No. MIIXR0014EAB

TOSHIBA

# DICOM CONFORMANCE STATEMENT

# FOR

# TOSHIBA DIGITAL MAMMOGRAPHY SYSTEM

## MODEL MGU-1000D

TOSHIBA MEDICAL MANUFACTURING CO., LTD.

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# 1. CONFORMANCE STATEMENT OVERVIEW

Table 1-1 provides an overview of the network services supported by MGU-1000D.

**Table 1-1**
**NETWORK SERVICES**

| SOP Classes | User of Service (SCU) | Provider of Service (SCP) |
|---|---|---|
| **Transfer** | | |
| Digital Mammography Image Storage – For Presentation | Yes | No |
| Digital Mammography Image Storage – For Processing | Option (see Note1) | No |
| **Workflow Management** | | |
| Modality Worklist Information Model – Find | Option (see Note2) | No |
| Modality Performed Procedure Step | Option (see Note2) | No |
| **Print Management** | | |
| Basic Grayscale Print Management | Yes | No |

NOTE 1: Support for the Digital Mammography Image Storage – For Processing Services is a separately licensable option.

NOTE 2: Support for the Workflow Services is a separately licensable option.

Table 1-2 provides an overview of the media storage application profiles supported by MGU-1000D.

**Table 1-2**
**MEDIA SERVICES**

| SOP Classes | Write Files (FSC) | Update Files (FSU) | Read Files (FSR) |
|---|---|---|---|
| **Compact Disk - Recordable** | | | |
| General Purpose CD-R Interchange | Yes | No | No |



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# 2. TABLE OF CONTENTS

# 3. INTRODUCTION

## 3.1 AUDIENCE

This document is intended for hospital staff, health system integrators, software designers or implementers. It is assumed that the reader has a working understanding of DICOM.

## 3.2 REMARKS

DICOM, by itself, does not guarantee interoperability. However, the Conformance Statement facilitates a first-level validation for interoperability between different applications supporting the same DICOM functionality.

This Conformance Statement is not intended to replace validation with other DICOM equipment to ensure proper exchange of information intended.

The scope of this Conformance Statement is to facilitate communication with Toshiba Medical Manufacturing and other vendors' Medical equipment. The Conformance Statement should be read and understood in conjunction with the DICOM Standard [DICOM]. However, by itself it is not guaranteed to ensure the desired interoperability and a successful interconnectivity.

The user should be aware of the following important issues:

— The comparison of different conformance statements is the first step towards assessing interconnectivity between Toshiba Medical Manufacturing and non- Toshiba Medical Manufacturing equipment.

— Test procedures should be defined to validate the desired level of connectivity.

— The DICOM standard will evolve to meet the users' future requirements. Toshiba Medical Manufacturing is actively involved in developing the standard further and therefore reserves the right to make changes to its products or to discontinue its delivery.

## 3.3 DEFINITIONS, TERMS AND ABBREVIATIONS

Definitions, terms and abbreviations used in this document are defined within the different parts of the DICOM standard.

Abbreviations and terms are as follows:

| | |
|---|---|
| **AE** | Application Entity |
| **AET** | Application Entity Title |
| **CD-R** | Compact Disc Recordable |
| **DIMSE** | DICOM Message Service Element |
| **FSC** | File-Set Creator |
| **FSU** | File-Set Updater |
| **FSR** | File-Set Reader |
| **IE** | Information Entity |
| **IOD** | Information Object Definition |
| **ISO** | International Standard Organization |
| **MPPS** | Modality Performed Procedure Step |
| **MSPS** | Modality Scheduled Procedure Step |
| **MWM** | Modality Worklist Management |
| **R** | Required Key Attribute |
| **O** | Optional Key Attribute |
| **SCU** | Service Class User (DICOM client) |
| **SCP** | Service Class Provider (DICOM server) |
| **SOP** | Service-Object Pair |
| **U** | Unique Key Attribute |
| **UID** | Unique Identifier |

## 3.4 REFERENCES

[DICOM] Digital Imaging and Communications in Medicine (DICOM), NEMA PS 3.1-3.18, 2008

# 4. NETWORKING

## 4.1 IMPLEMENTATION MODEL

### 4.1.1 Application Data Flow

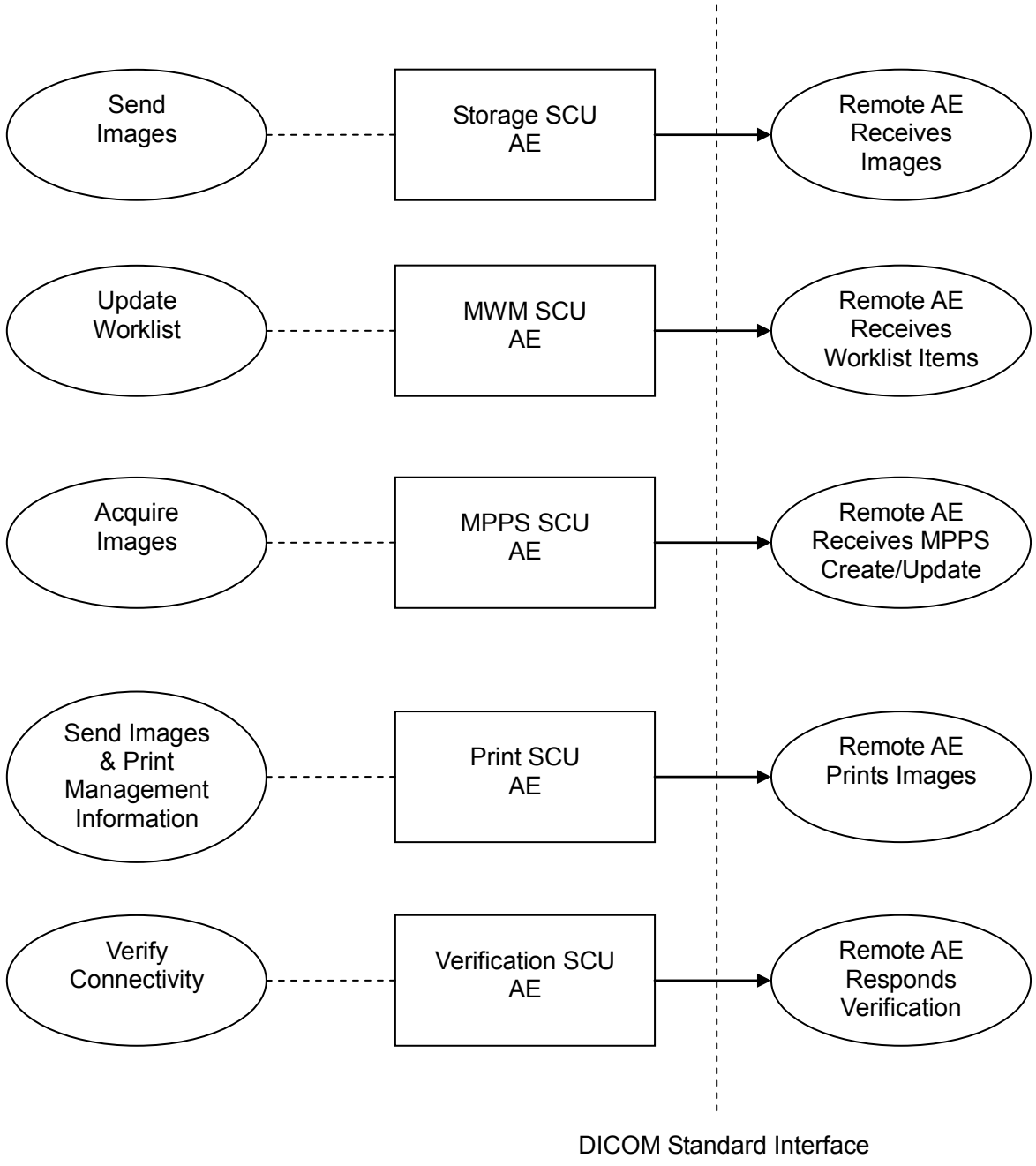


**Figure 4.1-1**
**APPLICATION DATA FLOW DIAGRAM FOR NETWORKING**

— The Storage SCU AE sends images to a remote AE. It is associated with the local real-world activity “Send Images”. “Send Images” is performed upon user request for specific images selected.

— The MWM SCU AE receives Worklist information from a remote AE. It is associated with the local real-world activity “Update Worklist”. When the “Update Worklist” is performed the MWM SCU AE queries a remote AE for worklist items and provides the set of worklist items matching the query request. ”Update Worklist” is performed manually or automatically.

— The MPPS SCU AE sends MPPS information to a remote AE. It is associated with the local real-world activity “Acquire Images”. When the “Acquire Images” is performed the MPPS SCU AE creates and updates Modality Performed Procedure Step instances managed by a remote AE. Acquisition of images will result in automated creation of an MPPS Instance. Completion of the MPPS is performed as the result of an operator action.

— The Print SCU AE prints images on a remote AE (Printer). It is associated with the local real-world activity “Send Images & Print Management Information”. “Send Images & Print Management Information” creates a print-job within the print queue containing one or more virtual film sheets composed from images selected by the user.

— The Verification SCU AE issues a C-ECHO to verify a DICOM connection to a remote AE. It is associated with the local real-world activity “Verify Connectivity”. “Verify Connectivity” is by the local AE periodically (default: every 1 minute; configurable using the Service Tool by the Field Service Engineer) or performed upon user request to verify the connectivity to a remote AE.

### 4.1.2 Functional Definition of AEs

#### 4.1.2.1 Functional Definition of Storage SCU AE

The existence of a send-job queue entry with associated network destination will activate the Storage SCU 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 image transfer fails, the Storage SCU AE will retry this send-job automatically.

#### 4.1.2.2 Functional Definition of MWM SCU AE

The MWM SCU AE attempts to download a worklist from a remote node. If the MWM SCU AE establishes an Association to a remote AE, it will transfer patient's information and worklist items via the open Association. The results will be displayed in a separate list. The patient's information will be used for the patient registration.

#### 4.1.2.3 Functional Definition of MPPS SCU AE

The MPPS SCU AE performs the creation of an MPPS Instance automatically when the user selects and starts a worklist item. Further updates on the MPPS data can be performed when the user completes the acquisition.

#### 4.1.2.4 Functional Definition of Print SCU AE

The existence of a print-job in the print queue will activate the Print SCU AE. An Association is established with the printer and the printer's status determined. If the printer is operating normally, the film sheets described within the print-job will be printed.

If the printer is not operating normally, the Print SCU AE will retry this print-job automatically.

#### 4.1.2.5 Functional Definition of Verification SCU AE

The verification SCU AE issues a C-ECHO to verify a DICOM connection to a remote AE. It is performed by a local AE periodically or performed upon user request.

### 4.1.3 Sequencing of Real-World Activities

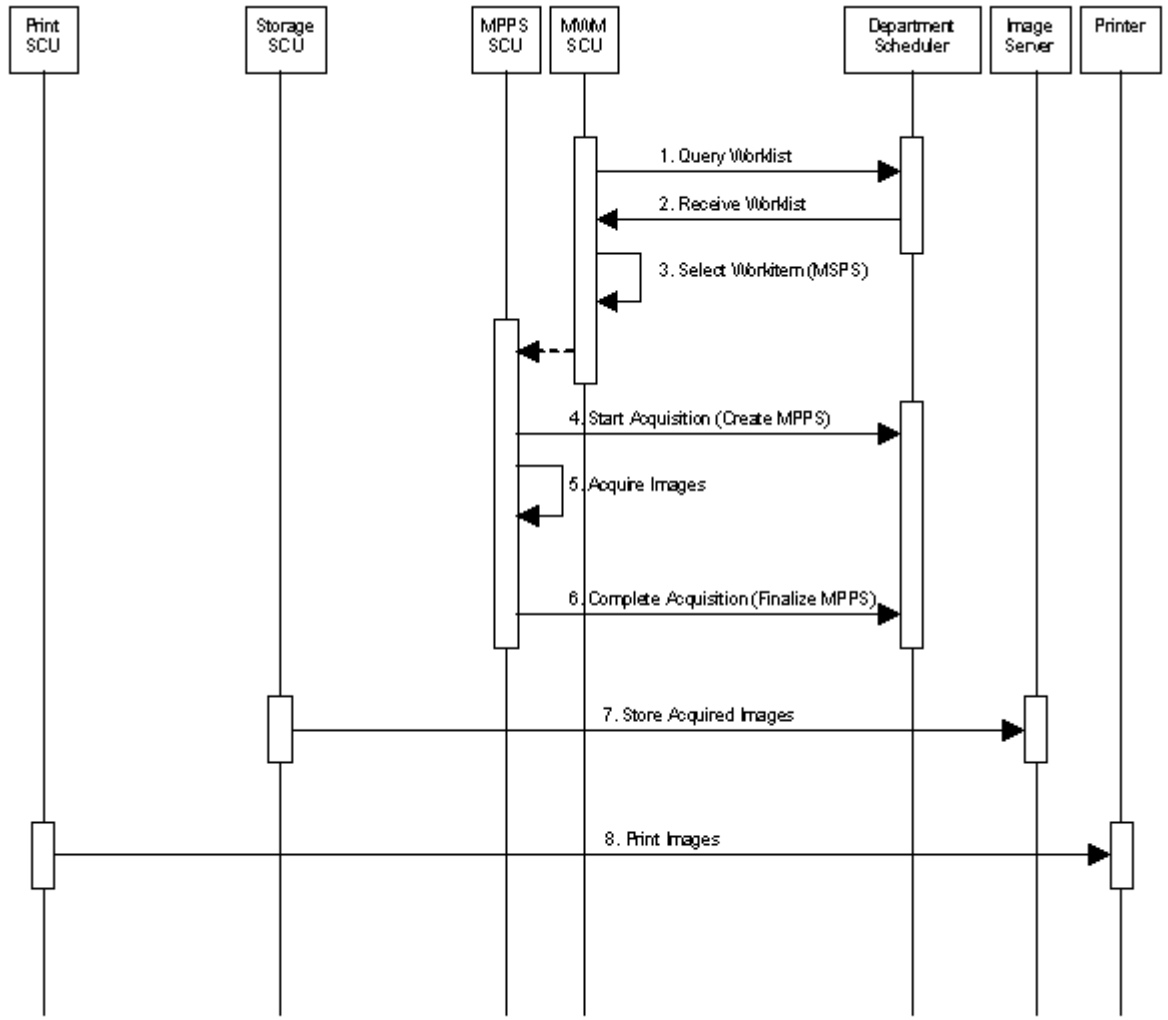


**Figure 4.1-2**
**SEQUENCING CONSTRAINTS**

Under typical scheduled workflow conditions the sequencing constraints illustrated in Figure 4.1-2 apply:

1. Query Worklist
2. Receive Worklist of Modality Scheduled Procedure Steps (MSPS)
3. Select Workitem (MSPS) from Worklist
4. Start Acquisition and Create MPPS
5. Acquire Images
6. Complete Acquisition and Finalize MPPS
7. Store Acquired Images
8. Print Images

Other workflow situations (e.g. unscheduled procedure steps) will have other sequencing constraints. Some activities may be omitted according to situations.

## 4.2 AE SPECIFICATIONS

### 4.2.1 Storage SCU AE Specification

#### 4.2.1.1 SOP Classes

The Storage SCU AE provides Standard Conformance to the following SOP Classes:

**Table 4.2-1**
**SOP CLASSES FOR THE STORAGE SCU AE**

| SOP Class Name | SOP Class UID | SCU | SCP |
|---|---|---|---|
| Digital Mammography Image Storage – For Presentation | 1.2.840.10008.5.1.4.1.1.1.2 | Yes | No |
| Digital Mammography Image Storage – For Processing | 1.2.840.10008.5.1.4.1.1.1.2.1 | Yes | No |

#### 4.2.1.2 Association Policies

##### 4.2.1.2.1 General

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

**Table 4.2-2**
**DICOM APPLICATION CONTEXT FOR THE STORAGE SCU AE**

| | |
|---|---|
| Application Context Name | 1.2.840.10008.3.1.1.1 |

##### 4.2.1.2.2 Number of Associations

The Storage SCU AE can initiate one Association at a time for each destination to which a transfer request is being processed in the active job queue list. Only one job will be active at a time, the other remains pending until the active job is completed or failed.

**Table 4.2-3**
**NUMBER OF ASSOCIATIONS INITIATED FOR THE STORAGE SCU AE**

| | |
|---|---|
| Maximum number of simultaneous Associations | 1 |

##### 4.2.1.2.3 Asynchronous Nature

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

**Table 4.2-4**
**ASYNCHRONOUS NATURE FOR THE STORAGE SCU AE**

| | |
|---|---|
| Maximum number of outstanding asynchronous transactions | 1 |

##### 4.2.1.2.4 Implementation Identifying Information

The implementation information for the Storage SCU AE is:

**Table 4.2-5**
**DICOM IMPLEMENTATION CLASS AND VERSION FOR THE STORAGE SCU AE**

| | |
|---|---|
| Implementation Class UID | 1.2.392.200036.9116.39.1.1 |
| Implementation Version Name | MGU1000D_V200 |

### 4.2.1.3 Association Initiation Policy

#### 4.2.1.3.1 Activity – Send Images

##### 4.2.1.3.1.1 Description and Sequencing of Activities

The Storage SCU AE attempts to initiate a new Association in order to issue a Storage request (C-STORE).

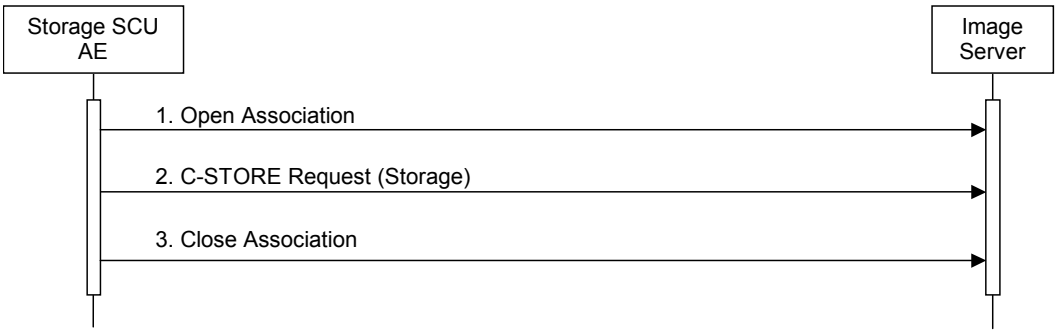


**Figure 4.2-1**
**SEQUENCING OF ACTIVITY – SEND IMAGES**

A possible sequence of interactions between the Storage SCU AE and an Image Server (e.g. a storage or archive device supporting the Storage SOP Classes as an SCP) is illustrated in the Figure above:

1. The Storage SCU AE opens an Association with the Image Server
2. Acquired images are transmitted to the Image Server using a Storage request (C-STORE) and the Image Server replies with a C-STORE response (status success).
3. The Storage SCU AE closes the Association with the Image Server.

##### 4.2.1.3.1.2 Proposed Presentation Contexts

The Storage SCU AE is capable of proposing the Presentation Contexts shown in the following table:

**Table 4.2-6**
**PROPOSED PRESENTATION CONTEXTS FOR ACTIVITY SEND IMAGES FOR PRESENTATION**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | **Role** | **Ext. Neg.** |
| **Name** | **UID** | **Name List** | **UID List** | | |
| Digital Mammography Image Storage – For Presentation | 1.2.840.10008.5.1.4.1.1.1.2 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | SCU | None |
| Digital Mammography Image Storage – For Presentation | 1.2.840.10008.5.1.4.1.1.1.2 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |

**Table 4.2-7**
**PROPOSED PRESENTATION CONTEXTS FOR ACTIVITY SEND IMAGES FOR PROCESSING**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | **Role** | **Ext. Neg.** |
| **Name** | **UID** | **Name List** | **UID List** | | |
| Digital Mammography Image Storage – For Processing | 1.2.840.10008.5.1.4.1.1.1.2.1 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | SCU | None |
| Digital Mammography Image Storage – For Processing | 1.2.840.10008.5.1.4.1.1.1.2.1 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |

#### 4.2.1.3.1.3 SOP Specific Conformance for Storage SOP Classes

The Storage SCU AE provides standard conformance to the Storage Service Class as an SCU.

The behavior of Storage SCU AE when encountering status codes in a C-STORE response is summarized in the table below:

**Table 4.2-8**
**STORAGE C-STORE RESPONSE STATUS HANDLING BEHAVIOR**

| Service Status | Further Meaning | Status Code | Behavior |
|---|---|---|---|
| Success | Success | 0000 | The SCP has successfully stored the SOP Instance. If all SOP Instances in a send job have status success then the job is marked as complete. |
| Refused | Out of Resources | A7xxH | The Association is aborted and the send job is marked as failed. The status meaning is logged and the job failure is reported to the user via the job control application. |
| Error | Data Set does not match SOP Class | A9xxH | |
| Error | Cannot Understand | CxxxH | |
| Warning | Coercion of Data Elements | B000H | |
| Warning | Data Set does not match SOP Class | B007H | |
| Warning | Elements Discarded | B006H | |
| * | * | Any other status code. | |

The behavior of Storage SCU AE during communication failure is summarized in the table below:

**Table 4.2-9**
**STORAGE COMMUNICATION FAILURE BEHAVIOR**

| Exception | Behavior |
|---|---|
| Timeout | The Association is aborted and the send job is marked as failed. The reason is logged and the job failure is reported to the user via the job control application. |
| Association aborted by the SCP or network layers | The send job is marked as failed. The reason is logged and the job failure is reported to the user via the job control application. |

If the image transfer fails, the Storage SCU AE will retry this send-job automatically. The user is able to cancel the send-jobs.

The contents of Image Storage SOP Instances created by the Storage SCU AE conform to the DICOM Image IOD definitions and are described in section 8.1.

## 4.2.2 MWM SCU AE Specification

### 4.2.2.1 SOP Classes

The MWM SCU AE provides Standard Conformance to the following SOP Classes:

**Table 4.2-10**
**SOP CLASSES FOR THE MWM SCU AE**

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

### 4.2.2.2 Association Policies

#### 4.2.2.2.1 General

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

**Table 4.2-11**
**DICOM APPLICATION CONTEXT FOR THE MWM SCU AE**

| | |
|---|---|
| Application Context Name | 1.2.840.10008.3.1.1.1 |

#### 4.2.2.2.2 Number of Associations

The MWM SCU AE initiates one Association at a time for a Worklist request.

**Table 4.2-12**
**NUMBER OF ASSOCIATIONS INITIATED FOR THE MWM SCU AE**

| | |
|---|---|
| Maximum number of simultaneous Associations | 1 |

#### 4.2.2.2.3 Asynchronous Nature

The MWM SCU AE does not support asynchronous communication (multiple outstanding transactions over a single Association).

**Table 4.2-13**
**ASYNCHRONOUS NATURE FOR THE MWM SCU AE**

| | |
|---|---|
| Maximum number of outstanding asynchronous transactions | 1 |

#### 4.2.2.2.4 Implementation Identifying Information

The implementation information for this Application Entity is:

**Table 4.2-14**
**DICOM IMPLEMENTATION CLASS AND VERSION FOR THE MWM SCU AE**

| | |
|---|---|
| Implementation Class UID | 1.2.392.200036.9116.39.1.1 |
| Implementation Version Name | MGU1000D_V200 |

### 4.2.2.3 Association Initiation Policy

#### 4.2.2.3.1 Activity – Update Worklist

##### 4.2.2.3.1.1 Description and Sequencing of Activities

The request for an “Update Worklist” is initiated by user interaction, i.e. pressing the buttons “Refresh” or automatically at the time of patient registration.

Upon initiation of the request, the MWM SCU AE will build an Identifier for the C-FIND request, will initiate an Association to send the request and will wait for Worklist responses. After retrieval of all responses, the MWM SCU AE will access the local database to add or update patient demographic data. The results will be displayed in a separate list.

The MWM SCU AE will initiate an Association in order to issue a C-FIND request according to the Modality Worklist Information Model.

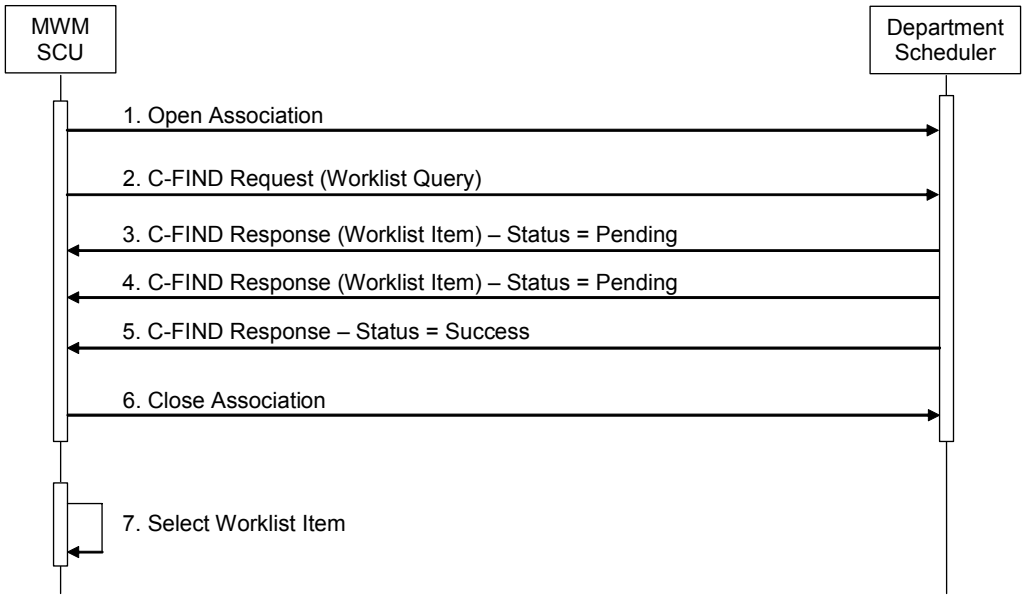


**Figure 4.2-2**
**SEQUENCING OF ACTIVITY – UPDATE WORKLIST**

A possible sequence of interactions between the MWM SCU AE and a Department Scheduler (e.g. a device such as a RIS or HIS which supports the Modality Worklist SOP Class as an SCP) is illustrated in the Figure above:

1. The MWM SCU AE opens an association with the Department Scheduler
2. The MWM SCU AE sends a C-FIND request to the Department Scheduler containing the Worklist Query attributes.
3. The Department Scheduler returns a C-FIND response containing the requested attributes of the first matching Worklist Item.
4. The Department Scheduler returns another C-FIND response containing the requested attributes of the second matching Worklist Item.
5. The Department Scheduler returns another C-FIND response with status Success indicating that no further matching Worklist Items exist. This example assumes that only 2 Worklist items match the Worklist Query.
6. The MWM SCU AE closes the association with the Department Scheduler.
7. The user selects a Worklist Item from the Worklist and prepares to acquire new images.

#### 4.2.2.3.1.2 Proposed Presentation Contexts

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

**Table 4.2-15**
**Proposed Presentation Contexts for Activity Update Worklist**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | **Role** | **Ext. Neg.** |
| **Name** | **UID** | **Name List** | **UID List** | | |
| Modality Worklist Information Model – FIND | 1.2.840.10008.5.1.4.31 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | SCU | None |
| Modality Worklist Information Model – FIND | 1.2.840.10008.5.1.4.31 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |

#### 4.2.2.3.1.3 SOP Specific Conformance for Modality Worklist SOP Class

The MWM SCU AE provides standard conformance to the Modality Worklist SOP Class as an SCU.

The behavior of the MWM SCU when encountering status codes in a Modality Worklist C-FIND response is summarized in the table below.

**Table 4.2-16**
**Modality Worklist C-FIND Response Status Handling Behavior**

| Service Status | Further Meaning | Status Code | Behavior |
|---|---|---|---|
| Success | Matching is complete | 0000 | The SCP has completed the matches. Worklist items are available for display or further processing. |
| Refused | Out of Resources | A700H | The Association is aborted using A-ABORT and the worklist is empty. The status meaning is logged. |
| Failed | Identifier does not match SOP Class | A900H | |
| Failed | Unable to Process | CxxxH | |
| Cancel | Matching terminated due to Cancel request | FE00H | If the query was cancelled due to too many worklist items then the SCP has completed the matches. Worklist items are available for display or further processing. The status meaning is logged. |
| Pending | Matches are continuing | FF00H | The worklist item contained in the Identifier is collected for later display or further processing. |
| Pending | Matches are continuing – Warning that one or more Optional Keys were not supported | FF01H | |
| * | * | Any other status code. | The Association is aborted using A-ABORT and the worklist is empty. The status meaning is logged. |

The behavior of the MWM SCU AE during communication failure is summarized in the table below.

**Table 4.2-17**
**MODALITY WORKLIST COMMUNICATION FAILURE BEHAVIOR**

| Exception | Behavior |
|---|---|
| Timeout | The Association is aborted using A-ABORT and the worklist is empty. The reason is logged. |
| Association aborted by the SCP or network layers | The worklist is empty and the reason is logged. |

Acquired images will always use the Study Instance UID specified for the Scheduled Procedure Step (if available). If an acquisition is unscheduled, a Study Instance UID will be generated locally.

The table below provides a description of the MWM SCU AE Worklist Request Identifier and specifies the attributes that are copied into the images. Unexpected attributes returned in a C-FIND response are ignored.

**Table 4.2-18**
**WORKLIST REQUEST IDENTIFIER**

| Module Name<br>Attribute Name | Tag | VR | M | R | D | IOD |
|---|---|---|---|---|---|---|
| SOP Common | | | | | | |
| Specific Character Set | (0008,0005) | CS | | x | | x |
| Scheduled Procedure Step | | | | | | |
| Scheduled Procedure Step Sequence | (0040,0100) | SQ | | x | | |
| > Modality | (0008,0060) | CS | S | | | x |
| > Requested Contrast Agent | (0032,1070) | LO | | x | | |
| > Scheduled Station AE Title | (0040,0001) | AE | S | | | x |
| > Scheduled Procedure Step Start Date | (0040,0002) | DA | S | | x | |
| > Scheduled Procedure Step Start Time | (0040,0003) | TM | | x | | |
| > Scheduled Performing Physician's Name | (0040,0006) | PN | | x | | |
| > Scheduled Procedure Step Description | (0040,0007) | SH | | x | x | x |
| > Scheduled Protocol Code Sequence | (0040,0008) | SQ | | x | | |
| >> Code value | (0008,0100) | SH | | x | | |
| >> Coding Scheme Designator | (0008,0102) | SH | | x | | |
| >> Coding Scheme Version | (0008,0103) | SH | | x | | |
| >> Code Meaning | (0008,0104) | LO | | x | | |
| > Scheduled Procedure Step ID | (0040,0009) | SH | | x | | |
| > Scheduled Station Name | (0040,0010) | LO | | x | | |
| > Scheduled Procedure Step Location | (0040,0011) | SH | | x | | |
| > Pre-Medication | (0040,0012) | LO | | x | | |
| > Comments on Scheduled Procedure Step | (0040,0400) | LT | | x | | |
| Requested Procedure | | | | | | |
| Study Instance UID | (0020,000D) | UI | | x | | x |
| Requested Procedure Description | (0032,1060) | LO | | x | | |
| Requested Procedure Code Sequence | (0032,1064) | SQ | | x | | |
| > Code value | (0008,0100) | SH | | x | | |
| > Coding Scheme Designator | (0008,0102) | SH | | x | | |
| > Coding Scheme Version | (0008,0103) | SH | | x | | |
| > Code Meaning | (0008,0104) | LO | | x | | |
| Requested Procedure ID | (0040,1001) | SH | | x | | |
| Requested Procedure Priority | (0040,1003) | SH | | x | | |
| Patient Transport Arrangements | (0040,1004) | LO | | x | | |
| Requested Procedure Location | (0040,1005) | LO | | x | | |
| Requested Procedure Comments | (0040,1400) | LT | | x | | |
| Imaging Service Request | | | | | | |
| Accession Number | (0008,0050) | DA | | x | x | x |
| Visit Status | | | | | | |
| Current Patient Location | (0038,0300) | LO | | x | | |

| Module Name<br>Attribute Name | Tag | VR | M | R | D | IOD |
|---|---|---|---|---|---|---|
| Patient Identification | | | | | | |
| Patient's Name<br>Patient ID | (0010,0010)<br>(0010,0020) | PN<br>LO | | x<br>x | x<br>x | x<br>x |
| Patient Demographic | | | | | | |
| Patient Data Confidentiality Constraint Description<br>Patient's Birth Date<br>Patient's Sex<br>Patient's Weight<br>Patient Comments | (0040,3001)<br>(0010,0030)<br>(0010,0040)<br>(0010,1030)<br>(0010,4000) | LO<br>DA<br>CS<br>DS<br>LT | | x<br>x<br>x<br>x<br>x | <br>x<br>x<br><br>x | <br>x<br>x<br><br>x |
| Patient Medical | | | | | | |
| Medical Alerts<br>Contrast Allergies<br>Pregnancy Status<br>Special Needs<br>Patient State | (0010,2000)<br>(0010,2110)<br>(0010,21C0)<br>(0038,0050)<br>(0038,0500) | LO<br>LO<br>US<br>LO<br>LO | | x<br>x<br>x<br>x<br>x | | |

The above table should be read as follows:

Module Name: The name of the associated module for supported worklist attributes.

Attribute Name: Attributes supported to build the MWM SCU AE Worklist Request Identifier.

Tag: DICOM tag for this attribute.

VR: DICOM VR for this attribute.

M: Matching keys for (automatic) Worklist Update. An "S" will indicate that the MWM SCU AE will supply an attribute value for Single Value Matching.

R: Return keys. An "x" will indicate that the MWM SCU AE will supply this attribute as Return Key with zero length for Universal Matching.

D: Displayed keys. An "x" indicates that this worklist attribute is displayed to the user during a patient selection. For example, Patient Name will be displayed when selecting the patient prior to an examination.

IOD: An "x" indicates that this Worklist attribute is included into all Object Instances created during performance of the related Procedure Step.

The default Query Configuration is set to "Modality" (MG), "Date" (date of today) and own AET.

#### 4.2.2.4 Association Acceptance Policy

The MWM SCU AE does not accept Associations.

## 4.2.3 MPPS SCU AE Specification

### 4.2.3.1 SOP Classes

The MPPS SCU AE provides Standard Conformance to the following SOP Classes:

**Table 4.2-19**
**SOP CLASSES FOR THE MPPS SCU AE**

| SOP Class Name | SOP Class UID | SCU | SCP |
|---|---|---|---|
| Modality Performed Procedure Step | 1.2.840.10008.3.1.2.3.3 | Yes | No |

### 4.2.3.2 Association Policies

#### 4.2.3.2.1 General

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

**Table 4.2-20**
**DICOM APPLICATION CONTEXT FOR THE MPPS SCU AE**

| | |
|---|---|
| Application Context Name | 1.2.840.10008.3.1.1.1 |

#### 4.2.3.2.2 Number of Associations

The MPPS SCU AE initiates one Association at a time.

**Table 4.2-21**
**NUMBER OF ASSOCIATIONS INITIATED FOR THE MPPS SCU AE**

| | |
|---|---|
| Maximum number of simultaneous Associations | 1 |

#### 4.2.3.2.3 Asynchronous Nature

The MPPS SCU AE does not support asynchronous communication (multiple outstanding transactions over a single Association).

**Table 4.2-22**
**ASYNCHRONOUS NATURE FOR THE MPPS SCU AE**

| | |
|---|---|
| Maximum number of outstanding asynchronous transactions | 1 |

#### 4.2.3.2.4 Implementation Identifying Information

The implementation information for this Application Entity is:

**Table 4.2-23**
**DICOM IMPLEMENTATION CLASS AND VERSION FOR THE MPPS SCU AE**

| | |
|---|---|
| Implementation Class UID | 1.2.392.200036.9116.39.1.1 |
| Implementation Version Name | MGU1000D_V200 |

### 4.2.3.3 Association Initiation Policy

#### 4.2.3.3.1 Activity – Acquire Images

##### 4.2.3.3.1.1 Description and Sequencing of Activities

After the user selects Patient and starts the study, the MPPS SCU AE is awaiting the 1st acquisition of images. The trigger to create a MPPS SOP Instance is derived from this event. An Association to the configured MPPS SCP system is established immediately and the related MPPS SOP Instance will be created.

Further updates on the MPPS data can be performed when the user completes the study.

The MPPS SCU AE will initiate an Association to issue an:

— N-CREATE request according to the CREATE Modality Performed Procedure Step SOP Instance operation, or an:

— N-SET request to update the contents and state of the MPPS according to the SET Modality Performed Procedure Step Information operation.

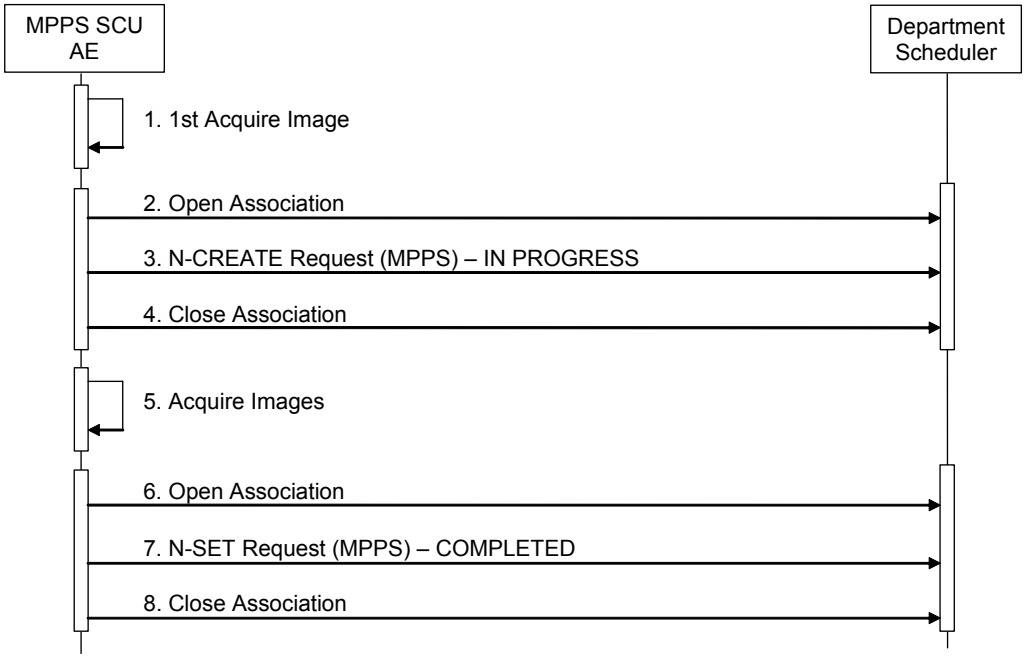


**Figure 4.2-3**
**SEQUENCING OF ACTIVITY – ACQUIRE IMAGES**

A possible sequence of interactions between the MPPS SCU AE and a Department Scheduler (e.g. a device such as a RIS or HIS which supports the MPPS SOP Class as an SCP) is illustrated in the Figure above:

1. 1st image is acquired and stored in the local database.
2. The MPPS SCU AE opens an association with the Department Scheduler
3. The MPPS SCU AE sends an N-CREATE request to the Department Scheduler to create an MPPS instance with status of “IN PROGRESS” and create all necessary attributes. The Department Scheduler acknowledges the MPPS creation with an N-CREATE response (status success).
4. The MPPS SCU AE closes the association with the Department Scheduler.
5. All images are acquired and stored in the local database.

6. The MPPS SCU AE opens an association with the Department Scheduler.
7. The MPPS SCU AE sends an N-SET request to the Department Scheduler to update the MPPS instance with status of “COMPLETED” and set all necessary attributes. The Department Scheduler acknowledges the MPPS update with an N-SET response (status success).
8. The MPPS SCU AE closes the association with the Department Scheduler.

#### 4.2.3.3.1.2 Proposed Presentation Contexts

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

**Table 4.2-24**
**PROPOSED PRESENTATION CONTEXTS FOR REAL-WORLD ACTIVITY ACQUIRE IMAGES**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | **Role** | **Ext. Neg.** |
| **Name** | **UID** | **Name List** | **UID List** | | |
| Modality Performed Procedure Step | 1.2.840.10008.3.1.2.3.3 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | SCU | None |
| Modality Performed Procedure Step | 1.2.840.10008.3.1.2.3.3 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |

#### 4.2.3.3.1.3 SOP Specific Conformance for MPPS SOP Class

The MPPS SCU AE provides standard conformance to the Modality Performed Procedure Step SOP Class as an SCU.

The behavior of the MPPS SCU AE when encountering status codes in an MPPS N-CREATE or N–SET response is summarized in the table below.

**Table 4.2-25**
**MPPS N-CREATE / N-SET RESPONSE STATUS HANDLING BEHAVIOR**

| Service Status | Further Meaning | Status Code | Behavior |
|---|---|---|---|
| Success | Success | 0000 | The SCP has completed the operation successfully. |
| Failure | Processing Failure – Performed Procedure Step Object may no longer be updated | 0110H | The Association is aborted and the MPPS is marked as failed. The status meaning is logged and reported to the user. |
| Warning | Attribute Value Out of Range | 0116H | |
| * | * | Any other status code. | |

The behavior of the MPPS SCU AE during communication failure is summarized in the table below:

**Table 4.2-26**
**MPPS COMMUNICATION FAILURE BEHAVIOR**

| Exception | Behavior |
|---|---|
| Timeout | The Association is aborted and the MPPS is marked as failed. The reason is logged and reported to the user. |
| Association aborted by the SCP or network layers | The MPPS is marked as failed. The reason is logged and reported to the user. |

The table below provides a description of the MPPS N-CREATE and N-SET request identifiers sent by the MPPS SCU AE. Empty cells in the N-CREATE and N-SET columns indicate that the attribute is not sent. An "x" indicates that an appropriate value will be sent. A "Zero length" attribute will be sent with zero length.

**Table 4.2-27**
**MPPS N-CREATE / N-SET REQUEST IDENTIFIER**

| Attribute Name | Tag | VR | N-CREATE | N-SET |
|---|---|---|---|---|
| Specific Character Set | (0008,0005) | CS | Created, if an extended or replacement character set is used. | |
| Modality | (0008,0060) | CS | MG | |
| Procedure Code Sequence | (0008,1032) | SQ | Zero item | |
| Referenced Patient Sequence | (0008,1120) | SQ | Zero length | |
| Patient's Name | (0010,0010) | PN | From Modality Worklist | |
| Patient ID | (0010,0020) | LO | From Modality Worklist | |
| Patient's Birth Date | (0010,0030) | DA | From Modality Worklist | |
| Patient's Sex | (0010,0040) | CS | From Modality Worklist | |
| Study ID | (0020,0010) | SH | x | |
| Performed Station AE Title | (0040,0241) | AE | Local AE Title | |
| Performed Station Name | (0040,0242) | SH | Zero length | |
| Performed Location | (0040,0243) | SH | Zero length | |
| Performed Procedure Step Start Date | (0040,0244) | DA | Actual start date | |
| Performed Procedure Step Start Time | (0040,0245) | TM | Actual start time | |
| Performed Procedure Step End Date | (0040,0250) | DA | Zero length | x |
| Performed Procedure Step End Time | (0040,0251) | TM | Zero length | x |
| Performed Procedure Step Status | (0040,0252) | CS | IN PROGRESS | COMPLETED |
| Performed Procedure Step ID | (0040,0253) | SH | From Modality Worklist | |
| Performed Procedure Step Description | (0040,0254) | LO | From Modality Worklist | From Modality Worklist |
| Performed Procedure Type Description | (0040,0255) | LO | From Modality Worklist | From Modality Worklist |
| Performed Protocol Code Sequence | (0040,0260) | SQ | Zero item | Zero or more items |
| > Code Value | (0008,0100) | SH | | x |
| > Coding Scheme Designator | (0008,0102) | SH | | x |
| > Coding Scheme Version | (0008,0103) | SH | | x |
| > Code Meaning | (0008,0104) | LO | | x |
| Scheduled Step Attributes Sequence | (0040,0270) | SQ | One or more items | |
| > Accession Number | (0008,0050) | SH | From Modality Worklist | |
| > Referenced Study Sequence | (0008,1110) | SQ | Zero length | |
| > Study Instance UID | (0020,000D) | UI | From Modality Worklist | |
| > Requested Procedure Description | (0032,1060) | LO | From Modality Worklist | |
| > Scheduled Procedure Step Description | (0040,0007) | LO | From Modality Worklist | |
| > Scheduled Protocol Code Sequence | (0040,0008) | SQ | Zero or more items | |
| >> Code Value | (0008,0100) | SH | From Modality Worklist | |
| >> Coding Scheme Designator | (0008,0102) | SH | From Modality Worklist | |
| >> Coding Scheme Version | (0008,0103) | SH | From Modality Worklist | |
| >> Code Meaning | (0008,0104) | LO | From Modality Worklist | |
| > Scheduled Procedure Step ID | (0040,0009) | SH | From Modality Worklist | |
| > Requested Procedure ID | (0040,1001) | SH | From Modality Worklist | |
| Total Number of Exposures | (0040,0301) | US | Zero length | x |

| Attribute Name | Tag | VR | N-CREATE | N-SET |
|---|---|---|---|---|
| Exposure Dose Sequence | (0040,030E) | SQ | Zero item | Zero or more items |
| > KVP | (0018,0060) | DS | | x |
| > Exposure Time | (0018,1150) | IS | | x |
| > X-ray Tube Current in μA | (0018,8151) | IS | | x |
| > Private creator code | (7099,00xx) | LO | | TOSHIBA_MEC_MG3 |
| > Entrance Skin Exposure in mGy | (7099,xx05) | DS | | x |
| > Average Glandular Dose in mGy | (7099,xx06) | DS | | x |
| Performed Series Sequence | (0040,0340) | SQ | Zero length | One item |
| > Retrieve AE Title | (0008,0054) | AE | | Zero length |
| > Series Description | (0008,103E) | LO | | Zero length |
| > Performing Physician's Name | (0008,1050) | PN | | x |
| > Operators' Name | (0008,1070) | PN | | x |
| > Referenced Image Sequence | (0008,1140) | SQ | | One or more items |
| >> Referenced SOP Class UID | (0008,1150) | UI | | x |
| >> Referenced SOP Instance UID | (0008,1155) | UI | | x |
| > Protocol Name | (0018,1030) | LO | | x |
| > Series Instance UID | (0020,000E) | UI | | x |
| > Referenced Non-Image Composite SOP Instance Sequence | (0040,0220) | SQ | | Zero length |
| Private creator code | (7099,00xx) | LO | TOSHIBA_MEC_MG3 | TOSHIBA_MEC_MG3 |
| Radiation Status Sequence | (7099,xx00) | SQ | Zero item | Zero or more items |
| > Miss Shot Status | (7099,xx02) | CS | | NORMAL indicates Normal shot image.<br>MISS indicates Miss shot image. |
| > Re-exposure Status | (7099,xx03) | CS | | NORMAL indicate Active image.<br>AGAIN indicates Non-active image when there are several images of same position and direction. |
| > Order Status | (7099,xx04) | CS | | ORDERED indicates the image ordered by MWM.<br>NON-ORDERED indicates the image that was not ordered by MWM. |

#### 4.2.3.4 Association Acceptance Policy

The MPPS SCU AE does not accept Associations.

## 4.2.4 Print SCU AE Specification

### 4.2.4.1 SOP Classes

The Print SCU AE provides Standard Conformance to the following Meta SOP Classes:

**Table 4.2-28**
**META SOP CLASSES FOR THE PRINT SCU AE**

| SOP Class Name | SOP Class UID | SCU | SCP |
|---|---|---|---|
| Basic Grayscale Print Management Meta | 1.2.840.10008.5.1.1.9 | Yes | No |

The above Meta SOP Classes are defined by the following set of supported SOP Classes:

**Table 4.2-29**
**SOP CLASSES FOR THE PRINT SCU AE**

| SOP Class Name | SOP Class UID | SCU | SCP |
|---|---|---|---|
| Basic Film Session SOP Class | 1.2.840.10008.5.1.1.1 | Yes | No |
| Basic Film Box SOP Class | 1.2.840.10008.5.1.1.2 | Yes | No |
| Basic Grayscale Image Box SOP Class | 1.2.840.10008.5.1.1.4 | Yes | No |
| Printer SOP Class | 1.2.840.10008.5.1.1.16 | Yes | No |

### 4.2.4.2 Association Policies

#### 4.2.4.2.1 General

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

**Table 4.2-30**
**DICOM APPLICATION CONTEXT FOR THE PRINT SCU AE**

| | |
|---|---|
| Application Context Name | 1.2.840.10008.3.1.1.1 |

#### 4.2.4.2.2 Number of Associations

The Print SCU AE can initiate one Association at a time for each destination to which a transfer request is being processed in the active job queue list. Only one job will be active at a time, the other remains pending until the active job is completed or failed.

**Table 4.2-31**
**NUMBER OF ASSOCIATIONS INITIATED FOR THE PRINT SCU AE**

| | |
|---|---|
| Maximum number of simultaneous Associations | 1 |

#### 4.2.4.2.3 Asynchronous Nature

The Print SCU AE does not support asynchronous communication (multiple outstanding transactions over a single Association).

**Table 4.2-32**
**ASYNCHRONOUS NATURE FOR THE PRINT SCU AE**

| | |
|---|---|
| Maximum number of outstanding asynchronous transactions | 1 |

#### 4.2.4.2.4 Implementation Identifying Information

The implementation information for the Print SCU AE is:

**Table 4.2-33**
**DICOM IMPLEMENTATION CLASS AND VERSION FOR THE PRINT SCU AE**

| | |
|---|---|
| Implementation Class UID | 1.2.392.200036.9116.39.1.1 |
| Implementation Version Name | MGU1000D_V200 |

### 4.2.4.3 Association Initiation Policy

#### 4.2.4.3.1 Activity – Send Images & Print Management Information

##### 4.2.4.3.1.1 Description and Sequencing of Activities

###### 4.2.4.3.1.1.1 Send Images & Print Management Information

A user composes images onto film sheets and requests them to be sent to a specific hardcopy device. The user can select the desired film size.

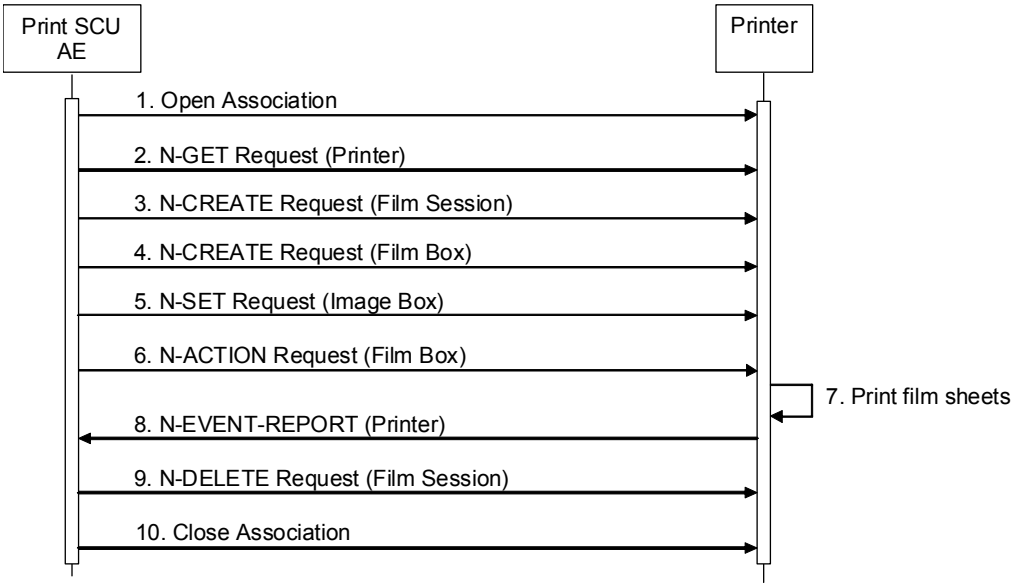


**Figure 4.2-4**
**SEQUENCING OF ACTIVITY – SEND IMAGES & PRINT MANAGEMENT INFORMATION**

A typical sequence of DIMSE messages sent over an association between the Print SCU AE and a Printer is illustrated in the Figure above:

1. The Print SCU AE opens an Association with the Printer.
2. N-GET on the Printer SOP Class is used to obtain current printer status information. If the Printer reports a status of FAILURE, the Print SCU closes the Association and waits and retries from the beginning.
3. N-CREATE on the Film Session SOP Class creates a Film Session.
4. N-CREATE on the Film Box SOP Class creates a Film Box linked to the Film Session.
5. N-SET on the Image Box SOP Class transfers the contents of the film sheet to the printer.
6. N-ACTION on the Film Box SOP Class instructs the Printer to print the Film Box.
7. The printer prints the requested number of film sheets.
8. The Printer asynchronously reports its status via N-EVENT-REPORT notification (Printer SOP Class). The printer can send this message at any time. The Print SCU AE does not require the N-EVENT-REPORT to be sent. The Print SCU AE is capable of receiving an N-EVENT-REPORT notification at any time during an association. If the Printer reports a status of FAILURE, the print-job is switched to a failed state and the user informed.
9. N-DELETE on the Film Session SOP Class deletes the complete Film Session SOP Instance hierarchy.
10. The Print SCU AE closes the Association with the Printer.

#### 4.2.4.3.1.1.2 Polling

The Print SCU AE automatically obtains current printer status information periodically (default; every 1 minute; configurable using the Service Tool by the Field Service Engineer). The printer status information is reported to the user.

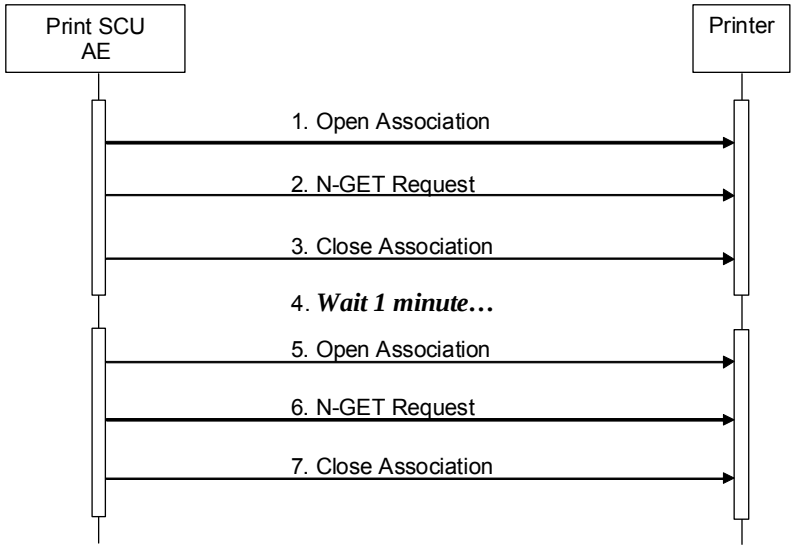


**Figure 4.2-5**
**SEQUENCING OF ACTIVITY – POLLING**

A typical sequence of DIMSE messages sent over an association between the Print SCU AE and a Printer is illustrated in the Figure above:

1. The Print SCU AE opens an Association with the Printer.
2. N-GET on the Printer SOP Class is used to obtain current printer status information.
3. The Print SCU AE closes the Association with the Printer.
4. The Print SCU AE waits 1 minute.

The Print SCU AE repeats 1-4.

#### 4.2.4.3.1.2 Proposed Presentation Contexts

The Print SCU AE is capable of proposing the Presentation Contexts shown in the table below:

**Table 4.2-34**
**PROPOSED PRESENTATION CONTEXTS FOR ACTIVITY**
**SEND IMAGES & PRINT MANAGEMENT INFORMATION**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| Abstract Syntax | | Transfer Syntax | | Role | Ext. Neg. |
| Name | UID | Name List | UID List | | |
| Basic Grayscale Print Management Meta | 1.2.840.10008.5.1.1.9 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | SCU | None |
| Basic Grayscale Print Management Meta | 1.2.840.10008.5.1.1.9 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |

#### 4.2.4.3.1.3 Common SOP Specific Conformance for all Print SOP Classes

The general behavior of the Print SCU AE during communication failure is summarized in the table below. This behavior is common for all SOP Classes supported by the Print SCU AE.

**Table 4.2-35**
**PRINT COMMUNICATION FAILURE BEHAVIOR**

| Exception | Behavior |
|---|---|
| Timeout | The Association is aborted and the print-job is marked as failed. The reason is logged and the job failure is reported to the user via the job control application. |
| Association aborted by the SCP or network layers | The print-job is marked as failed. The reason is logged and the job failure is reported to the user via the job control application. |

#### 4.2.4.3.1.4 SOP Specific Conformance for Printer SOP Class

The Print SCU AE supports the following DIMSE operations and notifications for the Printer SOP Class:

— N-GET

Details of the supported attributes and status handling behavior are described in the following subsections.

##### 4.2.4.3.1.4.1 Printer SOP Class Operations (N-GET)

The Print SCU AE uses the Printer SOP Class N-GET operation to obtain information about the current printer status. The attributes obtained via N-GET are listed in the table below:

**Table 4.2-36**
**PRINTER SOP CLASS N-GET REQUEST ATTRIBUTES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Printer Status | (2110,0010) | CS | Provided by Printer | ALWAYS | Printer |
| Printer Status Info | (2110,0020) | CS | Provided by Printer | ALWAYS | Printer |

The Printer Status information is evaluated as follows:

1. If Printer Status (2110,0010) is NORMAL, “READY” is displayed in the job control application.
2. If Printer Status (2110,0010) is FAILURE or WARNING, “NOT READY” is displayed and the contents of Printer Status Info (2110,0020) is logged.

The behavior of The Print SCU AE when encountering status codes in an N-GET response is summarized in the table below:

**Table 4.2-37**
**PRINTER SOP CLASS N-GET RESPONSE STATUS HANDLING BEHAVIOR**

| Service Status | Further Meaning | Status Code | Behavior |
|---|---|---|---|
| Success | Success | 0000 | The request to get printer status information was success. |
| Warning | Attribute List Error | 0107H | The request to get printer status information is considered successful. |
| * | * | Any other status code. | The Association is aborted and the status meaning is logged and reported to the user. |

#### 4.2.4.3.1.5 SOP Specific Conformance for the Film Session SOP Class

The Print SCU AE supports the following DIMSE operations for the Film Session SOP Class:

— N-CREATE
— N-DELETE

Details of the supported attributes and status handling behavior are described in the following subsections.

##### 4.2.4.3.1.5.1 Film Session SOP Class Operations (N-CREATE)

The attributes supplied in an N-CREATE Request are listed in the table below:

**Table 4.2-38**
**FILM SESSION SOP CLASS N-CREATE REQUEST ATTRIBUTES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Number of Copies | (2000,0010) | IS | 1 | ALWAYS | AUTO |
| Print Priority | (2000,0020) | CS | HIGH | ALWAYS | AUTO |
| Medium Type | (2000,0030) | CS | BLUE FILM or CLEAR FILM or MAMMO BLUE FILM | ALWAYS | USER |
| Film Destination | (2000,0040) | CS | PROCESSOR | ALWAYS | AUTO |

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

**Table 4.2-39**
**FILM SESSION SOP CLASS N-CREATE RESPONSE STATUS HANDLING BEHAVIOR**

| Service Status | Further Meaning | Status Code | Behavior |
|---|---|---|---|
| Success | Success | 0000 | The SCP has completed the operation successfully. |
| Warning | Attribute Value Out of Range | 0116H | The N-CREATE operation is considered successful. |
| Warning | Attribute List Error | 0107H | |
| * | * | Any other status code. | The Association is aborted and the print-job is marked as failed. The status meaning is logged and reported to the user. |

##### 4.2.4.3.1.5.2 Film Session SOP Class Operations (N-DELETE)

The behavior of The Print SCU AE when encountering status codes in an N-DELETE response is summarized in the table below:

**Table 4.2-40**
**PRINTER SOP CLASS N-DELETE RESPONSE STATUS HANDLING BEHAVIOR**

| Service Status | Further Meaning | Status Code | Behavior |
|---|---|---|---|
| Success | Success | 0000 | The SCP has completed the operation successfully. |
| * | * | Any other status code. | The Association is aborted and the print-job is marked as failed. The status meaning is logged and reported to the user. |

#### 4.2.4.3.1.6 SOP Specific Conformance for the Film Box SOP Class

The Print SCU AE supports the following DIMSE operations for the Film Box SOP Class:

— N-CREATE
— N-ACTION

Details of the supported attributes and status handling behavior are described in the following subsections.

#### 4.2.4.3.1.6.1 Film Box SOP Class Operations (N-CREATE)

The attributes supplied in an N-CREATE Request are listed in the table below:

**Table 4.2-41**
**FILM BOX SOP CLASS N-CREATE REQUEST ATTRIBUTES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Image Display Format | (2010,0010) | CS | STANDARD\1,1 | ALWAYS | AUTO |
| Film Orientation | (2010,0040) | CS | PORTRAIT for 8INx10IN<br>LANDSCAPE for 10INX14IN or 11INX14IN | ALWAYS | AUTO |
| Film Size ID | (2010,0050) | CS | 8INX10IN<br>10INX14IN or 11INX14IN | ALWAYS | USER |
| Magnification Type | (2010,0060) | CS | CUBIC | ALWAYS | AUTO |
| Smoothing Type | (2010,0080) | CS | MEDIUM or 2 or NORMAL | ALWAYS | USER |
| Border Density | (2010,0100) | CS | BLACK | ALWAYS | CONFIG |
| Empty Image Density | (2010,0110) | CS | BLACK | ALWAYS | CONFIG |
| Trim | (2010,0140) | CS | NO | ALWAYS | CONFIG |
| Referenced Film Session Sequence | (2010,0500) | SQ | | ALWAYS | AUTO |
| >Referenced SOP Class UID | (0008,1150) | UI | 1.2.840.10008.5.1.1.1 | ALWAYS | AUTO |
| >Referenced SOP Instance UID | (0008,1155) | UI | From created Film Session SOP Instance | ALWAYS | AUTO |

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

**Table 4.2-42**
**FILM BOX SOP CLASS N-CREATE RESPONSE STATUS HANDLING BEHAVIOR**

| Service Status | Further Meaning | Status Code | Behavior |
|---|---|---|---|
| Success | Success | 0000 | The SCP has completed the operation successfully. |
| Warning | Attribute Value Out of Range | 0116H | The N-CREATE operation is considered successful. |
| Warning | Attribute List Error | 0107H | |
| Warning | Requested Min Density or Max Density outside of printer's operating range | B605H | |
| * | * | Any other status code. | The Association is aborted and the print-job is marked as failed. The status meaning is logged and reported to the user. |

#### 4.2.4.3.1.6.2 Film Box SOP Class Operations (N-ACTION)

An N-ACTION Request is issued to instruct the Print SCP to print the contents of the Film Box. The Action Reply argument in an N-ACTION response is not evaluated.

The behavior of The Print SCU AE when encountering status codes in an N-ACTION response is summarized in the table below:

**Table 4.2-43**
**FILM BOX SOP CLASS N-ACTION RESPONSE STATUS HANDLING BEHAVIOR**

| Service Status | Further Meaning | Status Code | Behavior |
|---|---|---|---|
| Success | Success | 0000 | The SCP has completed the operation successfully. The film has been accepted for printing. |
| Warning | Image size is larger than Image Box size. The image has been demagnified. | B604H | The N-ACTION operation is considered successful. |
| Warning | Image size is larger than Image Box size. The image has been cropped to fit. | B609H | |
| Warning | Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit. | B60AH | |
| Failure | Unable to create Print Job SOP Instance; print queue is full. | C602H | The Association is aborted and the print-job is marked as failed.<br>The status meaning is logged and reported to the user. |
| Failure | Image size is larger than Image Box size. | C603H | |
| Failure | Combined Print Image Size is larger than Image Box size. | C613H | |
| * | * | Any other status code. | |

#### 4.2.4.3.1.7 SOP Specific Conformance for the Grayscale Image Box SOP Class

The Print SCU AE supports the following DIMSE operations for the Grayscale Image Box SOP Class:

— N-SET

Details of the supported attributes and status handling behavior are described in the following subsections.

#### 4.2.4.3.1.7.1 Grayscale Image Box SOP Class Operations (N-SET)

The attributes supplied in an N-SET Request are listed in the table below:

**Table 4.2-44**
**GRAYSCALE IMAGE BOX SOP CLASS N-SET REQUEST ATTRIBUTES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Image Position | (2020,0010) | US | 1 | ALWAYS | AUTO |
| Basic Grayscale Image Sequence | (2020,0110) | SQ | | ALWAYS | AUTO |
| >Samples Per Pixel | (0028,0002) | US | 1 | ALWAYS | AUTO |
| >Photometric Interpretation | (0028,0004) | CS | MONOCHROME2 | ALWAYS | AUTO |
| >Rows | (0028,0010) | US | 2816 | ALWAYS | AUTO |
| >Columns | (0028,0011) | US | 2016 or 4032 | ALWAYS | AUTO |
| >Pixel Aspect Ratio | (0028,0034) | IS | 1\1 | ALWAYS | AUTO |
| >Bits Allocated | (0028,0100) | US | 16 | ALWAYS | AUTO |
| >Bits Stored | (0028,0101) | US | 12 | ALWAYS | AUTO |
| >High Bit | (0028,0102) | US | 11 | ALWAYS | AUTO |
| >Pixel Representation | (0028,0103) | US | 0 | ALWAYS | AUTO |
| >Pixel Data | (7FE0,0010) | OW | | ALWAYS | AUTO |

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

**Table 4.2-45**
**GRAYSCALE IMAGE BOX SOP CLASS N-SET RESPONSE STATUS HANDLING BEHAVIOR**

| Service Status | Further Meaning | Status Code | Behavior |
|---|---|---|---|
| Success | Success | 0000 | The SCP has completed the operation successfully. Image successfully stored in Image Box. |
| Warning | Attribute Value Out of Range | 0116H | The N-SET operation is considered successful. |
| Warning | Attribute List Error | 0107H | |
| Warning | Image size is larger than Image Box size. The image has been demagnified. | B604H | |
| Warning | Requested Min Density or Max Density outside of printer's operating range. | B605H | |
| Warning | Image size is larger than Image Box size. The image has been cropped to fit. | B609H | |
| Warning | Image size or Combined Print Image Size is larger than Image Box size. The image or combined Print Image has been decimated to fit. | B60AH | |
| Failure | Image size is larger than Image Box size. | C603H | The Association is aborted and the print-job is marked as failed.<br>The status meaning is logged and reported to the user. |
| Failure | Insufficient memory in printer to store the image. | C605H | |
| Failure | Combined Print Image Size is larger than Image Box size. | C613H | |
| * | * | Any other status code. | |

### 4.2.4.4 Association Acceptance Policy

The Print SCU AE does not accept Associations.

## 4.2.5 Verification SCU AE Specification

### 4.2.5.1 SOP Classes

The Verification SCU AE provides Standard Conformance to the following SOP Classes:

**Table 4.2-46**
**SOP CLASSES FOR THE VERIFICATION SCU AE**

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

### 4.2.5.2 Association Policies

#### 4.2.5.2.1 General

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

**Table 4.2-47**
**DICOM APPLICATION CONTEXT FOR THE STORAGE SCU AE**

| | |
|---|---|
| Application Context Name | 1.2.840.10008.3.1.1.1 |

#### 4.2.5.2.2 Number of Associations

The Verification SCU AE can initiate one Association at a time.

**Table 4.2-48**
**NUMBER OF ASSOCIATIONS INITIATED FOR THE VERIFICATION SCU AE**

| | |
|---|---|
| Maximum number of simultaneous Associations | 1 |

#### 4.2.5.2.3 Asynchronous Nature

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

**Table 4.2-49**
**ASYNCHRONOUS NATURE FOR THE VERIFICATION SCU AE**

| | |
|---|---|
| Maximum number of outstanding asynchronous transactions | 1 |

#### 4.2.5.2.4 Implementation Identifying Information

The implementation information for the Verification SCU AE is:

**Table 4.2-50**
**DICOM IMPLEMENTATION CLASS AND VERSION FOR THE VERIFICATION SCU AE**

| | |
|---|---|
| Implementation Class UID | 1.2.392.200036.9116.39.1.1 |
| Implementation Version Name | MGU1000D_V200 |

### 4.2.5.3 Association Initiation Policy

#### 4.2.5.3.1 Activity – Verify Connectivity

##### 4.2.5.3.1.1 Description and Sequencing of Activities

The Verification SCU AE attempts to initiate a new Association in order to issue a Verification request (C-ECHO).

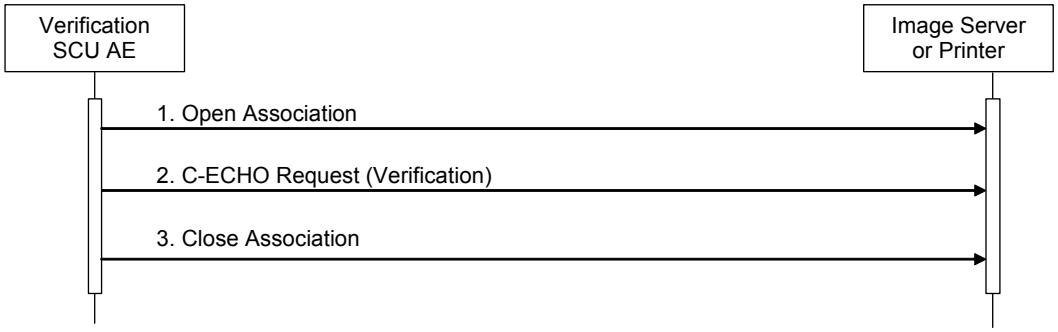


**Figure 4.2-6**
**SEQUENCING OF ACTIVITY – VERIFY CONNECTIVITY**

A possible sequence of interactions between the Verification SCU AE and an Image Server or Printer is illustrated in the Figure above:

1. The Verification SCU AE opens an Association with the Image Server or Printer.
2. The Verification SCU AE issues a Verification request (C-ECHO) and the Image Server or Printer replies with a C-ECHO response (status success).
3. The Verification SCU AE closes the Association with the Image Server or Printer.

##### 4.2.5.3.1.2 Proposed Presentation Contexts

The Verification SCU AE is capable of proposing the Presentation Contexts shown in the following table:

**Table 4.2-51**
**PROPOSED PRESENTATION CONTEXTS FOR ACTIVITY VERIFY CONNECTIVITY**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| Abstract Syntax | | Transfer Syntax | | Role | Ext. Neg. |
| Name | UID | Name List | UID List | | |
| Verification | 1.2.840.10008.1.1 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | SCU | None |
| Verification | 1.2.840.10008.1.1 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |

#### 4.2.5.3.1.3 SOP Specific Conformance for Verification SOP Classes

The Verification SCU AE provides standard conformance to the Verification Service Class as an SCU.

The behavior of Verification SCU AE when encountering status codes in a C-ECHO response is summarized in the table below:

**Table 4.2-52**
**VERIFICATION C-ECHO RESPONSE STATUS HANDLING BEHAVIOR**

| Service Status | Further Meaning | Status Code | Behavior |
|---|---|---|---|
| Success | Success | 0000 | The Verification SCU AE judges the remote AE is present and active on the network. |

The behavior of Verification SCU AE during communication failure is summarized in the table below:

**Table 4.2-53**
**STORAGE COMMUNICATION FAILURE BEHAVIOR**

| Exception | Behavior |
|---|---|
| Timeout | The Association is aborted and the remote AE is marked as failed. The reason is logged and the remote AE failure is reported to the user via the network status application. |
| Association aborted by the SCP or network layers | The Association is aborted and the remote AE is marked as failed. The reason is logged and the remote AE failure is reported to the user via the network status application. |

## 4.3 NETWORK INTERFACES

### 4.3.1 Physical Network Interface

This Product supports a single network interface. One of the following physical network interfaces will be available depending on installed hardware options:

**Table 4.3-1**
**SUPPORTED PHYSICAL NETWORK INTERFACES**

| |
|---|
| Ethernet 100baseT |
| Ethernet 10baseT |

### 4.3.2 Additional Protocols

None

## 4.4 CONFIGURATION

### 4.4.1 AE Title/Presentation Address Mapping

#### 4.4.1.1 Local AE Titles

The AE Title and port number that all local applications use are configured using the Utility menu by the user. IP address isconfigured using the Service Tool by the Field Service Engineer.

**Table 4.4-1**
**AE TITLE CONFIGURATION TABLE**

| Application Entity | Default AE Title | Default TCP/IP Port |
|---|---|---|
| Storage SCU | MGU-1000D | 105 |
| MWM SCU | | |
| MPPS SCU | | |
| Print SCU | | |
| Verification SCU | | |

#### 4.4.1.2 Remote AE Title / Presentation Address Mapping

The AE Titles and port numbers of remote applications are configured using the Utility menu by the user.

### 4.4.2 Parameters

A large number of parameters related to acquisition and general operation can be configured using the Service Tool. The table below only shows those configuration parameters relevant to DICOM communication. See the Product's Service Manual for details on general configuration capabilities.

**Table 4.4-2**
**CONFIGURATION PARAMETERS TABLE**

| Parameter | Configurable (Yes/No) [Range] | Default Value |
|---|---|---|
| **General Parameters** | | |
| Time-out waiting for a acceptance or rejection response to an Association Request (Application Level Timeout) | No | 15 s |
| Time-out waiting for a response to an Association release request (Application Level Timeout) | No | 15 s |
| Time-out waiting for completion of a TCP/IP connect request (Low-level timeout) | No | 15 s |
| Time-out waiting for data between TCP/IP-packets (Low Level Timeout) | No | 15 s |
| **Storage SCU Parameters** | | |
| Maximum number of simultaneously initiated Associations by the Storage SCU AE | No | 1 |
| Supported Transfer Syntaxes (separately configurable for each remote AE) | No | Explicit VR Little Endian |
| Storage SCU time-out waiting for a response to a C-STORE-RQ | No | 30 s |
| Number of times a failed send job may be retried | No | No limited |
| Delay between retrying failed send jobs | No | 60 s |
| **Modality Worklist SCU Parameters** | | |
| Maximum number of simultaneously initiated Associations by the MWM SCU AE | No | 1 |
| Supported Transfer Syntaxes for MWM | No | Explicit VR Little Endian |
| Modality Worklist SCU time-out waiting for the final response to a C-FIND-RQ | No | 300 s |
| Maximum number of Worklist Items | No | 40 |
| Query Worklist for specific Scheduled Station AE Title | Yes [max. 16 characters] | MGU1000D |
| Query Worklist for specific Modality Value | No | MG |
| **MPPS SCU Parameters** | | |
| Maximum number of simultaneously initiated Associations by the MPPS SCU AE | No | 1 |
| Supported Transfer Syntaxes for MPPS | No | Explicit VR Little Endian |
| MPPS SCU time-out waiting for a response to a N-CREATE-RQ | No | 30 s |
| MPPS SCU time-out waiting for a response to a N-SET-RQ | No | 30 s |
| Cycle time to retry when failure | No | 5 s |
| Maximum number of retrying when failure | No | 3 |
| **Print SCU Parameters** | | |
| Maximum number of simultaneously initiated Associations by the Print SCU AE | No | 1 |
| Supported Transfer Syntaxes for Print | No | Explicit VR Little Endian |
| Print SCU time-out waiting for a response to a N-CREATE-RQ | No | 30 s |
| Print SCU time-out waiting for a response to a N-DELETE-RQ | No | 30 s |

| Parameter | Configurable (Yes/No) [Range] | Default Value |
|---|---|---|
| Print SCU time-out waiting for a response to a N-SET-RQ | No | 30 s |
| Print SCU time-out waiting for a response to a N-ACTION-RQ | No | 30 s |
| **Verification Parameters** | | |
| Cycle time of verification | YES<br>[1 to 1440 min] | 1 min |

# 5. MEDIA INTERCHANGE

## 5.1 IMPLEMENTATION MODEL

### 5.1.1 Application Data Flow

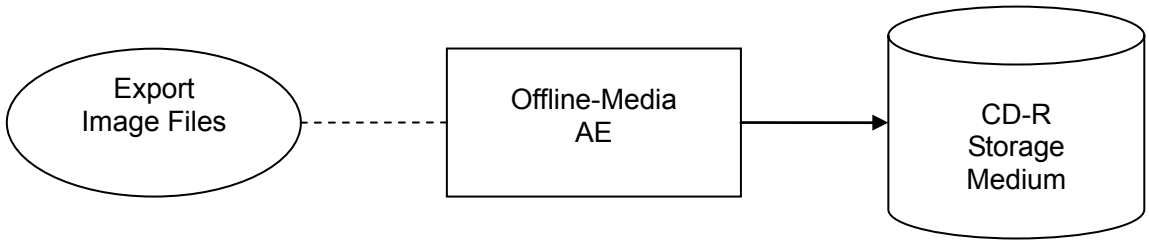


**Figure 5.1-1**
**APPLICATION DATA FLOW DIAGRAM FOR MEDIA STORAGE**

— The Offline-Media AE exports image files to a CD-R Storage medium. It is associated with the local real-world activity “Export Image Files” performed upon user request.

### 5.1.2 Functional Definition of AE

#### 5.1.2.1 Functional Definition of Offline-Media AE

The Offline-Media AE is performed upon user request for the selected study to an offline DICOM CD-R medium. It therefore performs the following tasks.

Export:

— Builds DICOM Information Objects.
— Creates a DICOMDIR file that represents the contents of the DICOM Information Objects to be recorded.
— Records DICOM Information Objects and the DICOMDIR file to the CD-R medium.

### 5.1.3 Sequencing of Real-World Activities

#### 5.1.3.1 Activity – Export Image Files

Operator requests to create new Files-set(s) onto a new CD-R. The requests are executed in the foreground.

The operations for “Export Image Files” are described below:

Step-1: Select the CD-R output application.

Step-2: Select one study on the local storage device to be created to the CD-R medium.

Step-3: Insert the CD media in the device.

Step-4: Request to copy to the CD-R.

### 5.1.4 File Meta Information for Implementation Class and Version

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

**Table 5.1-1**
**DICOM IMPLEMENTATION CLASS AND VERSION FOR MEDIA STORAGE**

| | |
|---|---|
| File Meta Information Version | 1 |
| Implementation Class UID | 1.2.392.200036.9116.39.1.1 |
| Implementation Version Name | MGU1000D_V200 |

## 5.2 AE SPECIFICATIONS

### 5.2.1 Offline-Media AE Specification

The Offline-Media AE provides standard conformance to the DICOM Interchange Option of the Media Storage Service Class. The Application Profiles and roles are listed below:

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

| Application Profiles Supported | Real World Activity | Role | SC Option |
|---|---|---|---|
| STD-GEN-CD | Export Image Files | FSC | Interchange |

#### 5.2.1.1 File Meta Information for the Application Entity

The Source Application Entity Tile included in the File Meta Inform Header is below:

**Table 5.2-2**
**FILE META INFORMATION FOR OFFLINE-MEDIA**

| Application Entity | Default AE Title |
|---|---|
| Offline-Media | MGU1000D_MEDIA |

#### 5.2.1.2 Real-World Activities

##### 5.2.1.2.1 Activity – Export Image Files

The Offline-Media AE acts as an FSC using the interchange option when requested to export SOP Instances from the local database to a CD-R medium.

###### 5.2.1.2.1.1 Media Storage Application Profiles

The Offline-Media AE supports the STD-GEN-CD Application Profile.

#### 5.2.1.2.1.2 Options

The Offline-Media AE supports the SOP Classes and Transfer Syntaxes listed in the table below for the STD-GEN-CD Application Profile as an FSC.

**Table 5.2-3**
**IODS, SOP CLASSES AND TRANSFER SYNTAXES FOR OFFLINE-MEDIA**

| Information Object Definition | SOP Class UID | Transfer Syntax | Transfer Syntax UID |
|---|---|---|---|
| Media Storage Directory Storage | 1.2.840.10008.1.3.10 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 |
| Digital Mammography Image Storage – For Presentation | 1.2.840.10008.5.1.4.1.1.1.2 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 |

## 5.3 AUGMENTED AND PRIVATE APPLICATION PROFILES

### 5.3.1 Augmented Application Profiles

Not applicable to this product

### 5.3.2 Private Application Profiles

Not applicable to this product

## 5.4 MEDIA CONFIGURATION

Not applicable to this product

# 6. SUPPORT OF CHARACTER SETS

This product supports the following character sets:

- ISO-IR 6 (default) ISO646
- ISO-IR 87 (Japanese) JIS X 0208 (Kanji)

Character set ISO-IR 87 can be set to the tags listed in the Table below;

**Table 6-1**
**Tag lists for ISO-IR 87**

| Attribute Name | Tag | VR |
|---|---|---|
| Patient's Name | (0010,0010) | PN |
| Patient Comments | (0010,4000) | LT |
| Image Comments | (0020,4000) | LT |
| Performed Physician's Name | (0008,1050) | PN |
| Operator's Name | (0008,1070) | PN |
| Institution Name | (0008,0080) | LO |
| Institution Address | (0008,0081) | ST |

# 7. SECURITY

This product does not support any specific security measures.

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

a. Firewall or router protections to ensure that only approved external hosts have network access to the product.

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

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.

# 8. ANNEXES

## 8.1 IOD CONTENTS

### 8.1.1 Created SOP Instances

Table 8.1-1 specifies the attributes of a Digital Mammography Image transmitted by the Storage SCU AE.

The following tables use a number of abbreviations. The abbreviations used in the “Presence of …” column are:

| | |
|---|---|
| VNAP | Value Not Always Present (attribute sent zero length if no value is present) |
| ANAP | Attribute Not Always Present |
| ALWAYS | Always Present |
| EMPTY | Attribute is sent without a value |

The abbreviations used in the “Source” column:

| | |
|---|---|
| MWL | the attribute value source is from Modality Worklist |
| USER | the attribute value source is from User input |
| AUTO | the attribute value is generated automatically |
| CONFIG | the attribute value source is a configurable parameter |

### 8.1.1.1 Digital Mammography Image IOD

**Table 8.1-1**
**IOD OF CREATED DIGITAL MAMMOGRAPHY IMAGE SOP INSTANCES**

| IE | Module | Reference | Presence of Module | Usage |
|---|---|---|---|---|
| Patient | Patient | Table 8.1-2 | ALWAYS | M |
| Study | General Study | Table 8.1-3 | ALWAYS | M |
| | Patient Study | Table 8.1-4 | ALWAYS | U |
| Series | General Series | Table 8.1-5 | ALWAYS | M |
| | DX Series | Table 8.1-18 | ALWAYS | M |
| | Mammography Series | Table 8.1-23 | ALWAYS | M |
| Equipment | General Equipment | Table 8.1-6 | ALWAYS | M |
| Image | General Image | Table 8.1-7 | ALWAYS | M |
| | Image Pixel | Table 8.1-8 | ALWAYS | M |
| | Display Shutter | Table 8.1-9 | ALWAYS | U |
| | DX Anatomy Imaged | Table 8.1-19 | ALWAYS | M |
| | DX Image | Table 8.1-20 | ALWAYS | M |
| | DX Detector | Table 8.1-21 | ALWAYS | M |
| | X-Ray Collimator | Table 8.1-10 | ALWAYS | U |
| | DX Positioning | Table 8.1-22 | ALWAYS | U |
| | X-Ray Acquisition Dose | Table 8.1-11 | ANAP | U |
| | X-Ray Generation | Table 8.1-12 | ALWAYS | U |
| | X-Ray Filtration | Table 8.1-13 | ALWAYS | U |
| | X-Ray Grid | Table 8.1-14 | ALWAYS | U |
| | Mammography Image | Table 8.1-24 | ALWAYS | M |
| | VOI LUT | Table 8.1-15 | ALWAYS | M |
| | Acquisition Context | Table 8.1-16 | ALWAYS | M |
| | SOP Common | Table 8.1-17 | ALWAYS | M |
| | Private Application | Table 8.1-25 | ALWAYS | U |

### 8.1.1.2 Common Modules

**Table 8.1-2**
**PATIENT MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Patient's Name | (0010,0010) | PN | From Modality Worklist or user input. Maximum 31 characters.<br>Ex.)"TOSHIBA^TARO==" | VNAP | MWL/ USER |
| Patient ID | (0010,0020) | LO | From Modality Worklist or user input. Maximum 15 characters.<br>Ex.) "00000001" | VNAP | MWL/ USER |
| Patient's Birth Date | (0010,0030) | DA | Ex.) "20040103" | VNAP | MWL/ USER |
| Patient's Sex | (0010,0040) | CS | Ex.) "M" | VNAP | MWL/ USER |
| Other Patient IDs | (0010,1000) | LO | | EMPTY | AUTO |
| Other Patient Names | (0010,1001) | PN | | EMPTY | AUTO |
| Ethnic Group | (0010,2160) | SH | | EMPTY | AUTO |
| Patient Comments | (0010,4000) | LT | Comments of patient. | ANAP | MWL/ USER |

**Table 8.1-3**
**GENERAL STUDY MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Study Instance UID | (0020,000D) | UI | Ex.)"1.2.392.200036.9116.1.1.1.1.120 05634.20040401105559 " | ALWAYS | MWL/ AUTO |
| Study Date | (0008,0020) | DA | Ex.) "20040402" | VNAP | AUTO |
| Study Time | (0008,0030) | TM | Ex.) "105620" | VNAP | AUTO |
| Referring Physician's Name | (0008,0090) | PN | | EMPTY | AUTO |
| Study ID | (0020,0010) | SH | Ex.) "10" | VNAP | AUTO |
| Accession Number | (0008,0050) | SH | From Modality Worklist or user input. Maximum 16 characters.<br>Ex.) "123456" | VNAP | MWL/ USER |

**Table 8.1-4**
**PATIENT STUDY MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Patient Age | (0010,1010) | AS | | VNAP | AUTO |
| Patient's Size | (0010,1020) | DS | | EMPTY | AUTO |
| Patient's Weight | (0010,1030) | DS | | VNAP | MWL |

**Table 8.1-5**
**GENERAL SERIES MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Modality | (0008,0060) | CS | “MG” | ALWAYS | AUTO |
| Series Instance UID | (0020,000E) | UI | Ex.)"1.2.392.200036.9116.1.1.1.1.120 05634.20040401105559.1 " | ALWAYS | AUTO |
| Series Number | (0020,0011) | IS | Ex.) “1 ” | VNAP | AUTO |
| Laterality | (0020,0060) | CS | “L “ or “R “ | ALWAYS | USER |
| Series Date | (0008,0021) | DA | Ex.) “20040402” | ALWAYS | AUTO |
| Series Time | (0008,0031) | TM | Ex.) “105620“ | ALWAYS | AUTO |
| Protocol Name | (0018,1030) | LO | | VNAP | NWL/AU TO |
| Series Description | (0008,103E) | LO | | VNAP | NWL/US ER |
| Operators’ Name | (0008,1070) | PN | | ALWAYS | USER |
| Body Part Examined | (0018,0015) | CS | “BREAST” | ALWAYS | AUTO |
| Performed Procedure Step ID | (0040,0253) | SH | | VNAP | MWL |
| Performed Procedure Step Start Date | (0040,0244) | DA | Ex.) “20040402” | ALWAYS | AUTO |
| Performed Procedure Step Start Time | (0040,0245) | TM | Ex.) “105620“ | ALWAYS | AUTO |

**Table 8.1-6**
**GENERAL EQUIPMENT MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Manufacturer | (0008,0070) | LO | “TMM “ | ALWAYS | AUTO |
| Institution Name | (0008,0080) | LO | Ex.) “TOSHIBA HOSP” | VNAP | CONFIG |
| Institution Address | (0008,0081) | ST | | VNAP | CONFIG |
| Station Name | (0008,1010) | SH | Ex.) “MGU-1000D ” | ANAP | CONFIG |
| Manufacturer’s Model Name | (0008,1090) | LO | “MGU-1000D ” | VNAP | AUTO |
| Device Serial Number | (0018,1000) | LO | Ex.) “A0123456” | ALWAYS | AUTO |
| Software Version | (0018,1020) | LO | Ex.) “V1.00JR000” | ALWAYS | AUTO |
| Date of Last Calibration | (0018,1200) | DA | | VNAP | AUTO |
| Time of Last Calibration | (0018,1201) | TM | | VNAP | AUTO |
| Pixel Padding Value | (0028,0120) | SS | | VNAP | AUTO |

**Table 8.1-7**
**GENERAL IMAGE MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Instance Number | (0020,0013) | IS | Ex.) “1 ” | ALWAYS | AUTO |
| Content Date | (0008,0023) | DA | Ex.) “20040402” | VNAP | AUTO |
| Content Time | (0008,0033) | TM | Ex.) “105620“ | ALWAYS | AUTO |
| Acquisition Date | (0008,0022) | DA | Ex.) “20040402” | ALWAYS | AUTO |
| Acquisition Time | (0008,0032) | TM | Ex.) “105620 “ | ALWAYS | AUTO |
| Image Comments | (0020,4000) | LT | | VNAP | USER |
| Quality Control Image | (0028,0300) | CS | | VNAP | AUTO |
| Burned In Annotation | (0028,0301) | CS | “NO” | ALWAYS | AUTO |
| Referenced Image Sequence | (0008,1140) | SQ | | ANAP | AUTO |
| > Referenced SOP Class UID | (0008,1150) | UI | | ANAP | AUTO |
| > Referenced SOP Instance UID | (0008,1155) | UI | | ANAP | AUTO |
| Source Image Sequence | (0008,2112) | SQ | | ANAP | AUTO |
| > Referenced SOP Class UID | (0008,1150) | UI | | ANAP | AUTO |
| > Referenced SOP Instance UID | (0008,1155) | UI | | ANAP | AUTO |
| > Spatial Locations Preserved | (0028,135A) | CS | | ANAP | AUTO |

**Table 8.1-8**
**IMAGE PIXEL MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Samples per Pixel | (0028,0002) | US | 1 | ALWAYS | AUTO |
| Photometric Interpretation | (0028,0004) | CS | “MONOCHROME2 ”<br>or “MONOCHROME1” | ALWAYS | AUTO |
| Rows | (0028,0010) | US | 2816 or 600 | ALWAYS | AUTO |
| Columns | (0028,0011) | US | 2016 or 600 | ALWAYS | AUTO |
| Pixel Aspect Ratio | (0028,0034) | IS | “1\1” | ALWAYS | AUTO |
| Bits Allocated | (0028,0100) | US | 16 | ALWAYS | AUTO |
| Bits Stored | (0028,0101) | US | 12, 13 or 14 for Storage, 14 for CD-R | ALWAYS | USER |
| High Bit | (0028,0102) | US | 11, 12 or 13 for Storage, 13 for CD-R | ALWAYS | USER |
| Pixel Representation | (0028,0103) | US | 0 | ALWAYS | AUTO |
| Pixel Data | (7FE0,0010) | OW | | ALWAYS | AUTO |

**Table 8.1-9**
**DISPLAY SHUTTER MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Shutter Shape | (0018,1600) | CS | “RECTANGULAR ” | ALWAYS | AUTO |
| Shutter Left Vertical Edge | (0018,1602) | IS | | ALWAYS | AUTO |
| Shutter Right Vertical Edge | (0018,1604) | IS | | ALWAYS | AUTO |
| Shutter Upper Horizontal Edge | (0018,1606) | IS | | ALWAYS | AUTO |
| Shutter Lower Horizontal Edge | (0018,1608) | IS | | ALWAYS | AUTO |

**Table 8.1-10**
**X-RAY COLLIMATOR MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Collimator Shape | (0018,1700) | CS | “RECTANGULAR ” | ALWAYS | AUTO |
| Collimator Left Vertical Edge | (0018,1702) | IS | | ALWAYS | AUTO |
| Collimator Right Vertical Edge | (0018,1704) | IS | | ALWAYS | AUTO |
| Collimator Upper Horizontal Edge | (0018,1706) | IS | | ALWAYS | AUTO |
| Collimator Lower Horizontal Edge | (0018,1708) | IS | | ALWAYS | AUTO |

**Table 8.1-11**
**X-RAY ACQUISITION DOSE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Relative X-Ray Exposure | (0018,1405) | IS | | ANAP | AUTO |
| Entrance Dose in mGy | (0040,8302) | DS | | ANAP | AUTO |
| Distance Source to Entrance | (0040,0306) | DS | | ANAP | AUTO |
| Organ Dose | (0040,0316) | DS | | ANAP | AUTO |

**Table 8.1-12**
**X-RAY GENERATION OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| KVP | (0018,0060) | DS | | ALWAYS | AUTO |
| X-Ray Tube Current | (0018,1151) | IS | | ALWAYS | AUTO |
| Exposure Time | (0018,1150) | IS | | ALWAYS | AUTO |
| Exposure | (0018,1152) | IS | | ALWAYS | AUTO |
| Exposure in µAs | (0018,1153) | IS | | ALWAYS | AUTO |
| Exposure Control Mode | (0018,7060) | CS | | ALWAYS | AUTO |
| Exposure Status | (0018,7064) | CS | | ALWAYS | AUTO |
| Focal Spot(s) | (0018,1190) | DS | | ALWAYS | AUTO |
| Anode Target Material | (0018,1191) | CS | | ALWAYS | AUTO |

**Table 8.1-13**
**X-RAY FILTRATION MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Filter Type | (0018,1160) | SH | “STRIP ” | ALWAYS | AUTO |
| Filter Material | (0018,7050) | CS | | ALWAYS | AUTO |

**Table 8.1-14**
**X-RAY GRID MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Grid | (0018,1166) | CS | “RECIPROCATING\FOCUSED” | ALWAYS | AUTO |

**Table 8.1-15**
**VOI LUT MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Window Center | (0028,1050) | DS | Ex.) 4096\4096 | ALWAYS | USER |
| Window Width | (0028,1051) | DS | Ex.) 8192\8192 | ALWAYS | USER |
| Window Center & Width Explanation | (0028,1055) | LO | “CURRENT\STANDARD” or “STANDARD" | ALWAYS | AUTO |

**Table 8.1-16**
**ACQUISITION CONTEXT MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Acquisition Context Sequence | (0040,0555) | SQ | | EMPTY | AUTO |

**Table 8.1-17**
**SOP COMMON MODULE OF CREATED SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| SOP Class UID | (0008,0016) | UI | Ex.)”1.2.840.10008.5.1.4.1.1.1 ” | ALWAYS | CONFIG |
| SOP Instance UID | (0008,0018) | UI | Ex.) "1.2.392.200036.9116.1.1.1.1.1200563 4.20040401105559 " | ALWAYS | AUTO |
| Specific Character Set | (0008,0005) | CS | “\ISO 2022 IR 87” | ALWAYS | AUTO |

### 8.1.1.3 DX Image Modules

**Table 8.1-18**
**DX SERIES MODULE OF CREATED DIGITAL DX IMAGE SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Presentation Intent Type | (0008,0068) | CS | “FOR PRESENTATION” or “FOR PROCESSING” | ALWAYS | AUTO |

**Table 8.1-19**
**DX ANATOMY IMAGED MODULE OF CREATED DX IMAGE SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Anatomic Region Sequence | (0008,2218) | SQ | | ALWAYS | AUTO |
| >Code Value | (0008,0100) | SH | “T-04000” | ALWAYS | AUTO |
| >Coding Scheme Designator | (0008,0102) | SH | “SNM3” | ALWAYS | AUTO |
| >Code Meaning | (0008,0104) | LO | “Breast” | ALWAYS | AUTO |

**Table 8.1-20**
**DX IMAGE MODULE OF CREATED DX IMAGE SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Image Type | (0008,0008) | CS | Ex.) “DERIVED\SECONDARY” | ALWAYS | AUTO |
| Pixel Intensity Relationship | (0028,1040) | CS | “LOG “ or “LIN “ | ALWAYS | AUTO |
| Pixel Intensity Relationship Sign | (0028,1041) | SS | -1 or 1 | ALWAYS | AUTO |
| Rescale Intercept | (0028,1052) | DS | “0 “ | ALWAYS | AUTO |
| Rescale Slope | (0028,1053) | DS | “1 “ | ALWAYS | AUTO |
| Rescale Type | (0028,1054) | LO | “US” | ALWAYS | AUTO |
| Presentation LUT Shape | (2050,0020) | CS | “IDENTITY” or “INVERSE” | ALWAYS | AUTO |
| Lossy Image Compression | (0028,2110) | CS | “00” | ALWAYS | AUTO |
| Acquisition Device Processing | (0018,1400) | LO | | EMPTY | AUTO |
| Acquisition Device Processing Code | (0018,1401) | LO | | VNAP | USER |
| Patient Orientation | (0020,0020) | CS | Ex.) “A\R” | ALWAYS | AUTO |

**Table 8.1-21**
**DX DETECTOR MODULE OF CREATED DX IMAGE SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Detector Type | (0018,7004) | CS | “DIRECT” | ALWAYS | AUTO |
| Detector ID | (0018,700A) | SH | | ALWAYS | AUTO |
| Date of Last Detector Calibration | (0018,700C) | DA | | ALWAYS | AUTO |
| Time of Last Detector Calibration | (0018,700E) | TM | | ALWAYS | AUTO |
| Filed of View Shape | (0018,1147) | CS | “RECTANGLE” | ALWAYS | AUTO |
| Filed of View Dimension(s) | (0018,1149) | IS | | ALWAYS | AUTO |
| Imager Pixel Spacing | (0018,1164) | DS | | ALWAYS | AUTO |
| Pixel Spacing | (0028,0030) | DS | | ALWAYS | AUTO |

**Table 8.1-22**
**DX POSITIONING MODULE OF CREATED DX IMAGE SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| View Position | (0018,5101) | CS | Ex.) “CC” | ALWAYS | AUTO |
| Estimated Radiographic Magnification Factor | (0018,1114) | DS | | ALWAYS | AUTO |
| Detector Primary Angle | (0018,1530) | DS | | ALWAYS | AUTO |
| Body Part Thickness | (0018,11A0) | DS | | ANAP | AUTO |
| Compression Force | (0018,11A2) | DS | | ALWAYS | AUTO |

### 8.1.1.4 Digital Mammography Image Modules

**Table 8.1-23**
**MAMMOGRAPHY SERIES MODULE OF CREATED DIGITAL MAMMOGRAPHY IMAGE SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Modality | (0008,0060) | CS | “MG” | ALWAYS | AUTO |

**Table 8.1-24**
**MAMMOGRAPHY IMAGE MODULE OF CREATED DIGITAL MAMMOGRAPHY IMAGE SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Positioner Type | (0018,1508) | CS | “MAMMOGRAPHIC” | ALWAYS | AUTO |
| Distance Source to Detector | (0018,1110) | DS | | ALWAYS | AUTO |
| Distance Source to Patient | (0018,1111) | DS | | ALWAYS | AUTO |
| Positioner Primary Angle | (0018,1510) | DS | | ALWAYS | AUTO |
| Image Laterality | (0020,0062) | CS | “L “ or “R “ | ALWAYS | AUTO |
| Organ Exposed | (0040,0318) | CS | “BREAST” | ALWAYS | AUTO |
| Partial View | (0028,1350) | CS | | ALWAYS | AUTO |
| View Code Sequence | (0054,0220) | SQ | | ALWAYS | AUTO |
| > Code Value | (0008,0100) | SH | Ex.) “R-10242” | ALWAYS | AUTO |
| > Coding Scheme Designator | (0008,0102) | SH | “SNM3” | ALWAYS | AUTO |
| > Code Meaning | (0008,0104) | LO | Ex.) “cranio-caudal” | ALWAYS | AUTO |
| > View Modifier Code Sequence | (0054,0222) | SQ | | VNAP | AUTO |
| >> Code Value | (0008,0100) | SH | Ex.) “R-102D6” | ANAP | AUTO |
| >> Coding Scheme Designator | (0008,0102) | SH | “SNM3” | ANAP | AUTO |
| >> Code Meaning | (0008,0104) | LO | Ex.) “Magnification” | ANAP | AUTO |

### 8.1.1.5 Private Application

**Table 8.1-25**
**PRIVATE APPLICATION OF CREATED DIGITAL MAMMOGRAPHY IMAGE SOP INSTANCES**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Private Creator | (7099,00xx) | LO | “TOSHIBA_MEC_MG3” | ANAP | AUTO |
| Image Header Information | (7099,xx80) | OW | (Black Box) | ANAP | AUTO |
| Scan Part | (7099,xx81) | OW | (Black Box) | ANAP | AUTO |
| Output Information | (7099,xx82) | OW | (Black Box) | ANAP | AUTO |
| Preset X-Ray Information | (7099,xx83) | OW | (Black Box) | ANAP | AUTO |
| Preset Focus Information | (7099,xx84) | OW | (Black Box) | ANAP | AUTO |
| Standard Auto Window Parameter | (7099,xx85) | OW | (Black Box) | ANAP | AUTO |
| Standard DCF Parameter | (7099,xx86) | OW | (Black Box) | ANAP | AUTO |
| Standard f-proc Parameter | (7099,xx87) | OW | (Black Box) | ANAP | AUTO |
| Standard Window Parameter | (7099,xx88) | OW | (Black Box) | ANAP | AUTO |
| Preset Image Information | (7099,xx89) | OW | (Black Box) | ANAP | AUTO |
| Preset Original Image Information | (7099,xx8A) | OW | (Black Box) | ANAP | AUTO |
| Preset Bed Information | (7099,xx8B) | OW | (Black Box) | ANAP | AUTO |
| Actual X-Ray of Exposure | (7099,xx8C) | OW | (Black Box) | ANAP | AUTO |
| Actual X-Ray of Pre Exposure | (7099,xx8D) | OW | (Black Box) | ANAP | AUTO |
| FPD Information | (7099,xx8E) | OW | (Black Box) | ANAP | AUTO |
| Current Auto Window Parameter | (7099,xx8F) | OW | (Black Box) | ANAP | AUTO |
| Current DCF Parameter | (7099,xx90) | OW | (Black Box) | ANAP | AUTO |
| Current f-proc Parameter | (7099,xx91) | OW | (Black Box) | ANAP | AUTO |
| Current Image Information | (7099,xx92) | OW | (Black Box) | ANAP | AUTO |
| Current Original Image Information | (7099,xx93) | OW | (Black Box) | ANAP | AUTO |
| Actual Dose Information | (7099,xx94) | OW | (Black Box) | ANAP | AUTO |
| Actual Pre Exposure Information | (7099,xx95) | OW | (Black Box) | ANAP | AUTO |
| Image Edit History | (7099,xx96) | OW | (Black Box) | ANAP | AUTO |
| Biopsy information | (7099,xx97) | OW | (Black Box) | ANAP | AUTO |
| Actual Bed Information | (7099,xx98) | OW | (Black Box) | ANAP | AUTO |

### 8.1.2 Usage of Attributes from received IOD's

No SOP Class specific fields are required.

### 8.1.3 Attribute Mapping

The relationships between attributes received via Modality Worklist, stored in acquired images and communicated via MPPS are summarized in Table 8.1-26.

**Table 8.1-26**
**ATTRIBUTE MAPPING BETWEEN MODALITY WORKLIST, IMAGE AND MPPS**

| Modality Worklist | Image IOD | MPPS IOD |
|---|---|---|
| Study Instance UID | Study Instance UID | >Study Instance UID |
| Accession Number | Accession Number | >Accession Number |
| Requested Procedure ID | -- | >Requested Procedure ID |
| Requested Procedure Code Sequence | Protocol Name | >Protocol Name |
| Requested Procedure Description | -- | >Requested Procedure Description |
| > Scheduled Procedure Step ID | -- | >Scheduled Procedure Step ID |
| > Scheduled Procedure Step Description | Series Description | >Scheduled Procedure Step Description |
| > Scheduled Protocol Code Sequence | -- | Performed Protocol Code Sequence |
| > Scheduled Procedure Step ID | -- | Performed Procedure Step ID |
| -- | Performed Procedure Step Start Date | Performed Procedure Step Start Date |
| -- | Performed Procedure Step Start Time | Performed Procedure Step Start Time |
| Patient Name | Patient Name | Patient Name |
| Patient's ID | Patient's ID | Patient's ID |
| Patient's Birth Date | Patient's Birth Date | Patient's Birth Date |
| Patient's Sex | Patient's Sex | Patient's Sex |
| Patient's Weight | Patient's Weight | -- |
| Patient Comments | Patient Comments | -- |
| -- | Operator's Name | Operator's Name |

This table shows only typical data sets.

Other data sets are also set as default settings.
All map settings, including the default setting data sets, can be customized.

### 8.1.4 COERCED/MODIFIED FIELDS

Not applicable to this product.

## 8.2 DATA DICTIONARY OF PRIVATE ATTRIBUTES

The Private Attributes added to created SOP Instances are listed in the Table below. This product reserves blocks of private attributes in groups 7099.

**Table 8.2-1**
**DATA DICTIONARY OF PRIVATE ATTRIBUTE**

| Tag | Attribute Name | VR | VM |
|---|---|---|---|
| (7099,00xx) | Private Creator | LO | 1 |
| (7099,xx00) | Radiation Status Sequence | SQ | 1 |
| (7099,xx02) | > Miss Shot Status | CS | 1 |
| (7099,xx03) | > Re-exposure Status | CS | 1 |
| (7099,xx04) | > Order Status | CS | 1 |
| (7099,xx05) | > Entrance Skin Exposure in mGy | DS | 1 |
| (7099,xx06) | > Average Glandular Dose in mGy | DS | 1 |
| (7099,xx80) | Image Header Information | OW | 1 |
| (7099,xx81) | Scan Part | OW | 1 |
| (7099,xx82) | Output Information | OW | 1 |
| (7099,xx83) | Preset X-Ray Information | OW | 1 |
| (7099,xx84) | Preset Focus Information | OW | 1 |
| (7099,xx85) | Standard Auto Window Parameter | OW | 1 |
| (7099,xx86) | Standard DCF Parameter | OW | 1 |
| (7099,xx87) | Standard f-proc Parameter | OW | 1 |
| (7099,xx88) | Standard Window Parameter | OW | 1 |
| (7099,xx89) | Preset Image Information | OW | 1 |
| (7099,xx8A) | Preset Original Image Information | OW | 1 |
| (7099,xx8B) | Bed Information | OW | 1 |
| (7099,xx8C) | Actual X-Ray of Exposure | OW | 1 |
| (7099,xx8D) | Actual X-Ray of Pre Exposure | OW | 1 |
| (7099,xx8E) | FPD Information | OW | 1 |
| (7099,xx8F) | Current Auto Window Parameter | OW | 1 |
| (7099,xx90) | Current DCF Parameter | OW | 1 |
| (7099,xx91) | Current f-proc Parameter | OW | 1 |
| (7099,xx92) | Current Image Information | OW | 1 |
| (7099,xx93) | Current Original Image Information | OW | 1 |
| (7099,xx94) | Actual Dose Information | OW | 1 |
| (7099,xx95) | Actual Pre Exposure Information | OW | 1 |
| (7099,xx96) | Image Edit History | OW | 1 |

## 8.3 CODED TERMINOLOGY AND TEMPLATES

The Workflow AE is capable of supporting arbitrary coding schemes for Protocol Codes. The contents of Requested Procedure Code Sequence (0032,1064) and Scheduled Protocol Code Sequence (0040,0008) supplied in Worklist Items will be mapped to Image IOD and MPPS attributes as described in Table 8.1-26. During installation, a service technician will establish a mapping between the site-specific codes and the protocol Name and the acquisition protocols. Table 8.3-1 and Table 8.3-2 provide the default mapping.

**Table 8.3-1**
**DEFAULT MAPPING OF PROTOCOL NAME**

| Code value of Requested Procedure Code Sequence | Protocol Name (Study type) |
|---|---|
| MAWF0001 | Normal |
| MAWF0002 | |
| MAWF0003 | |
| MAWF0004 | |
| MAWF0005 | |
| MAWF0006 | |
| MAWF0007 | |
| MAWF0008 | |
| MAWF0009 | |
| MAWF0010 | |
| MAWF0011 | |
| MAWF0012 | |
| MAWF0013 | Biopsy-Left |
| MAWF0015 | |
| MAWF0014 | Biopsy-Right |
| MAWF0016 | |
| MAWF0017 | Specimen |
| MAWF0018 | |

**Table 8.3-2**
**DEFAULT MAPPING OF PROTOCOL CODE**

| Code Value of Scheduled Protocol Code Sequence | Acquisition Protocols | | |
|---|---|---|---|
| | Technique | Laterality of Breast | View Position |
| 1000000781L03000 | Contact | Left | CC |
| 1000000781L03100 | | | MLO |
| 1000000781L00700 | | | ML |
| 1000000781L02600 | | | ISO |
| 1000000781L02300 | | | FB |
| 1000000781L03200 | | | LMO |
| 1000000781L00800 | | | LM |
| 1000000781L02800 | | | SIO |
| 1000000781R03000 | | Right | CC |
| 1000000781R03100 | | | MLO |
| 1000000781R00700 | | | ML |
| 1000000781R02600 | | | ISO |
| 1000000781R02300 | | | FB |
| 1000000781R03200 | | | LMO |
| 1000000781R00800 | | | LM |
| 1000000781R02800 | | | SIO |
| 1000000781L03026 | Magnification | Left | CC |
| 1000000781L03126 | | | MLO |
| 1000000781L00726 | | | ML |
| 1000000781L02626 | | | ISO |
| 1000000781L02326 | | | FB |
| 1000000781L03226 | | | LMO |
| 1000000781L00826 | | | LM |
| 1000000781L02826 | | | SIO |
| 1000000781R03026 | | Right | CC |
| 1000000781R03126 | | | MLO |
| 1000000781R00726 | | | ML |
| 1000000781R02626 | | | ISO |
| 1000000781R02326 | | | FB |
| 1000000781R03226 | | | LMO |
| 1000000781R00826 | | | LM |
| 1000000781R02826 | | | SIO |

## 8.4 GRAYSCALE IMAGE CONSISTENCY

Not applicable to this product.

## 8.5 STANDARD EXTENDED/SPECIALIZED/PRIVATE SOP CLASSES

Not applicable to this product.

## 8.6 PRIVATE TRANSFER SYNTAXES

Not Applicable to this product.