will be stopped. The user is always notified when an error occurs. The user may be able to cancel the job or restart the job if desired (depending on the error condition).

Figure 3.1-1: Image Acquisition Sequence Diagram
3.2. AE Specifications

3.2.1 Modality Worklist Client AE

3.2.1.1 SOP Classes

This Application Entity provides Standard Conformance to the following SOP Class:

<table>
<thead>
<tr>
<th>SOP Class Name</th>
<th>SOP Class UID</th>
<th>SCU</th>
<th>SCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modality Worklist Information Model - FIND</td>
<td>1.2.840.10008.5.1.4.31</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

3.2.1.2 Association Policies

3.2.1.2.1 General

The DICOM standard Application context shall be specified.

<table>
<thead>
<tr>
<th>DICOM APPLICATION CONTEXT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Context Name</td>
</tr>
</tbody>
</table>

3.2.1.2.2 Number of Associations

One association is initiated at a time for the Modality Worklist Client AE.

3.2.1.2.3 Asynchronous Nature

The Acquisition Workstation does not support asynchronous operations (multiple outstanding transactions over a single Association).

3.2.1.2.4 Implementation Identifying Information

<table>
<thead>
<tr>
<th>DICOM IMPLEMENTATION CLASS AND VERSION FOR MODALITY WORKLIST CLIENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation Class UID</td>
</tr>
<tr>
<td>Implementation Version Name</td>
</tr>
</tbody>
</table>

3.2.1.3 Association Initiation Policy

3.2.1.3.1 Select Patient

3.2.1.3.1.1 Description and Sequencing of Activities

The Select Patient request for a Modality Worklist update is initiated by user interaction, or automatically at defined periods (polling). When the user initiates Select Patient, the user enters data to be used as search criteria, and the data entered by the user are used as matching keys in the query. The search criteria (query keys) and return key attributes for user-entered queries and automatic updates are site configurable.

When an internal request for Modality Worklist update is received, the Modality Worklist Client attempts to establish an association with the configured remote AE. When the association is established a C-FIND request is made to retrieve a worklist using the defined matching and return keys. The Modality Worklist Client waits for C-FIND responses to be returned. The established association remains active until a C-FIND response from the remote AE indicates the end of worklist items or until a configurable timeout period expires. The Modality Worklist Client limits the number of stored worklist responses to a configurable maximum. If the maximum is exceeded during an interactive query, the user is notified that the maximum number of responses was exceeded. For an automatic query, an alarm is posted. In either case, when the maximum is exceeded none of the responses received after the maximum is exceeded are displayed or stored.
The activity of the Modality Worklist Client is transparent to the user. The Modality Worklist Client queries the remote AE using the C-FIND operation and displays the returned worklist items. The user selects a worklist item to begin an exam. The Acquisition Workstation incorporates information from the selected worklist item into the acquired image object. The quality of the information returned in worklist items directly impacts the efficiency of the user. When the remote AE returns insufficient information or is off-line, the Acquisition Workstation requires the user to manually enter information used to identify the patient and procedure.

3.2.1.3.1.2 Proposed Presentation Contexts
The Modality Worklist Client attempts to establish associations using the following presentation contexts:

<table>
<thead>
<tr>
<th>Presentation Context Table</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
</tr>
<tr>
<td>Modality Worklist Information Model - FIND</td>
</tr>
</tbody>
</table>

3.2.1.3.1.3 SOP Specific Conformance for Modality Worklist
The behavior of the Acquisition Workstation when encountering status codes in a Modality Worklist C-FIND response is summarized in the Table below. If the Acquisition Workstation receives a SCP response status other than "Success" or "Pending", the user is notified.

<table>
<thead>
<tr>
<th>DICOM COMMAND RESPONSE STATUS HANDLING BEHAVIOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service Status</strong></td>
</tr>
<tr>
<td>Success</td>
</tr>
<tr>
<td>Pending</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Failure</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The behavior of the Acquisition Workstation during communication failure is summarized in the Table below.

<table>
<thead>
<tr>
<th>DICOM COMMAND COMMUNICATION FAILURE BEHAVIOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exception</strong></td>
</tr>
<tr>
<td>Timeout</td>
</tr>
<tr>
<td>Association aborted by SCP</td>
</tr>
</tbody>
</table>
The Modality Worklist Client is designed to function using a configurable query strategy. The query strategy defines:

- Query method (on-demand, polling, or both)
- Matching keys used
- Return keys requested
- Timeout parameters
- User displayed attributes

For user interactive queries Modality Worklist Client supports any combination of the following matching key attributes as a default:

<table>
<thead>
<tr>
<th>Matching Key Attribute</th>
<th>Tag</th>
<th>Matching Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient's Name</td>
<td>(0010,0010)</td>
<td>Wild Card Matching</td>
</tr>
<tr>
<td>Patient ID</td>
<td>(0010,0020)</td>
<td>Single Value Matching</td>
</tr>
<tr>
<td>Accession Number</td>
<td>(0008,0050)</td>
<td>Single Value Matching</td>
</tr>
<tr>
<td>Requested Procedure ID</td>
<td>(0040,1001)</td>
<td>Single Value Matching</td>
</tr>
<tr>
<td>Scheduled Procedure Step Start Date</td>
<td>(0040,0002)</td>
<td>Range Matching</td>
</tr>
</tbody>
</table>

Note: The Acquisition Workstation supports all Matching Keys as specified in DICOM PS 3.4, Table K.6-1.

For automated queries the Modality Worklist Client supports any combination of the following matching key attributes:

<table>
<thead>
<tr>
<th>Matching Key Attribute</th>
<th>Tag</th>
<th>Matching Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modality</td>
<td>(0008,0060)</td>
<td>Single Value Matching (default &quot;MG&quot;)</td>
</tr>
<tr>
<td>Scheduled Procedure Step Start Date</td>
<td>(0040,0002)</td>
<td>Range Matching</td>
</tr>
<tr>
<td>Scheduled Station Name</td>
<td>(0040,0010)</td>
<td>Single Value Matching</td>
</tr>
<tr>
<td>Scheduled Station AE Title</td>
<td>(0040,0001)</td>
<td>Single Value Matching</td>
</tr>
</tbody>
</table>

The Modality Worklist Client can be configured to request any combination of return key attributes. Table 3.2.1-9 contains the default list of attributes that may be requested. Unexpected attributes returned in a C-FIND response are ignored. Requested return key attributes that are not supported by the Modality Worklist SCP are set to have no value.

<table>
<thead>
<tr>
<th>Module/Attribute</th>
<th>Tag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled Procedure Step Sequence</td>
<td>(0040,0100)</td>
</tr>
<tr>
<td>&gt;Scheduled Station AE Title</td>
<td>(0040,0001)</td>
</tr>
<tr>
<td>&gt;Scheduled Procedure Step Start Date</td>
<td>(0040,0002)</td>
</tr>
<tr>
<td>&gt;Scheduled Procedure Step Start Time</td>
<td>(0040,0003)</td>
</tr>
<tr>
<td>&gt;Modality</td>
<td>(0008,0060)</td>
</tr>
<tr>
<td>&gt;Scheduled Performing Physician's Name</td>
<td>(0040,0006)</td>
</tr>
<tr>
<td>&gt;Scheduled Procedure Step Description</td>
<td>(0040,0007)</td>
</tr>
<tr>
<td>&gt;Scheduled Station Name</td>
<td>(0040,0010)</td>
</tr>
<tr>
<td>&gt;Scheduled Procedure Step Location</td>
<td>(0040,0011)</td>
</tr>
<tr>
<td>&gt;Scheduled Protocol Code Sequence</td>
<td>(0040,0008)</td>
</tr>
<tr>
<td>&gt;&gt;Code Value</td>
<td>(0008,0100)</td>
</tr>
</tbody>
</table>
By default the attribute used to select the configured study code and configured procedure for a given modality worklist item is:

- Requested Procedure Code Sequence (0032,1064)
  >Code Value (0008,0100)

The Acquisition Workstation may be configured to use an alternate attribute for the study code. The alternative attributes are:

- Requested Procedure Code Sequence (0032,1064)
  >Code Value (0008,0100)
  >Code Meaning (0008,0104)
• Scheduled Procedure Step Sequence (0040,0100)
  >Scheduled Procedure Step Description (0040,0007)
  >Scheduled Procedure Step ID (0040,0009)
  >Scheduled Protocol Code Sequence (0040,0008)
  >>Code Value (0008,0100)
  >>Code Meaning (0008,0104)
• Study Description (0008,1030)

When the configured study code attribute is missing from a returned modality worklist item or the value does not match a code in the procedure database, the user is prompted to select a procedure manually.

See Section 7.1.3 for the mapping of worklist item return key attributes to acquired image attributes.

3.2.1.4 Association Acceptance Policy
The Modality Worklist Client AE does not accept associations.

3.2.2 Print Client AE

3.2.2.1 SOP Classes
This Application Entity provides Standard Conformance to the following SOP Classes:

<table>
<thead>
<tr>
<th>SOP Class Name</th>
<th>SOP Class UID</th>
<th>SCU</th>
<th>SCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Grayscale Print Management Meta</td>
<td>1.2.840.10008.5.1.1.9</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Print Job SOP Class</td>
<td>1.2.840.10008.5.1.1.14</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Presentation LUT SOP Class</td>
<td>1.2.840.10008.5.1.1.23</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

3.2.3.2 Association Policies

3.2.2.2.1 General
The DICOM standard Application context shall be specified.

<table>
<thead>
<tr>
<th>Application Context Name</th>
<th>SOP Class UID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.2.840.10008.3.1.1.1</td>
</tr>
</tbody>
</table>

3.2.2.2.2 Number of Associations
One association is initiated at a time for the Print Client AE.

3.2.2.2.3 Asynchronous Nature
The Acquisition Workstation does not support asynchronous operations (multiple outstanding transactions over a single Association).

3.2.2.4 Implementation Identifying Information

<table>
<thead>
<tr>
<th>Implementation Class UID</th>
<th>Implementation Version Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2.840.114089.1.0.0.3.3.12</td>
<td>DCF 3.3.12c</td>
</tr>
</tbody>
</table>
3.2.2.3 Association Initiation Policy

3.2.2.3.1 Acquire Images / Print or Send Images

3.2.2.3.1.1 Description and Sequencing of Activities

The Print Client attempts to establish an association with a remote print AE when an internal request to print one or more images is received. When the Print Job SOP Class is configured, the print job timeout controls how long associations remain open waiting for the print job to complete. When the Print Job SOP Class is not used, the association remains open until the remote print AE responds to a status request that is sent after print action is requested, or until the Print Client times out waiting for a response. The Presentation LUT SOP Class is an option that can be enabled on a per printer basis.

For requested image(s) to be printed the Print Client requests the establishment of an association with a Remote Print AE using the Basic Grayscale Print Management Meta SOP Class. If so configured the Print Client negotiates the optional Print Job SOP class and/or Presentation LUT SOP Class.

Once an association is established the Print Client sends print jobs to the remote print AE. Each print job consists of the following steps:

- The Print Client sends the remote print AE an N-GET request for the Printer SOP Class to determine the status of the printer. The Print Client records the status and continues. The Print Client sends an N-CREATE request to the remote print AE to create a film session. After receiving a successful N-CREATE response, the Print Client then sends an N-CREATE request to the remote print AE to create a film box containing a single image box. The remote print AE creates the film session, film box, and image box. The Presentation LUT SOP Class is an option that can be enabled on a per printer basis.

  Note: When configured, the Presentation LUT SOP Class is negotiated upon a receiving a successful Film Session N-CREATE response.

- The Print Client sends the remote print AE an N-SET request to update the image box with the image pixel data and other information needed for the image to be printed as part of a film box.

- Once the image has been transferred, the Print Client sends the remote print AE an N-ACTION request for the film box. This triggers the remote print AE to print the film. Note that the Print Client does not request N-ACTION at the film session level.

- When the Print Job SOP Class is negotiated the Print Client polls the remote print AE by sending alternate N-GET requests for the Print Job and Printer SOP Classes at pre-configured intervals until an execution status of either “FAILURE” or “DONE” is received in an N-GET response or N-EVENT-REPORT request, or until the configured job timeout period expires.

- When the Print Job SOP Class is not used, the Print Client sends one N-GET request for the Printer SOP Class after the N-ACTION response is received. The association remains open until the N-GET response or a N-EVENT-REPORT request is received, or until the Print Client times out waiting for the N-GET response.

- Before closing the association under any circumstance, the Print Client sends an N-DELETE request for the film box and then for the film session.

- An alarm is posted to the user when a printer warning or failure status message is received from the remote print AE.
3.2.2.3.1.2 Proposed Presentation Contexts

The Print Client attempts to establish associations using the following presentation contexts:

<table>
<thead>
<tr>
<th>Abstract Syntax</th>
<th>Transfer Syntax</th>
<th>Role</th>
<th>Extended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>UID</td>
<td>Name List</td>
<td>UID List</td>
</tr>
<tr>
<td>Basic Grayscale Print Management Meta</td>
<td>1.2.840.10008.5.1.9</td>
<td>Implicit VR, Little Endian</td>
<td>1.2.840.10008.1.2</td>
</tr>
<tr>
<td>Print Job SOP Class</td>
<td>1.2.840.10008.5.1.14</td>
<td>Implicit VR, Little Endian</td>
<td>1.2.840.10008.1.2</td>
</tr>
<tr>
<td>Presentation LUT SOP Class</td>
<td>1.2.840.10008.5.1.1.23</td>
<td>Implicit VR, Little Endian</td>
<td>1.2.840.10008.1.2</td>
</tr>
</tbody>
</table>

3.2.2.3.1.3 SOP Specific Conformance for Print Client

The general behavior of the Print Client AE during communication failure is summarized in the Table below. This behavior is common to all SOP Classes supported by the Print Client AE. Depending on the type of failure, and retry configuration, the print job may be retried several times before reporting an error to the user.

<table>
<thead>
<tr>
<th>Exception</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeout</td>
<td>The Association is aborted and an error message is posted to the user: &quot;Print job was not completed in the allotted time, or timeout waiting for response. Status of print job is unknown.&quot;</td>
</tr>
<tr>
<td>Association aborted by SCP</td>
<td>An error message is posted to the user: &quot;Cannot open socket to specified host/port, a network error has occurred, or received abort from remote system.&quot;</td>
</tr>
</tbody>
</table>

The Print Client supports various printer types that may expect different values for the film session, film box, and image box attributes. These attribute values are defined within model files for each specific printer. This section describes the DIMSE services and the attributes supported for various remote print AEs and includes the particular attributes that may be configured per printer type.

3.2.2.3.1.3.1 Specific Conformance to Basic Film Session SOP Class

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-CREATE</td>
<td>Creates the film session</td>
</tr>
<tr>
<td>N-DELETE</td>
<td>Deletes the film session</td>
</tr>
</tbody>
</table>

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### Table 3.2.2-7

**Basic Film Session SOP Class: Supported Attributes**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Supported Values</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Of Copies</td>
<td>(2000,0010)</td>
<td>1-10</td>
<td>1</td>
</tr>
<tr>
<td>Print Priority</td>
<td>(2000,0020)</td>
<td>HIGH, MED, LOW</td>
<td>HIGH</td>
</tr>
<tr>
<td>Medium Type</td>
<td>(2000,0030)</td>
<td>BLUE FILM, CLEAR FILM, DR BLUE FILM, MAMMO BLUE FILM, MAMMO CLEAR FILM</td>
<td>Configurable</td>
</tr>
<tr>
<td>Film Destination</td>
<td>(2000,0040)</td>
<td>(Configurable)</td>
<td>(Configurable)</td>
</tr>
<tr>
<td>Film Session Label</td>
<td>(2000,0050)</td>
<td>64 characters max.</td>
<td>HOLOGIC ORION</td>
</tr>
</tbody>
</table>

The behavior of Print Client AE when encountering status codes in a N-CREATE or N-DELETE response is summarized in the Table below.

### Table 3.2.2-8

**FILM SESSION SOP CLASS RESPONSE STATUS HANDLING BEHAVIOR**

<table>
<thead>
<tr>
<th>Service Status</th>
<th>Further Meaning</th>
<th>Error Code</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>Success</td>
<td>0000</td>
<td>The SCP has completed the operation successfully. Proceed to next step.</td>
</tr>
<tr>
<td>Warning</td>
<td>Memory allocation</td>
<td>B600</td>
<td>Proceed to next step.</td>
</tr>
<tr>
<td>Failure</td>
<td>Any</td>
<td>Any</td>
<td>Acquisition Workstation aborts association. Error message to user indicates &quot;A DICOM DIMSE error was returned in a response.&quot; Specific status information is logged.</td>
</tr>
</tbody>
</table>

### 3.2.3.3.1.3.2 Specific Conformance to Basic Film Box SOP Class

### Table 3.2.2-9

**Basic Film Box SOP Class: Supported DIMSE operations**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-CREATE</td>
<td>Creates the film box</td>
</tr>
<tr>
<td>N-DELETE</td>
<td>Deletes the film box</td>
</tr>
<tr>
<td>N-ACTION</td>
<td>Prints the film box</td>
</tr>
</tbody>
</table>

### Table 3.2.2-10

**Basic Film Box SOP Class: Supported Attributes**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Supported Values</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image Display Format</td>
<td>(2010,0010)</td>
<td>STANDARD</td>
<td>1,1</td>
</tr>
<tr>
<td>Film Orientation</td>
<td>(2010,0040)</td>
<td>PORTRAIT</td>
<td>PORTRAIT</td>
</tr>
<tr>
<td>Film Size ID</td>
<td>(2010,0050)</td>
<td>8INX10IN, 10INX12IN, 10INX14IN, 11INX14IN, 11INX17IN, 14INX14IN, 14INX17IN</td>
<td>Configured per each printer’s requirements with image matrix size, or set to calculate automatically for true size printing.</td>
</tr>
<tr>
<td>Magnification Type</td>
<td>(2010,0060)</td>
<td>REPPLICATE, BILINEAR, CUBIC, NONE</td>
<td>CUBIC</td>
</tr>
<tr>
<td>Smoothing Type</td>
<td>(2010,0080)</td>
<td>(Configurable)</td>
<td>Configured per printer, only if Magnification Type = CUBIC.</td>
</tr>
<tr>
<td>Attribute Name</td>
<td>Tag</td>
<td>Supported Values</td>
<td>Default Value</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------</td>
<td>-------------------------------------------------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>Border Density</td>
<td>(2010,0100)</td>
<td>BLACK, WHITE</td>
<td>Configured per printer.</td>
</tr>
<tr>
<td>Empty Image Density</td>
<td>(2010,0110)</td>
<td>BLACK, WHITE</td>
<td>Configured per printer.</td>
</tr>
<tr>
<td>Min Density</td>
<td>(2010,0120)</td>
<td>numeric, OD * 100 (Configurable per printer)</td>
<td>20</td>
</tr>
<tr>
<td>Max Density</td>
<td>(2010,0130)</td>
<td>numeric, OD * 100 (Configurable per printer)</td>
<td>360</td>
</tr>
<tr>
<td>Trim</td>
<td>(2010,0140)</td>
<td>YES, NO (Configurable per printer)</td>
<td>NO</td>
</tr>
<tr>
<td>Configuration Information</td>
<td>(2010,0150)</td>
<td>Cxxx, where xxx = Code Value obtained from printer vendors</td>
<td>Configured per printer.</td>
</tr>
<tr>
<td>Illumination</td>
<td>(2010,015E)</td>
<td>0-65535 (Configurable per printer)</td>
<td>5000 (U.S.), 4000 (Europe) Used with Presentation LUT</td>
</tr>
<tr>
<td>Reflected Ambient Light</td>
<td>(2010,1060)</td>
<td>0-65535 (Configurable per printer)</td>
<td>10 (U.S.), 1 (Europe) Used with Presentation LUT</td>
</tr>
<tr>
<td>Requested Resolution ID</td>
<td>(2020,0050)</td>
<td>STANDARD HIGH (Configurable per printer)</td>
<td>Omit attribute</td>
</tr>
<tr>
<td>Referenced Film Session Sequence</td>
<td>(2010,0500)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;Referenced SOP Class UID</td>
<td>(0008,1150)</td>
<td></td>
<td>1.2.840.10008.5.1.1.1</td>
</tr>
<tr>
<td>&gt;Referenced SOP Instance UID</td>
<td>(0008,1155)</td>
<td></td>
<td>Returned by SCP in the Basic Film Session N-CREATE-RSP</td>
</tr>
<tr>
<td>Referenced Image Box Sequence</td>
<td>(2010,0510)</td>
<td></td>
<td>Returned by SCP</td>
</tr>
<tr>
<td>Referenced Presentation LUT Sequence</td>
<td>(2050,0500)</td>
<td>Sent only when Presentation LUT is successfully negotiated</td>
<td>Returned by SCP only when Presentation LUT is successfully negotiated</td>
</tr>
<tr>
<td>&gt;Referenced SOP Class UID</td>
<td>(0008,1150)</td>
<td></td>
<td>1.2.840.10008.5.1.1.23</td>
</tr>
<tr>
<td>&gt;Referenced SOP Instance UID</td>
<td>(0008,1155)</td>
<td></td>
<td>Returned by SCP in the Basic Film Box N-CREATE-RSP</td>
</tr>
</tbody>
</table>

The behavior of Print Client AE when encountering status codes in a N-CREATE, N-ACTION, or N-DELETE response is summarized in the Table below.

### Table 3.2.2-11

**FILM BOX SOP CLASS RESPONSE STATUS HANDLING BEHAVIOR**

<table>
<thead>
<tr>
<th>Service Status</th>
<th>Further Meaning</th>
<th>Error Code</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>Success</td>
<td>0000</td>
<td>The SCP has completed the operation successfully. Proceed to next step.</td>
</tr>
<tr>
<td>Failure</td>
<td>Existing Film Box</td>
<td>C616</td>
<td>Proceed to next step.</td>
</tr>
<tr>
<td>Warning or Failure</td>
<td>Any</td>
<td>Any</td>
<td>Acquisition Workstation Aborts association. Error message to user indicates &quot;A DICOM DIMSE error was returned in a response.&quot; Specific status information is logged.</td>
</tr>
</tbody>
</table>
3.2.2.3.1.3.3 Specific Conformance to Basic Image Box SOP Class

Table 3.2.2-12

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-SET</td>
<td>Updates an image box in a previously created film box.</td>
</tr>
</tbody>
</table>

Table 3.2.2-13

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Supported Values</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image Box Position</td>
<td>(2020,0010)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Polarity</td>
<td>(2020,0020)</td>
<td>NORMAL</td>
<td>NORMAL</td>
</tr>
<tr>
<td>Basic Grayscale Image Sequence</td>
<td>(2020,0110)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Samples Per Pixel</td>
<td>(0028,0004)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>&gt; Photometric Interpretation</td>
<td>(0028,0010)</td>
<td>Calculated automatically</td>
<td>Calculated automatically</td>
</tr>
<tr>
<td>&gt; Rows</td>
<td>(0028,0011)</td>
<td>Calculated automatically</td>
<td>Calculated automatically</td>
</tr>
<tr>
<td>&gt; Pixel Aspect Ratio</td>
<td>(0028,0034)</td>
<td>180x180</td>
<td>180x180</td>
</tr>
<tr>
<td>&gt; Bits Allocated</td>
<td>(0028,0100)</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>&gt; Bits Stored</td>
<td>(0028,0101)</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>&gt; High Bit</td>
<td>(0028,0102)</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>&gt; Pixel Representation</td>
<td>(0028,0103)</td>
<td>0000H</td>
<td>0000H</td>
</tr>
<tr>
<td>&gt; Pixel Data</td>
<td>(7FE0,0010)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnification Type</td>
<td>(2010,0060)</td>
<td>REPLICA, BILINEAR, CUBIC, NONE</td>
<td>CUBIC</td>
</tr>
<tr>
<td>Smoothing Type</td>
<td>(2010,0080)</td>
<td>(Configurable)</td>
<td></td>
</tr>
<tr>
<td>Configuration Information</td>
<td>(2010,0150)</td>
<td>Cxxx, where xxx = Code</td>
<td></td>
</tr>
<tr>
<td>Requested Image Size</td>
<td>(2020,0030)</td>
<td>Calculated automatically</td>
<td></td>
</tr>
</tbody>
</table>

The behavior of Print Client AE when encountering status codes in an N-SET response is summarized in the Table below:

Table 3.2.2-14

<table>
<thead>
<tr>
<th>Service Status</th>
<th>Further Meaning</th>
<th>Error Code</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>Success</td>
<td>0000</td>
<td>The SCP has completed the operation successfully. Proceed to next step.</td>
</tr>
<tr>
<td>Failure</td>
<td>Any</td>
<td>Any</td>
<td>Acquisition Workstation Aborts association. Error message to user indicates “A DICOM DIMSE error was returned in a response.” Specific status information is logged.</td>
</tr>
</tbody>
</table>

3.2.2.3.1.3.4 Specific Conformance to Printer SOP Class

Table 3.2.2-15

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-EVENT-REPORT</td>
<td>Receives status notification.</td>
</tr>
<tr>
<td>N-GET</td>
<td>Retrieves an instance of a physical printer.</td>
</tr>
</tbody>
</table>
The Print Client displays descriptive text corresponding to Printer Status Info (2110,0020) attribute values received from a remote print AE using the N-GET operation, or received via N-EVENT-REPORT. The displayed text is based on DICOM Part 3, C.13.9.1. When the remote print AE sends a Printer Status Info value that is not recognized, the Print Client displays the Printer Status Info value directly.

The behavior of Print Client AE when encountering status codes in a N-GET response is summarized in the Table below:

<table>
<thead>
<tr>
<th>Service Status</th>
<th>Further Meaning</th>
<th>Error Code</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>Success</td>
<td>0000</td>
<td>The SCP has completed the operation successfully. Proceed to next step.</td>
</tr>
<tr>
<td>Failure</td>
<td>Any</td>
<td>Any</td>
<td>Acquisition Workstation Aborts association. Error message to user indicates &quot;A DICOM DIMSE error was returned in a response.&quot; Specific status information is logged.</td>
</tr>
</tbody>
</table>

### 3.2.2.3.1.3.5 Specific Conformance to Presentation LUT SOP Class

#### Table 3.2.2-17

**Presentation LUT SOP Class: Supported DIMSE operations**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-CREATE</td>
<td>Creates a Presentation LUT to be referenced by a film box</td>
</tr>
</tbody>
</table>

#### Table 3.2.2-18

**Presentation LUT SOP Class: Supported Attributes**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Supported Values</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation LUT Shape</td>
<td>(2050,0020)</td>
<td>IDENTITY LIN OD</td>
<td>Configurable per printer</td>
</tr>
</tbody>
</table>

The behavior of the Print SCU when encountering status codes in the N-CREATE response is summarized in the Table below:

<table>
<thead>
<tr>
<th>Service Status</th>
<th>Further Meaning</th>
<th>Error Code</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>Success</td>
<td>0000</td>
<td>The SCP has completed the operation successfully. Proceed to next step.</td>
</tr>
<tr>
<td>Failure</td>
<td>Any</td>
<td>Any</td>
<td>Acquisition Workstation Aborts association. Error message to user indicates &quot;A DICOM DIMSE error was returned in a response.&quot; Specific status information is logged.</td>
</tr>
</tbody>
</table>

### 3.2.2.3.1.3.6 Specific Conformance to Print Job SOP Class

#### Table 3.2.2-20

**Print Job SOP Class: Supported DIMSE operations**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-EVENT-REPORT</td>
<td>Receives status notification.</td>
</tr>
<tr>
<td>N-GET</td>
<td>Retrieves an instance of an existing print job.</td>
</tr>
</tbody>
</table>

The Print Client displays descriptive text corresponding to Execution Status Info (2100,0030) attribute values received from a remote print AE using the N-GET operation, or received via N-EVENT-REPORT. The displayed text is based on DICOM Part 3, C.13.9.1. When the remote print AE sends an Execution Status Info value that is not recognized, the Print Client displays the Execution Status Info value directly.
The behavior of Print Client AE when encountering status codes in a N-GET response is summarized in the Table below:

<table>
<thead>
<tr>
<th>Service Status</th>
<th>Further Meaning</th>
<th>Error Code</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>Success</td>
<td>0000</td>
<td>The SCP has completed the operation successfully. Proceed to next step.</td>
</tr>
<tr>
<td>Failure</td>
<td>Any</td>
<td>Any</td>
<td>Acquisition Workstation Aborts association. Error message to user indicates &quot;A DICOM DIMSE error was returned in a response.&quot; Specific status information is logged.</td>
</tr>
</tbody>
</table>

### 3.2.2.4 Association Acceptance Policy

The Print Client AE does not accept associations.

### 3.2.3 Storage Client AE

#### 3.2.3.1 SOP Classes

This Application Entity provides Standard Conformance to the following SOP Classes:

<table>
<thead>
<tr>
<th>SOP Class Name</th>
<th>SOP Class UID</th>
<th>SCU</th>
<th>SCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Mammography X-Ray Image Storage – For Presentation</td>
<td>1.2.840.10008.5.1.4.1.1.1.2</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Digital Mammography X-Ray Image Storage – For Processing</td>
<td>1.2.840.10008.5.1.4.1.1.1.2.1</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Secondary Capture Image Storage</td>
<td>1.2.840.10008.5.1.4.1.1.7</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

#### 3.2.3.2 Association Policies

##### 3.2.3.2.1 General

The DICOM standard Application context shall be specified.

<table>
<thead>
<tr>
<th>Application Context Name</th>
<th>DICOM APPLICATION CONTEXT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.2.840.10008.3.1.1.1</td>
</tr>
</tbody>
</table>

##### 3.2.4.2.2 Number of Associations

Up to three associations are initiated at a time for the Storage Client AE.

##### 3.2.4.2.3 Asynchronous Nature

The Acquisition Workstation does not support asynchronous operations (multiple outstanding transactions over a single Association).

#### 3.2.3.2.4 Implementation Identifying Information

<table>
<thead>
<tr>
<th>DICOM IMPLEMENTATION CLASS AND VERSION FOR STORAGE CLIENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation Class UID</td>
</tr>
<tr>
<td>Implementation Version Name</td>
</tr>
</tbody>
</table>
3.2.3.3 Association Initiation Policy

3.2.3.3.1 Acquire Images / Print or Send Images

3.2.3.3.1.1 Description and Sequencing of Activities

When the user closes a patient an internal request to transmit all of the newly acquired image data to pre-selected remote storage AEs is generated. The Storage Client then attempts to establish an association with each remote storage AE and transmits the newly acquired images. The Storage Client releases each association after receiving a response from the remote storage AE. It is configurable per remote storage AE whether to send only one object or multiple objects within a single association.

When a storage request is generated to transmit images from the Acquisition Workstation, the Storage Client establishes an association with a remote storage AE, requesting the Digital Mammography X-Ray Image Storage (For Processing) SOP Class, the Digital Mammography X-Ray Image Storage (For Presentation) SOP Class and/or the Secondary Capture Image Storage SOP Class. The output formats are configured per remote storage AE. After the association is established a C-STORE request is made to transfer an image object to the remote storage AE. The Storage Client waits for a C-STORE response to be received before sending the next C-STORE request or releasing the association (depending on configuration).

3.2.3.3.1.2 Proposed Presentation Contexts

The Storage Client attempts to establish associations using the following presentation contexts:

<table>
<thead>
<tr>
<th>Abstract Syntax</th>
<th>Transfer Syntax</th>
<th>Role</th>
<th>Extended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Mammography X-Ray Image Storage – For Presentation</td>
<td>Implicit VR, Little Endian</td>
<td>1.2.840.10008.1.2</td>
<td>SCU</td>
</tr>
<tr>
<td>Digital Mammography X-Ray Image Storage – For Presentation</td>
<td>Explicit VR, Little Endian</td>
<td>1.2.840.10008.1.2.1</td>
<td>SCU</td>
</tr>
<tr>
<td>Digital Mammography X-Ray Image Storage – For Presentation</td>
<td>Explicit VR, Big Endian</td>
<td>1.2.840.10008.1.2.2</td>
<td>SCU</td>
</tr>
<tr>
<td>Digital Mammography X-Ray Image Storage – For Presentation</td>
<td>JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])</td>
<td>1.2.840.10008.1.2.4.70</td>
<td>SCU</td>
</tr>
<tr>
<td>Digital Mammography X-Ray Image Storage – For Processing</td>
<td>Implicit VR, Little Endian</td>
<td>1.2.840.10008.1.2</td>
<td>SCU</td>
</tr>
<tr>
<td>Digital Mammography X-Ray Image Storage – For Processing</td>
<td>Explicit VR, Little Endian</td>
<td>1.2.840.10008.1.2.1</td>
<td>SCU</td>
</tr>
<tr>
<td>Digital Mammography X-Ray Image Storage – For Processing</td>
<td>Explicit VR, Big Endian</td>
<td>1.2.840.10008.1.2.2</td>
<td>SCU</td>
</tr>
<tr>
<td>Digital Mammography X-Ray Image Storage – For Processing</td>
<td>JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])</td>
<td>1.2.840.10008.1.2.4.70</td>
<td>SCU</td>
</tr>
</tbody>
</table>
### Presentation Context Table

<table>
<thead>
<tr>
<th>Abstract Syntax</th>
<th>Transfer Syntax</th>
<th>Role</th>
<th>Extended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>UID</td>
<td>Name List</td>
<td>UID List</td>
</tr>
<tr>
<td>Secondary Capture Image Storage</td>
<td>1.2.840.10008.5.1.4.1.1.7</td>
<td>Implicit VR, Little Endian</td>
<td>1.2.840.10008.1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explicit VR, Little Endian</td>
<td>1.2.840.10008.1.2.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explicit VR, Big Endian</td>
<td>1.2.840.10008.1.2.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])</td>
<td>1.2.840.10008.1.2.4.70</td>
</tr>
</tbody>
</table>

### 3.2.3.3.1.3 SOP Specific Conformance for Storage

The behavior of the Acquisition Workstation when encountering status codes in a C-STORE response is summarized in the Table below.

#### Table 3.2.3-5

<table>
<thead>
<tr>
<th>Service Status</th>
<th>Further Meaning</th>
<th>Error Code</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>Success</td>
<td>0000</td>
<td>The SCP has successfully stored the SOP Instance. Proceed to next step.</td>
</tr>
<tr>
<td>Warning</td>
<td>Coercion of Data Elements</td>
<td>B000</td>
<td>Acquisition Workstation aborts association. Error message to user indicates “A DICOM DIMSE error was returned in a response: Data element coercion”</td>
</tr>
<tr>
<td>Data set does not match SOP Class</td>
<td>B007</td>
<td>Acquisition Workstation aborts association. Error message to user indicates “A DICOM DIMSE error was returned in a response: Data set does not match (warning)”</td>
<td></td>
</tr>
<tr>
<td>Elements discarded</td>
<td>B006</td>
<td>Acquisition Workstation aborts association. Error message to user indicates “A DICOM DIMSE error was returned in a response: Elements discarded”</td>
<td></td>
</tr>
<tr>
<td>Attribute list error</td>
<td>0107</td>
<td>Acquisition Workstation aborts association. Error message to user indicates “A DICOM DIMSE error was returned in a response: Unrecognized attribute”</td>
<td></td>
</tr>
<tr>
<td>Failure</td>
<td>Refused: Out of resources</td>
<td>A7xx</td>
<td>Upon receiving the initial error code, the Acquisition Workstation aborts the association. The Acquisition Workstation will then begin a retry strategy. When the retry strategy fails an error message to user indicates “A DICOM DIMSE error was returned in a response: Out of resources”</td>
</tr>
<tr>
<td>Data set does not match SOP Class</td>
<td>A9xx</td>
<td>Acquisition Workstation aborts association. Error message to user indicates “A DICOM DIMSE error was returned in a response: Data set does not match (error)”</td>
<td></td>
</tr>
<tr>
<td>Cannot understand</td>
<td>Cxxx</td>
<td>Acquisition Workstation aborts association. Error message to user indicates “A DICOM DIMSE error was returned in a response: Cannot understand”</td>
<td></td>
</tr>
<tr>
<td>Class instance conflict</td>
<td>0119</td>
<td>Acquisition Workstation aborts association. Error message to user indicates “A DICOM DIMSE error was returned in a response: Class instance conflict”</td>
<td></td>
</tr>
</tbody>
</table>
The behavior of the Acquisition Workstation during communication failure is summarized in the Table below. Depending on the type of failure, and retry configuration, the send job may be retried several times before reporting an error to the user.

<table>
<thead>
<tr>
<th>Exception</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeout</td>
<td>The Association is aborted and an error message is posted to the user: &quot;Timeout waiting for response.&quot;</td>
</tr>
<tr>
<td>Association aborted by SCP</td>
<td>The error message &quot;Unable to connect to destination host/port&quot; is posted to the user.</td>
</tr>
</tbody>
</table>

Instance UIDs are globally unique for all SOP instances generated by the Acquisition Workstation. The UID root is "1.2.840.113681."

- The Acquisition Workstation populates all Type 1 attributes with valid data and always sends them to the Remote Storage AE.
- The Acquisition Workstation sends all Type 2 attributes and populates them if valid source data are available.
- When configured the Acquisition Workstation sends Type 3 (optional), standard extended, and private attributes to the Remote Storage AE and populates them if valid source data are available.

### 3.2.3.4 Association Acceptance Policy

The Storage Client AE does not accept associations.

### 3.2.4 Storage Commitment Client AE

#### 3.2.4.1 SOP Class

This Application Entity provides Standard Conformance to the following SOP Class:

<table>
<thead>
<tr>
<th>SOP Class Name</th>
<th>SOP Class UID</th>
<th>SCU</th>
<th>SCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Commitment Push Model</td>
<td>1.2.840.10008.1.20.1</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

#### 3.2.4.2 Association Policies

##### 3.2.4.2.1 General

The DICOM standard Application context shall be specified.

<table>
<thead>
<tr>
<th>Application Context Name</th>
<th>1.2.840.10008.3.1.1.1</th>
</tr>
</thead>
</table>

##### 3.2.4.2.2 Number of Associations

One association is initiated at a time for the Storage Commitment Client AE.

##### 3.2.4.2.3 Asynchronous Nature

The Acquisition Workstation does not support asynchronous operations (multiple outstanding transactions over a single Association).
3.2.4.2.4 Implementation Identifying Information

Table 3.2.4-3

<table>
<thead>
<tr>
<th>DICOM IMPLEMENTATION CLASS AND VERSION FOR STORAGE COMMITMENT CLIENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation Class UID</td>
</tr>
<tr>
<td>Implementation Version Name</td>
</tr>
</tbody>
</table>

3.2.4.3 Association Initiation Policy

3.2.4.3.1 Commit Images

3.2.4.3.1.1 Description and Sequencing of Activities
When the Storage Commitment Client is configured it attempts to establish an association with a remote storage commitment AE after the Storage Client receives successful C-STORE responses for one or more images. When an association is established, a N-ACTION request is sent to request storage commitment for previously stored images. The Storage Commitment Client releases the association immediately after receiving the N-ACTION response from the remote storage commitment AE.

3.2.4.3.1.2 Proposed Presentation Contexts
The Storage Commitment Client attempts to establish associations using the following presentation contexts:

Table 3.2.4-4

<table>
<thead>
<tr>
<th>PROPOSED PRESENTATION CONTEXTS FOR COMMIT IMAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation Context Table</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Storage Commitment Push Model</td>
</tr>
</tbody>
</table>

3.2.4.3.1.3 SOP Specific Conformance for Storage Commitment
The behavior of the Acquisition Workstation when encountering status codes in a Storage Commitment N-ACTION response is summarized in the Table below.

Table 3.2.4-5

<table>
<thead>
<tr>
<th>STORAGE COMMITMENT N-ACTION RESPONSE STATUS HANDLING BEHAVIOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Status</td>
</tr>
<tr>
<td>Success</td>
</tr>
<tr>
<td>Warning</td>
</tr>
<tr>
<td>Failure</td>
</tr>
</tbody>
</table>
The behavior of the Acquisition Workstation during communication failure is summarized in the Table below. Depending on the type of failure, and retry configuration, the commit job request may be retried several times before reporting an error to the user.

### Table 3.2.4-6

**STORAGE COMMITMENT COMMUNICATION FAILURE BEHAVIOR**

<table>
<thead>
<tr>
<th>Exception</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeout</td>
<td>The Association is aborted and an error message if posted to the user: “Storage Commit job was not acknowledged in the allotted time. Status of commit job is unknown.”</td>
</tr>
<tr>
<td>Association aborted by SCP</td>
<td>The error message “Cannot open socket to specified host/port, a network error has occurred, or received abort from remote system” is posted to the user.</td>
</tr>
</tbody>
</table>

The Storage Commitment Client supports the following N-ACTION attributes:

### Table 3.2.4-7

**Supported Storage Commitment N-ACTION Attributes**

<table>
<thead>
<tr>
<th>Action Type Name</th>
<th>Action Type ID</th>
<th>Attribute</th>
<th>Tag</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request Storage Commitment</td>
<td>1</td>
<td>Transaction UID</td>
<td>(0008,1195)</td>
<td>Acquisition Workstation generates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Referenced SOP Sequence</td>
<td>(0008,1199)</td>
<td>Acquisition Workstation generates, one or more Items</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; Referenced SOP Class UID</td>
<td>(0008,1150)</td>
<td>1.2.840.10008.5.1.4.1.1.2 or 1.2.840.10008.5.1.4.1.1.2.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; Referenced SOP Instance UID</td>
<td>(0008,1155)</td>
<td>Instance UID of image to be committed</td>
</tr>
</tbody>
</table>

### 3.2.4.4 Association Acceptance Policy

#### 3.2.4.4.1 Activity – Receive Storage Commitment Response

#### 3.2.4.4.1.1 Description and Sequencing of Activities

The Storage Commitment Client AE will accept associations in order to receive responses to a Storage Commitment Request.

The Storage Commitment Client AE accepts a reverse role association request from a remote storage commitment AE using the Storage Commitment Push Model SOP Class. After accepting an association an N-EVENT-REPORT request is expected that provides the status of a previous request for storage commitment of an image. The Storage Commitment Client AE waits for a configurable period of time, and if a N-EVENT-REPORT request is not received, the association is aborted.

The Transaction UID value in a received N-EVENT-REPORT request is checked. SOP Instances UIDs that are successfully committed are checked and recorded. SOP Instances UIDs that are not committed are logged.

#### 3.2.4.4.1.2 Accepted Presentation Contexts

### Table 3.2.4-8

**ACCEPTABLE PRESENTATION CONTEXTS FOR STORAGE COMMITMENT CLIENT AND RECEIVE STORAGE COMMITMENT RESPONSE**

<table>
<thead>
<tr>
<th>Presentation Context Table</th>
<th>Abstract Syntax</th>
<th>Transfer Syntax</th>
<th>Role</th>
<th>Extended Negotiation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>UID</td>
<td>Name</td>
<td>UID</td>
<td></td>
</tr>
<tr>
<td>Storage Commitment Push Model</td>
<td>1.2.840.10008.1.20.1</td>
<td>Implicit VR, Little Endian</td>
<td>1.2.840.10008.1.2</td>
<td>SCU</td>
</tr>
</tbody>
</table>
3.2.4.4.1.3 SOP Specific Conformance for Storage Commitment

Upon receipt of a N-EVENT-REPORT request, the commit status of the referenced images is updated, and a N-EVENT-REPORT response is sent.

The behavior of Storage Commitment Client AE when receiving Event Types within the N-EVENT-REPORT request is summarized in the Table below.

<table>
<thead>
<tr>
<th>Event Type Name</th>
<th>Event Type ID</th>
<th>Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Commitment Request Successful</td>
<td>1</td>
<td>The commit status of the Referenced SOP Instances under Referenced SOP Sequence (0008,1199) is set to ACKNOWLEDGED. Successfully committed SOP Instances are candidates for automatic deletion from the local database if local resources become scarce, unless they are otherwise protected from deletion. The conditions under which automatic deletion is initiated and the amount of space freed are site configurable.</td>
</tr>
<tr>
<td>Storage Commitment Request Complete – Failures Exist</td>
<td>2</td>
<td>The Referenced SOP Instances under Referenced SOP Sequence (0008,1199) are treated in the same way as in the success case (Event Type 1). A message is logged for each of the Referenced SOP Instances under Failed SOP Sequence (0008,1198).</td>
</tr>
</tbody>
</table>

The reasons for returning specific status codes in a N-EVENT-REPORT response are summarized in the Table below.

<table>
<thead>
<tr>
<th>Service Status</th>
<th>Further Meaning</th>
<th>Error Code</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>Success</td>
<td>0000</td>
<td></td>
</tr>
</tbody>
</table>

3.2.5 Verification AE

3.2.5.1 SOP Classes

This Application Entity provides Standard Conformance to the following SOP Class:

<table>
<thead>
<tr>
<th>SOP Class Name</th>
<th>SOP Class UID</th>
<th>SCU</th>
<th>SCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verification SOP Class</td>
<td>1.2.840.10008.1.1</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

3.2.5.2 Association Policies

3.2.5.2.1 General

The DICOM standard Application context shall be specified.

3.2.5.2.2 Number of Associations

One association is initiated at a time for the Verification SCU.

3.2.5.2.3 Asynchronous Nature

The Acquisition Workstation does not support asynchronous operations (multiple outstanding transactions over a single Association).
3.2.5.2.4 Implementation Identifying Information

Table 3.2.5-3

<table>
<thead>
<tr>
<th>DICOM IMPLEMENTATION CLASS AND VERSION FOR VERIFICATION SCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation Class UID</td>
</tr>
<tr>
<td>Implementation Version Name</td>
</tr>
</tbody>
</table>

3.2.5.3 Association Initiation Policy
The Verification SCU AE does initiate associations. The Verification SCP AE does not initiate associations.

3.2.5.3.1 Activity - C-ECHO

3.2.5.3.1.1 Description and Sequencing of Activities
The Acquisition Workstation provides the user with the capability to C-ECHO any remote Service Class Provider configured on the system as a virtual device.

3.2.5.3.1.2 Proposed Presentation Contexts
The SCU AE attempts to establish associations Presentation Contexts using the following Presentation Contexts.

Table 3.2.5-4

<table>
<thead>
<tr>
<th>PROPOSED PRESENTATION CONTEXTS FOR ECHO REQUESTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation Context Table</td>
</tr>
<tr>
<td>Abstract Syntax</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Verification SOP Class</td>
</tr>
</tbody>
</table>

3.2.5.3.1.3 SOP Specific Conformance for Verification SOP Class
Verification SCU provides standard conformance to the Verification Service Class. The behavior of the Acquisition Workstation when encountering status codes in a C-ECHO response is summarized in the Table below.

Table 3.2.5-5

<table>
<thead>
<tr>
<th>VERIFICATION C-ECHO RESPONSE STATUS HANDLING BEHAVIOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Status</td>
</tr>
<tr>
<td>Success</td>
</tr>
</tbody>
</table>

3.2.5.4 Association Acceptance Policy
The Verification SCU AE does not accept associations.

3.3. Network Interfaces

3.3.1 Physical Network Interface
The Acquisition Workstation is tested and supports using 10-BaseT, 100-BaseT and 1000-BaseT Ethernet media.

3.3.2 Additional Protocols
None.

3.4. Configuration
The DICOM Storage, Storage Commitment, Print, and Modality Worklist Clients are configured during site installation.
A Verification SCU, used primarily as a troubleshooting tool, is made available through a service tool utility. It attempts to establish an association with a remote Verification SCP when invoked by the service tool utility. It requests one presentation context, the Verification SOP Class with the DICOM default transfer syntax.

3.4.1 AE Title/Presentation Address Mapping

3.4.1.1 Local AE Titles

<table>
<thead>
<tr>
<th>Application Entity</th>
<th>Default AE Title</th>
<th>Default TCP/IP Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage Client</td>
<td>DIRECT_DIGXRAY</td>
<td>N/A</td>
</tr>
<tr>
<td>Print Client</td>
<td>DIRECT_DIGXRAY</td>
<td>N/A</td>
</tr>
<tr>
<td>Modality Worklist Client</td>
<td>DIRECT_DIGXRAY</td>
<td>N/A</td>
</tr>
<tr>
<td>Storage Commitment Client</td>
<td>DIRECT_DIGXRAY</td>
<td>104</td>
</tr>
<tr>
<td>Verification SCU</td>
<td>DIRECT_DIGXRAY</td>
<td>N/A</td>
</tr>
</tbody>
</table>

The default AE Title and TCP/IP Port number may be modified.

3.4.1.2 Remote AE Title/Presentation Address Mapping

Up to 64 Remote Storage or Print SCPs can be configured.

3.4.1.2.1 Remote Modality Worklist SCP

The following are some of the relevant configurable items for the Remote Modality Worklist SCP:

<table>
<thead>
<tr>
<th>Parameter description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Entity Title (Called AE)</td>
<td>The Acquisition Workstation supports one AE acting as a Modality Worklist provider.</td>
</tr>
<tr>
<td>Remote Host/IP Address</td>
<td>IP address and hostname associated with the Modality Worklist provider AE.</td>
</tr>
<tr>
<td>Remote Port Number</td>
<td>Port number to use when establishing TCP/IP connection to the Modality Worklist provider AE. Range = 1 to 65,535</td>
</tr>
</tbody>
</table>
| Study Code                             | The attribute used to match the procedure to be performed to the procedure codes available on the Acquisition Workstation. The available Study Code attributes include:  
  • (default) Requested Procedure Code Sequence, Code Value (0032,1064,0008,0100)  
  • Requested Procedure Code Sequence, Code Meaning (0032,1064,0008,0104)  
  • Scheduled Procedure Step Sequence, Scheduled Protocol Code Sequence, Code Meaning (0040,0100,0040,0008,0008,0008,0100)  
  • Scheduled Procedure Step Sequence, Scheduled Protocol Code Sequence, Code Value (0040,0100,0040,0008,0008,0008,0100)  
  • Scheduled Procedure Step Sequence, Scheduled Procedure Step Description (0040,0100,0040,0007)  
  • Scheduled Procedure Step Sequence, Scheduled Procedure Step ID (0040,0100,0040,0009)  
  • Study Description (0008,1030) |
3.4.1.2.2 Remote Print SCP

The following are some of the relevant configurable items for each Remote Print SCP:

<table>
<thead>
<tr>
<th>Parameter Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Entity Title</td>
<td>The Acquisition Workstation supports multiple AEs acting as Remote Print SCP.</td>
</tr>
<tr>
<td>(Called AE)</td>
<td></td>
</tr>
<tr>
<td>Remote Host/IP Address</td>
<td>IP address and hostname, one per Remote Print AE.</td>
</tr>
<tr>
<td>Remote Port Number</td>
<td>Port number to use when establishing TCP/IP connection, one per Remote Print AE. Range = 1 to 65,535</td>
</tr>
<tr>
<td>Maximum PDU Length</td>
<td>Default = 16384</td>
</tr>
<tr>
<td>Transfer Syntax</td>
<td>• Implicit VR Little Endian (default)</td>
</tr>
<tr>
<td></td>
<td>• Explicit VR Little Endian</td>
</tr>
<tr>
<td></td>
<td>• Explicit VR Big Endian</td>
</tr>
<tr>
<td>Print Job SOP Class</td>
<td>Enable or Disable</td>
</tr>
<tr>
<td>Print Job Polling</td>
<td>Enable or Disable</td>
</tr>
<tr>
<td>Print Job Poll Period</td>
<td>Applies only when Print Job is enabled. Number of seconds to wait between sending Printer and Print Job N-GET requests after receiving N-ACTION response. Default = 30</td>
</tr>
<tr>
<td>Presentation LUT Shape</td>
<td>• IDENTITY</td>
</tr>
<tr>
<td></td>
<td>• LINEAR OD</td>
</tr>
<tr>
<td>Send Presentation LUT Info</td>
<td>Enable or Disable negotiation of Presentation LUT SOP Class</td>
</tr>
<tr>
<td>Response timeout</td>
<td>Number of seconds to wait for a response from the printer. Default = 240</td>
</tr>
<tr>
<td>Times to retry a job</td>
<td>Number of times to attempt a print request before failing it. Default = 3</td>
</tr>
<tr>
<td>Retry Interval</td>
<td>Number of hours, minutes and/or seconds to wait before retrying a print request. Default = 1 minute + 30 seconds</td>
</tr>
</tbody>
</table>

3.4.1.2.3 Remote Storage SCP

The following are some of the relevant configurable items for each Remote Storage SCP:

<table>
<thead>
<tr>
<th>Parameter Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Entity Title</td>
<td>The Acquisition Workstation supports multiple AEs acting as Remote Storage SCP.</td>
</tr>
<tr>
<td>(Called AE)</td>
<td></td>
</tr>
<tr>
<td>Remote Host/IP Address</td>
<td>IP address and hostname, one per Remote Storage AE.</td>
</tr>
<tr>
<td>Remote Port Number</td>
<td>Port number to use when establishing TCP/IP connection, one per Remote Storage AE. Range = 1 to 65,535</td>
</tr>
<tr>
<td>Store SOP Class(es)</td>
<td>• Digital Mammography X-Ray Image Storage - For Processing and/or</td>
</tr>
<tr>
<td></td>
<td>• Digital Mammography X-Ray Image Storage – For Presentation and/or</td>
</tr>
<tr>
<td></td>
<td>• Secondary Capture Image Storage</td>
</tr>
<tr>
<td>Storage Commitment</td>
<td>Enable or disable</td>
</tr>
<tr>
<td>Transfer Syntax</td>
<td>• Implicit VR Little Endian</td>
</tr>
<tr>
<td></td>
<td>• Explicit VR Little Endian</td>
</tr>
<tr>
<td></td>
<td>• Explicit VR Big Endian</td>
</tr>
<tr>
<td></td>
<td>• JPEG Lossless Non-Hierarchical First Order Prediction</td>
</tr>
<tr>
<td>Maximum PDU Length</td>
<td>Default = 16384</td>
</tr>
<tr>
<td>Response timeout</td>
<td>Number of seconds to wait for a C-STORE response. Default = 300</td>
</tr>
<tr>
<td>Times to retry a job</td>
<td>Number of times to attempt a print request before failing it. Default = 3</td>
</tr>
<tr>
<td>Retry Interval</td>
<td>Number of hours, minutes and/or seconds to wait before retrying a print request. Default = 30 seconds</td>
</tr>
</tbody>
</table>
3.4.1.2.4 Remote Storage Commitment SCP

The following are some of the relevant configurable items for the Remote Storage Commitment SCP:

<table>
<thead>
<tr>
<th>Parameter description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Entity Title (Called AE)</td>
<td>One Remote Storage AE should be configured for storage commitment, if desired.</td>
</tr>
<tr>
<td>Remote Host/IP Address</td>
<td>IP address and hostname of Remote Storage Commitment AE.</td>
</tr>
<tr>
<td>Port Number</td>
<td>Port number to be used when establishing TCP/IP connection to the Remote Storage Commitment SCP. Range = 1 to 65,535</td>
</tr>
<tr>
<td>Maximum PDU length</td>
<td>Default = 500</td>
</tr>
<tr>
<td>N-EVENT-REPORT timeout</td>
<td>Number of seconds to wait for N-EVENT-REPORT request. Default = 300</td>
</tr>
</tbody>
</table>

3.4.2 Configuration Parameters for Local AEs

The following are some of the relevant configurable items for the local AEs:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Configurable (Yes/No)</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modality Worklist Client</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polling (On/Off)</td>
<td>Yes</td>
<td>Off</td>
</tr>
<tr>
<td>Poll interval in minutes</td>
<td>Yes</td>
<td>10</td>
</tr>
<tr>
<td>Maximum PDU length</td>
<td>Yes</td>
<td>16384</td>
</tr>
<tr>
<td>MWL query timeout: Number of seconds to wait for C-FIND response</td>
<td>Yes</td>
<td>30</td>
</tr>
<tr>
<td>Maximum number of MWL items accepted</td>
<td>Yes</td>
<td>100</td>
</tr>
<tr>
<td>Matching Keys: Configured and mapped using attributes defined in section 3.2.1.3.1.3</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Return Keys: Configured and mapped using attributes defined in section 3.2.1.3.1.3</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>
4.0 Media Interchange

4.1 Implementation Model

4.1.1 Application Data Flow Diagram

The Media Server AE provides a means to export Digital Mammography X-Ray Image and Secondary Capture Image objects using DICOM Part 10: Media Storage and File Format for Media Interchange. The objects can be recorded to removable media. This feature is provided as a matter of convenience for users to move objects from one system to another via removable media. This feature is not intended to serve as an archive for permanently storing images.

4.1.2 Functional Definition of AEs

The Media Server AE can store Digital Mammography X-Ray For Processing, For Presentation and Secondary Capture image objects to removable media (see Table 1-2). Formats available for image storage:

- DICOM Part 10 format, storing images using the Digital Mammography X-Ray Image Storage – For Processing SOP Class
- DICOM Part 10 format, storing images using the Digital Mammography X-Ray Image Storage – For Presentation SOP Class
- DICOM Part 10 format, storing images using the Secondary Capture Image Storage SOP Class

The Acquisition Workstation supports DICOM Media Storage as an FSC.

4.1.3 Sequencing of Real World Activities

The Acquisition Workstation user interface provides access to configure and use removable media (see Table 1-2) as an output device to export images to removable media.

4.1.4 File Meta Information for Implementation Class Version

The implementation information written to the File Meta Header in each file is:

<table>
<thead>
<tr>
<th>Implementation Class UID</th>
<th>1.2.840.114089.1.0.0.3.3.12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation Version Name</td>
<td>DCF 3.3.12c</td>
</tr>
</tbody>
</table>
4.2.  AE Specifications

4.2.1 Media Server AE Specification
The Media Server AE provides standard conformance to the DICOM Interchange Option of the Media Storage Service Class (SC). The Application Profiles and roles are listed below:

<table>
<thead>
<tr>
<th>Supported Application Profile</th>
<th>Real-World Activity</th>
<th>Roles</th>
<th>SC Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>STD-GEN-USB</td>
<td>User Initiates Media Store</td>
<td>FSC</td>
<td>Interchange</td>
</tr>
</tbody>
</table>

4.2.1.1 File Meta Information for Media Server AE
The Source Application Entity Title included in the File Meta Header is the configured system SCU AE Title.

4.2.1.2 Real-World Activities

4.2.1.2.1 Activity – User Initiates Media Store
The Media Server AE acts as an FSC using the interchange option when requested to export images to removable media such as USB 2.0.

A Removable Media utility is available to configure what data is written to the removable media device and the format the image data is written to removable media. The removable media device is available as an output destination via the Export utility found on the Performed Exam Page (PEP).

4.2.1.2.1.1 Media Storage Application Profile
The Media Server AE supports the STD-GEN-USB Application Profile.

4.2.1.2.1.1.1 Options
The Media Server AE supports the SOP Classes and Transfer Syntaxes listed in the Table below:

<table>
<thead>
<tr>
<th>SOP Class Name</th>
<th>SOP Class UID</th>
<th>Transfer Syntax</th>
<th>Transfer Syntax UID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Storage Directory Storage</td>
<td>1.2.840.10008.1.3.10</td>
<td>Explicit VR Little Endian</td>
<td>1.2.840.10008.1.2.1</td>
</tr>
<tr>
<td>Digital Mammography X-Ray Image Storage – For</td>
<td>1.2.840.10008.5.1.4.1.1.1.2</td>
<td>Explicit VR Little Endian</td>
<td>1.2.840.10008.1.2.1</td>
</tr>
<tr>
<td>Presentation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital Mammography X-Ray Image Storage – For</td>
<td>1.2.840.10008.5.1.4.1.1.2.1</td>
<td>Explicit VR Little Endian</td>
<td>1.2.840.10008.1.2.1</td>
</tr>
<tr>
<td>Processing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary Capture Image Storage</td>
<td>1.2.840.10008.5.1.4.1.1.7</td>
<td>Explicit VR Little Endian</td>
<td>1.2.840.10008.1.2.1</td>
</tr>
</tbody>
</table>

4.3.  Augmented and Private Application Profiles
None

4.4.  Media Configuration
The Media output device may be configured to store Digital Mammography X-Ray Image Storage - For Presentation, Digital Mammography X-Ray Image Storage - For Processing and Secondary Capture Image Storage SOP Instances. The Media label, File-set ID (0004,1130), is configurable.
5.0 Support of Character Sets
The Acquisition Workstation supports the following character sets for the values of Data Elements with a VR of SH, LO, ST, PN or LT:

- Default: ISO-IR 6
- Latin Alphabet No. 1: ISO-IR 100

6.0 Security
The CorLumina Acquisition Workstation does not support any specific DICOM security measures.

It is assumed that the CorLumina Acquisition Workstation is used within a secured environment. It is assumed that a secured environment includes at a minimum:

- Firewall or router protections to ensure that only approved external hosts have network access to the CorLumina Acquisition Workstation.
- Firewall or router protections to ensure that the CorLumina Acquisition Workstation only has network access to approved external hosts and services.
- Any communication with external hosts and services outside the locally secured environment use appropriate secure network channels (e.g. such as a Virtual Private Network (VPN)).
- Other network security procedures such as automated intrusion detection may be appropriate in some environments. Additional security features may be established by the local security policy and are beyond the scope of this conformance statement.

7.0 Annexes

7.1 IOD Contents

7.1.1 Created SOP Instance(s)
Abbreviations for Presence of Value:

- ALWAYS: Attribute always present with a value
- ANAP: Attribute not always present
- EMPTY: Attribute is sent without a value (zero length)
- VNAP: Attribute value not always present (zero length if no value is present)

Abbreviations for Source:

- AUTO: Attribute value is generated automatically
- CONFIG: Attribute value source is a configurable parameter
- MWL: Attribute value is the same as the value received using Modality Worklist
- USER: Attribute value source is from User input
7.1.1.1 Digital Mammography X-Ray Image IOD

The default attributes that are contained in created SOP Instances are listed in the following tables. The attributes contained in created SOP Instances are configurable.

Table 7.1-1
IOD OF CREATED DIGITAL MAMMOGRAPHY X-RAY IMAGE SOP INSTANCES

<table>
<thead>
<tr>
<th>IE</th>
<th>Module</th>
<th>Reference</th>
<th>Presence of Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>General Study</td>
<td>Table 7.1-2</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>Study</td>
<td>General Study</td>
<td>Table 7.1-3</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>Patient Study</td>
<td>Table 7.1-3</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>Series</td>
<td>General Series</td>
<td>Table 7.1-4</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>DX Series</td>
<td>Table 7.1-4</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>Mammography Series</td>
<td>Table 7.1-4</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>Equipment</td>
<td>General Equipment</td>
<td>Table 7.1-5</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>Image</td>
<td>General Image</td>
<td>Table 7.1-6</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>Image Pixel</td>
<td>Table 7.1-7</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>Specimen</td>
<td>Table 7.1-8</td>
<td>ANAP</td>
</tr>
<tr>
<td></td>
<td>DX Anatomy Imaged</td>
<td>Table 7.1-9</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>DX Image</td>
<td>Table 7.1-6</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>DX Detector</td>
<td>Table 7.1-10</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>DX Positioning</td>
<td>Table 7.1-11</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>X-Ray Acquisition Dose</td>
<td>Table 7.1-12</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>X-Ray Generation</td>
<td>Table 7.1-13</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>X-Ray Filtration</td>
<td>Table 7.1-14</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>X-Ray Grid</td>
<td>Table 7.1-15</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>Mammography Image</td>
<td>Table 7.1-6</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>VOI LUT</td>
<td>Table 7.1-6</td>
<td>ANAP</td>
</tr>
<tr>
<td></td>
<td>Acquisition Context</td>
<td>Table 7.1-16</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>SOP Common</td>
<td>Table 7.1-17</td>
<td>ALWAYS</td>
</tr>
</tbody>
</table>

Table 7.1-2
Patient Module of Created SOP Instances

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s Name</td>
<td>(0010,0010)</td>
<td>ALWAYS</td>
<td>MWL/USER</td>
<td></td>
</tr>
<tr>
<td>Patient ID</td>
<td>(0010,0020)</td>
<td>ALWAYS</td>
<td>MWL/USER</td>
<td></td>
</tr>
<tr>
<td>Issuer of Patient ID</td>
<td>(0010,0021)</td>
<td>ANAP</td>
<td>MWL</td>
<td></td>
</tr>
<tr>
<td>Patient’s Birth Date</td>
<td>(0010,0030)</td>
<td>ALWAYS</td>
<td>MWL/USER</td>
<td></td>
</tr>
<tr>
<td>Patient’s Sex</td>
<td>(0010,0040)</td>
<td>ALWAYS</td>
<td>MWL/USER</td>
<td></td>
</tr>
<tr>
<td>Other Patient IDs</td>
<td>(0010,1000)</td>
<td>ANAP</td>
<td>MWL</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.1-3
General / Patient Study Modules of Created SOP Instances

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Date</td>
<td>(0008,0020)</td>
<td>ALWAYS</td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>Study Time</td>
<td>(0008,0030)</td>
<td>ALWAYS</td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>Accession Number</td>
<td>(0008,0050)</td>
<td>VNAP</td>
<td>MWL/USER</td>
<td></td>
</tr>
<tr>
<td>Referring Physician’s Name</td>
<td>(0008,0090)</td>
<td>VNAP</td>
<td>MWL/USER</td>
<td></td>
</tr>
<tr>
<td>Study Description</td>
<td>(0008,1030)</td>
<td>Internal procedure name</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Study Instance UID</td>
<td>(0020,0000D)</td>
<td>Unique value generated by Acquisition Workstation if not provided by MWL</td>
<td>MWL/AUTO</td>
<td></td>
</tr>
</tbody>
</table>
## Table 7.1-4
**General / DX / Mammography Series Modules of Created SOP Instances**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series Date</td>
<td>(0008,0021)</td>
<td>ALWAYS AUTO</td>
<td>Series Time</td>
<td>AUTO</td>
</tr>
<tr>
<td>Series Time</td>
<td>(0008,0031)</td>
<td>ALWAYS AUTO</td>
<td>Modality</td>
<td>AUTO</td>
</tr>
<tr>
<td>Modality</td>
<td>(0008,0060)</td>
<td>ALWAYS AUTO</td>
<td>Presentation Intent Type</td>
<td>AUTO</td>
</tr>
<tr>
<td>Presentation Intent Type</td>
<td>(0008,0068)</td>
<td>ALWAYS AUTO</td>
<td>Series Description</td>
<td>AUTO</td>
</tr>
<tr>
<td>Series Description</td>
<td>(0008,103E)</td>
<td>ALWAYS AUTO</td>
<td>Operators’ Name</td>
<td>AUTO</td>
</tr>
<tr>
<td>Operators’ Name</td>
<td>(0008,1070)</td>
<td>ALWAYS AUTO</td>
<td>Body Part Examined</td>
<td>AUTO</td>
</tr>
<tr>
<td>Body Part Examined</td>
<td>(0018,0015)</td>
<td>ALWAYS AUTO</td>
<td>Series Instance UID</td>
<td>AUTO</td>
</tr>
<tr>
<td>Series Instance UID</td>
<td>(0020,000E)</td>
<td>ALWAYS AUTO</td>
<td>Series Number</td>
<td>AUTO</td>
</tr>
<tr>
<td>Series Number</td>
<td>(0020,0011)</td>
<td>ALWAYS AUTO</td>
<td>Performed Procedure Step Start Date</td>
<td>AUTO</td>
</tr>
<tr>
<td>Performed Procedure Step Start Date</td>
<td>(0040,0244)</td>
<td>ALWAYS AUTO</td>
<td>Performed Procedure Step Start Time</td>
<td>AUTO</td>
</tr>
<tr>
<td>Performed Procedure Step Start Time</td>
<td>(0040,0245)</td>
<td>ALWAYS AUTO</td>
<td>Performed Procedure Step ID</td>
<td>AUTO</td>
</tr>
<tr>
<td>Performed Procedure Step ID</td>
<td>(0040,0253)</td>
<td>ALWAYS AUTO</td>
<td>Performed Procedure Step Description</td>
<td>AUTO</td>
</tr>
<tr>
<td>Performed Procedure Step Description</td>
<td>(0040,0254)</td>
<td>ALWAYS AUTO</td>
<td>Performed Protocol Code Sequence</td>
<td>AUTO</td>
</tr>
<tr>
<td>Performed Protocol Code Sequence</td>
<td>(0040,0260)</td>
<td>One Item ALWAYS AUTO</td>
<td>&gt;Code Value</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Code Value</td>
<td>(0008,0100)</td>
<td>ALWAYS AUTO</td>
<td>&gt;Coding Scheme Designator</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Coding Scheme Designator</td>
<td>(0008,0102)</td>
<td>ALWAYS AUTO</td>
<td>&gt;Code Meaning</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Code Meaning</td>
<td>(0008,0104)</td>
<td>ALWAYS AUTO</td>
<td>&gt;Scheduled Procedure Step Description</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Scheduled Procedure Step Description</td>
<td>(0040,0007)</td>
<td>ALWAYS AUTO</td>
<td>&gt;Scheduled Protocol Code Sequence</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Scheduled Protocol Code Sequence</td>
<td>(0040,0008)</td>
<td>ALWAYS AUTO</td>
<td>&gt;&gt;Code Value</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;&gt;Code Value</td>
<td>(0008,0100)</td>
<td>ALWAYS AUTO</td>
<td>&gt;&gt;Coding Scheme Designator</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;&gt;Coding Scheme Designator</td>
<td>(0008,0102)</td>
<td>ALWAYS AUTO</td>
<td>&gt;&gt;Code Meaning</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;&gt;Code Meaning</td>
<td>(0008,0104)</td>
<td>ALWAYS AUTO</td>
<td>&gt;&gt;Scheduled Procedure Step ID</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;&gt;Scheduled Procedure Step ID</td>
<td>(0040,0009)</td>
<td>ALWAYS AUTO</td>
<td>&gt;&gt;Requested Procedure ID</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;&gt;Requested Procedure ID</td>
<td>(0040,1001)</td>
<td>ALWAYS AUTO</td>
<td>&gt;&gt;Reason for Requested Procedure Code Sequence</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;&gt;Reason for Requested Procedure Code Sequence</td>
<td>(0040,100A)</td>
<td>ALWAYS AUTO</td>
<td>&gt;&gt;Code Value</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;&gt;Code Value</td>
<td>(0008,0100)</td>
<td>ALWAYS AUTO</td>
<td>&gt;&gt;Coding Scheme Designator</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;&gt;Coding Scheme Designator</td>
<td>(0008,0102)</td>
<td>ALWAYS AUTO</td>
<td>&gt;&gt;Code Meaning</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;&gt;Code Meaning</td>
<td>(0008,0104)</td>
<td>ALWAYS AUTO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 7.1-5
**General Equipment Module of Created SOP Instances**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>(0008,0070)</td>
<td>HOLOGIC, Inc.</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Institution Name</td>
<td>(0008,0080)</td>
<td></td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Institution Address</td>
<td>(0008,0081)</td>
<td></td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Station Name</td>
<td>(0008,1010)</td>
<td></td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Institutional Department Name</td>
<td>(0008,1040)</td>
<td></td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Manufacturer’s Model Name</td>
<td>(0008,1090)</td>
<td>CorLumina</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Device Serial Number</td>
<td>(0018,1000)</td>
<td></td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Software Versions</td>
<td>(0018,1020)</td>
<td>Multiple values</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

### Table 7.1-6
**General / DX / Mammography Image Modules of Created SOP Instances**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image Type</td>
<td>(0008,0008)</td>
<td>Original: ORIGINAL</td>
<td>PRIMARY Derived: Derived: PRIMARY</td>
<td>ALWAYS</td>
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<tr>
<td>Acquisition Date</td>
<td>(0008,0022)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Content Date</td>
<td>(0008,0023)</td>
<td>Same as Acquisition Date</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Acquisition Time</td>
<td>(0008,0032)</td>
<td></td>
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</tr>
<tr>
<td>Content Time</td>
<td>(0008,0033)</td>
<td>Same as Acquisition Time</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Source Image Sequence</td>
<td>(0008,2112)</td>
<td>Original image: not included Derived image: references the FOR PROCESSING image</td>
<td>ANAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Referenced SOP Class UID</td>
<td>(0008,1150)</td>
<td></td>
<td>ANAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Referenced SOP Instance UID</td>
<td>(0008,1155)</td>
<td></td>
<td>ANAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Spatial Locations Preserved</td>
<td>(0028,135A)</td>
<td>YES</td>
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<td>AUTO</td>
</tr>
<tr>
<td>&gt;Purpose of Referenced Code Sequence</td>
<td>(0040,A170)</td>
<td>One Item</td>
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<tr>
<td>&gt;&gt;Code Value</td>
<td>(0008,0100)</td>
<td>121322</td>
<td>ANAP</td>
<td>CONFIG</td>
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<td>&gt;&gt;Coding Scheme Designator</td>
<td>(0008,0102)</td>
<td>DCM</td>
<td>ANAP</td>
<td>CONFIG</td>
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<tr>
<td>&gt;&gt;Code Meaning</td>
<td>(0008,0104)</td>
<td>Source image for image processing operation</td>
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<tr>
<td>Anatomic Region Sequence</td>
<td>(0008,2218)</td>
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<td>AUTO</td>
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<tr>
<td>&gt;Code Value</td>
<td>(0008,0100)</td>
<td>T-04000</td>
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<tr>
<td>&gt;Code Scheme Designator</td>
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<td>SRT or SNM3</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>&gt;Code Meaning</td>
<td>(0008,0104)</td>
<td>Breast</td>
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<td>AUTO</td>
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<td>&gt;Anatomic Region Modifier Sequence</td>
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<td>AUTO, USER</td>
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<td>&gt;&gt;Code Value</td>
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<td>ANAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;&gt;Code Scheme Designator</td>
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<td>SRT</td>
<td>ANAP</td>
<td>CONFIG</td>
</tr>
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<td>&gt;&gt;Code Meaning</td>
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<td>Irradiation Event UID</td>
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<td>ALWAYS</td>
<td>AUTO</td>
</tr>
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<td>Distance Source to Detector</td>
<td>(0018,1110)</td>
<td></td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Distance Source to Patient</td>
<td>(0018,1111)</td>
<td></td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Positioner Type</td>
<td>(0018,1508)</td>
<td>NONE</td>
<td>ALWAYS</td>
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<td>Positioner Primary Angle</td>
<td>(0018,1510)</td>
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<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Instance Number</td>
<td>(0020,0013)</td>
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<td>ALWAYS</td>
<td>AUTO</td>
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<tr>
<td>Patient Orientation</td>
<td>(0020,0020)</td>
<td>R, L</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Image Laterality</td>
<td>(0020,0062)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO, USER</td>
</tr>
<tr>
<td>Image Comments</td>
<td>(0020,4000)</td>
<td>Included if user enters</td>
<td>ANAP</td>
<td>USER</td>
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<tr>
<td>Samples per Pixel</td>
<td>(0028,0002)</td>
<td>1</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>
### Attribute Name | Tag      | Value                                           | Presence of Value | Source |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Photometric Interpretation</td>
<td>(0028,0004)</td>
<td>Original image: MONOCHROME1 Derived image: MONOCHROME2</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>Bits Allocated</td>
<td>(0028,0100)</td>
<td>16</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>Bits Stored</td>
<td>(0028,0101)</td>
<td>Original: 12 Derived: 12</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>High Bit</td>
<td>(0028,0102)</td>
<td>Original: 11 Derived: 11</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>Pixel Representation</td>
<td>(0028,0103)</td>
<td>0000H</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>Quality Control Image</td>
<td>(0028,0300)</td>
<td>YES or NO</td>
<td>ALWAYS AUTO USER</td>
<td></td>
</tr>
<tr>
<td>Burned in Annotation</td>
<td>(0028,0301)</td>
<td>NO</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>Pixel Intensity Relationship</td>
<td>(0028,1040)</td>
<td>Original image: LIN Derived image: LOG</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>Pixel Intensity Relationship Sign</td>
<td>(0028,1041)</td>
<td>Original image: 1 Derived image: -1</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>Window Center</td>
<td>(0028,1050)</td>
<td>Original image: not included Derived image default: 2100</td>
<td>ANAP AUTO</td>
<td></td>
</tr>
<tr>
<td>Window Width</td>
<td>(0028,1051)</td>
<td>Original image: not included Derived image default: 3200</td>
<td>ANAP AUTO</td>
<td></td>
</tr>
<tr>
<td>Rescale Intercept</td>
<td>(0028,1052)</td>
<td>0</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>Rescale Slope</td>
<td>(0028,1053)</td>
<td>1</td>
<td>ALWAYS AUTO</td>
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</tr>
<tr>
<td>Rescale Type</td>
<td>(0028,1054)</td>
<td>US</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>Lossy Image Compression</td>
<td>(0028,2110)</td>
<td>00</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>Organ Exposed</td>
<td>(0040,0318)</td>
<td>BREAST</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>View Code Sequence</td>
<td>(0054,0220)</td>
<td>One Item</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>&gt;Code Value</td>
<td>(0008,0100)</td>
<td>G-8310</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>&gt;Code Scheme Designator</td>
<td>(0008,0102)</td>
<td>SRT or SNM3</td>
<td>ALWAYS CONFIG</td>
<td></td>
</tr>
<tr>
<td>&gt;Code Meaning</td>
<td>(0008,0104)</td>
<td>tissue specimen from breast</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>&gt;View Modifier Code Sequence</td>
<td>(0054,0222)</td>
<td></td>
<td>EMPTY AUTO</td>
<td></td>
</tr>
<tr>
<td>Presentation LUT Shape</td>
<td>(2050,0020)</td>
<td>Original image: INVERSE Derived image: IDENTITY</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
</tbody>
</table>

### Table 7.1-7
**Image Pixel Module of Created SOP Instances**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samples per Pixel</td>
<td>(0028,0002)</td>
<td>See Table 7.1-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photometric Interpretation</td>
<td>(0028,0004)</td>
<td>See Table 7.1-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rows</td>
<td>(0028,0010)</td>
<td>RadEye=1246, E2V=1368</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>Columns</td>
<td>(0028,0011)</td>
<td>RadEye=1650, E2V=1896</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
<tr>
<td>Bits Allocated</td>
<td>(0028,0100)</td>
<td>See Table 7.1-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bits Stored</td>
<td>(0028,0101)</td>
<td>See Table 7.1-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Bit</td>
<td>(0028,0102)</td>
<td>See Table 7.1-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pixel Representation</td>
<td>(0028,0103)</td>
<td>See Table 7.1-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pixel Data</td>
<td>(7FE0,0010)</td>
<td></td>
<td>ALWAYS AUTO</td>
<td></td>
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</tbody>
</table>

### Table 7.1-8
**Specimen Module of Created SOP Instances**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container Identifier</td>
<td>(0040,0512)</td>
<td>Filter identifier</td>
<td>ALWAYS AUTO</td>
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</tr>
<tr>
<td>Issuer of the Container Identifier Sequence</td>
<td>(0040,0513)</td>
<td></td>
<td>EMPTY AUTO</td>
<td></td>
</tr>
<tr>
<td>Container Type Code Sequence</td>
<td>(0040,0518)</td>
<td>One Item</td>
<td>ALWAYS AUTO</td>
<td></td>
</tr>
</tbody>
</table>
### Attribute Name | Tag | Value | Presence of Value | Source
--- | --- | --- | --- | ---
>Code Value | (0008,0100) | A-01023 | ALWAYS | AUTO
>Coding Scheme Designator | (0008,0102) | SRT | ALWAYS | CONFIG
>Code Meaning | (0008,0104) | Specimen container | ALWAYS | AUTO
Container Component Sequence | (0040,0520) | One Item | ALWAYS | AUTO
>>Code Value | (0008,0100) | A-01025 | ALWAYS | AUTO
>>Coding Scheme Designator | (0008,0102) | SRT | ALWAYS | CONFIG
>>Code Meaning | (0008,0104) | Specimen well | ALWAYS | AUTO
>Container Component Description | (0050,001E) | Chamber identifier | ALWAYS | AUTO
Specimen Description Sequence | (0040,0560) | One Item | ALWAYS | AUTO
>Specimen Identifier | (0040,0551) | Filter - chamber identifier | ALWAYS | USER
>Issuer of the Specimen Identifier Sequence | (0040,0562) | | EMPTY | AUTO
>Specimen UID | (0040,0554) | | ALWAYS | AUTO
>Specimen Preparation Sequence | (0040,0610) | | EMPTY | AUTO

#### Table 7.1-9
**DX Anatomy Imaged Module of Created SOP Instances**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>The supported attributes are overridden by the Mammography Image module. See Table 7.1-6.</td>
<td></td>
<td></td>
<td></td>
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</table>

#### Table 7.1-10
**DX Detector Module of Created SOP Instances**

<table>
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<tr>
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<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
</table>
| Imager Pixel Spacing | (0018,1164) | 0.020,0.020 | ALWAYS | AUTO
Detector Type | (0018,7004) | DIRECT | ALWAYS | AUTO
Detector ID | (0018,700A) | | ALWAYS | AUTO
Date of Last Detector Calibration | (0018,700C) | | ALWAYS | AUTO
Time of Last Detector Calibration | (0018,700E) | | ALWAYS | AUTO
Detector Binning | (0018,701A) | 1|1 | ALWAYS | AUTO
Field of View Origin | (0018,7030) | | ALWAYS | AUTO
Field of View Rotation | (0018,7032) | 270 | ALWAYS | AUTO
Field of View Horizontal Flip | (0018,7034) | YES | ALWAYS | AUTO
Pixel Spacing | (0028,0030) | Depends on magnification factor | ALWAYS | AUTO

#### Table 7.1-11
**DX Positioning Module of Created SOP Instances**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>View Code Sequence</td>
<td>(0054,0220)</td>
<td>See Table 7.1-6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Distance Source to Detector | (0018,1110) | See Table 7.1-6 | | |
Distance Source to Patient | (0018,1111) | See Table 7.1-6 | | |
Estimated Radiographic Magnification Factor | (0018,1114) | Default=1.36 | ALWAYS | CONFIG
Positioner Type | (0018,1508) | See Table 7.1-6 | | |
Positioner Primary Angle | (0018,1510) | See Table 7.1-6 | | |
### Table 7.1-12
**X-ray Acquisition Dose Module of Created SOP Instances**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>KVP</td>
<td>(0018,0060)</td>
<td>ALWAYS</td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>Distance Source to Detector</td>
<td>(0018,1110)</td>
<td>See Table 7.1-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance Source to Patient</td>
<td>(0018,1111)</td>
<td>See Table 7.1-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure Time</td>
<td>(0018,1150)</td>
<td>ALWAYS</td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>X-Ray Tube Current</td>
<td>(0018,1151)</td>
<td>ALWAYS</td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>Exposure</td>
<td>(0018,1152)</td>
<td>ALWAYS</td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>Exposure in uAs</td>
<td>(0018,1153)</td>
<td>ALWAYS</td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>Filter Type</td>
<td>(0018,1160)</td>
<td>See Table 7.1-14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anode Target Material</td>
<td>(0018,1191)</td>
<td>TUNGSTEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Half Value Layer</td>
<td>(0040,0314)</td>
<td>ALWAYS</td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>Organ Exposed</td>
<td>(0040,0318)</td>
<td>See Table 7.1-6</td>
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### Table 7.1-13
**X-ray Generation Module of Created SOP Instances**

<table>
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<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>KVP</td>
<td>(0018,0060)</td>
<td>See Table 7.1-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure Time</td>
<td>(0018,1150)</td>
<td>See Table 7.1-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X-ray Tube Current</td>
<td>(0018,1151)</td>
<td>See Table 7.1-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure</td>
<td>(0018,1152)</td>
<td>See Table 7.1-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure in uAs</td>
<td>(0018,1153)</td>
<td>See Table 7.1-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focal Spot</td>
<td>(0018,1190)</td>
<td>ALWAYS</td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>Anode Target Material</td>
<td>(0018,1191)</td>
<td>MANUAL</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Exposure Control Mode</td>
<td>(0018,7060)</td>
<td>Manual</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Exposure Control Mode Description</td>
<td>(0018,7062)</td>
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### Table 7.1-14
**X-ray Filtration Module of Created SOP Instances**

<table>
<thead>
<tr>
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<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Type</td>
<td>(0018,1160)</td>
<td>NONE</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Filter Material</td>
<td>(0018,7050)</td>
<td>NONE</td>
<td>ALWAYS</td>
<td>AUTO</td>
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### Table 7.1-15
**X-ray Filtration Module of Created SOP Instances**

<table>
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<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid</td>
<td>(0018,1166)</td>
<td>NONE</td>
<td>ALWAYS</td>
<td>AUTO</td>
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</tbody>
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### Table 7.1-16
**Acquisition Context Module of Created SOP Instances**

<table>
<thead>
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<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition Context Sequence</td>
<td>(0040,0555)</td>
<td>EMPTY</td>
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<td>AUTO</td>
</tr>
</tbody>
</table>

### Table 7.1-17
**SOP Common Module of Created SOP Instances**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Character Set</td>
<td>(0008,0005)</td>
<td>ISO_IR 100</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Instance Creator UID</td>
<td>(0008,0014)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>SOP Class UID</td>
<td>(0008,0016)</td>
<td>UID for Digital Mammography X-ray Image Storage – For Presentation or For Processing</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>SOP Instance UID</td>
<td>(0008,0018)</td>
<td>Unique value generated by Acquisition Workstation</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>
7.1.1.2 Secondary Capture Image IOD
The attributes that are contained in created Secondary Capture Image Instances are listed in the following tables.

### Table 7.1-18
**IOD OF CREATED SECONDARY CAPTURE IMAGE INSTANCES**

<table>
<thead>
<tr>
<th>IE</th>
<th>Module</th>
<th>Reference</th>
<th>Presence of Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>Patient</td>
<td>Table 7.1-19</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>Study</td>
<td>General Study</td>
<td>Table 7.1-20</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>Series</td>
<td>General Series</td>
<td>Table 7.1-21</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>Equipment</td>
<td>General Equipment</td>
<td>Table 7.1-22</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>SC Equipment</td>
<td>Table 7.1-23</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>Image</td>
<td>General Image</td>
<td>Table 7.1-24</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>SC Image</td>
<td>Table 7.1-24</td>
<td>ALWAYS</td>
</tr>
<tr>
<td></td>
<td>Image Pixel</td>
<td>Table 7.1-25</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>Specimen</td>
<td></td>
<td>Table 7.1-26</td>
<td>ANAP</td>
</tr>
<tr>
<td>Modality LUT</td>
<td></td>
<td>Table 7.1-27</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>VOI LUT</td>
<td></td>
<td>Table 7.1-28</td>
<td>ALWAYS</td>
</tr>
<tr>
<td>SOP Common</td>
<td></td>
<td>Table 7.1-29</td>
<td>ALWAYS</td>
</tr>
</tbody>
</table>

### Table 7.1-19
**PATIENT MODULE OF CREATED SECONDARY CAPTURE IMAGE INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient's Name</td>
<td>(0010,0010)</td>
<td>Copied from current patient</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Patient ID</td>
<td>(0010,0020)</td>
<td>Copied from current patient</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Patient's Birth Date</td>
<td>(0010,0030)</td>
<td>Copied from current patient</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Patient's Sex</td>
<td>(0010,0040)</td>
<td>Copied from current patient</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>All other Patient Attributes</td>
<td></td>
<td>Copied from current patient</td>
<td>ANAP</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

### Table 7.1-20
**GENERAL / PATIENT STUDY MODULES OF CREATED SECONDARY CAPTURE IMAGE INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Date</td>
<td>(0008,0020)</td>
<td>Copied from current study</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Study Time</td>
<td>(0008,0030)</td>
<td>Copied from current study</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Accession Number</td>
<td>(0008,0050)</td>
<td>Copied from current study</td>
<td>VNAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>Referring Physician’s Name</td>
<td>(0008,0090)</td>
<td>Copied from current study</td>
<td>VNAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>Study Description</td>
<td>(0008,1030)</td>
<td>Copied from current study</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Study Instance UID</td>
<td>(0020,000D)</td>
<td>Copied from current study</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Study ID</td>
<td>(0020,0010)</td>
<td>Copied from current study</td>
<td>VNAP</td>
<td>AUTO</td>
</tr>
<tr>
<td>Patient’s Age</td>
<td>(0010,1010)</td>
<td>Copied from current study</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

### Table 7.1-21
**GENERAL SERIES MODULE OF CREATED SECONDARY CAPTURE IMAGE INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series Date</td>
<td>(0008,0021)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Series Time</td>
<td>(0008,0031)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Modality</td>
<td>(0008,0060)</td>
<td>See Table 7.1-23</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Series Description</td>
<td>(0008,103E)</td>
<td>‘L SPECIMEN SC’ or ‘R SPECIMEN SC’</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Operators’ Name</td>
<td>(0008,1070)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>
### Table 7.1-22
**GENERAL EQUIPMENT MODULE OF CREATED SECONDARY CAPTURE IMAGE INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>(0008,0070)</td>
<td>HOLOGIC, Inc.</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Institution Name</td>
<td>(0008,0080)</td>
<td></td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Institution Address</td>
<td>(0008,0081)</td>
<td></td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Station Name</td>
<td>(0008,1010)</td>
<td></td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Institutional Department Name</td>
<td>(0008,1040)</td>
<td></td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Manufacturer's Model Name</td>
<td>(0008,1090)</td>
<td>CorLumina</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Device Serial Number</td>
<td>(0018,1000)</td>
<td></td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Software Versions</td>
<td>(0018,1020)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

### Table 7.1-23
**SC EQUIPMENT MODULE OF CREATED SECONDARY CAPTURE IMAGE INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion Type</td>
<td>(0008,0064)</td>
<td>WSD</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Modality</td>
<td>(0008,0060)</td>
<td>Same as (0008,0060) in source image</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

### Table 7.1-24
**GENERAL / SC IMAGE MODULES OF CREATED SECONDARY CAPTURE IMAGE INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image Type</td>
<td>(0008,0008)</td>
<td>DERIVED/SECONDARY</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Acquisition Date</td>
<td>(0008,0022)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Content Date</td>
<td>(0008,0023)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Acquisition Time</td>
<td>(0008,0032)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Content Time</td>
<td>(0008,0033)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Derivation Description</td>
<td>(0008,2111)</td>
<td>Secondary Capture</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Source Image Sequence</td>
<td>(0008,2112)</td>
<td>One Item</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Referenced SOP Class UID</td>
<td>(0008,1150)</td>
<td>Of source image</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Referenced SOP Instance UID</td>
<td>(0008,1155)</td>
<td>Of source image upon creation</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>
Table 7.1-25
IMAGE PIXEL MODULE OF CREATED SECONDARY CAPTURE IMAGE INSTANCES

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samples per Pixel</td>
<td>(0028,0002)</td>
<td>1</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Photometric Interpretation</td>
<td>(0028,0004)</td>
<td>MONOCHROME2</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Rows</td>
<td>(0028,0010)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Columns</td>
<td>(0028,0011)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Bits Allocated</td>
<td>(0028,0100)</td>
<td>16</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Bits Stored</td>
<td>(0028,0101)</td>
<td>12</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>High Bit</td>
<td>(0028,0102)</td>
<td>11</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Pixel Representation</td>
<td>(0028,0103)</td>
<td>0000H</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Pixel Data</td>
<td>(7FE0,0010)</td>
<td></td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

Table 7.1-26
SPECIMEN MODULE OF CREATED SECONDARY CAPTURE IMAGE INSTANCES

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container Identifier</td>
<td>(0040,0512)</td>
<td>Filter identifier from source image</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Issuer of the Container Identifier Sequence</td>
<td>(0040,0513)</td>
<td></td>
<td>EMPTY</td>
<td>AUTO</td>
</tr>
<tr>
<td>Container Type Code Sequence</td>
<td>(0040,0518)</td>
<td>One Item</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Code Value</td>
<td>(0008,0100)</td>
<td>A-01023</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Coding Scheme Designator</td>
<td>(0008,0102)</td>
<td>SRT</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Code Meaning</td>
<td>(0008,0104)</td>
<td>Specimen container</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Container Component Sequence</td>
<td>(0040,0520)</td>
<td>One Item</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Container Component Type Code Sequence</td>
<td>(0050,0012)</td>
<td>One Item</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Code Value</td>
<td>(0008,0100)</td>
<td>A-01025</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
<tr>
<td>Coding Scheme Designator</td>
<td>(0008,0102)</td>
<td>SRT</td>
<td>ALWAYS</td>
<td>CONFIG</td>
</tr>
<tr>
<td>Code Meaning</td>
<td>(0008,0104)</td>
<td>Specimen well</td>
<td>ALWAYS</td>
<td>AUTO</td>
</tr>
</tbody>
</table>
### Attribute Table

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;Container Component Description</td>
<td>(0050,001E)</td>
<td>Chamber identifier from source image</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
<tr>
<td>Specimen Description Sequence</td>
<td>(0040,0560)</td>
<td>One Item</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Specimen Identifier</td>
<td>(0040,0551)</td>
<td>Filter - chamber identifier from source image</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Issuer of the Specimen Identifier Sequence</td>
<td>(0040,0562)</td>
<td></td>
<td>EMPTY AUTO</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Specimen UID</td>
<td>(0040,0554)</td>
<td>UID value from source image</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
<tr>
<td>&gt;Specimen Preparation Sequence</td>
<td>(0040,0610)</td>
<td></td>
<td>EMPTY AUTO</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

### Table 7.1-27

**MODALITY LUT MODULE OF CREATED SECONDARY CAPTURE IMAGE INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rescale Intercept</td>
<td>(0028,1052)</td>
<td>0</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
<tr>
<td>Rescale Slope</td>
<td>(0028,1053)</td>
<td>1</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
<tr>
<td>Rescale Type</td>
<td>(0028,1054)</td>
<td>US</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

### Table 7.1-28

**VOI LUT MODULE OF CREATED SECONDARY CAPTURE IMAGE INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Window Center</td>
<td>(0028,1050)</td>
<td>Default = 2047</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
<tr>
<td>Window Width</td>
<td>(0028,1051)</td>
<td>Default = 4096</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

### Table 7.1-29

**SOP COMMON MODULE OF CREATED SECONDARY CAPTURE IMAGE INSTANCES**

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Value</th>
<th>Presence of Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Character Set</td>
<td>(0008,0005)</td>
<td>ISO_IR 100</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
<tr>
<td>Instance Creator UID</td>
<td>(0008,0014)</td>
<td>Same as (0008,0014) in source image</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
<tr>
<td>SOP Class UID</td>
<td>(0008,0016)</td>
<td>UID for Secondary Capture Image Storage</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
<tr>
<td>SOP Instance UID</td>
<td>(0008,0018)</td>
<td>Unique value generated</td>
<td>ALWAYS AUTO</td>
<td>AUTO</td>
</tr>
</tbody>
</table>

### 7.1.2 Usage of Attributes from Received IODs

The Acquisition Workstation does not receive any SOP Instances.
7.1.3 Attribute Mapping
The default relationships between attributes received via Modality Worklist and stored in acquired images are summarized in Table 7.1-30. Attribute mapping is configurable.

<table>
<thead>
<tr>
<th>Modality Worklist</th>
<th>Image IOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s Name</td>
<td>Patient’s Name</td>
</tr>
<tr>
<td>Patient ID</td>
<td>Patient ID</td>
</tr>
<tr>
<td>Issuer of Patient ID</td>
<td>Issuer of Patient ID</td>
</tr>
<tr>
<td>Patient’s Birth Date</td>
<td>Patient’s Birth Date</td>
</tr>
<tr>
<td>Patient’s Sex</td>
<td>Patient’s Sex</td>
</tr>
<tr>
<td>Other Patient IDs</td>
<td>Other Patient IDs</td>
</tr>
<tr>
<td>Referring Physician’s Name</td>
<td>Referring Physician’s Name</td>
</tr>
<tr>
<td>Requested Procedure ID</td>
<td>Study ID</td>
</tr>
<tr>
<td>Study Instance UID</td>
<td>Study Instance UID</td>
</tr>
<tr>
<td>Accession Number</td>
<td>Accession Number</td>
</tr>
<tr>
<td>Scheduled Procedure Step Sequence</td>
<td>Request Attributes Sequence</td>
</tr>
<tr>
<td>&gt;Scheduled Procedure Step Description</td>
<td>&gt;Scheduled Procedure Step Description</td>
</tr>
<tr>
<td>&gt;Scheduled Protocol Code Sequence</td>
<td>&gt;Scheduled Protocol Code Sequence</td>
</tr>
<tr>
<td>&gt;&gt;Code Value</td>
<td>&gt;&gt;Code Value</td>
</tr>
<tr>
<td>&gt;&gt;Coding Scheme Designator</td>
<td>&gt;&gt;Coding Scheme Designator</td>
</tr>
<tr>
<td>&gt;&gt;Code Meaning</td>
<td>&gt;&gt;Code Meaning</td>
</tr>
<tr>
<td>&gt;Scheduled Procedure Step ID</td>
<td>&gt;Scheduled Procedure Step ID</td>
</tr>
<tr>
<td>Reason for Requested Procedure Code Sequence</td>
<td>Reason for Requested Procedure Code Sequence</td>
</tr>
<tr>
<td>&gt;Code Value</td>
<td>&gt;Code Value</td>
</tr>
<tr>
<td>&gt;Coding Scheme Designator</td>
<td>&gt;Coding Scheme Designator</td>
</tr>
<tr>
<td>&gt;Code Meaning</td>
<td>&gt;Code Meaning</td>
</tr>
<tr>
<td>Requested Procedure ID</td>
<td>&gt;Requested Procedure ID</td>
</tr>
<tr>
<td>Requested Procedure Description</td>
<td>&gt;Requested Procedure Description</td>
</tr>
</tbody>
</table>
The following additional rules apply for mapping Modality Worklist attributes to image Instances:

Attributes mapped to the Request Attribute Sequence Item in image Instances:

- For a scheduled procedure the Acquisition Workstation incorporates the attributes from the worklist item into the Request Attributes Sequence (0040,0275) Item of the image object.
- For unscheduled procedures Request Attributes Sequence (0040,0275) is omitted from the image object.

7.1.4 Coerced/Modified Attributes
The following characters in textual return key attribute values of a Modality Worklist item are modified automatically by the Acquisition Workstation when mapped to an image object:

- Ampersand Symbol (&): Mapped to “.AND.”
- Double Quote Symbol (’): Mapped to “’” (single quote)
- Greater Than Symbol (>): Mapped to “.GT.”
- Less than Symbol (<): Mapped to “.LT.”

7.2. Data Dictionary of Private Attributes
Created Digital Mammography X-Ray Image SOP Instances may contain a Private Group (0019) labeled HOLOGIC, Inc., containing proprietary image characteristics. No patient identification information is included in these private attributes.

7.3. Coded Terminology and Templates
None.

7.4. Grayscale Image Consistency
None.

7.5. Standard Extended/Specialized/Private SOP Classes
None.

7.6. Private Transfer Syntaxes
None.