No. 2G985-006EN

TOSHIBA

# DICOM CONFORMANCE STATEMENT

# FOR

# DIAGNOSTIC ULTRASOUND SYSTEM

Viamo™

## MODEL SSA-640A V5.0

TOSHIBA MEDICAL SYSTEMS CORPORATION

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English: "http://www.toshibamedicalsystems.com/tmd/english/dicom/index.html"
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# 1. CONFORMANCE STATEMENT OVERVIEW

Table 1-1 provides an overview of the network services supported by *Viamo*$^{TM}$.

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

| SOP Classes | User of Service (SCU) | Provider of Service (SCP) |
|---|---|---|
| **Transfer** | | |
| Secondary Capture Image Storage | Yes | No |
| Ultrasound Image Storage | Yes | No |
| Ultrasound Multi-frame Image Storage | Yes | No |
| Basic Text SR Storage | Yes | No |
| Enhanced SR Storage | Yes | No |
| Comprehensive SR Storage | Yes | No |
| **Storage Commitment** | | |
| Storage Commitment Push Model | Yes | No |
| **Workflow Management** | | |
| Modality Worklist Information Model – Find | Yes | No |
| Modality Performed Procedure Step | Yes | No |
| **Print Management** | | |
| Basic Grayscale Print Management | Yes | No |
| Basic Color Print Management | Yes | No |

Table 1-2 provides an overview of the Media Storage Application Profiles supported by *Viamo*$^{TM}$.

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

| Media Storage Application Profile | Write Files (FSC) | Read Files (FSR) |
|---|---|---|
| **USB Media** | | |
| General Purpose USB Media | Yes | No |

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# 2. TABLE OF CONTENTS

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# 3. INTRODUCTION

## 3.1 REVISION HISTORY

**Table 3.1-1**
**REVISION HISTORY**

| Document Version | Date of Issue | Author | Description |
|---|---|---|---|
| | August 2015 | TMSC | Initial Version |

## 3.2 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.

## 3.3 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 Systems 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 Systems and non-Toshiba Medical Systems 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 Systems is actively involved in developing the standard further and therefore reserves the right to make changes to its products or to discontinue its delivery.

## 3.4 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
**ASCE** Association Control Service Element
**DIMSE** DICOM Message Service Element
**FSC** File-Set Creator
**FSR** File-Set Reader
**FSU** File-Set Updater
**IE** Information Entity
**IOD** Information Object Definition
**ISO** International Standard Organization
**MPPS** Modality Performed Procedure Step
**MWM** Modality Worklist Management
**PDU** Protocol Data Unit
**SCU** Service Class User (DICOM client)
**SCP** Service Class Provider (DICOM server)

**SOP** Service-Object Pair
**UID** Unique Identifier

## 3.5 REFERENCES

NEMA PS3 Digital Imaging and Communications in Medicine (DICOM) Standard, available free at http://medical.nema.org/

# 4. NETWORKING

## 4.1 IMPLEMENTATION MODEL

### 4.1.1 Application Data Flow

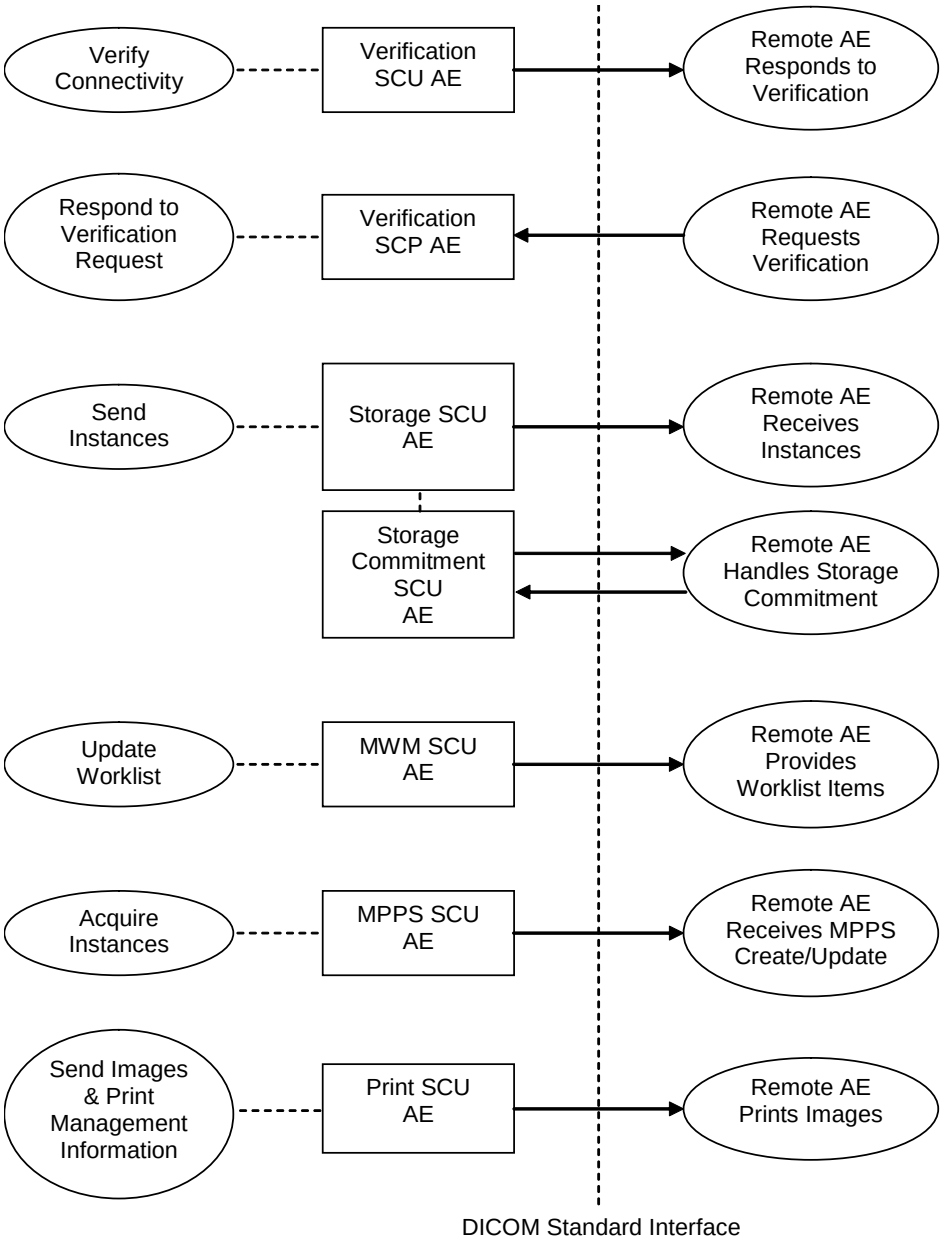



**Figure 4.1-1**
**APPLICATION DATA FLOW DIAGRAM**

— 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 performed via the Service Tool.

— The Verification SCP AE responds successfully to C-ECHO requests from known AE Titles. It is associated with the local real-world activity "Respond to Verification Request".

— The Storage SCU AE sends instances to a remote AE. It is associated with the local real-world activity "Send Instances". "Send Instances" is performed upon user request for specific instances selected. If the remote AE is configured as a Storage Commitment SCP AE, the Storage SCU AE will send a storage commitment request to the Storage Commitment SCU AE.

— 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 Instances". When the "Acquire Instances" is performed the MPPS SCU AE creates and updates Modality Performed Procedure Step instances managed by a remote AE. Acquisition of instances 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 a virtual film sheet composed from images selected by the user.

### 4.1.2 Functional Definition of AEs

#### 4.1.2.1 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 via the Service Tool.

#### 4.1.2.2 Functional Definition of Verification SCP AE

The Verification SCP AE responds successfully to C-ECHO requests from known AE Titles.

#### 4.1.2.3 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. If the remote AE is configured as a Storage Commitment SCP AE, the Storage SCU AE will request Storage Commitment to the Storage Commitment SCU AE.

#### 4.1.2.4 Functional Definition of Storage Commitment SCU AE

The Storage Commitment SCU AE will request Storage Commitment and if a commitment is successfully obtained will record this information in the local database.

#### 4.1.2.5 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.

#### 4.1.2.6 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.

### 4.1.2.7 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 sheet described within the print-job will be printed. If the printer is not operating normally, this print-job can be canceled or restarted by the user operations.

## 4.1.3 Sequencing of Real-World Activities

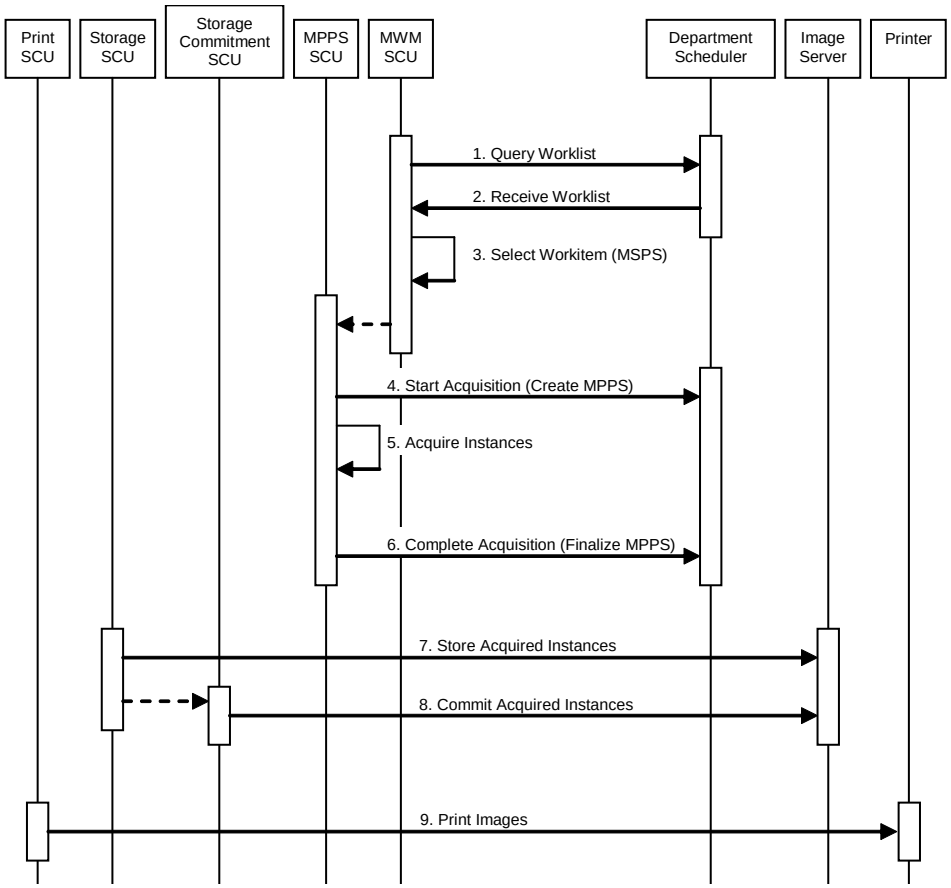



**Figure 4.1-2**
**SEQUENCING CONSTRAINTS**

## 4.2 AE SPECIFICATIONS

### 4.2.1 Verification SCU AE Specification

#### 4.2.1.1 SOP Classes

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

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

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

#### 4.2.1.2 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 VERIFICATION SCU AE**

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

##### 4.2.1.2.2 Number of Associations

The Verification SCU AE initiates one association at a time.

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

| | |
|---|---|
| Maximum number of simultaneous associations | 1 |

##### 4.2.1.2.3 Asynchronous Nature

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

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

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

##### 4.2.1.2.4 Implementation Identifying Information

The implementation information for the Verification SCU AE is:

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

| | |
|---|---|
| Implementation Class UID | 1.2.392.200036.9116.6.17.1000.1 |
| Implementation Version Name | TM_VIAMO_3.0 |

### 4.2.1.3 Association Initiation Policy

#### 4.2.1.3.1 Activity – Verify Connectivity

##### 4.2.1.3.1.1 Description and Sequencing of Activities

The Verification SCU AE attempts to initiate a new association in order to issue a verification request (C-ECHO) if needed.

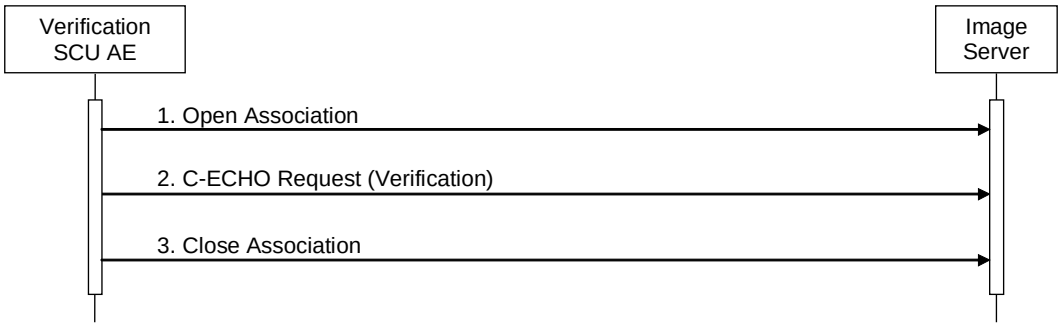



**Figure 4.2-1**
**SEQUENCING OF ACTIVITY – VERIFY CONNECTIVITY**

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

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

##### 4.2.1.3.1.2 Proposed Presentation Contexts

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

**Table 4.2-6**
**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 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |

#### 4.2.1.3.1.3 SOP Specific Conformance for Verification SOP Class

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 4.2-7**
**VERIFICATION 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 4.2-8**
**VERIFICATION COMMUNICATION FAILURE BEHAVIOR**

| Exception | Behavior |
|---|---|
| Timeout | The association is aborted and the failure reason is logged and reported to the user. |
| Association aborted by the SCP or network layers | The failure reason is logged and reported to the user. |

## 4.2.2 Verification SCP AE Specification

### 4.2.2.1 SOP Classes

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

**Table 4.2-9**
**SOP CLASSES FOR THE VERIFICATION SCP AE**

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

### 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 4.2-10**
**DICOM APPLICATION CONTEXT FOR THE VERIFICATION SCP AE**

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

#### 4.2.2.2.2 Number of Associations

**Table 4.2-11**
**NUMBER OF ASSOCIATIONS ACCEPTED FOR THE VERIFICATION SCP AE**

| | |
|---|---|
| Maximum number of simultaneous associations | Unlimited |

#### 4.2.2.2.3 Asynchronous Nature

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

**Table 4.2-12**
**ASYNCHRONOUS NATURE FOR THE VERIFICATION SCP AE**

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

#### 4.2.2.2.4 Implementation Identifying Information

The implementation information for the Verification SCP AE is:

**Table 4.2-13**
**DICOM IMPLEMENTATION CLASS AND VERSION FOR THE VERIFICATION SCP AE**

| | |
|---|---|
| Implementation Class UID | 1.2.392.200036.9116.6.17.1000.1 |
| Implementation Version Name | TM_VIAMO_3.0 |

#### 4.2.2.3 Association Initiation Policy

The Verification SCP AE does not initiate associations.

#### 4.2.2.4 Association Acceptance Policy

##### 4.2.2.4.1 Activity – Respond to Verification Request

###### 4.2.2.4.1.1 Description and Sequencing of Activities

When the Verification SCP AE accepts an association, it will respond to a verification request (C-ECHO).

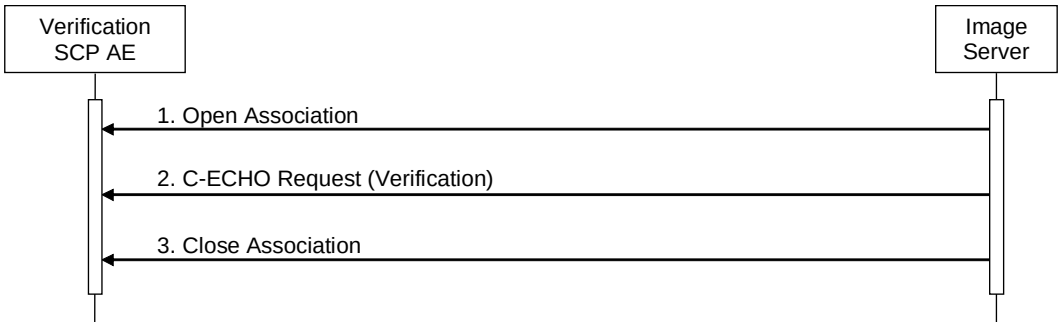



**Figure 4.2-2**
**SEQUENCING OF ACTIVITY – RESPOND TO VERIFICATION REQUEST**

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

1. The Image Server opens an association with the Verification SCP AE.
2. The Image Server issues a verification request (C-ECHO) and the Verification SCP AE replies with a C-ECHO response (status success).
3. The Image Server closes the association with the Verification SCP AE.

The Verification SCP AE may reject association attempts as shown in the table below. The Result, Source and Reason/Diag columns represent the values returned in the appropriate fields of an ASSOCIATE-RJ PDU (see PS 3.8, Section 9.3.4). The contents of the Source column is abbreviated to save space and the meaning of the abbreviations are:

**Table 4.2-14**
**ASSOCIATION REJECTION REASONS**

| Result | Source | Reason/Diag | Explanation |
|---|---|---|---|
| 1 – rejected-permanent | DICOM UL service-user | 3 – calling-AE-title-not-recognized | The association request contained an unrecognized calling AE Title. An association request with the same parameters will not succeed at a later time unless configuration changes are made. This rejection reason normally occurs when the association acceptor has not been configured to recognize the AE Title of the association initiator. |
| 1 – rejected-permanent | DICOM UL service-provider (ASCE related function) | 1 – no-reason-given | The association request could not be parsed. An association request with the same format will not succeed at a later time. |

#### 4.2.2.4.1.2 Accepted Presentation Contexts

The default behavior of the Verification SCP AE supports the Implicit VR Little Endian and Explicit VR Little Endian transfer syntaxes. If the both transfer syntaxes are proposed per presentation context then the Verification SCP AE will select Explicit VR Little Endian transfer syntax.

**Table 4.2-15**
**PROPOSED PRESENTATION CONTEXTS FOR ACTIVITY RESPOND TO VERIFICATION REQUEST**

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

#### 4.2.2.4.1.3 SOP Specific Conformance for Verification SOP Class

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

## 4.2.3 Storage SCU AE Specification

### 4.2.3.1 SOP Classes

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

**Table 4.2-16**
**SOP CLASSES FOR THE STORAGE SCU AE**

| SOP Class Name | SOP Class UID | SCU | SCP |
|---|---|---|---|
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 | Yes | No |
| Ultrasound Image Storage | 1.2.840.10008.5.1.4.1.1.6.1 | | |
| Ultrasound Multi-frame Image Storage | 1.2.840.10008.5.1.4.1.1.3.1 | | |
| Basic Text SR Storage | 1.2.840.10008.5.1.4.1.1.88.11 | | |
| Enhanced SR Storage | 1.2.840.10008.5.1.4.1.1.88.22 | | |
| Comprehensive SR Storage | 1.2.840.10008.5.1.4.1.1.88.33 | | |

### 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 4.2-17**
**DICOM APPLICATION CONTEXT FOR THE STORAGE SCU AE**

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

#### 4.2.3.2.2 Number of Associations

The Storage SCU AE initiates one association at a time for a transfer request.

**Table 4.2-18**
**NUMBER OF ASSOCIATIONS INITIATED FOR THE STORAGE SCU AE**

| | |
|---|---|
| Maximum number of simultaneous associations | 1 |

#### 4.2.3.2.3 Asynchronous Nature

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

**Table 4.2-19**
**ASYNCHRONOUS NATURE FOR THE STORAGE SCU AE**

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

#### 4.2.3.2.4 Implementation Identifying Information

The implementation information for the Storage SCU AE is:

**Table 4.2-20**
**DICOM IMPLEMENTATION CLASS AND VERSION FOR THE STORAGE SCU AE**

| | |
|---|---|
| Implementation Class UID | 1.2.392.200036.9116.6.17.1000.1 |
| Implementation Version Name | TM_VIAMO_3.0 |

### 4.2.3.3 Association Initiation Policy

#### 4.2.3.3.1 Activity – Send Images

##### 4.2.3.3.1.1 Description and Sequencing of Activities

The Storage SCU AE attempts to initiate a new association in order to issue a storage request (C-STORE). If the image transfer fails, the Storage SCU AE will retry this send-job automatically.

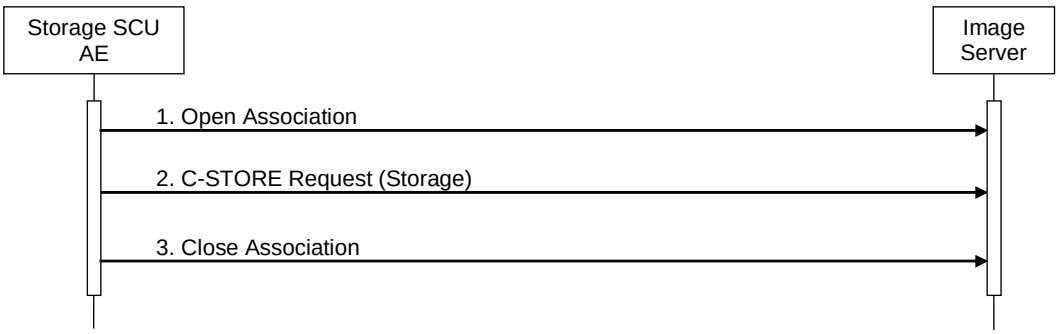



**Figure 4.2-3**
**SEQUENCING OF ACTIVITY – SEND IMAGES**

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.

#### 4.2.3.3.1.2 Proposed Presentation Contexts

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

**Table 4.2-21**
**Proposed Presentation Contexts for Activity Send Images**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | **Role** | **Ext. Neg.** |
| **Name** | **UID** | **Name List** | **UID List** | | |
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |
| | | JPEG Baseline (Process 1) | 1.2.840.10008.1.2.4.50 | | |
| Ultrasound Image Storage | 1.2.840.10008.5.1.4.1.1.6.1 | Implicit VR Little Endian | 1.2.840.10008.1.2 | | |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |
| | | JPEG Baseline (Process 1) | 1.2.840.10008.1.2.4.50 | | |
| Ultrasound Multi-frame Image Storage | 1.2.840.10008.5.1.4.1.1.3.1 | Implicit VR Little Endian | 1.2.840.10008.1.2 | | |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |
| | | JPEG Baseline (Process 1) | 1.2.840.10008.1.2.4.50 | | |
| Basic Text SR Storage | 1.2.840.10008.5.1.4.1.1.88.11 | Implicit VR Little Endian | 1.2.840.10008.1.2 | | |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |
| Enhanced SR Storage | 1.2.840.10008.5.1.4.1.1.88.22 | Implicit VR Little Endian | 1.2.840.10008.1.2 | | |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |
| Comprehensive SR Storage | 1.2.840.10008.5.1.4.1.1.88.33 | Implicit VR Little Endian | 1.2.840.10008.1.2 | | |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |

#### 4.2.3.3.1.3 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 4.2-22**
**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 | A7xx | 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 | A9xx | |
| Error | Cannot Understand | Cxxx | |
| Warning | Coercion of Data Elements | B000 | |
| Warning | Data Set does not match SOP Class | B007 | |
| Warning | Elements Discarded | B006 | |
| * | * | Any other status code | |

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

**Table 4.2-23**
**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 number of retries is configurable.

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.

## 4.2.4 Storage Commitment SCU AE Specification

### 4.2.4.1 SOP Classes

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

**Table 4.2-24**
**SOP CLASSES FOR THE STORAGE COMMITMENT SCU AE**

| SOP Class Name | SOP Class UID | SCU | SCP |
|---|---|---|---|
| Storage Commitment Push Model | 1.2.840.10008.1.20.1 | 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 4.2-25**
**DICOM APPLICATION CONTEXT FOR THE STORAGE COMMITMENT SCU AE**

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

#### 4.2.4.2.2 Number of Associations

The Storage Commitment SCU AE initiates one association at a time.

**Table 4.2-26**
**NUMBER OF ASSOCIATIONS INITIATED FOR THE STORAGE COMMITMENT SCU AE**

| | |
|---|---|
| Maximum number of simultaneous associations | 1 |

The Storage Commitment SCU AE accepts one association to receive N-EVENT-REPORT notification for the Storage Commitment Push Model SOP Class.

**Table 4.2-27**
**NUMBER OF ASSOCIATIONS ACCEPTED FOR THE STORAGE COMMITMENT SCU AE**

| | |
|---|---|
| Maximum number of simultaneous associations | 1 |

#### 4.2.4.2.3 Asynchronous Nature

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

**Table 4.2-28**
**ASYNCHRONOUS NATURE FOR THE STORAGE COMMITMENT SCU AE**

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

#### 4.2.4.2.4 Implementation Identifying Information

The implementation information for the Storage Commitment SCU AE is:

**Table 4.2-29**
**DICOM IMPLEMENTATION CLASS AND VERSION FOR THE STORAGE COMMITMENT SCU AE**

| | |
|---|---|
| Implementation Class UID | 1.2.392.200036.9116.6.17.1000.1 |
| Implementation Version Name | TM_VIAMO_3.0 |

### 4.2.4.3 Association Initiation Policy

#### 4.2.4.3.1 Activity – Commit Sent Images

##### 4.2.4.3.1.1 Description and Sequencing of Activities

If the remote AE is configured as a Storage Commitment SCP AE, the Storage Commitment SCU AE will, after all images have been sent, transmit a single storage commitment request (N-ACTION). Upon receiving the N-ACTION response the Storage Commitment SCU AE will release the association. The notification of storage commitment (N-EVENT-REPORT) will be received over a separate association.

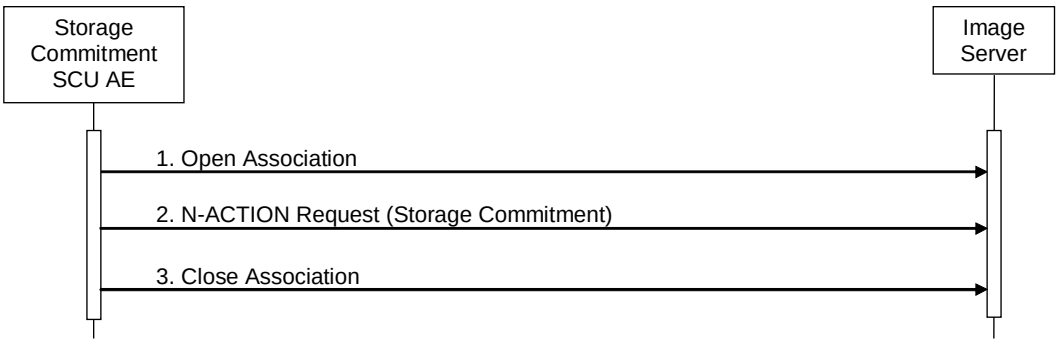



**Figure 4.2-4**
**SEQUENCING OF ACTIVITY – COMMIT SENT IMAGES**

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

1. The Storage Commitment SCU AE opens an association with the Image Server.
2. A storage commitment request (N-ACTION) is transmitted to the Image Server to obtain storage commitment of previously transmitted images. The Image Server replies with an N-ACTION response indicating the request has been received and is being processed.
3. The Storage Commitment SCU AE closes the association with the Image Server.

Note: The N-EVENT-REPORT will be sent over a separate association initiated by the Image Server. (See Section 4.2.4.4.1)

##### 4.2.4.3.1.2 Proposed Presentation Contexts

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

**Table 4.2-30**
**PROPOSED PRESENTATION CONTEXTS FOR ACTIVITY COMMIT SENT IMAGES**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | **Role** | **Ext. Neg.** |
| **Name** | **UID** | **Name List** | **UID List** | | |
| Storage Commitment Push Model | 1.2.840.10008.1.20.1 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |

A Presentation Context for the Storage Commitment Push Model will only be proposed if the remote AE is configured as a Storage Commitment SCP AE.

#### 4.2.4.3.1.3 SOP Specific Conformance for Storage Commitment SOP Class

##### 4.2.4.3.1.3.1 Storage Commitment Operations (N-ACTION)

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

The Storage Commitment SCU AE will request storage commitment for instances of the Storage SOP Classes if the remote AE is configured as a Storage Commitment SCP AE and a presentation context for the Storage Commitment Push Model has been accepted.

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

**Table 4.2-31**
**STORAGE COMMITMENT N-ACTION RESPONSE STATUS HANDLING BEHAVIOR**

| Service Status | Further Meaning | Status Code | Behavior |
|---|---|---|---|
| Success | Success | 0000 | The request for storage commitment is considered successfully sent. A timer is started which will expire if no N-EVENT-REPORT for the Transaction UID is received within a configurable timeout period. |
| * | * | Any other status code | The association is aborted and the request for storage commitment is marked as failed. |

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

**Table 4.2-32**
**STORAGE COMMITMENT 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. |

### 4.2.4.4 Association Acceptance Policy

#### 4.2.4.4.1 Activity – Receive Storage Commitment Response

##### 4.2.4.4.1.1 Description and Sequencing of Activities

The Storage Commitment SCU AE will accept associations in order to receive responses to a storage commitment request.

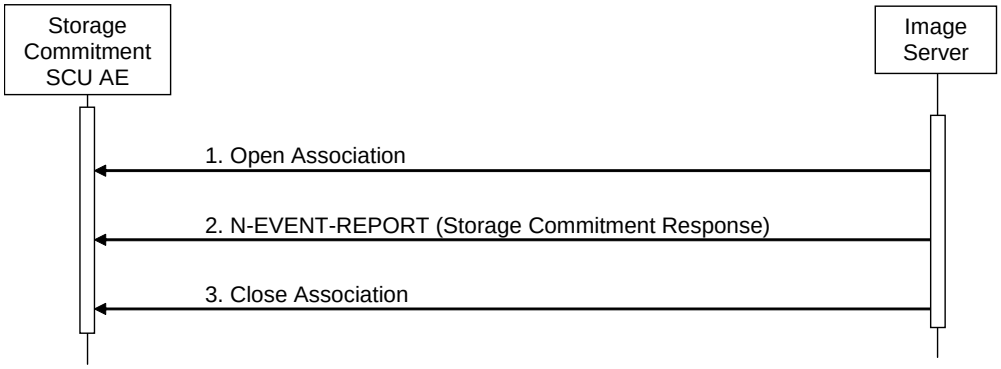



**Figure 4.2-5**
**SEQUENCING OF ACTIVITY - RECEIVE STORAGE COMMITMENT RESPONSE**

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

1. The Image Server opens an association with the Storage Commitment SCU AE.
2. The Image Server sends an N-EVENT-REPORT request notifying the Storage SCU AE of the status of a previous storage commitment request. The Storage SCU AE replies with an N-EVENT-REPORT response confirming receipt.
3. The Image Server closes the association with the Storage Commitment SCU AE.

The Storage Commitment SCU AE may reject association attempts as shown in the Table 4.2-14.

#### 4.2.4.4.1.2 Accepted Presentation Contexts

The Storage Commitment SCU AE will accept Presentation Contexts shown in the table below.

**Table 4.2-33**
**ACCEPTABLE PRESENTATION CONTEXTS FOR**
**ACTIVITY RECEIVE STORAGE COMMITMENT RESPONSE**

| Presentation Context Table | | | | | |
|---|---|---|---|---|---|
| **Abstract Syntax** | | **Transfer Syntax** | | **Role** | **Ext. Neg.** |
| **Name** | **UID** | **Name List** | **UID List** | | |
| Storage Commitment Push Model | 1.2.840.10008.1.20.1 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |

#### 4.2.4.4.1.3 SOP Specific Conformance for Storage Commitment SOP Class

##### 4.2.4.4.1.3.1 Storage Commitment Notifications (N-EVENT-REPORT)

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

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

**Table 4.2-34**
**STORAGE COMMITMENT N-EVENT-REPORT BEHAVIOUR**

| Event Type Name | Event Type ID | Behavior |
|---|---|---|
| Storage Commitment Request Successful | 1 | The Storage Commitment SCU AE permits the operator(s) to delete the Referenced SOP Instances under Referenced SOP Sequence (0018,1199). |
| Storage Commitment Request Complete – Failures Exist | 2 | The Storage Commitment SCU AE requests the Storage SCU AE to send the Referenced SOP Instances under Failed SOP Sequence (0018,1198). |

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

**Table 4.2-35**
**STORAGE COMMITMENT N-EVENT-REPORT RESPONSE STATUS REASONS**

| Service Status | Further Meaning | Status Code | Reasons |
|---|---|---|---|
| Success | Success | 0000 | The storage commitment result has been successfully received. |
| Failure | Processing Failure | 0110H | An internal error occurred during processing of the N-EVENT-REPORT. A short description of the error will be returned in Error Comment (0000,0902). |

## 4.2.5 MWM SCU AE Specification

### 4.2.5.1 SOP Classes

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

**Table 4.2-36**
**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 |

### 4.2.5.2 Association Policies

#### 4.2.5.2.1 General

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

**Table 4.2-37**
**DICOM APPLICATION CONTEXT FOR THE MWM SCU AE**

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

#### 4.2.5.2.2 Number of Associations

The MWM SCU AE initiates one association at a time for a worklist request.

**Table 4.2-38**
**NUMBER OF ASSOCIATIONS INITIATED FOR THE MWM SCU AE**

| | |
|---|---|
| Maximum number of simultaneous associations | 1 |

#### 4.2.5.2.3 Asynchronous Nature

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

**Table 4.2-39**
**ASYNCHRONOUS NATURE FOR THE MWM SCU AE**

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

#### 4.2.5.2.4 Implementation Identifying Information

The implementation information for this Application Entity is:

**Table 4.2-40**
**DICOM IMPLEMENTATION CLASS AND VERSION FOR THE MWM SCU AE**

| | |
|---|---|
| Implementation Class UID | 1.2.392.200036.9116.6.17.1000.1 |
| Implementation Version Name | TM_VIAMO_3.0 |

### 4.2.5.3 Association Initiation Policy

#### 4.2.5.3.1 Activity – Update Worklist

##### 4.2.5.3.1.1 Description and Sequencing of Activities

The request for an "Update Worklist" is initiated by user interaction, i.e. pressing the buttons "Get Worklist" 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.

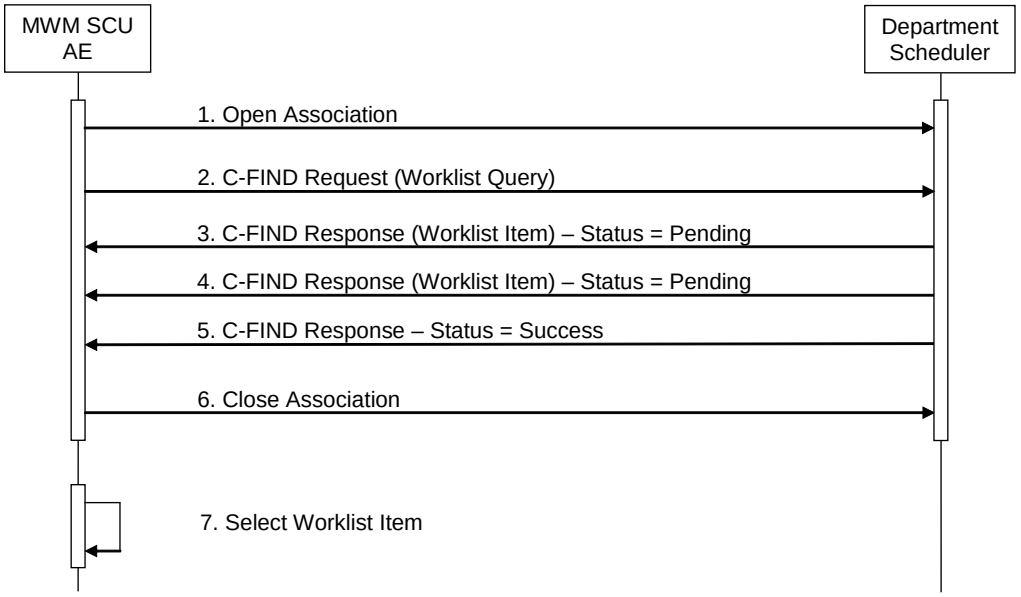



**Figure 4.2-6**
**SEQUENCING OF ACTIVITY – UPDATE WORKLIST**

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 instances.

#### 4.2.5.3.1.2 Proposed Presentation Contexts

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

**Table 4.2-41**
**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 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCP | None |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |

#### 4.2.5.3.1.3 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, was summarized in the table below.

**Table 4.2-42**
**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. |
| * | * | Any other status code | The association is aborted using A-ABORT and the status meaning is logged. |

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

**Table 4.2-43**
**MODALITY WORKLIST COMMUNICATION FAILURE BEHAVIOR**

| Exception | Behavior |
|---|---|
| Timeout | The association is aborted using A-ABORT and the reason is logged. |
| Unsupported character sets | |
| Association aborted by the SCP or network layers | The reason is logged. |

Acquired instances 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 instances. Unexpected attributes returned in a C-FIND response are ignored.

**Table 4.2-44**
**WORKLIST REQUEST IDENTIFIER**

| Module Name<br>Attribute Name | Tag | VR | M | R | D | IOD |
|---|---|---|---|---|---|---|
| **SOP Common** | | | | | | |
| Specific Character Set | (0008,0005) | CS | | | | |
| **Scheduled Procedure Step** | | | | | | |
| Scheduled Procedure Step Sequence | (0040,0100) | SQ | | | | |
| >Scheduled Station AE Title | (0040,0001) | AE | S | x | x | |
| >Scheduled Procedure Step Start Date | (0040,0002) | DA | S, R | | x | |
| >Scheduled Procedure Step Start Time | (0040,0003) | TM | | x | x | |
| >Modality | (0008,0060) | CS | S | x | x | |
| >Scheduled Performing Physician's Name | (0040,0006) | PN | | x | x | |
| >Scheduled Procedure Step Description | (0040,0007) | LO | | x | x | x |
| >Scheduled Protocol Code Sequence | (0040,0008) | SQ | | | | x |
| >>Code Value | (0008,0100) | SH | | x | x | x |
| >>Coding Scheme Designator | (0008,0102) | SH | | x | x | x |
| >>Coding Scheme Version | (0008,0103) | SH | | x | x | x |
| >>Code Meaning | (0008,0104) | LO | | x | x | x |
| >Scheduled Procedure Step ID | (0040,0009) | SH | | x | x | x |
| **Requested Procedure** | | | | | | |
| Requested Procedure ID | (0040,1001) | SH | S | x | x | x |
| Requested Procedure Description | (0032,1060) | LO | | x | x | x |
| Requested Procedure Code Sequence | (0032,1064) | SQ | | | | |
| >Code Value | (0008,0100) | SH | | x | x | |
| >Coding Scheme Designator | (0008,0102) | SH | | x | x | |
| >Coding Scheme Version | (0008,0103) | SH | | x | x | |
| >Code Meaning | (0008,0104) | LO | | x | x | |
| Study Instance UID | (0020,000D) | UI | | x | | x |
| **Imaging Service Request** | | | | | | |
| Accession Number | (0008,0050) | SH | S | x | x | x |
| Requesting Physician | (0032,1032) | PN | | x | x | |
| Referring Physician's Name | (0008,0090) | PN | | x | x | x |
| **Patient Identification** | | | | | | |
| Patient's Name | (0010,0010) | PN | W | | x | x |
| Patient ID | (0010,0020) | LO | S | x | x | x |
| **Patient Demographic** | | | | | | |
| Patient's Birth Date | (0010,0030) | DA | | x | x | x |
| Patient's Sex | (0010,0040) | CS | | x | x | x |
| Patient's Weight | (0010,1030) | DS | | x | x | x |
| Patient's Size | (0010,1020) | DS | | x | x | x |
| Patient's Age | (0010,1010) | AS | | x | x | x |
| Patient Comments | (0010,4000) | LT | | x | x | x |

| Module Name<br>Attribute Name | Tag | VR | M | R | D | IOD |
|---|---|---|---|---|---|---|
| **Patient Medical** | | | | | | |
| Patient State | (0038,0500) | LO | | x | x | |
| Pregnancy Status | (0010,21C0) | US | | x | x | |
| Medical Alerts | (0010,2000) | LO | | x | x | |
| Allergies | (0010,2110) | LO | | x | x | |
| Special Needs | (0038,0050) | LO | | x | x | |
| Last Menstrual Date | (0010,21D0) | DA | | x | x | 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.
S: Single Value Matching
R: Range Matching
W: Wild Card 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 registration. For example, Patient Name will be displayed when registering 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 matching keys are "Modality" (US), "Date" (date of today) and "Scheduled Station AE Title" (MWM AE Title).

### 4.2.5.4 Association Acceptance Policy

The MWM SCU AE does not accept associations.

## 4.2.6 MPPS SCU AE Specification

### 4.2.6.1 SOP Classes

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

**Table 4.2-45**
**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 |

### 4.2.6.2 Association Policies

#### 4.2.6.2.1 General

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

**Table 4.2-46**
**DICOM APPLICATION CONTEXT FOR THE MPPS SCU AE**

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

#### 4.2.6.2.2 Number of Associations

The MPPS SCU AE initiates one association at a time.

**Table 4.2-47**
**NUMBER OF ASSOCIATIONS INITIATED FOR THE MPPS SCU AE**

| | |
|---|---|
| Maximum number of simultaneous associations | 1 |

#### 4.2.6.2.3 Asynchronous Nature

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

**Table 4.2-48**
**ASYNCHRONOUS NATURE FOR THE MPPS SCU AE**

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

#### 4.2.6.2.4 Implementation Identifying Information

The implementation information for this Application Entity is:

**Table 4.2-49**
**DICOM IMPLEMENTATION CLASS AND VERSION FOR THE MPPS SCU AE**

| | |
|---|---|
| Implementation Class UID | 1.2.392.200036.9116.6.17.1000.1 |
| Implementation Version Name | TM_VIAMO_3.0 |

### 4.2.6.3 Association Initiation Policy

#### 4.2.6.3.1 Activity – Acquire Instances

##### 4.2.6.3.1.1 Description and Sequencing of Activities

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.

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.

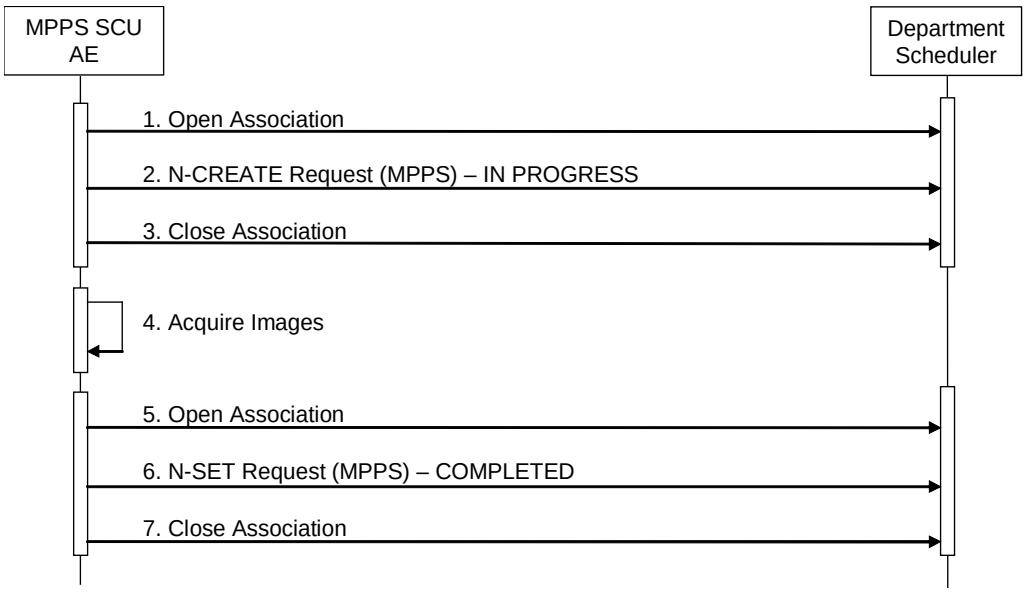



**Figure 4.2-7**
**SEQUENCING OF ACTIVITY – ACQUIRE INSTANCES**

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. The MPPS SCU AE opens an association with the Department Scheduler
2. 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).
3. The MPPS SCU AE closes the association with the Department Scheduler.
4. All instances are acquired and stored in the local database.
5. The MPPS SCU AE opens an association with the Department Scheduler.
6. 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).
7. The MPPS SCU AE closes the association with the Department Scheduler.

#### 4.2.6.3.1.2 Proposed Presentation Contexts

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

**Table 4.2-50**
**PROPOSED PRESENTATION CONTEXTS FOR REAL-WORLD ACTIVITY ACQUIRE INSTANCES**

| 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 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCP | None |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |

#### 4.2.6.3.1.3 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 MPPS SCU AE, when encountering status codes in an MPPS N-CREATE or N–SET response, was summarized in the table below.

**Table 4.2-51**
**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. |
| * | * | Any other status code | The association is aborted and the MPPS is marked as failed. The status meaning is logged and reported to the user. |

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

**Table 4.2-52**
**MPPS COMMUNICATION FAILURE BEHAVIOR**

| Exception | Behavior |
|---|---|
| Timeout | The association is aborted and 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 4.2-53**
**MPPS N-CREATE / N-SET REQUEST IDENTIFIER**

| Attribute Name | Tag | VR | N-CREATE | N-SET |
|---|---|---|---|---|
| Specific Character Set | (0008,0005) | CS | ISO_IR 100 | ISO_IR 100 |
| **Performed Procedure Step Relationship** | | | | |
| Scheduled Step Attributes Sequence | (0040,0270) | SQ | Always set | |
| >Study Instance UID | (0020,000D) | UI | From Modality Worklist | |
| >Referenced Study Sequence | (0008,1110) | SQ | Zero length | |
| >Accession Number | (0008,0050) | SH | From Modality Worklist | |
| >Requested Procedure ID | (0040,1001) | SH | From Modality Worklist | |
| >Requested Procedure Description | (0032,1060) | LO | From Modality Worklist | |
| >Scheduled Procedure Step ID | (0040,0009) | SH | From Modality Worklist | |
| >Scheduled Procedure Step Description | (0040,0007) | LO | From Modality Worklist | |
| >Scheduled Protocol Code Sequence | (0040,0008) | SQ | Zero length | |
| Patient's Name | (0010,0010) | PN | From Modality Worklist or user input | |
| Patient ID | (0010,0020) | LO | From Modality Worklist or user input | |
| Patient's Birth Date | (0010,0030) | DA | From Modality Worklist or user input | |
| Patient's Sex | (0010,0040) | CS | From Modality Worklist or user input | |
| Referenced Patient Sequence | (0008,1120) | SQ | Zero length | |
| **Performed Procedure Step Information** | | | | |
| Performed Procedure Step ID | (0040,0253) | SH | x | |
| Performed Station AE Title | (0040,0241) | AE | MPPS AE Title | |
| Performed Station Name | (0040,0242) | SH | Viamo | |
| 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 Status | (0040,0252) | CS | IN PROGRESS | COMPLETED or DISCONTINUED |
| Performed Procedure Step Description | (0040,0254) | LO | x | x |
| Performed Procedure Type Description | (0040,0255) | LO | Zero length | |
| Procedure Code Sequence | (0008,1032) | SQ | Zero length | Zero or more items |
| Performed Procedure Step End Date | (0040,0250) | DA | Zero length | Actual end date |
| Performed Procedure Step End Time | (0040,0251) | TM | Zero length | Actual end time |
| **Image Acquisition Results** | | | | |
| Modality | (0008,0060) | CS | US | |
| Study ID | (0020,0010) | SH | x | |
| Performed Protocol Code Sequence | (0040,0260) | SQ | Zero or mote items | Zero or mote items |
| Performed Series Sequence | (0040,0340) | SQ | One or more items | One or more items |
| >Performing Physician's Name | (0008,1050) | PN | From Modality Worklist or user input | x |

| Attribute Name | Tag | VR | N-CREATE | N-SET |
|---|---|---|---|---|
| >Protocol Name | (0018,1030) | LO | x | x |
| >Operator's Name | (0008,1070) | PN | Zero length | Zero length |
| >Series Instance UID | (0020,000E) | UI | x | x |
| >Series Description | (0008,103E) | LO | Zero length | Zero length |
| >Retrieve AE Title | (0008,0054) | AE | Zero length | Zero length |
| >Referenced Image Sequence | (0008,1140) | SQ | Zero length | Zero or more items |
| >>Referenced SOP Class UID | (0008,1150) | UI | | x |
| >>Referenced SOP Instance UID | (0008,1155) | UI | | x |
| >Referenced Non-Image Composite SOP Instance Sequence | (0040,0220) | SQ | Zero length | Zero or more items |
| >>Referenced SOP Class UID | (0008,1150) | UI | | x |
| >>Referenced SOP Instance UID | (0008,1155) | UI | | x |

Note: Specific Character Set of MPPS N-SET is based on PS 3.4, 2013.

#### 4.2.6.4 Association Acceptance Policy

The MPPS SCU AE does not accept associations.

## 4.2.7 Print SCU AE Specification

### 4.2.7.1 SOP Classes

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

**Table 4.2-54**
**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 |
| Basic Color Print Management Meta | 1.2.840.10008.5.1.1.18 | Yes | No |

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

**Table 4.2-55**
**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 |
| Basic Color Image Box SOP Class | 1.2.840.10008.5.1.1.4.1 | Yes | No |
| Printer SOP Class | 1.2.840.10008.5.1.1.16 | Yes | No |

### 4.2.7.2 Association Policies

#### 4.2.7.2.1 General

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

**Table 4.2-56**
**DICOM APPLICATION CONTEXT FOR THE PRINT SCU AE**

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

#### 4.2.7.2.2 Number of Associations

The Print SCU AE initiates one association at a time.

**Table 4.2-57**
**NUMBER OF ASSOCIATIONS ACCEPTED FOR THE PRINT SCU AE**

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

#### 4.2.7.2.3 Asynchronous Nature

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

**Table 4.2-58**
**ASYNCHRONOUS NATURE FOR THE PRINT SCU AE**

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

#### 4.2.7.2.4 Implementation Identifying Information

The implementation information for the Print SCU AE is:

**Table 4.2-59**
**DICOM IMPLEMENTATION CLASS AND VERSION FOR THE PRINT SCU AE**

| | |
|---|---|
| Implementation Class UID | 1.2.392.200036.9116.6.17.1000.1 |
| Implementation Version Name | TM_VIAMO_3.0 |

### 4.2.7.3 Association Initiation Policy

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

#### 4.2.7.3.1.1 Description and Sequencing of Activities

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 format and number of copies.

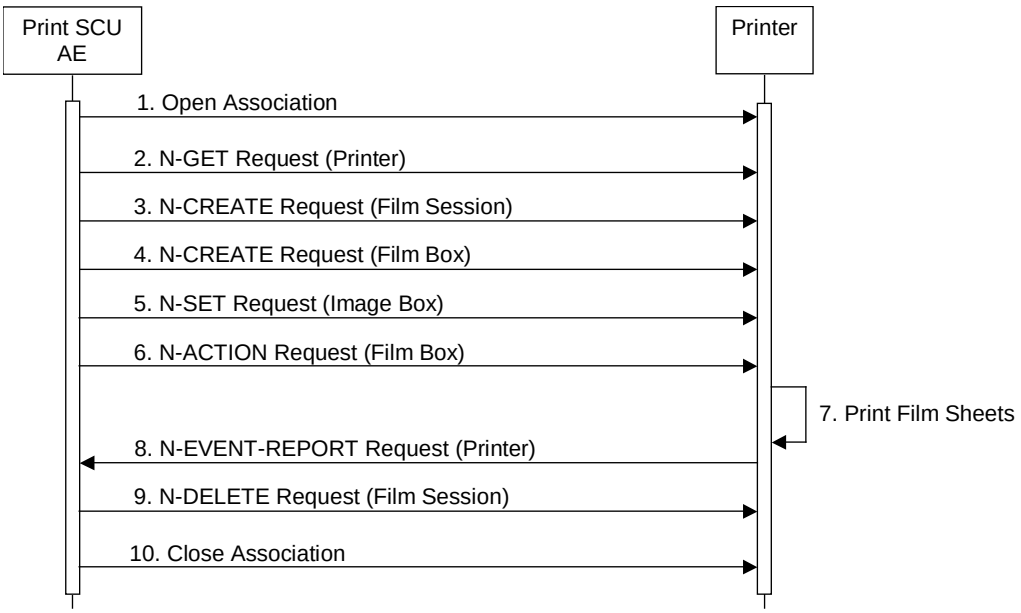



**Figure 4.2-8**
**SEQUENCING OF ACTIVITY – SEND IMAGES & PRINT MANAGEMENT INFORMATION**

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.
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.
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.

#### 4.2.7.3.1.2 Proposed Presentation Contexts

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

**Table 4.2-60**
**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 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |
| Basic Color Print Management Meta | 1.2.840.10008.5.1.1.18 | Implicit VR Little Endian | 1.2.840.10008.1.2 | SCU | None |
| | | Explicit VR Little Endian | 1.2.840.10008.1.2.1 | | |

#### 4.2.7.3.1.3 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 4.2-61**
**PRINT COMMUNICATION FAILURE BEHAVIOR**

| Exception | Behavior |
|---|---|
| Timeout | The Association is aborted using A-ABORT 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. |

#### 4.2.7.3.1.4 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
— N-EVENT-REPORT

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

##### 4.2.7.3.1.4.1 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 4.2-62**
**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, the print-job continues to be printed.
2. If Printer status (2110,0010) is FAILURE, the print-job is marked as failed. The contents of Printer Status Info (2110,0020) is logged and reported to the user via the job control application.
3. If Printer status (2110,0010) is WARNING, the print-job continues to be printed. The contents of Printer Status Info (2110,0020) is logged and reported to the user via the job control application.

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

**Table 4.2-63**
**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. |
| * | * | Any other status code. | The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user. |

#### 4.2.7.3.1.4.2 Printer SOP Class Notifications (N-EVENT-REPORT)

The Print SCU AE is capable of receiving an N-EVENT-REPORT request at any time during an association.

The behavior of The Print SCU AE when receiving Event Types within the N-EVENT-REPORT is summarized in the table below:

**Table 4.2-64**
**PRINTER SOP CLASS N-EVENT-REPORT BEHAVIOUR**

| Event Type Name | Event Type ID | Behavior |
|---|---|---|
| Normal | 1 | The print-job continues to be printed. |
| Warning | 2 | The print-job continues to be printed. The contents of Printer Status Info (2110,0020) is logged and reported to the user via the job-control application. |
| Failure | 3 | The print-job is marked as failed. The contents of Printer Status Info (2110,0020) is logged and reported to the user via the job-control application. |
| * | * | An invalid Event Type ID will cause a status code of 0113H to be returned in an N-EVENT-REPORT response. |

The reasons for returning specific status codes in an N-EVENT-REPORT response are summarized in the table below:

**Table 4.2-65**
**PRINTER SOP CLASS N-EVENT-REPORT RESPONSE STATUS REASONS**

| Service Status | Further Meaning | Status Code | Reasons |
|---|---|---|---|
| Success | Success | 0000 | The notification event has been successfully received. |
| Failure | No Such Event Type | 0113H | An invalid Event Type ID was supplied in the N-EVENT-REPORT request. |
| Failure | Processing Failure | 0110H | An internal error occurred during processing of the N-EVENT-REPORT. A short description of the error will be returned in Error Comment (0000,0902). |

#### 4.2.7.3.1.5 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.

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

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

**Table 4.2-66**
**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 |
| Medium Type | (2000,0030) | CS | BLUE FILM, CLEAR FILM or PAPER | ALWAYS | USER |
| Film Destination | (2000,0040) | CS | MAGAZINE or PROCESSOR | ALWAYS | USER |

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

**Table 4.2-67**
**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 if it is configured that the status would be considered successful. |
| Warning | Attribute List Error | 0107H | The N-CREATE operation is considered successful if it is configured that the status would be considered successful. |
| * | * | Any other status code. | The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user. |

##### 4.2.7.3.1.5.2 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 4.2-68**
**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 using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user. |

#### 4.2.7.3.1.6 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.

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

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

**Table 4.2-69**
**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 | USER |
| 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 |
| Film Orientation | (2010,0040) | CS | PORTRAIT or LANDSCAPE | ALWAYS | USER |
| Film Size ID | (2010,0050) | CS | 8INX10IN, 8_5INX11IN, 10INX12IN, 10INX14IN, 11INX14IN, 14INX14IN, 14INX17IN, 11INX17IN, 24CMX24CM, 24CMX30CM, A4 or A3 | ALWAYS | USER |
| Magnification Type | (2010,0060) | CS | REPLICATE, BILINEAR, CUBIC or NONE | ALWAYS | USER |
| Border Density | (2010,0100) | CS | BLACK or WHITE | ALWAYS | USER |
| Min Density | (2010,0120) | US | 0 .. 9999 | ALWAYS | USER |
| Max Density | (2010,0130) | US | 0 .. 9999 | ALWAYS | USER |

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

**Table 4.2-70**
**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 | Requested Min Density or Max Density outside of printer's operating range | B605H | The N-CREATE operation is considered successful if it is configured that the status would be considered successful. |
| * | * | Any other status code. | The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user. |

#### 4.2.7.3.1.6.2 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 4.2-71**
**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 | Film Box SOP Instance hierarchy does not contain Image Box SOP Instances (empty page) | B603H | The N-ACTION operation is considered successful if it is configured that the status would be considered successful. |
| Warning | Image size is larger than Image Box size. The image has been demagnified. | B604H | The N-ACTION operation is considered successful if it is configured that the status would be considered successful. |
| Warning | Image size is larger than Image Box size. The image has been cropped to fit. | B609H | The N-ACTION operation is considered successful if it is configured that the status would be considered successful. |
| 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 | The N-ACTION operation is considered successful if it is configured that the status would be considered successful. |
| Failure | Unable to create Print Job SOP Instance; print queue is full. | C602 | The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user. |
| Failure | Image size is larger than Image Box size. | C603 | The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user. |
| Failure | Combined Print Image Size is larger than Image Box size. | C613 | The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user. |
| * | * | Any other status code. | The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user. |

#### 4.2.7.3.1.7 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.

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

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

**Table 4.2-72**
**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 | | ALWAYS | AUTO |
| >Columns | (0028,0011) | US | | ALWAYS | AUTO |
| >Pixel Aspect Ratio | (0028,0034) | IS | 1\1 | ALWAYS | AUTO |
| >Bits Allocated | (0028,0100) | US | 8 | ALWAYS | AUTO |
| >Bits Stored | (0028,0101) | US | 8 | ALWAYS | AUTO |
| >High Bit | (0028,0102) | US | 7 | ALWAYS | AUTO |
| >Pixel Representation | (0028,0103) | US | 0 | ALWAYS | AUTO |
| >Pixel Data | (7FE0,0010) | OB | | 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 4.2-73**
**GRAYSCALE / COLOR 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 | Image size is larger than Image Box size. The image has been demagnified. | B604H | The N-SET operation is considered successful if it is configured that the status would be considered successful. |
| Warning | Requested Min Density or Max Density outside of printer's operating range. | B605H | The N-SET operation is considered successful if it is configured that the status would be considered successful. |
| Warning | Image size is larger than Image Box size. The image has been cropped to fit. | B609H | The N-SET operation is considered successful if it is configured that the status would be considered successful. |
| 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 | The N-SET operation is considered successful if it is configured that the status would be considered successful. |
| Failure | Image size is larger than Image Box size. | C603 | The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user. |
| Failure | Insufficient memory in printer to store the image. | C605 | The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user. |
| Failure | Combined Print Image Size is larger than Image Box size. | C613 | The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user. |
| * | * | Any other status code. | The Association is aborted using A-ABORT and the print-job is marked as failed. The status meaning is logged and reported to the user. |

#### 4.2.7.3.1.8 SOP Specific Conformance for the Color Image Box SOP Class

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

— N-SET

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

##### 4.2.7.3.1.8.1 Color Image Box SOP Class Operations (N-SET)

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

**Table 4.2-74**
**COLOR 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 Color Image Sequence | (2020,0111) | SQ | | ALWAYS | AUTO |
| >Samples Per Pixel | (0028,0002) | US | 3 | ALWAYS | AUTO |
| >Photometric Interpretation | (0028,0004) | CS | RGB | ALWAYS | AUTO |
| >Planar Configuration | (0028,0006) | US | 1 | ALWAYS | AUTO |
| >Rows | (0028,0010) | US | | ALWAYS | AUTO |
| >Columns | (0028,0011) | US | | ALWAYS | AUTO |
| >Pixel Aspect Ratio | (0028,0034) | IS | 1\1 | ALWAYS | AUTO |
| >Bits Allocated | (0028,0100) | US | 8 | ALWAYS | AUTO |
| >Bits Stored | (0028,0101) | US | 8 | ALWAYS | AUTO |
| >High Bit | (0028,0102) | US | 7 | ALWAYS | AUTO |
| >Pixel Representation | (0028,0103) | US | 0 | ALWAYS | AUTO |
| >Pixel Data | (7FE0,0010) | OB | | ALWAYS | AUTO |

The behavior of the Print SCU AE when encountering status codes in an N-SET response is summarized in Table 4.2-73.

### 4.2.7.4 Association Acceptance Policy

The Print SCU AE does not accept associations.

## 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 1000baseT |
| 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

All local applications use the AE Titles and TCP/IP Ports configured via the service tool.

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

| Application Entity | Default AE Title | Default TCP/IP Port |
|---|---|---|
| Verification SCU | VERIFYSCU_AE | Not applicable |
| Storage SCU | DICOM_LOCAL_SCU | |
| Storage Commitment SCU | | 104 |
| MWM SCU | MWMSCU_AE | Not applicable |
| MPPS SCU | MPPSSCU_AE | |
| Print SCU | PrintSCU_AE | |

The default character repertoire excluding the highlighted characters can be used for the AE Titles:

**Table 4.4-2**
**AE TITLE CHARACTER REPERTOIRE**

| | **0** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **A** | **B** | **C** | **D** | **E** | **F** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0x00** | | | | | | | | | | | LF | | FF | CR | | |
| **0x10** | | | | | | | | | | | | ESC | | | | |
| **0x20** | SP | ! | " | # | $ | % | & | ' | ( | ) | * | + | , | - | . | / |
| **0x30** | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | : | ; | < | = | > | ? |
| **0x40** | @ | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| **0x50** | P | Q | R | S | T | U | V | W | X | Y | Z | [ | ¥ | ] | ^ | _ |
| **0x60** | ` | a | b | c | d | e | f | g | h | i | j | k | l | m | n | o |
| **0x70** | p | q | r | s | t | u | v | w | x | y | z | { | \| | } | ~ | |

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

The AE Titles, host names and port numbers of remote applications are configured using the service tool. The character repertoire of the AE Titles is listed in Table 4.4-2.

### 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 4.4-3**
**CONFIGURATION PARAMETERS TABLE**

| Parameter | Configurable (Yes/No)[Range] | Default Value |
|---|---|---|
| **General Parameters** | | |
| Maximum PDU send/receive size | Yes [2048-1048576] | 32768 bytes |
| Time-out waiting for an acceptance or rejection response to an association request (Application Level timeout) | Yes [0-99999] | 60 sec |
| Time-out waiting for a response to an association release request (Application Level timeout) | Yes [0-99999] | 60 sec |
| Time-out waiting for completion of a TCP/IP connect request (Low-level timeout) | Yes [0-99999] | 20 sec |
| Time-out awaiting a response to a DIMSE request (Low-level timeout) | Yes [0-99999] | 60 sec |
| Time-out for waiting for data between TCP/IP-packets (Low-level timeout) | Yes [0-99999] | 32 sec |
| **Storage SCU Parameters** | | |
| Maximum number of simultaneously initiated associations by the Storage SCU AE | No | 1 |
| Number of times a failed send job may be retried | Yes [0-99999] | 0 |
| **Storage SCU Commitment Parameters** | | |
| Maximum number of simultaneously initiated associations by the Storage Commitment SCU AE | No | 1 |
| Maximum number of simultaneously accepted associations by the Storage Commitment SCU AE | No | 1 |
| Time-out waiting for a Storage Commitment Notification (maximum duration of applicability for a Storage Commitment Transaction UID) | Yes [1-99999](msec, sec, min, hour, month or year) | 180 sec |
| Delay association release after sending a storage commitment request (wait for a storage commitment notification over the same association) | No | 0 |
| **Modality Worklist SCU Parameters** | | |
| Maximum number of simultaneously initiated associations by the MWM SCU AE | No | 1 |
| Maximum number of worklist items | Yes [1-9999] | 200 |
| Query worklist for specific Scheduled Station AE Title | Yes | MWMSCU_AE |
| Query worklist for specific Modality | Yes [US or blank] | US |
| Time out between Results<br>(This time-out is activated on a higher priority than General Parameter's time-out values) | Yes [0-999] | 20 sec |

| Parameter | Configurable (Yes/No)[Range] | Default Value |
|---|---|---|
| **MPPS SCU Parameters** | | |
| Maximum number of simultaneously initiated associations by the MPPS SCU AE | No | 1 |
| Number of times a failed send job may be retried | Yes [0-99999] | 0 |
| **Print SCU Parameters** | | |
| Maximum number of simultaneously initiated associations by the Print SCU AE | No | 1 |

# 5. MEDIA INTERCHANGE

## 5.1 IMPLEMENTATION MODEL

### 5.1.1 Application Data Flow

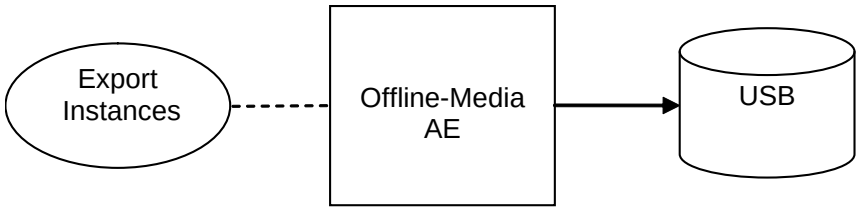



**Figure 5.1-1**
**APPLICATION DATA FLOW DIAGRAM FOR MEDIA STORAGE**

The Offline-Media AE exports instances to a USB Storage medium. It is associated with the local real-world activity "Export Instances" performed upon user request.

### 5.1.2 Functional Definition of AEs

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

The Offline-Media AE is performed upon user request for selected instances to an offline USB 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 USB medium.

### 5.1.3 Sequencing of Real-World Activities

#### 5.1.3.1 Activity – Export Instances

Operator requests to create new File-set(s) onto a new USB medium. The requests are placed in a queue and are executed in the background.

The operations for "Export Instances" are described below:

Step-1: Select the instances on the local storage device to be created to the medium.
Step-2: Request to copy to the medium.

### 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 | 1.2.392.200036.9116.6.17.1000.1 |
| Implementation Version Name | TM_VIAMO_3.0 |

## 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 |
|---|---|---|---|
| AUG-GEN-USB | Export Instances | FSC | Interchange |

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

The Source Application Entity Title is always "RMEDIA".

#### 5.2.1.2 Real-World Activities

##### 5.2.1.2.1 Activity – Export Instances

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

###### 5.2.1.2.1.1 Media Storage Application Profiles

The Offline-Media AE supports the AUG-GEN-USB Application Profiles.

###### 5.2.1.2.1.1.1 Options

The Offline-Media AE supports the SOP Classes and Transfer Syntaxes listed in Table 5.3-1.

## 5.3 AUGMENTED AND PRIVATE APPLICATION PROFILES

### 5.3.1 Augmented Application Profiles

#### 5.3.1.1 Augmented Application Profiles – AUG-GEN-USB

##### 5.3.1.1.1 SOP Class Augmentations

The Augmented Application Profiles support the following SOP Classes and Transfer Syntaxes:

**Table 5.3-1**
**SOP CLASS AUGMENTATIONS**

| Information Object Definition | SOP Class UID | Transfer Syntax | Transfer Syntax UID |
|---|---|---|---|
| DICOM Media Storage Directory | 1.2.840.10008.1.3.10 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 |
| Secondary Capture Image Storage | 1.2.840.10008.5.1.4.1.1.7 | JPEG Baseline (Process 1) | 1.2.840.10008.1.2.4.50 |
| Ultrasound Image Storage | 1.2.840.10008.5.1.4.1.1.6.1 | JPEG Baseline (Process 1) | 1.2.840.10008.1.2.4.50 |
| Ultrasound Multi-frame Image Storage | 1.2.840.10008.5.1.4.1.1.3.1 | JPEG Baseline (Process 1) | 1.2.840.10008.1.2.4.50 |
| Basic Text SR Storage | 1.2.840.10008.5.1.4.1.1.88.11 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 |
| Enhanced SR Storage | 1.2.840.10008.5.1.4.1.1.88.22 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 |
| Comprehensive SR Storage | 1.2.840.10008.5.1.4.1.1.88.33 | Explicit VR Little Endian | 1.2.840.10008.1.2.1 |

##### 5.3.1.1.2 Directory Augmentations

Not applicable.

##### 5.3.1.1.3 Other Augmentations

Not applicable.

### 5.3.2 Private Application Profiles

Not applicable.

## 5.4 MEDIA CONFIGURATION

Not applicable.

# 6. SUPPORT OF CHARACTER SETS

This product supports the following character sets:

- ISO-IR 6 (default) ISO 646
- ISO-IR 100 (Latin alphabet No.1) Supplementary set of ISO 8859

Note: If the MWM SCU AE receives worklist items that contain unsupported character sets, they will not be performed.

# 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.

c. 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.

# 8. ANNEXES

## 8.1 IOD CONTENTS

### 8.1.1 Created SOP Instances

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

Table 8.1-2 specifies the attributes of an Ultrasound Image transmitted by the Storage SCU AE.

Table 8.1-3 specifies the attributes of an Ultrasound Multi-frame Image transmitted by the Storage SCU AE.

Table 8.1-4 specifies the attributes of a Basic Text SR transmitted by the Storage SCU AE.

Table 8.1-5 specifies the attributes of an Enhanced SR transmitted by the Storage SCU AE.

Table 8.1-6 specifies the attributes of a Comprehensive SR 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 Modality Worklist |
| USER | the attribute value source is from user input |
| AUTO | the attribute value is generated automatically |
| MPPS | the attribute value is the same as that use for Modality Performed Procedure Step |
| CONFIG | the attribute value source is a configurable parameter |

### 8.1.1.1 SC Image IOD

**Table 8.1-1**
**IOD of Created SC Image SOP Instances**

| IE | Module | Reference | Presence of Module |
|---|---|---|---|
| Patient | Patient | Table 8.1-7 | ALWAYS |
| | Clinical Trial Subject | -- | Not Present |
| Study | General Study | Table 8.1-8 | ALWAYS |
| | Patient Study | Table 8.1-9 | ALWAYS |
| | Clinical Trial Study | -- | Not Present |
| Series | General Series | Table 8.1-11 | ALWAYS |
| | Clinical Trial Series | -- | Not Present |
| Equipment | General Equipment | Table 8.1-12 | ALWAYS |
| | SC Equipment | Table 8.1-17 | ALWAYS |
| Image | General Image | Table 8.1-13 | ALWAYS |
| | Image Pixel | Table 8.1-14 | ALWAYS |
| | SC Image | -- | Not Present |
| | Overlay Plane | -- | Not Present |
| | Modality LUT | -- | Not Present |
| | VOI LUT | Table 8.1-15 | Only if Photometric Interpretation (0028,0004) is MONOCHROME2 |
| | SOP Common | Table 8.1-16 | ALWAYS |

### 8.1.1.2 US Image IOD

**Table 8.1-2**
**IOD of Created US Image SOP Instances**

| IE | Module | Reference | Presence of Module |
|---|---|---|---|
| Patient | Patient | Table 8.1-7 | ALWAYS |
| | Clinical Trial Subject | -- | Not Present |
| Study | General Study | Table 8.1-8 | ALWAYS |
| | Patient Study | Table 8.1-9 | ALWAYS |
| | Clinical Trial Study | -- | Not Present |
| Series | General Series | Table 8.1-11 | ALWAYS |
| | Clinical Trial Series | -- | Not Present |
| Frame of Reference | Frame of Reference | -- | Not Present |
| | Synchronization | -- | Not Present |
| Equipment | General Equipment | Table 8.1-12 | ALWAYS |
| Image | General Image | Table 8.1-13 | ALWAYS |
| | Image Pixel | Table 8.1-14 | ALWAYS |
| | Contrast/bolus | -- | Not Present |
| | Palette Color Lookup Table | -- | Not Present |
| | US Region Calibration | Table 8.1-19 | ALWAYS |
| | US Image | Table 8.1-18 | ALWAYS |
| | Overlay Plane | -- | Not Present |
| | VOI LUT | Table 8.1-15 | Only if Photometric Interpretation (0028,0004) is MONOCHROME2 |
| | SOP Common | Table 8.1-16 | ALWAYS |

### 8.1.1.3 US Multi-frame Image IOD

**Table 8.1-3**
**IOD of Created US Multi-frame Image SOP Instances**

| IE | Module | Reference | Presence of Module |
|---|---|---|---|
| Patient | Patient | Table 8.1-7 | ALWAYS |
| | Clinical Trial Subject | -- | Not Present |
| Study | General Study | Table 8.1-8 | ALWAYS |
| | Patient Study | Table 8.1-9 | ALWAYS |
| | Clinical Trial Study | -- | Not Present |
| Series | General Series | Table 8.1-11 | ALWAYS |
| | Clinical Trial Series | -- | Not Present |
| Frame of Reference | Frame of Reference | -- | Not Present |
| | Synchronization | -- | Not Present |
| Equipment | General Equipment | Table 8.1-12 | ALWAYS |
| Image | General Image | Table 8.1-13 | ALWAYS |
| | Image Pixel | Table 8.1-14 | ALWAYS |
| | Contrast/bolus | -- | Not Present |
| | Cine | Table 8.1-20 | ALWAYS |
| | Multi-frame | Table 8.1-21 | ALWAYS |
| | Frame Pointers | -- | Not Present |
| | Palette Color Lookup Table | -- | Not Present |
| | US Region Calibration | -- | Not Present |
| | US Image | Table 8.1-18 | ALWAYS |
| | VOI LUT | Table 8.1-15 | Only if Photometric Interpretation (0028,0004) is MONOCHROME2 |
| | SOP Common | Table 8.1-16 | ALWAYS |

### 8.1.1.4 Basic Text SR IOD

**Table 8.1-4**
**IOD of Created Basic Text SR SOP Instances**

| IE | Module | Reference | Presence of Module |
|---|---|---|---|
| Patient | Patient | Table 8.1-7 | ALWAYS |
| | Specimen Identification | -- | Not Present |
| | Clinical Trial Subject | -- | Not Present |
| Study | General Study | Table 8.1-8 | ALWAYS |
| | Patient Study | Table 8.1-9 | ALWAYS |
| | Clinical Trial Study | -- | Not Present |
| Series | SR Document Series | Table 8.1-22 | ALWAYS |
| | Clinical Trial Series | -- | Not Present |
| Equipment | General Equipment | Table 8.1-12 | ALWAYS |
| Document | SR Document General | Table 8.1-23 | ALWAYS |
| | SR Document Content | Table 8.1-24 | ALWAYS |
| | SOP Common | Table 8.1-16 | ALWAYS |

### 8.1.1.5 Enhanced SR IOD

**Table 8.1-5**
**IOD of Created Enhanced SR SOP Instances**

| IE | Module | Reference | Presence of Module |
|---|---|---|---|
| Patient | Patient | Table 8.1-7 | ALWAYS |
| | Specimen Identification | -- | Not Present |
| | Clinical Trial Subject | -- | Not Present |
| Study | General Study | Table 8.1-8 | ALWAYS |
| | Patient Study | Table 8.1-9 | ALWAYS |
| | Clinical Trial Study | -- | Not Present |
| Series | SR Document Series | Table 8.1-22 | ALWAYS |
| | Clinical Trial Series | -- | Not Present |
| Equipment | General Equipment | Table 8.1-12 | ALWAYS |
| Document | SR Document General | Table 8.1-23 | ALWAYS |
| | SR Document Content | Table 8.1-25 | ALWAYS |
| | SOP Common | Table 8.1-16 | ALWAYS |
| | Private Application | Table 8.1-26 | ALWAYS |

### 8.1.1.6 Comprehensive SR IOD

**Table 8.1-6**
**IOD of Created Comprehensive SR SOP Instances**

| IE | Module | Reference | Presence of Module |
|---|---|---|---|
| Patient | Patient | Table 8.1-7 | ALWAYS |
| | Specimen Identification | -- | Not Present |
| | Clinical Trial Subject | -- | Not Present |
| Study | General Study | Table 8.1-8 | ALWAYS |
| | Patient Study | Table 8.1-9 | ALWAYS |
| | Clinical Trial Study | -- | Not Present |
| Series | SR Document Series | Table 8.1-22 | ALWAYS |
| | Clinical Trial Series | -- | Not Present |
| Frame of Reference | Frame of Reference | -- | Not Present |
| | Synchronization | -- | Not Present |
| Equipment | General Equipment | Table 8.1-11 | ALWAYS |
| Document | SR Document General | Table 8.1-23 | ALWAYS |
| | SR Document Content | Table 8.1-25 | ALWAYS |
| | SOP Common | Table 8.1-16 | ALWAYS |
| | Private Application | Table 8.1-26 | ALWAYS |

### 8.1.1.7 Common Modules

**Table 8.1-7**
**Patient Module of Created SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Patient's Name | (0010,0010) | PN | | VNAP | MWL/USER |
| Patient ID | (0010,0020) | LO | | VNAP | MWL/USER |
| Patient's Birth Date | (0010,0030) | DA | | VNAP | MWL/USER |
| Patient's Sex | (0010,0040) | CS | | VNAP | MWL/USER |
| Patient Comments | (0010,4000) | LT | | ANAP | MWL/USER |

**Table 8.1-8**
**General Study Module of Created SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Study Instance UID | (0020,000D) | UI | | ALWAYS | MWL/AUTO |
| Study Date | (0008,0020) | DA | | ALWAYS | AUTO |
| Study Time | (0008,0030) | TM | | ALWAYS | AUTO |
| Referring Physician's Name | (0008,0090) | PN | | VNAP | MWL/USER |
| Study ID | (0020,0010) | SH | | ALWAYS | AUTO |
| Accession Number | (0008,0050) | SH | | VNAP | MWL/USER |
| Study Description | (0008,1030) | LO | Same as Protocol Name (0018,1030) | ALWAYS | AUTO |
| Study Comments | (0032,4000) | LT | Composed of the following patient characteristics from user input: "BSA=…<SPACE>BloodPressure=…<SPACE>BSAType=...". | ALWAYS | USER |

**Table 8.1-9**
**Patient Study Module of Created SOP Instances**

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

**Table 8.1-10**
**Patient Medical Module of Created SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Last Menstrual Date | (0010,21D0) | DA | | ANAP | MWL/USER |

Note: This attribute extends the standard IODs of SC Image, US Image, US Multi-frame Image, Basic Text SR, Enhanced SR and Comprehensive SR.

**Table 8.1-11**
**General Series Module of Created SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Modality | (0008,0060) | CS | US | ALWAYS | AUTO |
| Series Instance UID | (0020,000E) | UI | | ALWAYS | AUTO |
| Series Number | (0020,0011) | IS | | ALWAYS | AUTO |
| Series Date | (0008,0021) | DA | | ALWAYS | AUTO |
| Series Time | (0008,0031) | TM | | ALWAYS | AUTO |
| Performing Physician's Name | (0008,1050) | PN | | ANAP | MWL/USER |
| Protocol Name | (0018,1030) | LO | Abdomen, Kidney, Testes, Thyroid, Other, TCD, GYN, Breast, Endo Vaginal, OB, Fetal Heart, Neo-General, Neo-Head, Neo-Hip, Adult Heart, Pediatric Heart, Coronary, Carotid, PV Arterial, PV Venous, Digits or MSK.<br>See Table 8.1-28 Note | ALWAYS | MWL/USER |
| Referenced Performed Procedure Step Sequence | (0008,1111) | SQ | | EMPTY | AUTO |
| Request Attributes Sequence | (0040,0275) | SQ | | ALWAYS | AUTO |
| >Requested Procedure ID | (0040,1001) | SH | | ALWAYS | MWL/AUTO |
| >Scheduled Procedure Step ID | (0040,0009) | SH | | ALWAYS | MWL/AUTO |
| >Scheduled Procedure Step Description | (0040,0007) | LO | | ALWAYS | MWL/AUTO |
| >Scheduled Protocol Code Sequence | (0040,0008) | SQ | | ANAP | MWL |
| >Code Value | (0008,0100) | SH | | ANAP | MWL |
| >Coding Scheme Designator | (0008,0102) | SH | | ANAP | MWL |
| >Coding Scheme Version | (0008,0103) | SH | | ANAP | MWL |
| >Code Meaning | (0008,0104) | LO | | ANAP | MWL |
| Performed Procedure Step ID | (0040,0253) | SH | | ALWAYS | MWL/AUTO |
| Performed Procedure Step Start Date | (0040,0244) | DA | | ALWAYS | AUTO |
| Performed Procedure Step Start Time | (0040,0245) | TM | | ALWAYS | AUTO |
| Performed Procedure Step Description | (0040,0254) | LO | | ALWAYS | MWL/AUTO |
| Performed Protocol Code Sequence | (0040,0260) | SQ | | ANAP | MWL |
| >Code Value | (0008,0100) | SH | | ANAP | MWL |
| >Coding Scheme Designator | (0008,0102) | SH | | ANAP | MWL |
| >Coding Scheme Version | (0008,0103) | SH | | ANAP | MWL |
| >Code Meaning | (0008,0104) | LO | | ANAP | MWL |

**Table 8.1-12**
**General Equipment Module of Created SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Manufacturer | (0008,0070) | LO | TOSHIBA_MEC | ALWAYS | AUTO |
| Institution Name | (0008,0080) | LO | | ANAP | CONFIG |
| Manufacturer's Model Name | (0008,1090) | LO | Viamo | ALWAYS | AUTO |
| Station Name | (0008,1010) | SH | | ANAP | AUTO |
| Device Serial Number | (0018,1000) | LO | | ALWAYS | AUTO |
| Software Version | (0018,1020) | LO | V5.0 | ALWAYS | AUTO |

**Table 8.1-13**
**General Image Module of Created SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Instance Number | (0020,0013) | IS | | ALWAYS | AUTO |
| Patient Orientation | (0020,0020) | CS | | EMPTY | AUTO |
| Content Date | (0008,0023) | DA | | ALWAYS | AUTO |
| Content Time | (0008,0033) | TM | | ALWAYS | AUTO |
| Image Type | (0008,0008) | CS | | ALWAYS | AUTO |
| Acquisition Date | (0008,0022) | DA | | ALWAYS | AUTO |
| Acquisition Time | (0008,0032) | TM | | ALWAYS | AUTO |
| Lossy Image Compression | (0028,2110) | CS | | ANAP | AUTO |
| Lossy Image Compression Ratio | (0028,2112) | DS | | ANAP | AUTO |

**Table 8.1-14**
**Image Pixel Module of Created SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Samples per Pixel | (0028,0002) | US | 1 or 3 | ALWAYS | AUTO |
| Photometric Interpretation | (0028,0004) | CS | MONOCHROME2, RGB or YBR_FULL_422 | ALWAYS | CONFIG |
| Planar Configuration | (0028,0006) | US | 0 | ANAP | AUTO |
| Rows | (0028,0010) | US | **Rows** / **Columns**: 600 / 800; 768 / 1024 | ALWAYS | AUTO |
| Columns | (0028,0011) | US | | ALWAYS | AUTO |
| Bits Allocated | (0028,0100) | US | 8 | ALWAYS | AUTO |
| Bits Stored | (0028,0101) | US | 8 | ALWAYS | AUTO |
| High Bit | (0028,0102) | US | 7 | ALWAYS | AUTO |
| Pixel Representation | (0028,0103) | US | 0 | ALWAYS | AUTO |
| Pixel Data | (7FE0,0010) | OB or OW | | 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 | 128 | ANAP | AUTO |
| Window Width | (0028,1051) | DS | 256 | ANAP | AUTO |

**Table 8.1-16**
**SOP Common Module of Created SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Specific Character Set | (0008,0005) | CS | ISO_IR 100 | ALWAYS | AUTO |
| SOP Class UID | (0008,0016) | UI | 1.2.840.10008.5.1.4.1.1.7<br>for SC Image<br>1.2.840.10008.5.1.4.1.1.6.1<br>for US Image<br>1.2.840.10008.5.1.4.1.1.3.1<br>for US Multi-frame Image<br>1.2.840.10008.5.1.4.1.1.88.11<br>for Basic Text SR<br>1.2.840.10008.5.1.4.1.1.88.22<br>for Enhanced SR<br>1.2.840.10008.5.1.4.1.1.88.33<br>for Comprehensive SR | ALWAYS | AUTO |
| SOP Instance UID | (0008,0018) | UI | Starts with 1.2.392.200036.9116.6.17. | ALWAYS | AUTO |

### 8.1.1.8 SC Image Modules

**Table 8.1-17**
**SC Equipment Module of Created SC Image SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Conversion Type | (0008,0064) | CS | WSD | ALWAYS | AUTO |

### 8.1.1.9 US / USMF Image Modules

**Table 8.1-18**
**US Image Module of Created US / USMF Image SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Samples per Pixel | (0028,0002) | US | 1 or 3 | ALWAYS | AUTO |
| Photometric Interpretation | (0028,0004) | CS | MONOCHROME2, RGB or YBR_FULL_422 | ALWAYS | CONFIG |
| Planar Configuration | (0028,0006) | US | 0 | ANAP | AUTO |
| Rows | (0028,0010) | US | 600 | ALWAYS | AUTO |
| Columns | (0028,0011) | US | 800 | ALWAYS | AUTO |
| Ultrasound Color Data Present | (0028,0014) | US | 0 or 1 | ALWAYS | AUTO |
| Bits Allocated | (0028,0100) | US | 8 | ALWAYS | AUTO |
| Bits Stored | (0028,0101) | US | 8 | ALWAYS | AUTO |
| High Bit | (0028,0102) | US | 7 | ALWAYS | AUTO |
| Pixel Representation | (0028,0103) | US | 0 | ALWAYS | AUTO |
| Pixel Data | (7FE0,0010) | OB or OW | | ALWAYS | AUTO |

### 8.1.1.9.1 US Image Modules

**Table 8.1-19**
**US Region Calibration Module of Created US Image SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Sequence of Ultrasound Regions | (0018,6011) | SQ | | ALWAYS | AUTO |
| >Region Spatial Format | (0018,6012) | US | | ALWAYS | AUTO |
| >Region Data Type | (0018,6014) | US | | ALWAYS | AUTO |
| >Region Flags | (0018,6016) | UL | | ALWAYS | AUTO |
| >Region Location Min x0 | (0018,6018) | UL | | ALWAYS | AUTO |
| >Region Location Min y0 | (0018,601A) | UL | | ALWAYS | AUTO |
| >Region Location Max x1 | (0018,601C) | UL | | ALWAYS | AUTO |
| >Region Location Max y1 | (0018,601E) | UL | | ALWAYS | AUTO |
| >Reference Pixel x0 | (0018,6020) | SL | | ALWAYS | AUTO |
| >Reference Pixel y0 | (0018,6022) | SL | | ALWAYS | AUTO |
| >Physical Units X Direction | (0018,6024) | US | | ALWAYS | AUTO |
| >Physical Units Y Direction | (0018,6026) | US | | ALWAYS | AUTO |
| >Reference Pixel Physical Value X | (0018,6028) | FD | | ALWAYS | AUTO |
| >Reference Pixel Physical Value Y | (0018,602A) | FD | | ALWAYS | AUTO |
| >Physical Delta X | (0018,602C) | FD | | ALWAYS | AUTO |
| >Physical Delta Y | (0018,602E) | FD | | ALWAYS | AUTO |

### 8.1.1.9.2 USMF Image Modules

**Table 8.1-20**
**Cine Module of Created USMF Image SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Start Trim | (0008,2142) | IS | | ALWAYS | AUTO |
| Stop Trim | (0008,2143) | IS | | ALWAYS | AUTO |
| Recommended Display Frame Rate | (0008,2144) | IS | | ALWAYS | AUTO |
| Cine Rate | (0018,0040) | IS | | ALWAYS | AUTO |
| Effective Duration | (0018,0072) | DS | | ALWAYS | AUTO |
| Frame Time | (0018,1063) | DS | | ALWAYS | AUTO |
| Actual Frame Duration | (0018,1242) | IS | | ALWAYS | AUTO |

**Table 8.1-21**
**Multi-frame Module of Created USMF Image SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Number of Frames | (0028,0008) | IS | | ALWAYS | USER |
| Frame Increment Pointer | (0028,0009) | AT | <0018,1063> | ALWAYS | AUTO |

### 8.1.1.10 Structured Report Modules

**Table 8.1-22**
**SR Document Series Module of Created Basic Text / Enhanced / Comprehensive SR SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Modality | (0008,0060) | CS | SR | ALWAYS | AUTO |
| Referenced Performed Procedure Step Sequence | (0008,1111) | SQ | | EMPTY | AUTO |
| Series Instance UID | (0020,000E) | UI | | ALWAYS | AUTO |
| Series Number | (0020,0011) | IS | | ALWAYS | AUTO |

**Table 8.1-23**
**SR Document General Module of Created Basic Text / Enhanced / Comprehensive SR SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Content Date | (0008,0023) | DA | | ALWAYS | AUTO |
| Content Time | (0008,0033) | TM | | ALWAYS | AUTO |
| Instance Number | (0020,0013) | IS | | ALWAYS | AUTO |
| Referenced Request Sequence | (0040,A370) | SQ | | ALWAYS | AUTO |
| >Accession Number | (0008,0050) | SH | | VNAP | MWL/USER |
| >Referenced Study Sequence | (0008,1110) | SQ | | EMPTY | AUTO |
| >Study Instance UID | (0020,000D) | UI | | ALWAYS | MWL/AUTO |
| >Requested Procedure Description | (0032,1060) | LO | | EMPTY | AUTO |
| >Requested Procedure Code Sequence | (0032,1064) | SQ | | EMPTY | AUTO |
| >Requested Procedure ID | (0040,1001) | SH | | EMPTY | AUTO |
| >Placer Order Number/Imaging Service Request | (0040,2016) | LO | | EMPTY | AUTO |
| >Filler Order Number/Imaging Service Request | (0040,2017) | LO | | EMPTY | AUTO |
| Performed Procedure Code Sequence | (0040,A372) | SQ | | EMPTY | AUTO |
| Current Requested Procedure Evidence Sequence | (0040,A375) | SQ | | ALWAYS | AUTO |
| >Referenced Series Sequence | (0008,1115) | SQ | | ALWAYS | AUTO |
| >>Referenced SOP Sequence | (0008,1199) | SQ | | ALWAYS | AUTO |
| >>>Referenced SOP Class UID | (0008,1150) | UI | | ALWAYS | AUTO |
| >>>Referenced SOP Instance UID | (0008,1155) | UI | | ALWAYS | AUTO |
| >>Series Instance UID | (0020,000E) | UI | | ALWAYS | AUTO |
| >Study Instance UID | (0020,000D) | UI | | ALWAYS | MWL/AUTO |
| Completion Flag | (0040,A491) | CS | COMPLETE | ALWAYS | AUTO |
| Verification Flag | (0040,A493) | CS | UNVERIFIED | ALWAYS | AUTO |

### 8.1.1.10.1 Basic Text SR Modules

**Table 8.1-24**
**SR Document Content Module of Created Basic Text SR SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Value Type | (0040,A040) | CS | CONTAINER | ALWAYS | AUTO |
| Concept Name Code Sequence | (0040,A043) | SQ | | ALWAYS | AUTO |
| >Code Value | (0008,0100) | SH | VR300000 | ALWAYS | AUTO |
| >Coding Scheme Designator | (0008,0102) | SH | TSBUS | ALWAYS | AUTO |
| >Code Meaning | (0008,0104) | LO | VIAMO_BASIC_REPORT | ALWAYS | AUTO |
| Continuity of Content | (0040,A050) | CS | SEPARATE | ALWAYS | AUTO |
| Content sequence | (0040,A730) | SQ | | ALWAYS | AUTO |
| >Relationship Type | (0040,A010) | CS | CONTAINS | ALWAYS | AUTO |
| >Value Type | (0040,A040) | CS | TEXT | ALWAYS | AUTO |
| >Concept Name Code Sequence | (0040,A043) | SQ | | ALWAYS | AUTO |
| >>Code Value | (0008,0100) | SH | V5000002 | ALWAYS | AUTO |
| >>Coding Scheme Designator | (0008,0102) | SH | TSBUS | ALWAYS | AUTO |
| >>Code Meaning | (0008,0104) | LO | ORIGINAL_XML_DATA | ALWAYS | AUTO |
| >Text Value | (0040,A160) | UT | Measurement Result | ALWAYS | AUTO |

### 8.1.1.10.2 Enhanced / Comprehensive SR Modules

**Table 8.1-25**
**SR Document Content Module of Created Enhanced / Comprehensive SR SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Value Type | (0040,A040) | CS | CONTAINER | ALWAYS | AUTO |
| Concept Name Code Sequence | (0040,A043) | SQ | | ALWAYS | AUTO |
| >Code Value | (0008,0100) | SH | 125000 | ALWAYS | AUTO |
| >Coding Scheme Designator | (0008,0102) | SH | DCM | ALWAYS | AUTO |
| >Code Meaning | (0008,0104) | LO | OB-GYN Ultrasound Procedure Report | ALWAYS | AUTO |
| Continuity of Content | (0040,A050) | CS | SEPARATE | ALWAYS | AUTO |
| Content Template Sequence | (0040,A504) | SQ | | ALWAYS | AUTO |
| >Template Identifier | (0040,DB00) | CS | 5000 | ALWAYS | AUTO |
| >Mapping Resource | (0008,0105) | CS | DCMR | ALWAYS | AUTO |
| Content sequence | (0040,A730) | SQ | | ALWAYS | AUTO |
| >Relationship Type | (0040,A010) | CS | HAS CONCEPT MOD | ALWAYS | AUTO |
| >Value Type | (0040,A040) | CS | CODE | ALWAYS | AUTO |
| >Concept Name Code Sequence | (0040,A043) | SQ | | ALWAYS | AUTO |
| >>Code Value | (0008,0100) | SH | 121049 | ALWAYS | AUTO |
| >>Coding Scheme Designator | (0008,0102) | SH | DCM | ALWAYS | AUTO |
| >>Code Meaning | (0008,0104) | LO | Language of Content Item and Descendants | ALWAYS | AUTO |
| >Concept Code Sequence | (0040,A160) | SQ | | ALWAYS | AUTO |
| >>Code value | (0008,0100) | SH | eng | ALWAYS | AUTO |
| >>Coding Scheme designator | (0008,0102) | SH | ISO639_2 | ALWAYS | AUTO |
| >>Code Meaning | (0008,0104) | LO | English | ALWAYS | AUTO |
| >Relationship Type | (0040,A010) | CS | HAS OBS CONTEXT | ALWAYS | AUTO |

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| >Value Type | (0040,A040) | CS | CODE | ALWAYS | AUTO |
| >Concept Name Code Sequence | (0040,A043) | SQ | | ALWAYS | AUTO |
| >>Code Value | (0008,0100) | SH | 121005 | ALWAYS | AUTO |
| >>Coding Scheme Designator | (0008,0102) | SH | DCM | ALWAYS | AUTO |
| >>Code Meaning | (0008,0104) | LO | Observer Type | ALWAYS | AUTO |
| >Concept Code Sequence | (0040,A168) | SQ | | ALWAYS | AUTO |
| >>Code value | (0008,0100) | SH | 121007 | ALWAYS | AUTO |
| >>Coding Scheme designator | (0008,0102) | SH | DCM | ALWAYS | AUTO |
| >>Code Meaning | (0008,0104) | LO | Device | ALWAYS | AUTO |
| >Relationship Type | (0040,A010) | CS | CONTAINS | ALWAYS | AUTO |
| >Value Type | (0040,A040) | CS | CONTAINER | ALWAYS | AUTO |
| >Concept Name Code Sequence | (0040,A043) | SQ | | ALWAYS | AUTO |
| >>Code Value | (0008,0100) | SH | | | |
| >>Coding Scheme Designator | (0008,0102) | SH | | | |
| >>Code Meaning | (0008,0104) | LO | | | |

| CSD | CV | CM | Concept Name |
|---|---|---|---|
| DCM | 121111 | Summary | DTID 5002 |
| DCM | 125001 | Fetal Biometry Ratios | DTID 5004 |
| DCM | 125002 | Fetal Biometry | DTID 5005 |
| DCM | 125003 | Fetal Long Bones | DTID 5006 |
| DCM | 125004 | Fetal Cranium | DTID 5007 |
| DCM | 121070 | Findings | DTID 5010<br>DTID 5025<br>DTID 5026 |
| DCM | 125009 | Early Gestation | DTID 5011 |
| DCM | 125011 | Pelvis and Uterus | DTID 5015 |

| | | | | | |
|---|---|---|---|---|---|
| >Continuity of Content | (0040,A050) | CS | SEPARATE | ALWAYS | AUTO |
| >Content Sequence | (0040,A730) | SQ | | ALWAYS | AUTO |
| >>Relationship Type | (0040,A010) | CS | HAS CONCEPT MOD | ALWAYS | AUTO |
| >>Value Type | (0040,A040) | CS | CODE | ALWAYS | AUTO |
| >>Concept Name Code Sequence | (0040,A043) | SQ | | ALWAYS | AUTO |
| >>>Code Value | (0008,0100) | SH | G-C0E3 | ALWAYS | AUTO |
| >>>Coding Scheme Designator | (0008,0102) | SH | SRT | ALWAYS | AUTO |
| >>>Code Meaning | (0008,0104) | LO | Finding Site | ALWAYS | AUTO |
| >>Concept Code Sequence | (0040,A043) | SQ | | ALWAYS | AUTO |
| >>>Code Value | (0008,0100) | SH | | | |
| >>>Coding Scheme Designator | (0008,0102) | SH | | | |
| >>>Code Meaning | (0008,0104) | LO | | | |

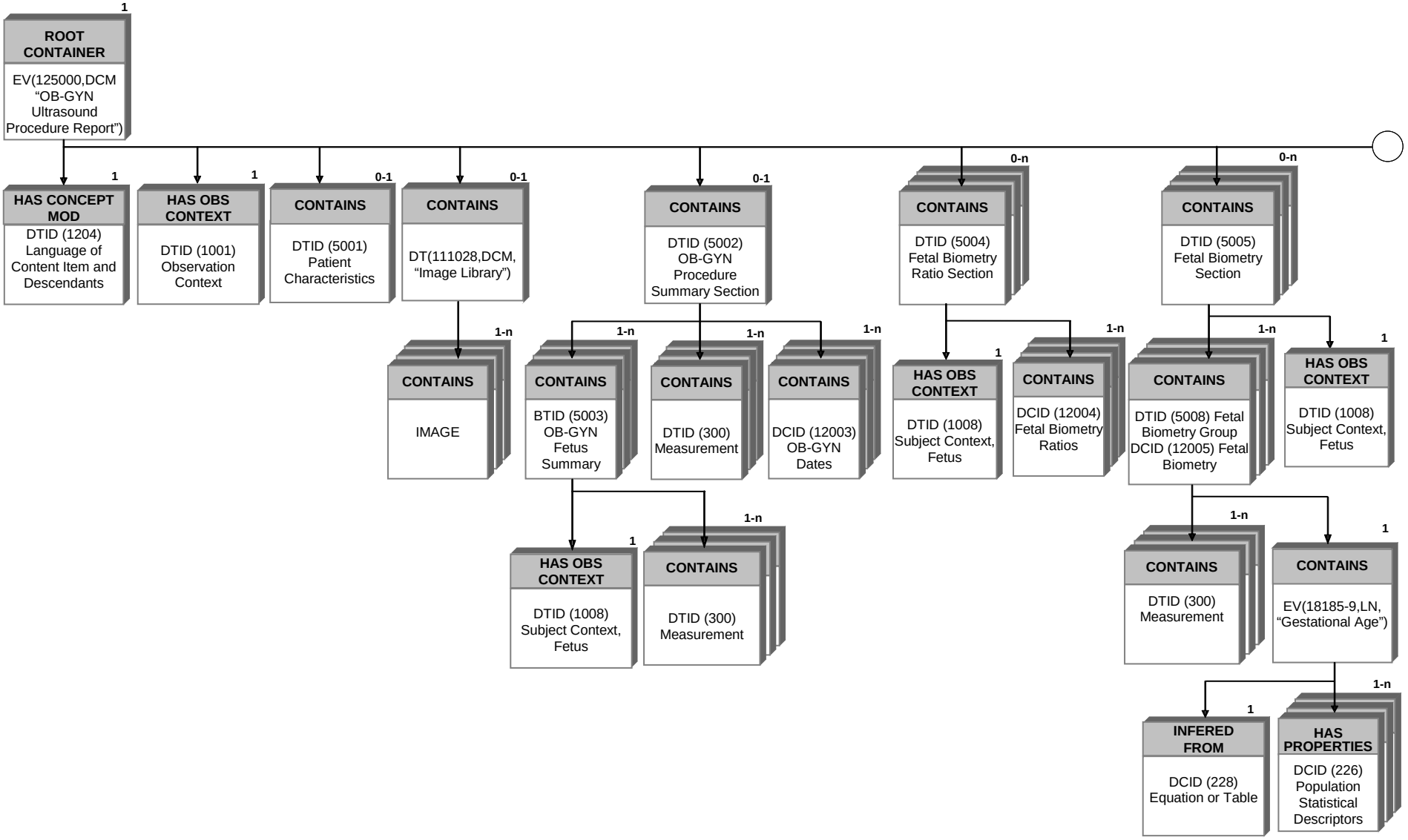
| CSD | CV | CM | Concept Name |
|---|---|---|---|
| SRT | T-F1300 | Amniotic Sac | DTID 5010 |
| SRT | T-F6800 | Embryonic Vascular Structure | DTID 5025 |
| SRT | T-D6007 | Pelvic Vascular Structure | DTID 5026 |

**Child Containers are continuing depending on Concept DTID. See Figure 8.1-1 and Table 8.1-27**

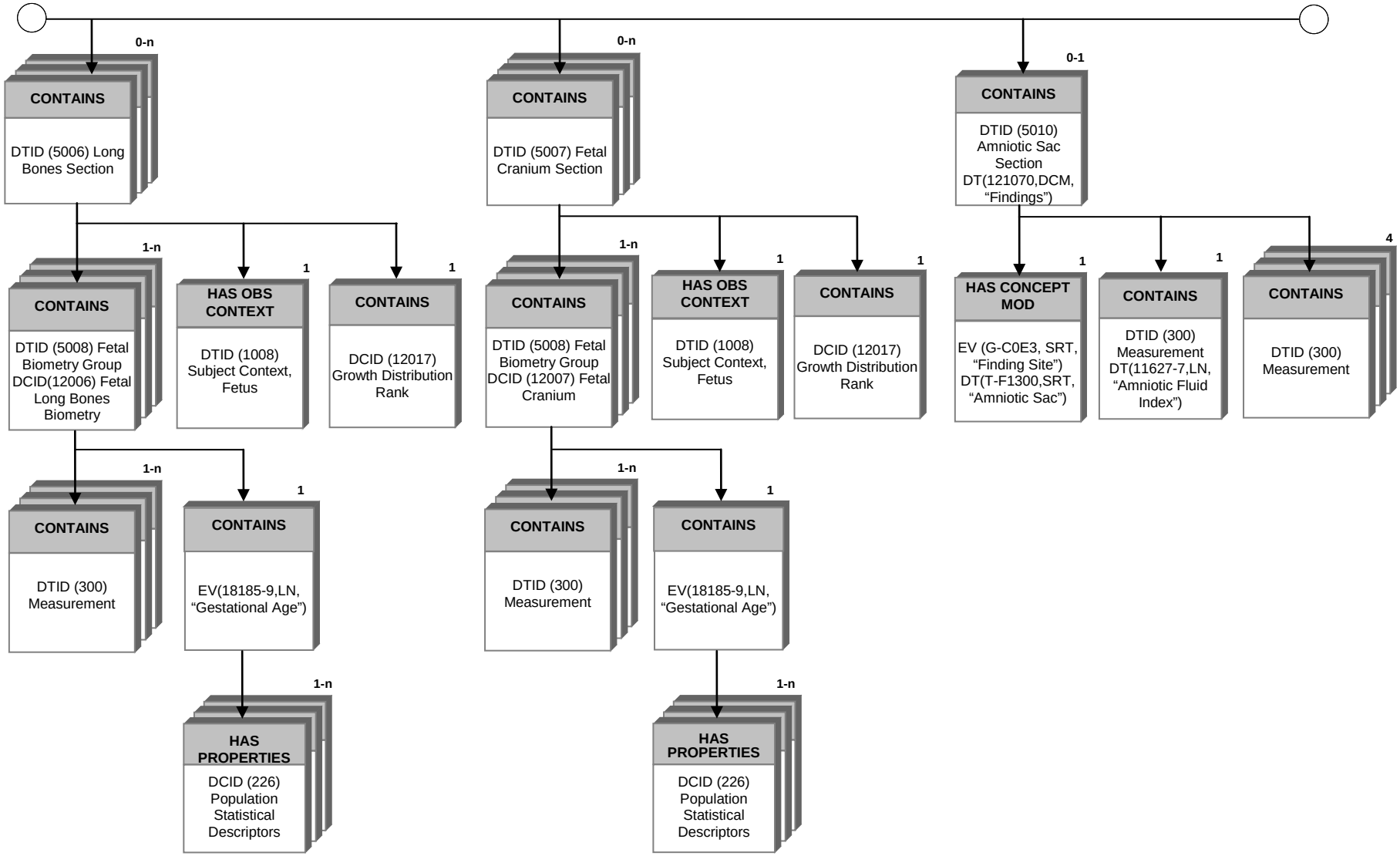
**Table 8.1-26**
**Private Application Module of Created Enhanced / Comprehensive SR SOP Instances**

| Attribute Name | Tag | VR | Value | Presence of Value | Source |
|---|---|---|---|---|---|
| Private Creator | (7015,0010) | LO | TOSHIBA_SR | ALWAYS | AUTO |
| Application Header Data | (7015,1060) | OB | | ALWAYS | AUTO |

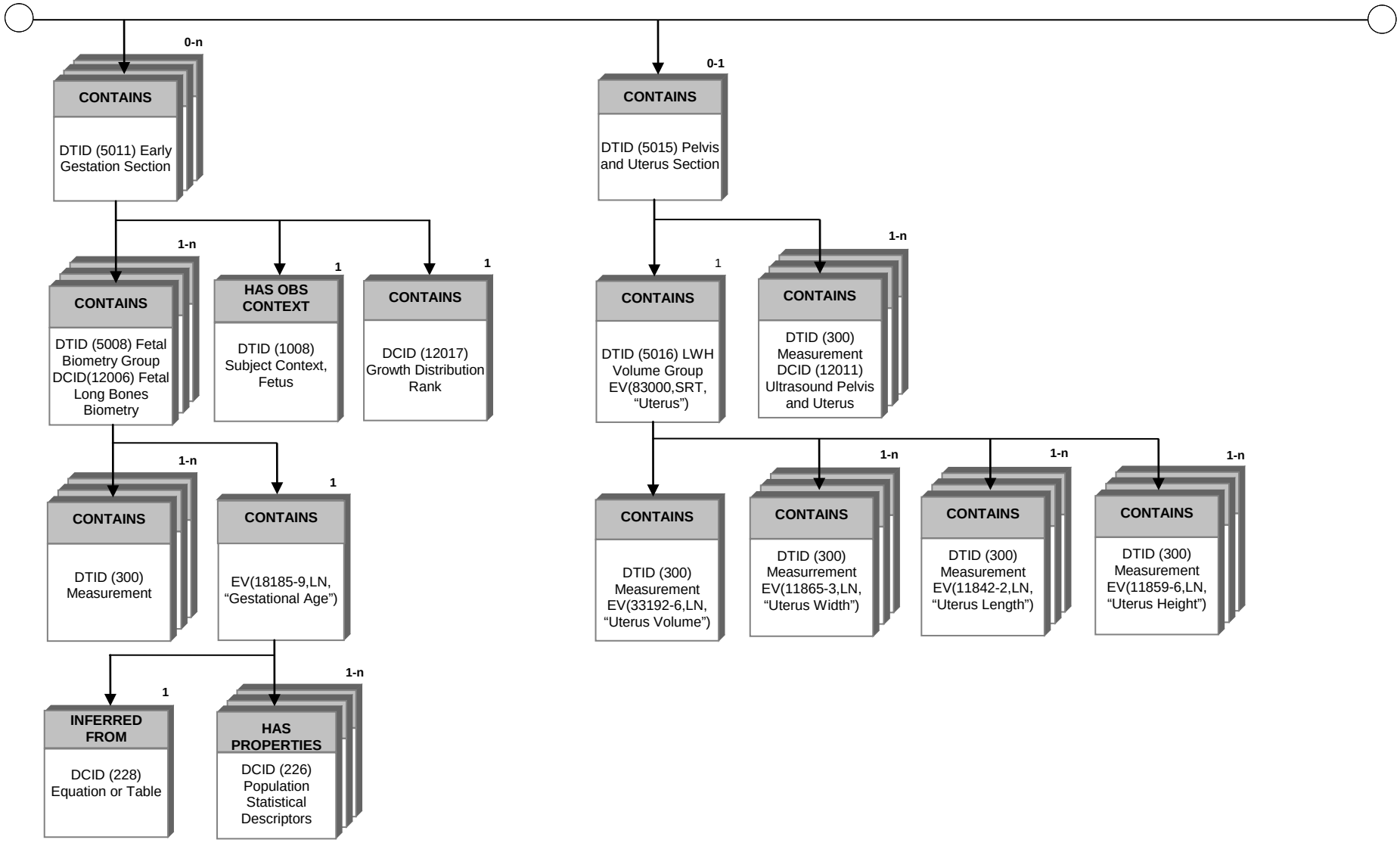
**Figure 8.1-1**
**OB-GYN Ultrasound Procedure Report SR Document IOD Template Structure**



**(Figure 8.1-1 Continued)**



**(Figure 8.1-1 Continued)**



**(Figure 8.1-1 Continued)**

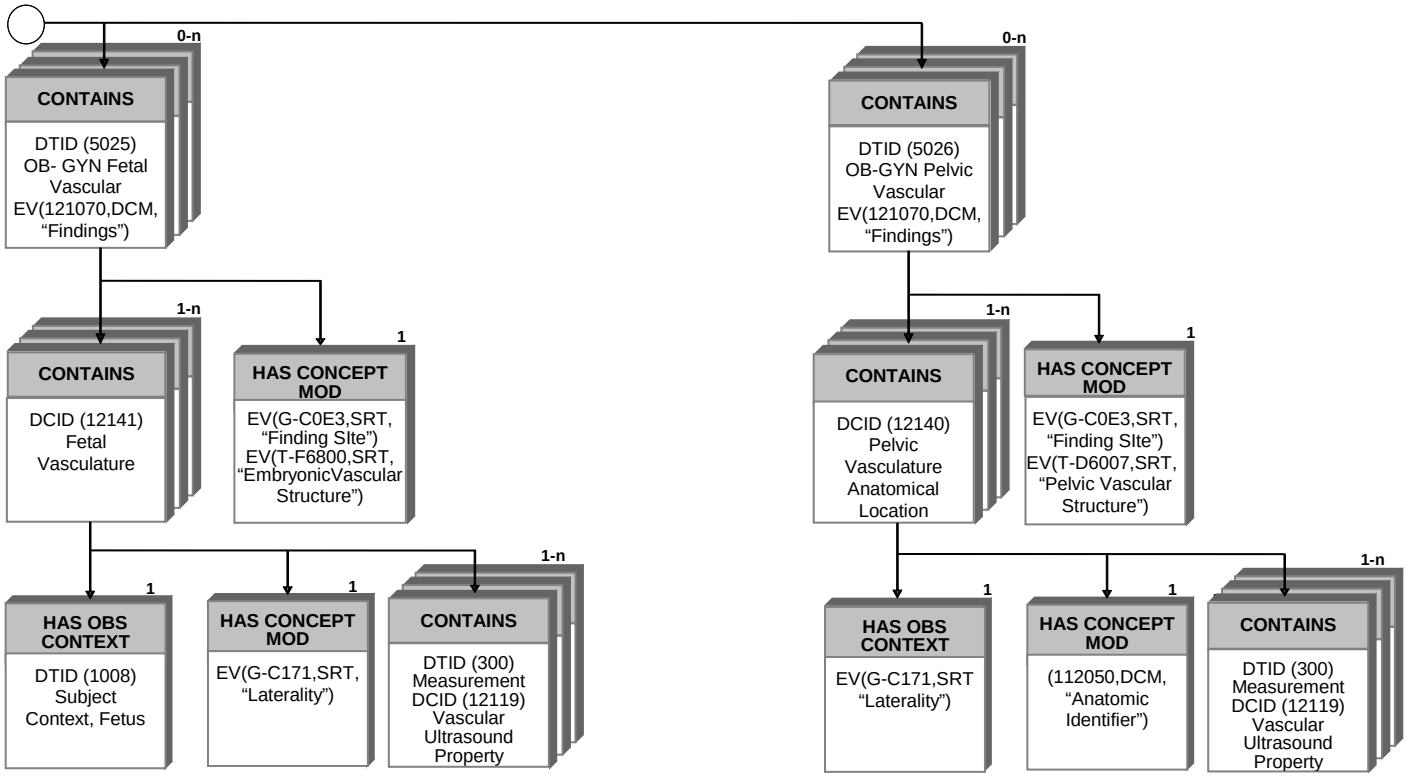


**Table 8.1-27**
**Details of Measurement Items & Calc Items in OB-GYN Template**

| Toshiba Measurement Identifier | | | | | DICOM SR Representation | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $Measurement | | | $Equation | | | | $Laterality | | | $AnatomyGroup | | |
| Item ID | Item Name | Display Name | Unit | Detailed Container Tree Information | CSD | CV | CM | Author Item ID | CSD | CV | CM | CSD | CV | CM | CSD | CV | CM |
| 264 | BPD | BPD | mm | TID 5005 Fetal Biometry Section | LN | 11820-8 | Biparietal Diameter | EQ_ID_11 | LN | 33085-2 | BPD, Tokyo 1986 | | | | | | |
| | | | | | | | | EQ_ID_49 | TSBus | 03510054 | BPD, TokyoSD 1986 | | | | | | |
| | | | | | | | | EQ_ID_12 | TSBus | 03510064 | BPD, Osaka 1983 | | | | | | |
| | | | | | | | | EQ_ID_50 | TSBus | 03510065 | BPD, OsakaSD | | | | | | |
| | | | | | | | | EQ_ID_37 | TSBus | 03510033 | BPD, JSUM | | | | | | |
| | | | | | | | | EQ_ID_51 | TSBus | 03510055 | BPD, JSUMSD | | | | | | |
| | | | | | | | | EQ_ID_2 | LN | 11902-4 | BPD, Hadlock 1984 | | | | | | |
| | | | | | | | | EQ_ID_3 | LN | 11906-5 | BPD, Kurtz 1980 | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_4 | LN | 11907-3 | BPD, Sabbagha 1978 | | | | | | |
| | | | | | | | | EQ_ID_5 | LN | 33081-1 | BPD, Mertz 1988 | | | | | | |
| | | | | | | | | EQ_ID_6 | LN | 33538-0 | BPD, Hansmann 1986 | | | | | | |
| | | | | | | | | EQ_ID_8 | LN | 33083-7 | BPD, Rempen 1991 | | | | | | |
| | | | | | | | | EQ_ID_40 | LN | 33087-8 | BPD-oo, Chitty 1997 | | | | | | |
| | | | | | | | | EQ_ID_41 | LN | 33086-0 | BPD-oi, Chitty 1997 | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | EQ_ID_7 | TSBus | 03510066 | BPD, Campbell | | | | | | |
| | | | | | | | | EQ_ID_35 | TSBus | 03510031 | BPD, ASUM 1990 | | | | | | |
| | | | | | | | | EQ_ID_47 | TSBus | 03510032 | BPD, ASUM 2001 | | | | | | |
| | | | | | | | | EQ_ID_46 | TSBus | 3510036 | BPD,CFEF 2000 | | | | | | |
| | | | | | | | | EQ_ID_1 | LN | 33539-8 | BPD, Jeanty 1982 | | | | | | |
| | | | | | | | | EQ_ID_10 | TSBus | 03510035 | BPD, Shepard | | | | | | |
| | | | | | | | | EQ_ID_48 | TSBus | 03510034 | BPD, Nicolaides 1994 | | | | | | |
| 265 | OFD | OFD | mm | TID 5005 Fetal Biometry Section | LN | 11851-3 | Occipital-Frontal Diameter | EQ_ID_5 | TSBus | 3510045 | OFD, Merz | | | | | | |
| | | | | | | | | EQ_ID_6 | LN | 33120-7 | OFD, Hansmann 1986 | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_9 | TSBus | 3510044 | OFD, Chitty | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | EQ_ID_47 | LN | 33119-9 | OFD, ASUM 2000 | | | | | | |
| | | | | | | | | EQ_ID_48 | TSBus | 3510046 | OFD, Nicolaides 1994 | | | | | | |

| Toshiba Measurement Identifier | | | | | DICOM SR Representation | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $Measurement | | | $Equation | | | | $Laterality | | | $AnatomyGroup | | |
| Item ID | Item Name | Display Name | Unit | Detailed Container Tree Information | CSD | CV | CM | Author Item ID | CSD | CV | CM | CSD | CV | CM | CSD | CV | CM |
| 266 | HC | HC | mm | TID 5005 Fetal Biometry Section | LN | 11984-2 | Head Circumference | EQ_ID_1 | LN | 11934-7 | HC, Jeanty 1984 | | | | | | |
| | | | | | | | | EQ_ID_5 | LN | 33115-7 | HC Merz, 1988 | | | | | | |
| | | | | | | | | EQ_ID_2 | LN | 11932-1 | HC, Hadlock 1984 | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_6 | LN | 33543-0 | HC, Hansmann 1986 | | | | | | |
| | | | | | | | | EQ_ID_44 | LN | 33110-8 | HC measured, Chitty 1997 | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | EQ_ID_45 | LN | 33111-6 | HC derived, Chitty 1997 | | | | | | |
| | | | | | | | | EQ_ID_35 | TSBus | 03510067 | HC, ASUM 1991 | | | | | | |
| | | | | | | | | EQ_ID_47 | LN | 33109-0 | HC, ASUM 2000 | | | | | | |
| | | | | | | | | EQ_ID_46 | TSBus | 3510043 | HC, CFEF | | | | | | |
| 267 | THD | THD | mm | TID 5005 Fetal Biometry Section | LN | 11864-6 | Transverse Thoracic Diameter | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_6 | TSBus | 03510068 | THD, HANSMANN | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 268 | TAD | TAD | mm | TID 5005 Fetal Biometry Section | LN | 11862-0 | Tranverse Abdominal Diameter | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_5 | TSBus | 3510048 | TAD, Merz | | | | | | |
| | | | | | | | | EQ_ID_46 | TSBus | 3510047 | TAD, CFEF | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 269 | TTD | TTD | mm | TID 5005 Fetal Biometry Section | TSBus | 3510063 | Transverse Trunk Diameter | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_11 | TSBus | 3510076 | TTD, Tokyo | | | | | | |
| | | | | | | | | EQ_ID_49 | TSBus | 3510077 | TTD, TokyoSD | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 270 | APAD | APAD | mm | TID 5005 Fetal Biometry Section | LN | 11818-2 | Anterior-Posterior Abdominal Diameter | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_5 | TSBus | 3510078 | APAD, Merz | | | | | | |
| | | | | | | | | EQ_ID_7 | TSBus | 3510079 | APAD, Campbell | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 271 | APTD | APTD | mm | TID 5005 Fetal Biometry Section | LN | 11819-0 | Anterior-Posterior Trunk Diameter | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_11 | TSBus | 3510080 | APTD, Tokyo | | | | | | |
| | | | | | | | | EQ_ID_49 | TSBus | 3510081 | APTD, TokyoSD | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |

| Toshiba Measurement Identifier | | | | | DICOM SR Representation | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $Measurement | | | $Equation | | | | $Laterality | | | $AnatomyGroup | | |
| Item ID | Item Name | Display Name | Unit | Detailed Container Tree Information | CSD | CV | CM | Author Item ID | CSD | CV | CM | CSD | CV | CM | CSD | CV | CM |
| 272 | AC | AC | mm | TID 5005 Fetal Biometry Section | LN | 11979-2 | Abdominal Circumference | EQ_ID_49 | TSBus | 3510056 | AC, TokyoSD 1996 | | | | | | |
| | | | | | | | | EQ_ID_13 | TSBus | 0351002B | AC, Deter 1982 | | | | | | |
| | | | | | | | | EQ_ID_37 | TSBus | 0351002C | AC, Jsum 2003 | | | | | | |
| | | | | | | | | EQ_ID_51 | TSBus | 3510057 | AC, JsumSD 2003 | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_2 | LN | 11892-7 | AC, Hadlock 1984 | | | | | | |
| | | | | | | | | EQ_ID_1 | LN | 11893-5 | AC, Jeanty 1984 | | | | | | |
| | | | | | | | | EQ_ID_5 | LN | 33075-3 | AC, Mertz 1988 | | | | | | |
| | | | | | | | | EQ_ID_10 | TSBus | 0351002E | AC, Shepard | | | | | | |
| | | | | | | | | EQ_ID_44 | TSBus | 0351002A | AC, Chitty Pltd | | | | | | |
| | | | | | | | | EQ_ID_45 | TSBus | 3510029 | AC, Chitty Drvd | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | EQ_ID_35 | TSBus | 03510069 | AC, ASUM 1991 | | | | | | |
| | | | | | | | | EQ_ID_47 | LN | 33072-0 | AC, ASUM 2000 | | | | | | |
| | | | | | | | | EQ_ID_46 | TSBus | 3510028 | AC, CFEF | | | | | | |
| | | | | | | | | EQ_ID_7 | LN | 11889-3 | AC, Campbell 1975 | | | | | | |
| | | | | | | | | EQ_ID_48 | TSBus | 0351002D | AC, Nicolaides | | | | | | |
| | | | | | | | | EQ_ID_11 | TSBus | 0351002F | AC, Tokyo 1996 | | | | | | |
| 273 | FL | FL | mm | TID 5005 Fetal Biometry Section | LN | 11963-6 | Femur Length | EQ_ID_11 | LN | 33103-3 | FL, Tokyo 1986 | | | | | | |
| | | | | | | | | EQ_ID_49 | TSBus | 03510058 | FL, TokyoSD 1986 | | | | | | |
| | | | | | | | | EQ_ID_12 | TSBus | 0351006A | FL, Osaka 1983 | | | | | | |
| | | | | | | | | EQ_ID_50 | TSBus | 0351006B | FL, OsakaSD | | | | | | |
| | | | | | | | | EQ_ID_37 | TSBus | 03510042 | FL, JSUM | | | | | | |
| | | | | | | | | EQ_ID_51 | TSBus | 03510059 | FL, JSUMSD | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_2 | LN | 11920-6 | FL, Hadlock 1984 | | | | | | |
| | | | | | | | | EQ_ID_1 | LN | 11923-0 | FL, Jeanty 1984 | | | | | | |
| | | | | | | | | EQ_ID_5 | LN | 33542-2 | FL, Merz 1988 | | | | | | |
| | | | | | | | | EQ_ID_6 | LN | 33541-4 | FL, Hansmann 1986 | | | | | | |
| | | | | | | | | EQ_ID_15 | TSBus | 3510040 | FL, O-Brien | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | EQ_ID_16 | TSBus | 3510041 | FL, Warda 1985 | | | | | | |
| | | | | | | | | EQ_ID_9 | LN | 33098-5 | FL, Chitty 1997 | | | | | | |
| | | | | | | | | EQ_ID_35 | TSBus | 0351006C | FL, ASUM 1991 | | | | | | |
| | | | | | | | | EQ_ID_47 | TSBus | 0351003B | FL, Asum 2001 | | | | | | |
| | | | | | | | | EQ_ID_46 | TSBus | 0351003D | FL, CFEF | | | | | | |
| | | | | | | | | EQ_ID_14 | LN | 11922-2 | FL, Hohler 1982 | | | | | | |
| | | | | | | | | EQ_ID_48 | TSBus | 0351003F | FL, Nicolaides | | | | | | |

| Toshiba Measurement Identifier | | | | | DICOM SR Representation | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $Measurement | | | $Equation | | | | $Laterality | | | $AnatomyGroup | | |
| Item ID | Item Name | Display Name | Unit | Detailed Container Tree Information | CSD | CV | CM | Author Item ID | CSD | CV | CM | CSD | CV | CM | CSD | CV | CM |
| 274 | CRL | CRL | mm | TID 5011 Early Gestation Section | LN | 11957-8 | Crown Rump Length | EQ_ID_11 | LN | 33096-9 | CRL, Tokyo 1986 | | | | | | |
| | | | | | | | | EQ_ID_12 | TSBus | 0351006D | CRL, Osaka 1983 | | | | | | |
| | | | | | | | | EQ_ID_37 | TSBus | 0351003A | CRL, JSUM | | | | | | |
| | | | | | | | | EQ_ID_2 | LN | 11910-7 | CRL, Hadlock 1992 | | | | | | |
| | | | | | | | | EQ_ID_18 | LN | 11914-9 | CRL, Robinson 1975 | | | | | | |
| | GA | | d | TID 5011 Early Gestation Section | LN | 18185-9 | Gestational Age | EQ_ID_8 | LN | 33094-4 | CRL, Rempen 1991 | | | | | | |
| | | | | | | | | EQ_ID_52 | TSBus | 0351006E | CRL, Rob & Flem 2007 | | | | | | |
| | | | | | | | | EQ_ID_6 | LN | 33540-6 | CRL, Hansmann 1986 | | | | | | |
| | | | | | | | | EQ_ID_35 | LN | 33089-4 | CRL, ASUM 1991 | | | | | | |
| | | | | | | | | EQ_ID_47 | LN | 33090-2 | CRL, ASUM 2000 | | | | | | |
| | SD | | {sd} | TID 5011 Early Gestation Section | DCM | 121414 | Standard deviation of population | EQ_ID_1 | LN | 11917-2 | CRL, Jeanty 1984 | | | | | | |
| | | | | | | | | EQ_ID_17 | LN | 11913-1 | CRL, Nelson 1981 | | | | | | |
| | | | | | | | | EQ_ID_49 | TSBus | 0351006F | CRL, TokyoSD | | | | | | |
| | | | | | | | | EQ_ID_50 | TSBus | 03510070 | CRL, OsakaSD | | | | | | |
| | | | | | | | | EQ_ID_51 | TSBus | 03510071 | CRL, JSUMSD | | | | | | |
| 275 | Humerus | Humerus | mm | TID 5006 Long Bones Section | LN | 11966-9 | Humerus length | EQ_ID_5 | LN | 11937-0 | Humerus, Merz 1987 | | | | | | |
| | GA | | d | TID 5006 Long Bones Section | LN | 18185-9 | Gestational Age | EQ_ID_1 | LN | 11936-2 | Humerus, Jeanty 1984 | | | | | | |
| | SD | | {sd} | TID 5006 Long Bones Section | DCM | 121414 | Standard deviation of population | EQ_ID_47 | LN | 33116-5 | Humerus Length, ASUM 2000 | | | | | | |
| 276 | Radius | Radius | mm | TID 5006 Long Bones Section | LN | 11967-7 | Radius length | EQ_ID_5 | LN | 11939-6 | Radius, Merz 1987 | | | | | | |
| | GA | | d | TID 5006 Long Bones Section | LN | 18185-9 | Gestational Age | | | | | | | | | | |
| | SD | | {sd} | TID 5006 Long Bones Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 277 | Ulna | Ulna | mm | TID 5006 Long Bones Section | LN | 11969-3 | Ulna length | EQ_ID_5 | LN | 11945-3 | Ulna, Merz 1987 | | | | | | |
| | GA | | d | TID 5006 Long Bones Section | LN | 18185-9 | Gestational Age | EQ_ID_1 | LN | 11944-6 | Ulna, Jeanty 1984 | | | | | | |
| | SD | | {sd} | TID 5006 Long Bones Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 278 | Tibia | Tibia | mm | TID 5006 Long Bones Section | LN | 11968-5 | Tibia length | EQ_ID_5 | TSBus | 03510049 | Tibia, Merz | | | | | | |
| | GA | | d | TID 5006 Long Bones Section | LN | 18185-9 | Gestational Age | EQ_ID_1 | LN | 11941-2 | Tibia, Jeanty 1984 | | | | | | |
| | SD | | {sd} | TID 5006 Long Bones Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |

| Toshiba Measurement Identifier | | | | | DICOM SR Representation | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $Measurement | | | $Equation | | | | $Laterality | | | $AnatomyGroup | | |
| Item ID | Item Name | Display Name | Unit | Detailed Container Tree Information | CSD | CV | CM | Author Item ID | CSD | CV | CM | CSD | CV | CM | CSD | CV | CM |
| 279 | Fibula | Fibula | mm | TID 5006 Long Bones Section | LN | 11964-4 | Fibula length | | | | | | | | | | |
| | GA | | d | TID 5006 Long Bones Section | LN | 18185-9 | Gestational Age | EQ_ID_5 | LN | 11918-0 | Fibula, Merz 1987 | | | | | | |
| | SD | | {sd} | TID 5006 Long Bones Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 280 | CER | CER | mm | TID 5005 Fetal Biometry Section | LN | 11863-8 | Trans Cerebellar Diameter | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_19 | TSBus | 03510037 | CER, Goldstein | | | | | | |
| | | | | | | | | EQ_ID_20 | TSBus | 03510038 | CER, Hill | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | EQ_ID_48 | TSBus | 3510039 | CER, Nicolaides | | | | | | |
| 281 | Foot | Foot | mm | TID 5005 Fetal Biometry Section | LN | 11965-1 | Foot length | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_21 | LN | 11926-3 | Foot Length, Mercer 1987 | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 282 | GSD | GS | mm | TID 5011 Early Gestation Section | LN | 11850-5 | Gestational Sac Diameter | EQ_ID_11 | LN | 33108-2 | GS, Tokyo 1986 | | | | | | |
| | | | | | | | | EQ_ID_22 | LN | 11928-9 | GS, Hellman 1969 | | | | | | |
| | GA | | d | TID 5011 Early Gestation Section | LN | 18185-9 | Gestational Age | EQ_ID_49 | TSBus | 03510072 | GS, TokyoSD | | | | | | |
| | SD | | {sd} | TID 5011 Early Gestation Section | DCM | 121414 | Standard deviation of population | EQ_ID_6 | LN | 33106-6 | GS, Hansmann 1982 | | | | | | |
| | | | | | | | | EQ_ID_8 | LN | 11929-7 | GS, Rempen 1991 | | | | | | |
| 283 | ORB | OOD | mm | TID 5007 Fetal Cranium Section | LN | 11629-3 | Outer Orbital Diameter | | | | | | | | | | |
| | GA | | d | TID 5007 Fetal Cranium Section | LN | 18185-9 | Gestational Age | EQ_ID_23 | LN | 33124-9 | OOD, Mayden 1982 | | | | | | |
| | SD | | {sd} | TID 5007 Fetal Cranium Section | DCM | 121414 | Standard deviation of population | EQ_ID_1 | TSBus | 03510073 | OOD Jeanty 1984 | | | | | | |
| 284 | Kidney | Kidney | mm | TID 5005 Fetal Biometry Section | TSBus | 3330000 | Fetal Kidney length | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_24 | TSBus | 0351008A | GA Fetal Kidney Bertagnoli | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 285 | HA | HA | mm2 | TID 5005 Fetal Biometry Section | TSBus | 3310000 | Head Area | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_9 | TSBus | 0351000B | HA Chitty | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |

| Toshiba Measurement Identifier | | | | | DICOM SR Representation | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $Measurement | | | $Equation | | | | $Laterality | | | $AnatomyGroup | | |
| Item ID | Item Name | Display Name | Unit | Detailed Container Tree Information | CSD | CV | CM | Author Item ID | CSD | CV | CM | CSD | CV | CM | CSD | CV | CM |
| 286 | AA | AA | mm2 | TID 5005 Fetal Biometry Section | TSBus | 3310001 | Abdominal Area | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_9 | TSBus | 0351004A | AA Chitty | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 287 | FTA | FTA | mm2 | TID 5005 Fetal Biometry Section | LN | 33068-8 | Thoracic Area | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | EQ_ID_12 | TSBus | 03510074 | FTA Osaka 1983 | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | EQ_ID_50 | TSBus | 03510075 | FTA Osaka SD | | | | | | |
| 288 | Clavicle | Clavicle | mm | TID 5006 Long Bones Section | LN | 11962-8 | Clavicle length | | | | | | | | | | |
| | GA | | d | TID 5006 Long Bones Section | LN | 18185-9 | Gestational Age | EQ_ID_39 | LN | 33088-6 | Clavical length,Yarkoni 1985 | | | | | | |
| | SD | | {sd} | TID 5006 Long Bones Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 289 | TC | TC | mm | TID 5005 Fetal Biometry Section | LN | 11988-3 | Thoracic Circumference | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | Equation Details Not Available | | | | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 292 | YS | Yolk Sac | mm | TID 5011 Early Gestation Section | LN | 11816-6 | Yolk Sac length | | | | | | | | | | |
| | GA | | d | TID 5011 Early Gestation Section | LN | 18185-9 | Gestational Age | Equation Details Not Available | | | | | | | | | |
| | SD | | {sd} | TID 5011 Early Gestation Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 293 | Ocular | Ocular D | mm | TID 5005 Fetal Biometry Section | TSBus | 03330001 | Occular Diameter | | | | | | | | | | |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 295 | Cist.Magna | Cist.Magna | mm | TID 5005 Fetal Biometry Section | LN | 11860-4 | Cisterna Magna length | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | Equation Details Not Available | | | | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |

| Toshiba Measurement Identifier | | | | | DICOM SR Representation | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Item ID | Item Name | Display Name | Unit | Detailed Container Tree Information | $Measurement | | | $Equation | | | | $Laterality | | | $AnatomyGroup | | |
| | | | | | CSD | CV | CM | Author Item ID | CSD | CV | CM | CSD | CV | CM | CSD | CV | CM |
| 296 | AFI | AFI | mm | TID 5010 Amniotic Sac Section | LN | 11627-7 | Amniotic Fluid Index | Equation Details Not Available | | | | | | | | | |
| | GA | | d | TID 5010 Amniotic Sac Section | LN | 18185-9 | Gestational Age | | | | | | | | | | |
| | SD | | {sd} | TID 5010 Amniotic Sac Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 297 | Cervix Len | Cervix Len | mm | TID 5015 Pelvis and Uterus Section | LN | 11961-0 | Cervix Length | Equation Details Not Available | | | | | | | | | |
| | GA | | d | TID 5015 Pelvis and Uterus Section | LN | 18185-9 | Gestational Age | | | | | | | | | | |
| | SD | | {sd} | TID 5015 Pelvis and Uterus Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 298 | NT | NT | mm | TID 5007 Fetal Cranium Section | LN | 33069-6 | Nuchal Translucency | Equation Details Not Available | | | | | | | | | |
| | GA | | d | TID 5007 Fetal Cranium Section | LN | 18185-9 | Gestational Age | | | | | | | | | | |
| | SD | | {sd} | TID 5007 Fetal Cranium Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | |
| 299 | Umb VD | Umb VD | mm | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | TSBus | 3330003 | Umbilical Vein Diameter | | | | | | | | SRT | T-F1820 | Umbilical Vein |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 301 | FHR | FHR | {H.B.}/min | TID 5003 OB-GYN Fetus Summary | LN | 11948-7 | Fetal Heart Rate | | | | | | | | | | |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 302 | Umb ARI | Umb ARI | Nill | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 12023-8 | Resistivity Index | | | | | | | | SRT | T-F1810 | Umbilical Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 303 | Umb API | Umb API | Nill | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 12008-9 | Pulsatility Index | | | | | | | | SRT | T-F1810 | Umbilical Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 304 | MCA RI | MCA RI | Nill | TID 5025 OB-GYN Fetal Vascular Ultrasound Measurement Group | LN | 12023-8 | Resistivity Index | | | | | | | | SRT | T-45600 | Middle Cerebral Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |

| Toshiba Measurement Identifier | | | | | DICOM SR Representation | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Item ID | Item Name | Display Name | Unit | Detailed Container Tree Information | $Measurement | | | $Equation | | | | $Laterality | | | $AnatomyGroup | | |
| | | | | | CSD | CV | CM | Author Item ID | CSD | CV | CM | CSD | CV | CM | CSD | CV | CM |
| 305 | MCA PI | MCA PI | Nill | TID 5025 OB-GYN Fetal Vascular Ultrasound Measurement Group | LN | 12008-9 | Pulsatility Index | | | | | | | | SRT | T-45600 | Middle Cerebral Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 308 | rUtPI | Rt Uterin PI | Nill | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 12008-9 | Pulsatility Index | | | | | SRT | G-A100 | Right | SRT | T-46820 | Uterine Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 309 | rUtRI | Rt Uterin RI | Nill | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 12023-8 | Resistivity Index | | | | | SRT | G-A100 | Right | SRT | T-46820 | Uterine Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 310 | lUtPI | Lt Uterin PI | Nill | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 12008-9 | Pulsatility Index | | | | | SRT | G-A101 | Left | SRT | T-46820 | Uterine Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 311 | lUtRI | Lt Uterin RI | Nill | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 12023-8 | Resistivity Index | | | | | SRT | G-A101 | Left | SRT | T-46820 | Uterine Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 312 | F AoRI | Fetal AO RI | Nill | TID 5025 OB-GYN Fetal Vascular Ultrasound Measurement Group | LN | 12023-8 | Resistivity Index | | | | | | | | SRT | T-42000 | Aorta |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 313 | F AoPI | Fetal AO PI | Nill | TID 5025 OB-GYN Fetal Vascular Ultrasound Measurement Group | LN | 12008-9 | Pulsatility Index | | | | | | | | SRT | T-42000 | Aorta |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 314 | EFW | EFW | g | TID 5003 OB-GYN Fetus Summary | LN | 11727-5 | Estimated Weight | | | | | | | | | | |
| | GA | | d | TID 5003 OB-GYN Fetus Summary | LN | 18185-9 | Gestational Age | | | | | | | | | | |
| | SD | | {sd} | TID 5003 OB-GYN Fetus Summary | DCM | 121414 | Standard deviation of population | | | | | | | | | | |

| Toshiba Measurement Identifier | | | | | DICOM SR Representation | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Item ID | Item Name | Display Name | Unit | Detailed Container Tree Information | $Measurement | | | $Equation | | | | $Laterality | | | $AnatomyGroup | | | |
| | | | | | CSD | CV | CM | Author Item ID | CSD | CV | CM | CSD | CV | CM | CSD | CV | CM | |
| 315 | HC2 | HC2 | mm | TID 5005 Fetal Biometry Section | LN | 11984-2 | Head Circumference | Equation Details Not Available | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | | | | | | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | | |
| 316 | AC2 | AC2 | mm | TID 5005 Fetal Biometry Section | LN | 11979-2 | Abdominal Circumference | Equation Details Not Available | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | | | | | | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | | |
| 317 | AXT | AXT | mm2 | TID 5005 Fetal Biometry Section | TSBus | 3330002 | AXTArea | | | | | | | | | | | |
| | GA | | d | TID 5005 Fetal Biometry Section | LN | 18185-9 | Gestational Age | | | | | | | | | | | |
| | SD | | {sd} | TID 5005 Fetal Biometry Section | DCM | 121414 | Standard deviation of population | | | | | | | | | | | |
| 318 | HC/AC | HC/AC | % | TID 5004 Fetal Biometry Ratio Section | LN | 11947-9 | HC/AC | | | | | | | | | | | |
| | GA | Nill | | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | | |
| 319 | FL/AC | FL/AC | % | TID 5004 Fetal Biometry Ratio Section | LN | 11871-1 | FL/AC | | | | | | | | | | | |
| | GA | Nill | | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | | |
| 320 | FL/BPD | FL/BPD | % | TID 5004 Fetal Biometry Ratio Section | LN | 11872-9 | FL/BPD | | | | | | | | | | | |
| | GA | Nill | | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | | |
| 13 | CI | CI | Nill | TID 5004 Fetal Biometry Ratio Section | LN | 11823-2 | Cephalic Index | | | | | | | | | | | |
| | GA | Nill | | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | | |
| 323 | FL/HC | FL/HC | % | TID 5004 Fetal Biometry Ratio Section | LN | 11873-7 | FL/HC | | | | | | | | | | | |
| | GA | Nill | | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | | |

| Toshiba Measurement Identifier | | | | | DICOM SR Representation | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $Measurement | | | $Equation | | | | $Laterality | | | $AnatomyGroup | | |
| Item ID | Item Name | Display Name | Unit | Detailed Container Tree Information | CSD | CV | CM | Author Item ID | CSD | CV | CM | CSD | CV | CM | CSD | CV | CM |
| 324 | CI | CI2 | Nill | TID 5004 Fetal Biometry Ratio Section | LN | 11823-2 | Cephalic Index | | | | | | | | | | |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 401 | Nasal Bone | Nasal Bone | mm | TID 5005 Fetal Biometry Section | SRT | T-11149 | Nasal bone | | | | | | | | | | |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 402 | UmbAVS | Umb A VPS | cm/s | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 11726-7 | Peak Systolic Velocity | | | | | | | | SRT | T-F1810 | Umbilical Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 403 | UmbAVM | Umb A VM | cm/s | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 20352-1 | Time averaged mean velocity | | | | | | | | SRT | T-F1810 | Umbilical Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 404 | UmbAVD | Umb A VED | cm/s | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 11653-3 | End Diastolic Velocity | | | | | | | | SRT | T-F1810 | Umbilical Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 405 | UmbAVN | Umb A VMIN | cm/s | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 11665-7 | Minimum Diastolic Velocity | | | | | | | | SRT | T-F1810 | Umbilical Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 406 | MCA VS | MCA VPS | cm/s | TID 5025 OB-GYN Fetal Vascular Ultrasound Measurement Group | LN | 11726-7 | Peak Systolic Velocity | | | | | | | | SRT | T-45600 | Middle Cerebral Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 407 | MCA VM | MCA VM | cm/s | TID 5025 OB-GYN Fetal Vascular Ultrasound Measurement Group | LN | 11692-1 | Time averaged peak velocity | | | | | | | | SRT | T-45600 | Middle Cerebral Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 408 | MCA VD | MCA VED | cm/s | TID 5025 OB-GYN Fetal Vascular Ultrasound Measurement Group | LN | 11653-3 | End Diastolic Velocity | | | | | | | | SRT | T-45600 | Middle Cerebral Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |

| Toshiba Measurement Identifier | | | | | DICOM SR Representation | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $Measurement | | | $Equation | | | | $Laterality | | | $AnatomyGroup | | |
| Item ID | Item Name | Display Name | Unit | Detailed Container Tree Information | CSD | CV | CM | Author Item ID | CSD | CV | CM | CSD | CV | CM | CSD | CV | CM |
| 409 | MCA VN | MCA VMIN | cm/s | TID 5025 OB-GYN Fetal Vascular Ultrasound Measurement Group | LN | 11665-7 | Minimum Diastolic Velocity | | | | | | | | SRT | T-45600 | Middle Cerebral Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 414 | rUtVS | Rt Uterin VPS | cm/s | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 11726-7 | Peak Systolic Velocity | | | | | SRT | G-A100 | Right | SRT | T-46820 | Uterine Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 415 | rUtVM | Rt Uterin VM | cm/s | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 20352-1 | Time averaged mean velocity | | | | | SRT | G-A100 | Right | SRT | T-46820 | Uterine Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 416 | rUtVD | Rt Uterin VED | cm/s | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 11653-3 | End Diastolic Velocity | | | | | SRT | G-A100 | Right | SRT | T-46820 | Uterine Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 417 | rUtVN | Rt Uterin VMIN | cm/s | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 11665-7 | Minimum Diastolic Velocity | | | | | SRT | G-A100 | Right | SRT | T-46820 | Uterine Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 418 | lUtVS | Lt Uterin VPS | cm/s | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 11726-7 | Peak Systolic Velocity | | | | | SRT | G-A101 | Left | SRT | T-46820 | Uterine Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 419 | lUtVM | Lt Uterin VM | cm/s | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 20352-1 | Time averaged mean velocity | | | | | SRT | G-A101 | Left | SRT | T-46820 | Uterine Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 420 | lUtVD | Lt Uterin VED | cm/s | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 11653-3 | End Diastolic Velocity | | | | | SRT | G-A101 | Left | SRT | T-46820 | Uterine Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 421 | lUtVN | Lt Uterin VMIN | cm/s | TID 5026 OB-GYN Pelvic Vascular Ultrasound Measurement Group | LN | 11665-7 | Minimum Diastolic Velocity | | | | | SRT | G-A101 | Left | SRT | T-46820 | Uterine Artery |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |

| Toshiba Measurement Identifier | | | | | DICOM SR Representation | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $Measurement | | | $Equation | | | | $Laterality | | | $AnatomyGroup | | |
| Item ID | Item Name | Display Name | Unit | Detailed Container Tree Information | CSD | CV | CM | Author Item ID | CSD | CV | CM | CSD | CV | CM | CSD | CV | CM |
| 422 | F AoVS | Fetal AO VPS | cm/s | TID 5025 OB-GYN Fetal Vascular Ultrasound Measurement Group | LN | 11726-7 | Peak Systolic Velocity | | | | | | | | SRT | T-42000 | Aorta |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 423 | F AoVM | Fetal AO VM | cm/s | TID 5025 OB-GYN Fetal Vascular Ultrasound Measurement Group | LN | 20352-1 | Time averaged mean velocity | | | | | | | | SRT | T-42000 | Aorta |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 424 | F AoVD | Fetal AO VED | cm/s | TID 5025 OB-GYN Fetal Vascular Ultrasound Measurement Group | LN | 11653-3 | End Diastolic Velocity | | | | | | | | SRT | T-42000 | Aorta |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 425 | F AoVN | Fetal AO VMIN | cm/s | TID 5025 OB-GYN Fetal Vascular Ultrasound Measurement Group | LN | 11665-7 | Minimum Diastolic Velocity | | | | | | | | SRT | T-42000 | Aorta |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 426 | AFP | AFP | mm | TID 5010 Amniotic Sac Section | SRT | M-02550 | Diameter | | | | | | | | | | |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |
| 427 | CTAR | CTAR | % | TID 5005 Fetal Biometry Section | TSBus | 03310005 | Cardiothoracic area ratio | | | | | | | | | | |
| | GA | Nill | | | | | | | | | | | | | | | |
| | SD | Nill | | | | | | | | | | | | | | | |

Note: Author Item IDs are just for internal use, and those values are not output.

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

No SOP Class specific fields are required.

### 8.1.3 Attribute Mapping

The tables below show the relationships between attributes received via Modality Worklist, stored in acquired images and communicated via MPPS.

The cell content conventions should be read as follows:

Copy: The value will be copied from a corresponding source attribute of another DICOM object, as defined by the table column.

Copy from: <DICOM attribute>: The source as specified in the referenced DICOM attribute will be used instead of using the DICOM attribute of the same row as the source.

Equal (internally generated): The value will be internally generated which may be used in more than one DICOM object.

**Table 8.1-28**
**Scheduled Case - Attribute Mapping Between Modality Worklist, Image and MPPS**

| Attribute Name | Tag | Modality Worklist | Image IOD | | MPPS IOD | |
|---|---|---|---|---|---|---|
| Study Instance UID | (0020,000D) | Source | Copy | | Scheduled Step Attributes Sequence (0040,0270) | Copy |
| Referenced Study Sequence | (0008,1110) | Source | -- | | | Zero length |
| Accession Number | (0008,0050) | Source | Copy | | | Copy |
| Requested Procedure ID | (0040,1001) | Source | Request Attributes Sequence (0040,0275) | Copy | | Copy |
| Requested Procedure Description | (0032,1060) | Source | | Copy | | Copy |
| Scheduled Procedure Step ID | (0040,0009) | Source | | Copy | | Copy |
| Scheduled Procedure Step Description | (0040,0007) | Source | | Copy | | Copy |
| Scheduled Protocol Code Sequence | (0040,0008) | Source | | Copy | | Zero length |
| Performed Protocol Code Sequence | (0040,0260) | -- | Copy from: Scheduled Protocol Code Sequence (0040,0008). | | Copy from: Scheduled Protocol Code Sequence (0040,0008). | |
| Study ID | (0020,0010) | -- | Copy from: Requested Procedure ID (0040,1001). | | Copy from: Requested Procedure ID (0040,1001). | |
| Performed Procedure Step ID | (0040,0253) | -- | Copy from: Scheduled Procedure Step ID (0040,0009). | | Copy from: Scheduled Procedure Step ID (0040,0009). | |
| Performed Procedure Step Start Date | (0040,0244) | -- | Equal (internally generated). | | Equal (internally generated). | |
| Performed Procedure Step Start Time | (0040,0245) | -- | Equal (internally generated). | | Equal (internally generated). | |

| Attribute Name | Tag | Modality Worklist | Image IOD | MPPS IOD | |
|---|---|---|---|---|---|
| Performed Procedure Step Description | (0040,0254) | -- | Copy from: Scheduled Procedure Step Description (0040,0007). | Copy from: Scheduled Procedure Step Description (0040,0007). | |
| Scheduled Performing Physician's Name | (0040,0006) | Value will be used for Performing Physician's Name as specified below. | -- | -- | |
| Performing Physician's Name | (0008,1050) | -- | Copy from: Scheduled Performing Physician's Name (0040,0006). | Performed Series Sequence (0040,0340) | Copy from: Scheduled Performing Physician's Name (0040,0006). |
| Protocol Name | (0018,1030) | -- | Copy from: Requested Procedure Description (0032,1060) or Scheduled Procedure Step Description (0040,0007).<br>See Note | Performed Series Sequence (0040,0340) | Copy from: Requested Procedure Description (0032,1060) or Scheduled Procedure Step Description (0040,0007).<br>See Note |

Note: Requested Procedure Description (0032,1060) or Scheduled Procedure Step Description (0040,0007) can be linked to the body part to be examined. If a match is found in the Protocol Name Table which is configurable, the system defined term will be copied to Protocol Name (0018,1030): *Abdomen*, *Kidney*, *Testes*, *Thyroid*, *Other*, *TCD*, *GYN*, *Breast*, *Endo Vaginal*, *OB*, *Fetal Heart*, *Neo-General*, *Neo-Head*, *Neo-Hip*, *Adult Heart*, *Pediatric Heart*, *Coronary*, *Carotid*, *PV Arterial*, *PV Venous*, *Digits* or *MSK*.

**Table 8.1-29**
**Unscheduled Case - Attribute Mapping Between Image and MPPS**

| Attribute Name | Tag | Image IOD | | MPPS IOD | |
|---|---|---|---|---|---|
| Study Instance UID | (0020,000D) | Equal (internally generated). | | Scheduled Step Attributes Sequence (0040,0270) | Equal (internally generated). |
| Referenced Study Sequence | (0008,1110) | -- | | | Zero length |
| Accession Number | (0008,0050) | Zero length | | | Zero length |
| Requested Procedure ID | (0040,1001) | Request Attributes Sequence (0040,0275) | Equal (internally generated). | | Equal (internally generated). |
| Requested Procedure Description | (0032,1060) | | -- | | Zero length |
| Scheduled Procedure Step ID | (0040,0009) | | Equal (internally generated). | | Equal (internally generated). |
| Scheduled Procedure Step Description | (0040,0007) | | Equal (internally generated). | | Equal (internally generated). |
| Scheduled Protocol Code Sequence | (0040,0008) | | -- | | Zero length |
| Performed Protocol Code Sequence | (0040,0260) | -- | | Zero length | |
| Study ID | (0020,0010) | Equal (internally generated). | | Equal (internally generated). | |

| Attribute Name | Tag | Image IOD | MPPS IOD | |
|---|---|---|---|---|
| Performed Procedure Step ID | (0040,0253) | Equal (internally generated). | Equal (internally generated). | |
| Performed Procedure Step Start Date | (0040,0244) | Equal (internally generated). | Equal (internally generated). | |
| Performed Procedure Step Start Time | (0040,0245) | Equal (internally generated). | Equal (internally generated). | |
| Performed Procedure Step Description | (0040,0254) | Equal (internally generated). | Equal (internally generated). | |
| Performing Physician's Name | (0008,1050) | -- | Performed Series Sequence (0040,0340) | Zero length |
| Protocol Name | (0018,1030) | Equal (internally generated). | | Equal (internally generated). |

### 8.1.4 Coerced/Modified Fields

Not applicable.

## 8.2 DATA DICTIONARY OF PRIVATE ATTRIBUTES

This product reserves private attribute values in the group 7015.
The private attributes added to created SOP instances or directory records are listed in Table 8.1-26.

## 8.3 CODED TERMINOLOGY AND TEMPLATES

Not applicable.

## 8.4 GRAYSCALE IMAGE CONSISTENCY

Not applicable.

## 8.5 STANDARD EXTENDED / SPECIALIZED / PRIVATE SOP CLASSES

Not applicable.

## 8.6 PRIVATE TRANSFER SYNTAXES

Not applicable.