

**BK Medical**

**System BKSpecto, bk5000 and bk3000**

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## Network Services

Networking SOP Classes	User of Service (SCU)	Provider of Service (SCP)
<b>Transfer</b>		
Ultrasound Image Storage	Yes	No
Ultrasound Multiframe Image Storage	Yes	No
Storage Commitment Push Model	Yes	No
Comprehensive SR	Yes	No
<b>Query/Retrieve</b>		
Patient Root Q/R - FIND	Yes	No
Patient Root/Study Root Q/R - MOVE	Yes	No
<b>Workflow Management</b>		
Modality Worklist	Yes	No
Modality Performed Procedure Step	Yes	No
<b>Print Management</b>		
Basic Grayscale Print Management	Yes	No
Basic Color Print Management	Yes	No

## Supported Structured Report Templates

Concept Name	Template ID
B-K Medical Structured Report	TID BK1000

DICOM is the registered trademark of the National Electrical Manufacturers Association for its standards publications relating to digital communications of medical information.

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## 1 Introduction

This section provides general information about the purpose, scope and contents of this Conformance Statement.

This document describes the conformance to the DICOM 3.0 Standard of bkSpecto and releases of bk5000/bk3000 after January 2020.

The BK Medical ultrasound system is a device that:

- Generates ultrasound images and other data that:
  - Can be sent using DICOM standard protocols and definitions to network archive servers.
  - Can be printed on a remote printer.
- Generates ultrasound comprehensive structure reporting and other data that:
  - Can be sent using DICOM standard protocols and definitions to network archive servers.
- Can retrieve data from a Radiology Information System (RIS).
- Can notify the Remote Modality Performed Procedure Step server on the procedures performed.
- Can query/retrieve ultrasound images with a set of key attributes.

### 1.1 Scope and Field of Application

The scope of this DICOM Conformance Statement is to facilitate data exchange with equipment from BK Medical. This document specifies the compliance to the DICOM standard, formally called the DICOM PS 3.X standards. It contains a short description of the applications involved and provides technical information about the data exchange capabilities of the equipment. The main elements describing these capabilities are: the supported DICOM Service Object Pair (SOP) Classes, Application Profiles, Roles, Information Object Definitions (IOD) and Transfer Syntaxes.

The field of application is the integration of the BK Medical equipment into an environment of medical devices.

This Conformance Statement should be read in conjunction with the DICOM standard and its addenda.



## 1.2 Intended Audience

This Conformance Statement is intended for:

- (Potential) customers.
- System integrators of medical equipment.
- Marketing staff interested in system functionality.
- Software designers implementing DICOM interfaces.

It is assumed that the reader is familiar with the DICOM standard.

## 1.3 Used Definitions, Terms, Symbols and Abbreviations

DICOM definitions, terms and abbreviations are used throughout this Conformance Statement. For a description of these, see DICOM PS 3.3 and PS 3.4.

The following symbols and abbreviations are used in this document:

AE	Application Entity
AP	Application Profile
BCID	Baseline Context Group Identifier
BKCMR	BK Content Mapping Resource
DCID	Defined Context Group Identifier
DCMR	DICOM Content Mapping Resource
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
DIMSE-C	DICOM Message Service Element-Composite
DIMSE-N	DICOM Message Service Element-Normalized
EV	Enumerated Value
HIS	Hospital Information System
IE	Information Entity
IFF	If and only if
IOD	Information Object Definition
ISO	International Standards Organization
MPPS	Modality Performed Procedure Step
NEMA	National Electrical Manufacturers Association
PACS	Picture Archiving and Communication System
PDU	Protocol Data Unit
Q/R	Query/Retrieve

RIS	Radiology Information System
RWA	Real-World Activity
SC	Service Class
SCP	Service Class Provider
SCU	Service Class User
SNOMED	Systematized Nomenclature of Medicine
SOP	Service-Object Pair
SR	Structured Reporting
TCP/IP	Transmission Control Protocol/Internet Protocol
TID	Template ID
UCUM	Unified Code for Units of Measure
UID	Unique Identifier
US	Ultrasound
VR	Value Representation

The following upper-case abbreviations represent specific Attributes:

CM	Code Meaning (0008, 0104)
CSD	Coding Scheme Designator (0008, 0102)
CSV	Coding Scheme Version (0008,0103)
CV	Code Value (0008, 0100)

#### 1.4 References

DICOM      The Digital Imaging and Communications in Medicine (DICOM) standard:  
 DICOM PS 3.X (X refers to the part 1 - 21 and Supplements).  
 National Electrical Manufacturers Association (NEMA)  
 1300 N. 17th Street, Suite 900, Rosslyn, Virginia 22209, United States of America.  
 Can also be downloaded from <http://medical.nema.org/>

#### 1.5 Important Note to the Reader

This Conformance Statement by itself does not guarantee successful interoperability of BK Medical equipment with non-BK Medical equipment. The user should be aware of the following issues:

- Interoperability.
- Validation.
- New (or old) versions of the DICOM standard.

### **1.5.1 Interoperability**

Interoperability refers to the ability of application functions, distributed over two or more systems, to work successfully together. The integration of medical devices into a networked environment may require application functions that are not specified within the scope of DICOM. Consequently, using only the information provided by this Conformance Statement does not guarantee interoperability of BK Medical equipment with non-BK Medical equipment.

It is the user's responsibility to thoroughly analyze the application requirements and to specify a solution that integrates BK Medical equipment with non-BK Medical equipment.

### **1.5.2 Validation**

BK Medical equipment has been tested to assure that the actual implementation of the DICOM interface corresponds with this Conformance Statement.

Where BK Medical equipment is linked to non-BK Medical equipment, the first step is to compare the relevant Conformance Statements. If the Conformance Statements indicate that successful information exchange should be possible, additional validation tests will be necessary to ensure the functionality, performance, accuracy and stability of image, report and image or report related data.

It is the user's responsibility to specify the appropriate test and to carry out the additional validation tests.

### **1.5.3 New Versions of the DICOM Standard**

The DICOM Standard will evolve in future to meet the user's growing requirements and to incorporate new features and technologies. BK Medical plans to adapt its equipment to future versions of the DICOM Standard. In order to do so, BK Medical reserves the right to make changes to its products or to discontinue their delivery.

## 2 Implementation Model - Network

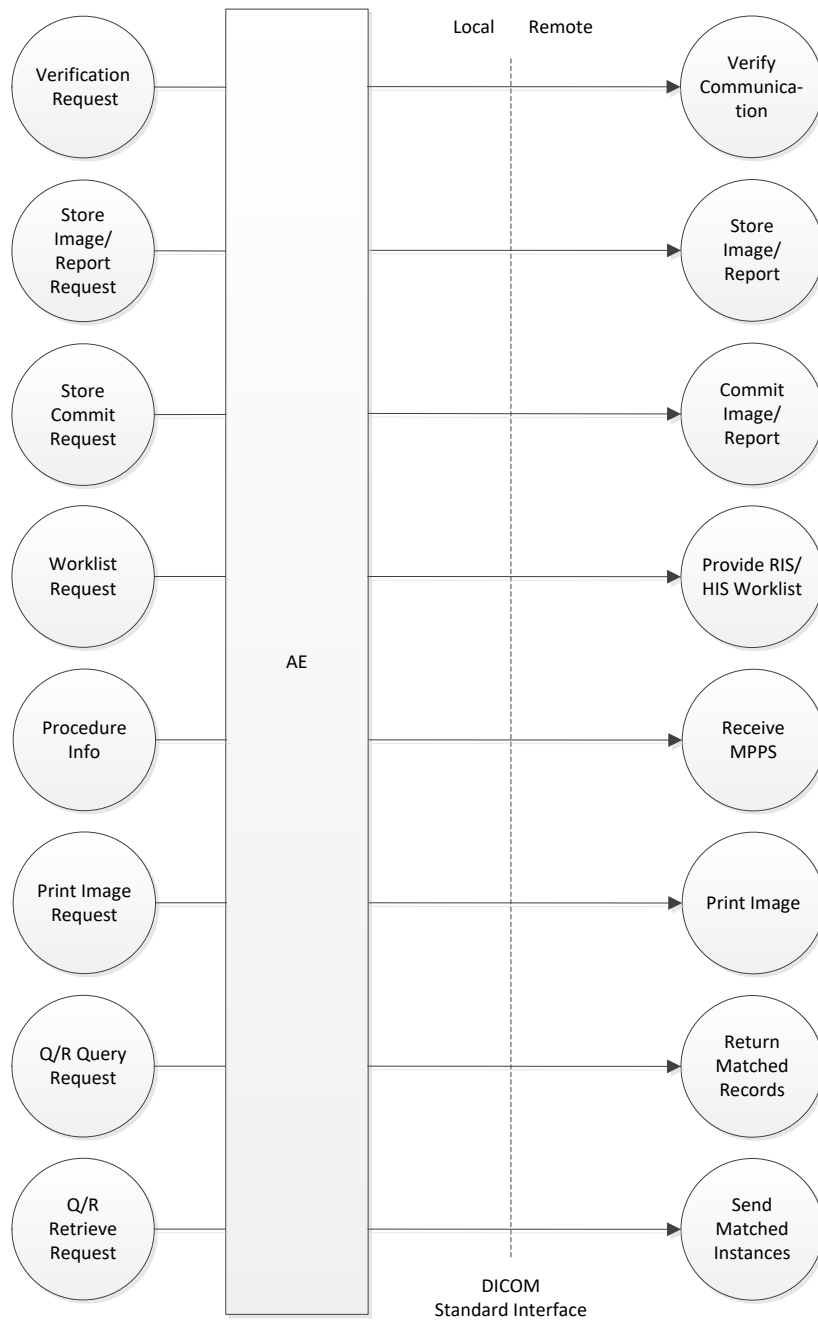
BK Medical's Ultrasound Systems with DICOM option activated has implemented the DICOM functionality as one Application Entity.

The AE contains the following DICOM functionality:

- Verify communication to a remote AE.
- Retrieve a worklist for ultrasound modality from a Radiology Information System (RIS) or a Hospital Information System (HIS).
- Send Step by Step information on the procedures performed to a remote server.
- Transfer ultrasound images to a remote storage system.
- Transfer ultrasound comprehensive structured reports to a remote storage system.
- Transfer ultrasound video clips as multi-frame images to a remote storage system.
- Request Storage Commitment of images and reports to the remote storage system.
- Print ultrasound images on a remote printer.
- Query information about ultrasound images from a remote storage system.
- Retrieve ultrasound images from a remote storage system.

### 2.1 Application Data Flow Diagram

The Implementation Model for the AE, the DICOM networking service for the BK Medical Ultrasound System, is depicted in Figure 2-1.



**Figure 2-1 AE Implementation Model**

The AE can send image and report storage objects. It receives requests from the operator to transmit an image and report to a specific DICOM destination. It receives the Storage Commitment reports from the remote storage server and passes it to the Modality. It can query for information from external sources. Worklist demographic queries can be initiated and executed by the AE. It can query for patient, study, series, and composite object instance data. It can issue instance retrieval requests and receive the retrieved instances. It receives the performed procedure step notifications from the Modality and initiates an association and transmits the information to the remote MPPS Server. The operator can initiate an association with a DICOM-compliant grayscale or color printer to print a selected image.

The AE is implemented as a Windows®-based application.

### **2.1.1 Verify Communication**

The BK Medical Ultrasound System is able to verify DICOM communication with a remote system, i.e., PACS and Storage Commitment, RIS, MPPS or a remote printer. This is done at the operator's request. This function is used for network diagnostic purposes.

### **2.1.2 Store Image and Reports**

The BK Medical Ultrasound System is able to store ultrasound images, structured reports and clips on a remote system. This is done at the operator's request. The remote destination (PACS) can be set in the DICOM setup. Image data to be transferred are instances of the Ultrasound Image Storage or Ultrasound Multi-frame Image Storage SOP class. The structured reports of Generic data to be transferred are instances of the Comprehensive SR SOP class.

Graphics, both within the ultrasound image and surrounding the image, are transferred as burned-in graphics, so it is the operator's responsibility to put in or leave out the desired graphics before transferring the image.

### **2.1.3 Storage Commitment**

The BK Medical Ultrasound system is capable of supporting a remote Storage Commitment System. The user can enable or disable Storage Commitment. If Storage Commitment is configured, the user can choose to configure a separate SCP for Storage Commitment or can configure the Storage SCP to act also as Storage Commitment SCP. The Storage Commitment SCP can be set as part of the PACS Configuration in the DICOM setup.

If Storage Commitment SCP is configured, the Storage SCU issues a Commit request for the images and reports transferred to the Storage SCP by the Storage AE, and the Commitment SCP issues an acknowledgement to the Storage AE on successful commitment of the images and reports.

### **2.1.4 Retrieve HIS/RIS Worklist**

The BK Medical Ultrasound System is able to retrieve the ultrasound modality Worklist from a RIS. This is done both at the operator's request and automatically at a specified time interval. From the received list, a selection of one Worklist item can be made, i.e. the examination to be performed. The data received from the RIS consists of patient demographic data and procedure step information.

### **2.1.5 Performed Procedure Step**

The BK Medical Ultrasound System is able to notify a remote Modality Performed Procedure Step System (MPPS) on the procedures performed. The remote system can be configured in

the DICOM Setup. It initiates an association with the MPPS to notify the Start, Stop or Discontinued Examinations / Procedures.

### **2.1.6 Print Image**

The BK Medical Ultrasound System is able to print ultrasound images on a remote grayscale or color printer. The images are sent to the printer at the operator's request or at the end of the current examination.

### **2.1.7 Query/Retrieve**

The BK Medical Ultrasound System is able to query and retrieve Patient Root Information Model. It issues a set of key attributes to query at the level of patient, study, series or composite object instance. It supplies itself as a move destination for retrieval, and handling the incoming C-STORE sub-operations. It may cancel the ongoing C-FIND or C-MOVE service at any time per user's request.

## **2.2 Functional Definition of Application Entity**

The AE acts as a Service Class User (SCU) for the following SOP classes:

- Verification.
- Storage (PACS and Storage Commitment).
- Basic worklist management.
- Modality Performed Procedure Step (MPPS).
- Basic grayscale print management.
- Basic color print management.
- Patient root query/retrieve information model – FIND
- Patient root query/retrieve information model - MOVE
- Study root query/retrieve information model - MOVE

### **2.2.1 Real World Activity: Verification**

The Verification AE supports as an SCU the following functions:

- Negotiates and establishes DICOM association with remote AEs, i.e., PACS, Storage Commitment Server, RIS, MPPS, and remote printer.
- Verifies communication to a remote AE by issuing an echo request.
- Releases the association with a remote AE.
- Notifies the operator of the communication status.

### **2.2.2 Real World Activity: Storage**

The Storage AE supports as an SCU the following functions:

- Negotiates and establishes DICOM association with a remote PACS (Storage SCP).
- Sends DICOM Information Objects (US, US-mf & Reports) to the remote SCP.
- Requests Commit (Storage Commitment SCP) for the images and reports transferred to the remote PACS.
- Awaits the acknowledgement from the Storage Commitment SCP on successful “Commit” of the images and reports
- Updates the status of the transferred images and reports as “Committed” in the Local Archive (Modality).
- Provides the option of enabling or disabling Storage Commitment.
- The user can choose the PACS SCP to act as both Storage Commitment and PACS or configure a separate Server to act as a Storage Commitment server.
- Releases the association with the remote SCP.
- Notifies the operator of the communication status.

### **2.2.3 Real World Activity: Request Worklist**

The Request Worklist AE supports as an SCU the following functions:

- Negotiates and establishes DICOM association with a remote RIS system (SCP).
- Queries for patient and procedure step information using the Modality Worklist Information Model.
- Releases the association with a remote RIS system.
- Shows the received worklist information to the operator.

### **2.2.4 Real World Activity: Performed Procedure Step**

The Modality Performed Procedure Step AE supports as an SCU the following functions:

- Negotiates and establishes DICOM association with a remote MPPS system (SCP).
- Notifies the MPPS on the Start, Stop and Discontinue of an examination.
- Updates the status of the examination in the local patient database.
- Releases the association with the remote MPPS system.

### **2.2.5 Real World Activity: Print**

The Print AE supports as an SCU the following functions:

- Negotiates and establishes DICOM association with a remote printer (SCP).



- Creates a Film Session.
- Creates one Film Box.
- Sets (updates) one or more Grayscale or Color Image Box.
- Prints (action) a Film Box, i.e., prints one copy of a single film of the film session.
- Releases the association with a remote printer.

### **2.2.6 Real World Activity: Query/Retrieve**

The Q/R AE supports as an SCU the following baseline functions:

- Negotiates and establishes DICOM association with a remote PACS (Storage SCP).
- Issues C-FIND requests that the SCP perform a match of all keys specified in the Identifier of the request down to a Q/R level specified in the request.
- Interpretes various responses for C-FIND command including Pending, Success, Failed, or Refused.
- May cancel the C-FIND service at any time during the process.
- Issues C-MOVE requests providing unique key attribute for each level above the Q/R level based on the query results, with move destination set as itself.
- Handles incoming C-STORE requests as SCP role of C-STORE sub-operations.
- Interpretes various responses for C-MOVE command including Success, Failure or Refused.
- May cancel the C-MOVE service at any time during the process.

### **2.3 Sequencing of Real-World Activities**

Not applicable.

### 3 AE Specifications

#### 3.1 AE Specification

The Application Entity provides Standard Conformance to the following DICOM SOP classes as an SCU:

**Table 3.1-1: Supported SOP Classes by the AE as SCU**

SOP Class Name	SOP Class UID
Verification	1.2.840.10008.1.1
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
Storage Commitment Push Model	1.2.840.10008.1.20.1
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31
Basic Grayscale Print Management Meta	1.2.840.10008.5.1.1.9
Basic Color Print Management Meta	1.2.840.10008.5.1.1.18
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3
Comprehensive Structured Report Storage	1.2.840.10008.5.1.4.1.1.88.33
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2

The Application Entity does not support DICOM SOP classes as an SCP, except for storage as sub-operation of Q/R retrieval.

#### 3.1.1 Association Establishment Policies

##### 3.1.1.1 General

The Application Context Name that is always proposed is:

DICOM 3.0 Application Context: "1.2.840.10008.3.1.1.1"

The maximum Protocol Data Unit (PDU) size for PDUs sent to the BK Medical Ultrasound System is fixed at 32Kb (64Kb for verification). The minimum PDU size accepted for sending from the scanner is 512 bytes. In case the receiving SCP claims PDUs smaller than 512 bytes, then 512 bytes is used.

##### 3.1.1.2 Number of Associations

The AE will attempt only one association establishment at a time.

### 3.1.1.3 Asynchronous Nature

The AE does not support asynchronous mode.

### 3.1.1.4 Implementation Identifying Information

The implementation information for this Application Entity is:

Implementation Class UID: 1.2.208.154.1

Implementation Version Name: BKM DICOM 3.3

### 3.1.2 Association Initiation Policy

The AE initiates associations for the following activities:

- Verify Communication. See section 3.1.2.1.
- Store Image/Report. See section 3.1.2.2.
- Storage Commitment. See section 3.1.2.3
- Request Worklist. See section 3.1.2.4
- Performed Procedure Step. See section 3.1.2.5
- Print Image. See section 3.1.2.6
- Patient Root Query. See section 3.1.2.7
- Q/R Retrieve. See section 3.1.2.8

#### 3.1.2.1 Real-World Activity: "Echo Operation"

##### 3.1.2.1.1 Associated Real-World Activity

The Associated Real-World Activity is the attempt to verify communications with a remote AE. This occurs when the operator selects the Echo function from the dialog box of the DICOM setup. In the event that the remote AE does not respond for some reason, the operations will time out after 120 seconds and the association will be released.

##### 3.1.2.1.2 Proposed Presentation Contexts

**Table 3.1-2: Transfer Syntax**

Name List	UID List
DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2
DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1

**Table 3.1-3: Proposed Presentation Contexts for Sending Verification Request**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Verification	1.2.840.10008.1.1	See Table 3.1-2	SCU / SCP	None

**3.1.2.1.2.1 SOP-Specific Conformance to Verification SOP Class**

The AE provides standard conformance. Extended negotiation is not supported.

Verification Service Class is a feature used for network diagnostic purposes. Association is released upon receipt of each C-ECHO confirmation.

**3.1.2.2 Real World Activity: Archive Image(s) / Report**

**3.1.2.2.1 Associated Real-World Activity**

The BK Medical Ultrasound System operator sends a request for storage of an image or a Multi-frame image or a structured report to a remote system. The image or Multi-frame image or structured report is transferred to the remote system.

The remote system is one of the DICOM system settings. After the transfer, the association is released. In the event that the remote system does not respond for some reason, the operations will time out after 120 seconds and the association will be released.

In the event of failure to transfer the Image/Report to the Remote device, the modality tries to re-send the images/reports every 30 seconds, till the configured Max retry attempts are reached. Once the maximum retry limit is reached, the modality stops retrying and notifies the operator on the failed transfer.

The images/reports can either be sent to the Remote system one by one, or as a batch of images/reports together.

**3.1.2.2.2 Proposed Presentation Contexts**

**Table 3.1-4: Transfer Syntax**

Name List	UID List
DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2
DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1
JPEG Baseline (Process 1): Default Transfer Syntax for Lossy JPEG 8 Bit Image Compression	1.2.840.10008.1.2.4.50

JPEG Lossless (Processes 14): Default Transfer Syntax for Lossless JPEG Image Compression	1.2.840.10008.1.2.4.70
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**Table 3.1-5: Proposed Presentation Contexts for Image Storage**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	1.2.840.10008.1.2 (default) or 1.2.840.10008.1.2.1 See Table 3.1-4	SCU	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	1.2.840.10008.1.2.4.70 (default) or 1.2.840.10008.1.2.4.50 or 1.2.840.10008.1.2 or 1.2.840.10008.1.2.1 See Table 3.1-4	SCU	None
Comprehensive Structured Report Storage	1.2.840.10008.5.1.4.1.1.88.33	1.2.840.10008.1.2.1 (default) or 1.2.840.10008.1.2 See Table 3.1-4	SCU	None

Note: Transfer Syntax for Multi-frame Image Storage or Image Storage can only be changed by trained service personnel. Default for Multi-frame Image Storage is JPEG Baseline (1.2.840.10008.1.2.4.70), and for Image Storage is Implicit VR Little Endian (1.2.840.10008.1.2)

**3.1.2.2.2.1 SOP-Specific Conformance to Storage SOP Class**

The AE provides standard conformance. Extended negotiation is not supported.

A detailed overview of the applied US Image IOD is given in appendix 9.1.

If a RIS connection is present, Patient and Study related information is retrieved by the AE from the RIS via the Worklist and written in the image headers of the images and Multi-frames to be stored.

The UIDs – (Study Instance UID, Series Instance UID and SOP Instance UID) in the images are generated when the related Study, Series and Image are created. This means that two storages/transfers of the same image will have the same UIDs. The Study Instance UID will be retrieved from the RIS if it is present in the Worklist.

In the following cases, the images and Multi-frames will be resent until the transmission succeeded or the user cancels the jobs:

- If the AE is unable to open an association with the selected destination AE.
- If the Abstract Syntax for an image is not supported by the receiving AE.
- If a failed or refused response to the C-STORE operation is received.

The following are the status codes that are more specifically processed when receiving messages from the Storage SCP equipment:

**Table 3.1-6: Storage Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success		0000	
	<i>All others</i>		Association is terminated; Transfer will be retried until aborted by user.

### 3.1.2.3 Storage Commitment

#### 3.1.2.3.1 Associated Real-World Activity

The Storage AE requests the Storage Commitment of the Storage SOP Classes if a remote AE is configured as Storage Commitment Server (SCP) through the PACS listed in Table 3.1-8 (Storage SCP).

The remote system is one of the DICOM system settings. The Storage commitment acknowledgement can be received in the association requesting the commitment. The Storage AE waits on a configurable listener port, for incoming associations for the Storage Commitment SCP reporting a successful Storage Commitment.

#### 3.1.2.3.2 Proposed Presentation Contexts

The AE will include the presentation context for the Storage Commitment Push Model.

**Table 3.1-7: Transfer Syntax**

Name List	UID List
DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2

**Table 3.1-8: Proposed Presentation Contexts for Storage Commitment**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Storage Commitment Push Model	1.2.840.10008.1.20.1	See Table 3.1-7	SCU	None

**3.1.2.3.2.1 SOP-Specific Conformance to Storage Commitment SOP Class**

The AE provides standard conformance. Extended negotiation is not supported.

A detailed overview of the applied Storage Commitment IOD is given in appendix 9.6.

The Storage AE will send an N-ACTION request to the Storage commitment through the PACS and close the existing association. Then it will wait for a successful event report from the SCP, after successful transfer of an Image or a batch of Images to the PACS. The SCP shall open a new association with the Storage AE and send an N-EVENT-REPORT (Storage Commitment Response) and then the association shall be released by the SCP.

If the report is not received within the applicable time limit for the transaction UID, that specific Storage Commitment will be considered as a failure and the transaction UID is considered as invalid. Whenever the Storage AE tries to resend documents to the PACS, it also resends the Storage Commit requests.

The Storage AE doesn't send the optional image attributes with the Storage Commitment request. The Storage Commitment Status for the various jobs will be stored in the Patient database. The successful / pending / failed Storage commitment status will be updated in the DICOM Status window.

The following table shows the status of the N-ACTION request.

**Table 3.1-9: Storage Commitment Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success		0000	
	<i>All others</i>		Association is terminated. The status will be updated as pending till the time out. Once the time out occurs the status will be updated as failure.

The N-EVENT-REPORT transports the status of the Storage Commitment.

### 3.1.2.4 Retrieve HIS/RIS Worklist

#### 3.1.2.4.1 Associated Real-World Activity

This function can be triggered at the operator’s request or automatically when the Worklist Window is opened. An association is set up to the pre-configured remote system, the RIS. After receiving the Worklist, the association is released. In the event that the remote system does not respond for some reason, the operations will time out after 90 seconds and the association will be released.

#### 3.1.2.4.2 Proposed Presentation Contexts

The AE will include the following presentation contexts:

**Table 3.1-10: Transfer Syntax**

Name List	UID List
DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2
DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1

**Table 3.1-11: Proposed Presentation Contexts for Request for Modality Worklist**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	See Table 3.1-10	SCU	None

#### 3.1.2.4.2.1 SOP Specific Conformance to Modality Worklist Management

The AE provides standard conformance. Extended negotiation is not supported.

An overview of all requested Matching and Return keys with additional attribute information is given in appendix 9.2. The matching type (Single Value, Wild Card Matching or Range Matching) is also specified.

The user can chose between four date/time queries and one patient query.

The four date/time queries are: Today only, +/- 12 hours, +/- 24 Hours and +/- 3 Days.

The patient query is made from Patient Name (only Last is used), Patient ID, Accession Number and Requested Procedure ID. The user can enter data in one or more of these fields



to query for patients i.e. the user can enter data in the Accession Number field only to query on Accession Number only.

The system will expect the extended character set in the worklist (used on the RIS) to match the extended character set on the scanner. The user will be notified if the two extended character sets do not match. The extended character set used on the scanner depends on the selected language. See section 7 for a list of language and extended character sets.

The following are the status codes that are more specifically processed when messages are received from the Modality Worklist SCP equipment:

**Table 3.1-12: Modality Worklist Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Refused	Out of Resources	A700	Process terminated. No patient data received.
Failed	Identifier does not match SOP Class	A900	Process terminated. No patient data received.
	Unable to process	Cxxx	Process terminated. No patient data received.
Cancel	Matching terminated due to Cancel request	FE00	Process terminated. No patient data received.
Success	Matching is complete – No final identifier is supplied	0000	
Pending	Matches are continuing – Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	FF00	The process of receiving matches continues.
	Matches are continuing – Warnings that one or more Option Keys were not supported for existence and/or matching for this identifier.	FF01	The process of receiving matches continues without any warnings or errors.
	Unknown	None of above	Process terminated. No patient data received.

If the response of a query to the RIS/Worklist-server somehow fails, the user will see an empty list of patients and examinations. The operator can retry by pushing an update key or can enter the patient and examination information manually.

### 3.1.2.5 Performed Procedure(s)

#### 3.1.2.5.1 Associated Real-World Activity

An association is created with the specific remote Modality Performed Procedure Step (MPPS) System when the user selects the patient and on OK in the Patient Entry window or triggers a new examination for the existing patient. The related MPPS SOP instance is created at once.

The status message is sent to the MPPS during Start, Stop or Discontinued Examination. After every message transfer the association is released.

#### 3.1.2.5.2 Proposed Presentation Contexts

The AE will include the following presentation contexts for notification of the performed procedures:

**Table 3.1-13: Transfer Syntax**

Name List	UID List
DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2

**Table 3.1-14: Proposed Presentation Contexts for MPPS**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	See Table 3.1-13	SCU	None

#### 3.1.2.5.2.1 SOP Specific Conformance to Modality Performed Procedure Step SOP Classes

The AE provides standard conformance. Extended negotiation is not supported.

A detailed overview of the applied Modality Performed Procedure Step IOD is given in appendix 9.5.

The N-CREATE Service Element is used to create the MPPS instance. The N-SET Service Element is used to indicate the end of the MPPS.

**Table 3.1-15: MPPS Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success		0000	
	<i>All others</i>		Association is terminated; the status is updated as failure.

### 3.1.2.6 Print Image(s)

#### 3.1.2.6.1 Associated Real-World Activity

An association is initiated with the named DICOM printer when the operator requests the image to be printed. After the printing is finished, the association is released. In the event that the printer does not respond for some reason, the operations will time out after 120 seconds and the association will be released.

#### 3.1.2.6.2 Proposed Presentation Contexts

The AE will include the following presentation contexts for printing an image as a grayscale image:

**Table 3.1-16: Transfer Syntax**

Name List	UID List
DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2

**Table 3.1-17: Proposed Presentation Contexts for Grayscale Print Management**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	See Table 3.1-16	SCU	None

**Table 3.1-18: Proposed Presentation Contexts for Color Print Management**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	See Table 3.1-16	SCU	None

#### 3.1.2.6.2.1 SOP Specific Conformance to Print SOP Classes

The AE provides standard conformance. Extended negotiation is not supported.

The N-CREATE Service Element is used for the Basic Film Session and Basic Film Box. The N-SET Service Element is used for Basic Grayscale Image Box and Basic Color Image Box. The N-ACTION Service Element is used for Basic Film Box to print the image. The N-EVENT-REPORT Service Element is used to report the changes of printer status in an asynchronous way.

The color/monochrome configuration must be correctly set for the printer. A color printer that is set up as a monochrome printer (or vice versa) will not produce any output. A printer that supports both color and monochrome must be installed as a color printer.

The implementation does make use of certain User Optional attributes that are mandatory for the DICOM printer. See appendix 9.3 and 9.4 for details.

The following are the status codes that are more specifically processed when messages are received from the Print SCP equipment:

**Table 3.1-19: Create Basic Film Session Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success	Film session successfully created	0000	
	<i>All others</i>		Association is terminated; Creation will be retried until aborted by user.

**Table 3.1-20: Create Basic Film Box Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success	Film box successfully created	0000	
	<i>All others</i>		Association is terminated; Creation will be retried until aborted by user.

**Table 3.1-21: Set Basic Grayscale and Color Image Box Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success	Image successfully stored in image box	0000	
	<i>All others</i>		Association is terminated; Update (set) will be retried until aborted by user.

**Table 3.1-22: Print Basic Film Box Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Success	Film accepted for printing	0000	
	<i>All others</i>		Association is terminated; Print job will be retried until aborted by user.

**Table 3.1-23: Print SOP Class Status Codes**

Service Status	Further Meaning	Event type ID	Application behavior when receiving Status Codes
NORMAL	Given jobs are being printed	1	
	<i>All others</i>		Association is terminated; Print job will be retried until aborted by user.

### 3.1.2.7 Patient Root Query

#### 3.1.2.7.1 Associated Real-World Activity

This function is triggered at the operator's request after entering query values for a given set of key attributes at different level of patient, study and series. All matching patients are received and displayed. Selecting a patient triggers query of studies/series for the selected patient.

An association is set up to the pre-configured default DICOM storage device. After query is complete, the association is released.

#### 3.1.2.7.2 Proposed Presentation Contexts

The AE will include the following presentation contexts:

**Table 3.1-24: Transfer Syntax**

Name List	UID List
DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2
DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1

**Table 3.1-25: Proposed Presentation Contexts for Request for Patient Root Q/R Information Model - FIND**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	See Table 3.1-24:	SCU	None

**3.1.2.7.2.1 SOP Specific Conformance to Patient Root Q/R Information Model - FIND**

The AE provides baseline behavior of the C-FIND SCU. Extended negotiation is not supported.

An overview of all presented Key Attributes with additional attribute information is given in appendix 9.8. The matching type (Single Value, List of UID, Universal Matching, Wild Card Matching, Range Matching or Sequence Matching) is also specified. Particularly, patient name and patient ID are wild card matching.

The user can enter data for one or more of the query key attributes. Note some the key attributes may not be visible for some vendors even if they are supported in the software.

The system will expect the extended character set in the key attributes to match the extended character set on the scanner. See section 7 for a list of language and extended character sets.

The following are the specific status codes which might be returned in a C-FIND response.

**Table 3.1-26: Patient Root Q/R Information Model - FIND Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Failed	Refused: Out of Resources	A700	Process terminated. No data received.
	Identifier does not match SOP Class	A900	Process terminated. No data received.

	Unable to process	Cxxx	Process terminated. No data received.
Cancel	Matching terminated due to Cancel request	FE00	Process terminated. Stopped receiving remaining data.
Success	Matching is complete – No final identifier is supplied	0000	Complete process.
Pending	Matches are continuing – Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	FF00	The process of receiving matches continues.
	Matches are continuing – Warnings that one or more Option Keys were not supported for existence and/or matching for this identifier.	FF01	The process of receiving matches continues without any warnings or errors.

If the response of a query to the Patient Root Q/R Information Model somehow fails or no matching records returned, the user will see an empty list of patients and examinations. The operator can modify the query key values then retry the search.

### 3.1.2.8 Q/R Retrieve

#### 3.1.2.8.1 Associated Real-World Activity

This function is triggered when a queried study is selected. All the ultrasound series and instances belonging to the selected study will be retrieved.

Both Study Root MOVE and Patient Root Move are supported. It might be configured to try Study Root MOVE first before Patient Root MOVE. Otherwise, Patient Root MOVE is always executed.

An association is set up to the pre-configured default DICOM storage device. After C-MOVE command is complete, the association is released. The subsequent C-STORE sub-operation shall occur on a different association where the local AE serves as an SCP of the storage service class.

#### 3.1.2.8.2 Proposed Presentation Contexts

The AE will include the following presentation contexts:

**Table 3.1-27: Transfer Syntax**

Name List	UID List
DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2
DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1

**Table 3.1-28: Proposed Presentation Contexts for Request for Q/R Information Model - MOVE**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	See Table 3.1-10	SCU	None
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	See Table 3.1-10	SCU	None

**3.1.2.8.2.1 SOP Specific Conformance to Patient Root or Study Root Q/R Information Model - MOVE**

The AE provides baseline behavior of the C-MOVE SCU for either Patient Root or Study Root Q/R Information Model. Extended negotiation is not supported.

The Patient Root C-MOVE is the default method. It can be configured to first try Study Root C-MOVE, and if it is not supported by Q/R SCP, it falls through to Patient Root C-MOVE. When Study Root C-MOVE is issued, the AE is listening on the local SCU port, default 104, for incoming association of C-STORE sub-operations. If Patient Root C-MOVE is used, the AE is listening on a configurable local port, default 7878, for incoming C-STORE association. If the port is the same as local SCU port, the destination AE title of C-MOVE is set to be same as local AE title. Otherwise, the destination AE title is the local AE title suffixed with “\_SCP”, e.g. if the local AE title is “ABC” then the target AE title would be “ABC\_SCP”.

A detailed overview of the applied C-MOVE IOD is given in appendix 9.9.

The following are the specific status codes which might be returned in a C-MOVE response.



**Table 3.1-29: Q/R Information Model – MOVE Status Codes**

Service Status	Further Meaning	Status Codes	Application behavior when receiving Status Codes
Failure	Refused: Out of Resources – Unable to calculate number of matches	A701	Process terminated. No data received.
	Refused: Out of Resources – Unable to perform sub-operations	A702	Process terminated. No data received.
	Refused: Move Destination unknown	A801	Process terminated. No data received.
	Identifier does not match SOP Class	A900	Process terminated. No data received.
	Unable to process	Cxxx	Process terminated. No data received.
Cancel	Sub-operation terminated due to Cancel Indication	FE00	Process terminated. Stopped receiving remaining data.
Warning	Sub-operation Complete – One or more Failures	B000	Complete process.
Success	Sub-operation Complete – No Failures	0000	Complete process.
Pending	Sub-operations are continuing	FF00	Continue process.

If the response to the C-MOVE somehow fails or no matching composite object instances returned, the user will see an empty list of thumbnails.

### 3.1.3 Association Acceptance Policy

The AE accept associations proposed by another application entity to support query-retrieve. See section 3.1.2.8 for details.

## **4 Communication Profiles**

### **4.1 TCP/IP Stack**

The AE provides DICOM 3.0 TCP/IP Network Communication Support as defined in DICOM PS 3.8.

The TCP/IP stack is inherited from the underlying Microsoft Windows®-based operating system.

#### **4.1.1 Physical Media Support**

The system is indifferent to the physical medium; it inherits the medium from the Windows® Operating System.

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## **5 Extensions / Specializations / Privatizations**

Not applicable.

## 6 Configuration

The system is configured in the DICOM setup menu. Only an operator with the correct level of knowledge should change the configuration. The Configuration menu is intended to be used during installation, by a service engineer only.

### 6.1 AE Title/Presentation Address Mapping

The Local AE Title is configurable. A service engineer must configure it during installation.

### 6.2 Configurable Parameters

#### 6.2.1 Local AE

The following fields are configurable:

- Local AE Title.

The following fields can be configured through Windows Network Setup dialog:

- Local IP Address.
- Local IP Net mask.

#### 6.2.2 Remote AE

The following fields are configurable for every remote DICOM AE:

- Remote AE Title.
- Remote IP Address or hostname.
- Responding TCP/IP Port.

#### 6.2.3 Storage

The default transfer syntax for Image Storage is Implicit VR Little Endian. The transfer syntax can be changed to Explicit VR Little Endian by BK Medical trained service personnel.

The default transfer syntax for Multi-frame images (clips) is JPEG. The transfer syntax can be changed by BK Medical trained service personnel, see Table 3.1-5 for alternatives.

The default transfer syntax for Reports Storage is Implicit VR Little Endian. The transfer syntax can be changed to Explicit VR Little Endian by BK Medical trained service personnel.

#### 6.2.4 Storage Commitment

The Storage Commitment support for the Modality can be configured. By default Storage Commitment support is disabled. The Storage Commitment support can be enabled or disabled & either the Storage SCP can be configured as Storage Commitment SCP or a new

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Storage Commitment SCP can be configured. For the Storage commitment SCU, a listener port can be configured. Only BK Medical trained service personnel can do these changes.

### **6.2.5 Printing**

The color/monochrome configuration must be correctly set for the printer. A color printer that is set up as a monochrome printer (or vice versa) will not produce any output. A printer that supports both color and monochrome must be installed as a color printer.

### **6.2.6 Query/Retrieve**

The port number for the C-MOVE destination AE to listen on for incoming C-STORE sub-operations is configurable by service engineer. The default port number is 7878. Note that if this port is equal to the local AE port, the AE title for the destination AE is set the same as local AE. Otherwise, its title is the local AE title suffixed with “\_SCP”.

Patient Root Q/R Information Model is the default to use for C-MOVE. It can be configured to try Study Root first by service engineer. But be aware in this case, the listening port specified above is obsolete, as the local AE port now takes precedence.

## 7 Support of Extended Character Sets

The system supports the following character sets depending upon the language selected on the scanner:

Language	DICOM Character Set
BULGARIAN	ISO_IR 144
CHINESE	ISO_IR 192
CZECH	ISO_IR 101
<i>DEFAULT<sup>1</sup></i>	ISO_IR 100 / ISO_IR 6 <sup>2</sup>
ESTONIAN	ISO_IR 110
GREEK	ISO_IR 126
HUNGARIAN	ISO_IR 101
LATVIAN	ISO_IR 110
LITHUANIAN	ISO_IR 110
POLISH	ISO_IR 101
ROMANIAN	ISO_IR 101
RUSSIAN	ISO_IR 144
SLOVAK	ISO_IR 101

## 8 Security Profiles

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

It is assumed that the product is used within a secured environment.

It is assumed that a secured environment includes at a minimum:

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<sup>1</sup> Default refers to the following languages:

Danish, Dutch, English, Finnish, French, German, Icelandic, Italian, Norwegian, Portuguese, Spanish, Swedish

<sup>2</sup> ISO\_IR 6 if no extended characters are used.

1. Firewall or router protections to ensure that only approved external hosts have network access to the product.
2. Firewall or router protections to ensure that the product only has network access to approved external hosts and services.
3. 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)).

## 9 Appendix: Overview of the Applied Information Object Definitions

### Definitions

Usage Specification	M = Mandatory	C = Conditional	U = User Option
Matching Key	U = Unique	R = Required	O = Optional
Type/Return Key	1 = Mandatory	2 = Mandatory, may be empty	3 = Optional
	1C = Conditional	2C = Conditional	
Device usage	A = Always	AE = Always maybe empty	N = Not used
	No entry = standard behaviour		

### 9.1 Overview of the Applied Ultrasound (US) Storage SOP Classes

The modules selected from the IOD module table of DICOM 3.0 are given in the table below.

**Table 9.1-1: Applied Modules in the US Image IOD**

Information Entity	Module	Usage	Details
Patient	Patient	M	See Table 9.1-3
Study	General Study	M	See Table 9.1-4
	Patient Study	U	See Table 9.1-5
Series	General Series	M	See Table 9.1-6
Equipment	Equipment	M	See Table 9.1-7
Image	General Image	M	See Table 9.1-8
	Image Pixel	M	See Table 9.1-9
	Contrast/Bolus	C	See Table 9.1-10
	US Region Calibration	U	See Table 9.1-14
	US Image	M	See Table 9.1-15
	US Image Private Tags	M	See Table 9.1-16
	SOP Common	M	See Table 9.1-17

**Table 9.1-2: Applied Modules in the US Multi-frame Image IOD**

Information Entity	Module	Usage	Details
Patient	Patient	M	See Table 9.1-3
Study	General Study	M	See Table 9.1-4
	Patient Study	U	See Table 9.1-5
Series	General Series	M	See Table 9.1-6
Equipment	Equipment	M	See Table 9.1-7



Image	General Image	M	See Table 9.1-8
	Image Pixel	M	See Table 9.1-9
	Contrast/Bolus	C	See Table 9.1-10
	Cine	M	See Table 9.1-11
	Multi-frame	M	See Table 9.1-12
	Frame Pointers	U	See Table 9.1-13
	US Image	M	See Table 9.1-15
	US Image Private Tags	M	See Table 9.1-16
	SOP Common	M	See Table 9.1-17

The details of these applied modules are given in the tables below. The list of possible values is given, if applicable. If an attribute may be present conditionally/optionally or may contain a zero length value, this is also indicated.

**Table 9.1-3: Patient Module**

Attribute Name	Tag	Type	Note
Patient's Name	(0010,0010)	2A	Received from RIS or entered by user
Patient ID	(0010,0020)	2A	Received from RIS or entered by user
Patient's Birth Date	(0010,0030)	2	Received from RIS or entered by user
Patient's Sex	(0010,0040)	2	Received from RIS or entered by user

**Table 9.1-4: General Study Module**

Attribute Name	Tag	Type	Note
Study Instance UID	(0020,000D)	1	Generated at creation of the Study or received from RIS
Study Date	(0008,0020)	2A	Generated at creation of the Study
Study Time	(0008,0030)	1	Generated at creation of the Study
Referring Physician's Name	(0008,0090)	2	Received from RIS or entered by user
Study ID	(0020,0010)	2	Auto-generated from Study Date and Study Time if not entered by user
Accession Number	(0008,0050)	2	Received from RIS or entered by user
Study Description	(0008,1030)	3AE	Received from RIS (copied from Scheduled Procedure Step Description (0040,0007)). Not possible to enter by the user
Name of Physician(s) Reading Study	(0008,1060)	3AE	Received from RIS (copied from Names of Intended Recipients of Results (0040,1010)) or entered by the user

**Table 9.1-5: Patient Study Module**

Attribute Name	Tag	Type	Note
Admitting Diagnoses Description	(0008,1080)	3AE	Present if received from RIS or entered by user or empty
Patient's Size	(0010,1020)	3	Length or size of the Patient, in meters. Not present if neither received from RIS nor entered by user
Patient's Weight	(0010,1030)	3	Weight of the Patient, in kilograms. Not present if neither received from RIS nor entered by user

**Table 9.1-6: General Series Module**

Attribute Name	Tag	Type	Note
Modality	(0008,0060)	1	US or SR
Series Instance UID	(0020,000E)	1	Generated at creation of the Series
Series Number	(0020,0011)	2	Auto generated
Operator's Name	(0008,1070)	3	Entered by user
Body Part Examined	(0018,0015)	3	Entered by user
Requested Attribute Sequence	(0040,0275)	3AE	Active only if MPPS & MWL are available.
Requested Procedure ID	(0040,1001)	1C	From MWL
Scheduled Procedure Step ID	(0040,0009)	1C	From MWL
Scheduled Procedure Step Description	(0040,0007)	3	From MWL
Performed Procedure Step ID	(0040,0253)	3	Auto generated – only if MPPS is active
Performed Procedure Step Start Date	(0040,0244)	3	Auto generated– only if MPPS is active
Performed Procedure Step Start Time	(0040,0245)	3	Auto generated– only if MPPS is active
Performed Procedure Step Description	(0040,0254)	3	Entered by user – active only if MPPS is available.
Performed Protocol Code Sequence	(0040,0260)	3	Auto generated – only if MPPS is active

**Table 9.1-7: General Equipment Module**

Attribute Name	Tag	Type	Note
Manufacturer	(0008,0070)	2A	"BK Medical"

Institution Name	(0008,0080)	3AE	Institution where the equipment that produced the composite instance is located. Set up by the user.
Manufacturer's Model Name	(0008,1090)	3A	"1500"
Device Serial Number	(0018,1000)	3A	The serial number of the scanner
Software Version(s)	(0018,1020)	3A	Software version of the current software

**Table 9.1-8: General Image Module**

Attribute Name	Tag	Type	Note
Instance Number	(0020,0013)	2	Images, clips and reports are numbered in chronological order, starting from 1 at the beginning of a new examination
Patient Orientation	(0020,0020)	2C	
Content Date	(0008,0023)	2C	Date when the image was captured. Note: This Attribute was formerly known as Image Date
Content Time	(0008,0033)	2C	Time when the image was captured. Note: This Attribute was formerly known as Image Time
Image Type	(0008,0008)	3	Always blank
Burned In Annotation	(0028,0301)	3A	"YES"
Lossy Image Compression	(0028,2110)	3	01H for Multi-frame Image with JPEG Transfer Syntax. Otherwise: Not present.

**Table 9.1-9: Image Pixel Module**

Attribute Name	Tag	Type	Note
Samples per Pixel	(0028,0002)	1	0003H
Photometric Interpretation	(0028,0004)	1	Multi-frame with JPEG Transfer Syntax: "YBR_FULL_422" Otherwise: "RGB"
Rows	(0028,0010)	1	Image height
Columns	(0028,0011)	1	Image width
Bits Allocated	(0028,0100)	1	0008H
Bits Stored	(0028,0101)	1	0008H
High Bit	(0028,0102)	1	0007H
Pixel Representation	(0028,0103)	1	0000H (= unsigned integer)
Planar Configuration	(0028,0006)	1C	0 (color-by-pixel)
Pixel Data	(7FE0,0010)	1	

**Table 9.1-10: Contrast/Bolus Module**

Attribute Name	Tag	Type	Note
Contrast/Bolus Agent	(0018,0010)	2	Present and empty if Contrast Harmonic is activated. Otherwise not present.

**Table 9.1-11: Cine Module**

Attribute Name	Tag	Type	Note
Preferred Playback Sequencing	(0018,1244)	3	0 (looping playback)
Frame Time	(0018,1063)	1C	1000 / Frame rate of Multi-frame in Hz (Nominal time in msec per individual frame)
Recommended Display Frame Rate	(0008,2144)	3	Frame rate of Multi-frame in Hz (Recommended rate (frames/sec) for display of multi-frame sequence)
Cine Rate	(0018,0040)	3	Frame rate of Multi-frame in Hz (Number of frames per seconds)
Frame Delay	(0018,1066)	3	000H (Time in msec to start of first frame)

**Table 9.1-12: Multi-frame Module**

Attribute Name	Tag	Type	Note
Number of Frames	(0028,0008)	1	Number of frames in Multi-frame
Frame Increment Pointer	(0028,0009)	1	Set to Frame Time (0018,1063) from Table 9.1-11: Cine Module

**Table 9.1-13: Frame Pointers Module**

Attribute Name	Tag	Type	Note
Representative Frame Number	(0028,6010)	3	1 (Number of frame selected for use as icon)

**Table 9.1-14: US Region Calibration Module**

Attribute Name	Tag	Type	Note
Sequence of Ultrasound Regions	(0018,6011)	1	A sequence for each B-mode view. One sequence for each D/M/CW view.
>Region Location Min x0	(0018,6018)	1	
>Region Location Min y0	(0018,601A)	1	
>Region Location Max x1	(0018,601C)	1	
>Region Location Max y1	(0018,601E)	1	

>Physical Units X Direction	(0018,6024)	1	B-mode: 03H (cm) D-mode: 04H (sec) M-mode: 04H (sec) CW-mode: 04H (sec)
>Physical Units Y Direction	(0018,6026)	1	B-mode: 03H (cm) D-mode: 07H (cm/sec) M-mode: 03H (cm) CW-mode: 07H (cm/sec)
>Physical Delta X	(0018,602C)	1	
>Physical Delta Y	(0018,602E)	1	
>Reference Pixel x0	(0018,6020)	3	
>Reference Pixel y0	(0018,6022)	3	
>Ref. Pixel Physical Value X	(0018,6028)	3	0
>Ref. Pixel Physical Value Y	(0018,602A)	3	0
>Region Spatial Format	(0018,6012)	1	B-mode: 01H (2D) D-mode: 03H (Spectral) M-mode: 02H (M-Mode) CW-mode: 03H (Spectral)
>Region Data Type	(0018,6014)	1	B-mode: 01H (Tissue) D-mode: 03H (PW Spectral Doppler) M-mode: 01H (Tissue) CW-mode: 04H (CW Spectral Doppler)
>Region Flags	(0018,6016)	1	0
>Doppler Correction Angle	(0018,6034)	3	B-mode: Not applied. D-mode: Angle Correction (Degrees) M-mode: Not applied. CW-mode: Not applied

**Table 9.1-15: US Image Module**

Attribute Name	Tag	Type	Note
Samples per Pixel	(0028,0002)	1	See Table 9.1-9 Image Pixel Module
Photometric Interpretation	(0028,0004)	1	See Table 9.1-9 Image Pixel Module
Bits Allocated	(0028,0100)	1	See Table 9.1-9 Image Pixel Module
Bits Stored	(0028,0101)	1	See Table 9.1-9 Image Pixel Module
High Bit	(0028,0102)	1	See Table 9.1-9 Image Pixel Module
Planar Configuration	(0028,0006)	1C	See Table 9.1-9 Image Pixel Module
Pixel Representation	(0028,0103)	1	See Table 9.1-9 Image Pixel Module
Image Type	(0008,0008)	2	See Table 9.1-8: General Image Module

Lossy Image Compression	(0028,2110)	1C	See Table 9.1-8: General Image Module
Transducer Data	(0018,5010)	3	Name of transducer e.g. "8801". Only set for single frame images
Mechanical Index	(0018,5022)	3	Only sent for single view images
Bone Thermal Index	(0018,5024)	3	Only sent for single view images. Only sent if TI type is TIB.
Cranial Thermal Index	(0018,5026)	3	Only sent for single view images. Only sent if TI type is TIC.
Soft Tissue Thermal Index	(0018,5027)	3	Only sent for single view images. Only sent if TI type is TIS.

**Table 9.1-16: US Image Module Private Tags**

Attribute Name	Tag	VR Type	Note
Private Creator Element	(0019,0010)	LO	Contains "BK Medical"
Private Tag: Sequence of regions with patient info	(0019,1047)	SQ	Sequence of regions identifying areas with patient sensitive information that should be removed to anonymize the US Image/US Multi-Frame Image.
> Private Tag: Left	(0019,1048)	UL	Left X coordinate of region
> Private Tag: Top	(0019,1049)	UL	Top Y coordinate of region
> Private Tag: Right	(0019,1050)	UL	Right X coordinate of region
> Private Tag: Bottom	(0019,1051)	UL	Bottom Y coordinate of region

**Table 9.1-17: SOP Common Module**

Attribute Name	Tag	Type	Note
SOP Class UID	(0008,0016)	1	For US Image: "1.2.840.10008.5.1.4.1.1.6.1" For US Multi-Frame Image: "1.2.840.10008.5.1.4.1.1.3.1"
SOP Instance UID	(0008,0018)	1	Generated when image is created
Specific Character Set	(0008,0005)	1C	Set according to selected language on the scanner. See section 7.
Instance Creation Date	(0008,0012)	3	Document creation date
Instance Creation Time	(0008,0013)	3	Document creation time
Time zone Offset From UTC	(0008,0201)	3	Time zone offset from UTC. Time and time zone configuration is taken from the scanner
Instance Number	(0020,0013)	3	See Table 9.1-8: General Image Module

## 9.2 Overview of the Applied Modality Worklist IOD

This section specifies in detail the applied attributes in the C-FIND Service Element of this supported SOP Class.

If an attribute is present conditionally/optionally or if the attribute may contain a zero length value, this is indicated.

The scanner will use predefined DICOM Character Sets depending upon the selected language. See table in section 7.

The user will be warned if the Character Set of the worklist does not match the Character Set of the scanner.

The search filter mentioned is set in the worklist setup for the modality. The queries mentioned are selected in the patient dialog where the worklist is displayed.

**Table 9.2-1: Modality Worklist Information Model - FIND SOP Class - C-FIND**

Description	Tag	Match	Return	Note
<b>Scheduled Procedure Step</b>				
Scheduled Procedure Step Sequence	(0040,0100)	R	1	Return key
> Scheduled Station AE Title	(0040,0001)	R	1	Single Value Matching is applied; the applied value is the configured AE Title. Only used if search filter is "This System Only"
> Scheduled Procedure Step Start Date	(0040,0002)	R	1	Range Value Matching is applied when using date/time queries.
> Scheduled Procedure Step Start Time	(0040,0003)	R	1	Range Value Matching is applied when using date/time queries.
> Modality	(0008,0060)	R	1	Single Value Matching is applied; the applied value is US. Only used if search filter is "Ultrasound Only"
> Scheduled Procedure Step Description	(0040,0007)	O	1C	Return key
> Scheduled Procedure Step Location	(0040,0011)	O	2	Return key

> Scheduled Protocol Code Sequence	(0040,0008)	O	1C	Return key
> Scheduled Procedure Step ID	(0040,0009)	O	1	Return key
> Scheduled Procedure Step Status	(0040,0020)	O	1	Return key
<b>Requested Procedure</b>				
Requested Procedure ID	(0040,1001)	R	1	Return key. Single Value Matching is applied when data has been entered by the user and "Patient" query has been selected.
Requested Procedure Description	(0032,1060)	R	1C	Return Key
Requested Procedure Code Sequence	(0032,1064)	R	1C	Return Key
> Code Value	(0008,0100)	R	1	Return Key
> Coding Scheme Designator	(0008,0102)	R	1	Return Key
> Code Meaning	(0008,0104)	R	1	Return key
Study Instance UID	(0020,000D)	R	1	Return key
Referenced Study Sequence	(0008,1110)	R	2	Return Key
> Referenced SOP Class UID	(0008,1150)	R	1	Return Key
> Referenced SOP Instance UID	(0008,1155)	R	1	Return Key
Requested Procedure Priority	(0040,1003)	O	2	Return key
Names of Intended Recipients of Results	(0040,1010)	O	3	Return key
<b>Imaging Service Request</b>				
Accession Number	(0008,0050)	R	1	Return key. Single Value Matching is applied when data has been entered by the user and "Patient" query has been selected.
Referring Physician's Name	(0008,0090)	R	2	Return key
<b>Visit Admission</b>				
Admitting Diagnoses Description	(0008,1080)	O	2	Return key
<b>Patient Identification</b>				
Patient's Name	(0010,0010)	R	1	Return key. Single Value Matching is applied when data has been



				entered by the user and "Patient" query has been selected.
Patient ID	(0010,0020)	R	1	Return key. Single Value Matching is applied when data has been entered by the user and "Patient" query has been selected.
<b>Patient Demographic</b>				
Patient's Birth Date	(0010,0030)	R	2	Return key
Patient's Sex	(0010,0040)	R	2	Return key
Patient's Weight	(0010,1030)	R	2	Return key
Patient's Size	(0010,1020)	R	3	Return key
Patient's Address	(0010,1040)	O	3	Return key
Current Patient Location	(0038,0300)	O	3	Return key

### 9.3 Overview of the Applied Basic Grayscale Print Management Meta IOD

#### 9.3.1 Overview of the Applied Basic Film Session IOD

This section specifies in detail the applied attributes in the N-CREATE Service Element of this supported SOP Class.

**Table 9.3-1: Basic Film Session Presentation Module**

Attribute Name	Tag	Usage	Note
Number of Copies	(2000,0010)	U	1
Print Priority	(2000,0020)	U	HIGH
Medium Type	(2000,0030)	U	PAPER, CLEAR FILM, BLUE FILM
Film Destination	(2000,0040)	U	PROCESSOR
Film Session Label	(2000,0050)	U	"Session <month>-<day>-<year>-<hours>:<minutes>"

#### 9.3.2 Overview of the Applied Basic Film Box IOD

This section specifies in detail the applied attributes in the N-CREATE Service Element of this supported SOP Class.

**Table 9.3-2: Basic Film Box Presentation Module**

Attribute Name	Tag	Usage	Note
Image Display Format	(2010,0010)	M	STANDARD\C,R (C,R = 1,1 / 1,2 / 2,2 / 2,3 / 3,3 / 3,4 / 3,5 / 4,4 / 4,5 / 4,6 / 5,5 / 5,6 / <Custom>)

Referenced Film Session Sequence	(2010,0500)	M	
> Referenced SOP Class UID	(0008,1150)	M	Appl. value: 1.2.840.10008.5.1.1.1 (Basic Film Session SOP Class)
> Referenced SOP Instance UID	(0008,1155)	M	Appl. value: The SOP Instance UID of the parent film session
Film Orientation	(2010,0040)	U	PORTRAIT / LANDSCAPE
Film Size ID	(2010,0050)	U	See defined terms
Magnification Type	(2010,0060)	U	CUBIC

### Film Size ID

The defined terms are:

8INX10IN      10INX12IN  
 10INX14IN    11INX14IN  
 14INX14IN    14INX17IN  
 24CMX24CM   24CMX30CM  
 and custom size (both CM and IN)

### 9.3.3 Overview of the Applied Basic Grayscale Image Box IOD

This section specifies in detail the applied attributes in the N-SET Service Element of this supported SOP Class.

**Table 9.3-3: Basic Grayscale Image Box Presentation Module**

Attribute Name	Tag	Usage	Note
Image Position	(2020,0010)	M	
Polarity	(2020,0020)	U	NORMAL
Basic Grayscale Image Sequence	(2020,0110)	M	
> Samples Per Pixel	(0028,0002)	M	0001H
> Photometric Interpretation	(0028,0004)	M	MONOCHROME2
> Rows	(0028,0010)	M	Image height
> Columns	(0028,0011)	M	Image width
> Pixel Aspect Ratio	(0028,0034)	U	"1\1"
> Bits Allocated	(0028,0100)	M	0008H
> Bits Stored	(0028,0101)	M	0008H
> High Bit	(0028,0102)	M	0007H
> Pixel Representation	(0028,0103)	M	0000H (= unsigned integer)
> Pixel Data	(7FE0,0010)	M	

## 9.4 Overview of the Applied Basic Color Print Management Meta IOD

### 9.4.1 Overview of the Applied Basic Film Session IOD

This section specifies in detail the applied attributes in the N-CREATE Service Element of this supported SOP Class.

**Table 9.4-1: Basic Film Session Presentation Module**

Attribute Name	Tag	Usage	Note
Number of Copies	(2000,0010)	U	1
Print Priority	(2000,0020)	U	HIGH
Medium Type	(2000,0030)	U	PAPER, CLEAR FILM, BLUE FILM
Film Destination	(2000,0040)	U	PROCESSOR
Film Session Label	(2000,0050)	U	“Session <month>-<day>-<year>-<hours>:<minutes>”

### 9.4.2 Overview of the Applied Basic Film Box IOD

This section specifies in detail the applied attributes in the N-CREATE Service Element of this supported SOP Class.

**Table 9.4-2: Basic Film Box Presentation Module**

Attribute Name	Tag	Usage	Note
Image Display Format	(2010,0010)	M	STANDARD\C,R (C,R = 1,1 / 1,2 / 2,2 / 2,3 / 3,3 / 3,4 / 3,5 / 4,4 / 4,5 / 4,6 / 5,5 / 5,6 / <Custom>)
Referenced Film Session Sequence	(2010,0500)	M	
> Referenced SOP Class UID	(0008,1150)	M	Appl. value: 1.2.840.10008.5.1.1.1 (Basic Film Session SOP Class)
> Referenced SOP Instance UID	(0008,1155)	M	Appl. value: The SOP Instance UID of the parent film session
Film Orientation	(2010,0040)	U	PORTRAIT / LANDSCAPE
Film Size ID	(2010,0050)	U	See defined terms
Magnification Type	(2010,0060)	U	CUBIC

#### Film Size ID

The defined terms are:

8INX10IN	10INX12IN
10INX14IN	11INX14IN
14INX14IN	14INX17IN

24CMX24CM 24CMX30CM

and custom size (both CM and IN)

### 9.4.3 Overview of the Applied Basic Color Image Box IOD

This section specifies in detail the applied attributes in the N-SET Service Element of this supported SOP Class.

**Table 9.4-3: Basic Color Image Box Presentation Module**

Attribute Name	Tag	Usage	Note
Image Position	(2020,0010)	M	
Polarity	(2020,0020)	U	NORMAL
Basic Color Image Sequence	(2020,0111)	M	
> Samples Per Pixel	(0028,0002)	M	3
> Photometric Interpretation	(0028,0004)	M	RGB
> Rows	(0028,0010)	M	Image height
> Columns	(0028,0011)	M	Image width
> Pixel Aspect Ratio	(0028,0034)	U	"1\1"
> Bits Allocated	(0028,0100)	M	0008H
> Bits Stored	(0028,0101)	M	0008H
> High Bit	(0028,0102)	M	0007H
> Pixel Representation	(0028,0103)	M	0000H (= unsigned integer)
> Pixel Data	(7FE0,0010)	M	

### 9.5 Overview of the Applied Modality Performed Procedure Step IOD

This section specifies in detail the applied attributes in the N-CREATE and N-SET Service Elements of this supported SOP Class.

**Table 9.5-1: Performed Procedure Step Relationship Module attributes**

Attribute Name	Tag	Req.Type N-CREATE	Req.Type N-SET	Note
Scheduled Step Attributes Sequence	(0040,0270)	1	Not allowed	From MWL
>Study Instance UID	(0020,000D)	1	Not allowed	From MWL
>Referenced Study Sequence	(0008,1110)	2	Not allowed	From MWL
>>Referenced SOP Class UID	(0008,1150)	1	Not allowed	From MWL

>>Referenced SOP Instance UID	(0008,1155)	1	Not allowed	From MWL
>Accession Number	(0008,0050)	2	Not allowed	From MWL
>Requested Procedure ID	(0040,1001)	2	Not allowed	From MWL
>Requested Procedure Code Sequence	(0032,1064)	3	Not allowed	From MWL
>Requested Procedure Description	(0032,1060)	2	Not allowed	From MWL
>Scheduled Procedure Step ID	(0040,0009)	2	Not allowed	From MWL
>Scheduled Procedure Step Description	(0040,0007)	2	Not allowed	From MWL / Entered by User
>Scheduled Protocol Code Sequence	(0040,0008)	2	Not allowed	From MWL / Entered by User
Patient's Name	(0010,0010)	2	Not allowed	From MWL / Entered by User
Patient ID	(0010,0020)	2	Not allowed	From MWL / Entered by User
Patient's Birth Date	0010,0030)	2	Not allowed	From MWL / Entered by User
Patient's Sex	(0010,0040)	2	Not allowed	From MWL / Entered by User
Referenced Patient Sequence	(0008,1120)	2	Not allowed	From MWL / Entered by User
Protocol Name	(0018,1030)	Not allowed	1	Updated at the end of Examination

**Table 9.5-2: Performed Procedure Step Information Module attributes**

Attribute Name	Tag	Req.Type N-CREATE	Req.Type N-SET	Note
Performed Procedure Step ID	(0040,0253)	1	Not allowed	Returned by MPPS server after Begin Study
Performed Station AE Title	(0040,0241)	1	Not allowed	Returned by MPPS server after Begin Study
Performed Station Name	(0040,0242)	2	Not allowed	Returned by MPPS server after Begin Study
Performed Location	(0040,0243)	2	Not allowed	Returned by MPPS server after Begin Study
Performed Procedure Step Start Date	(0040,0244)	1	Not allowed	Returned by MPPS server after Begin Study
Performed Procedure Step Start Time	(0040,0245)	1	Not allowed	Returned by MPPS server after Begin Study

Performed Procedure Step Status	(0040,0252)	1	3	This value can be: In Progress, Completed or Discontinued. Returned by MPPS server after Begin Study
Performed Procedure Step Description	(0040,0254)	2	3	Returned by MPPS server after Begin Study
Performed Procedures Type Description	(0040,0255)	2	3	Returned by MPPS server after Begin Study
Performed Procedure Code Sequence	(0008,1032)	2	3	Returned by MPPS server after Begin Study
>Code Value	(0008,0100)			
>Coding Scheme Designator	(0008,0102)			
>Code Meaning	(0008,0104)			
Performed Procedure Step End Date	(0040,0250)	3	2	Updated on End Study
Performed Procedure Step End Time	(0040,0251)	3	2	Updated on End Study

The following table specifies the attributes which describe the acquisition of Images during the Performance of the MPPS.

**Table 9.5-3: Image Acquisition Results Module attributes**

Attribute Name	Tag	Req.Type N-CREATE	Req.Type N-SET	Note
Modality	(0008,0060)	1	Not allowed	Type of Equipment =US. Retrieved from MWL / entered by user
Study ID	(0020,0010)	2	Not allowed	Retrieved from MWL / entered by user
Performed Protocol Code Sequence	(0040,0260)	2	2	Updated at the end study by MPPS
Performed Series Sequence	(0040,0340)	2	1	Updated at the end study by MPPS
>Protocol Name	(0018,1030)	1	1	Updated at the end study by MPPS
>Operators' Name	(0008,1070)	2	2	Updated at the end study by MPPS
>Series Instance UID	(0020,000E)	1	1	Updated at the end study by MPPS
>Series Description	(0008,103E)	2	2	Updated at the end study by MPPS
>Retrieve AE Title	(0008,0054)	2	2	Updated at the end study by MPPS

>Referenced Image Sequence	(0008,1140)	2	2	Updated at the end study by MPPS
>>Referenced SOP Class UID	(0008,1150)	1	1	Updated at the end study by MPPS
>>Referenced SOP Instance UID	(0008,1155)	1	1	Updated at the end study by MPPS
>Referenced Non Image composite SOP Instance Sequence	(0040,0220)	2	2	Updated at the end study by MPPS
>>Referenced SOP Class UID	(0008,1150)	1	1	Updated at the end study by MPPS
>>Referenced SOP Instance UID	(0008,1155)	1	1	Updated at the end study by MPPS

## 9.6 Overview of the Applied Storage Commitment IOD

This section specifies in detail the applied attributes in the N-ACTION service element of this supported SOP class.

**Table 9.6-1: Storage Commitment Attribute Module**

Attribute Name	Tag	Usage	Note
Transaction UID	(0008,1195)	M	Uniquely generated by the equipment
Retrieve AE Title	(0008,0054)	U	Not used
Storage Media File Set ID	(0088,0130)	U	Not used
Storage Media File Set UID	(0088,0140)	U	Not used
Referenced SOP Sequence	(0008,1199)	M	Supported
>Referenced SOP Class UID	(0008,1150)	M	Supported
>Referenced SOP Instance UID	(0008,1155)	M	Supported
>Retrieve AE Title	(0008,0054)	U	Not used
>Storage Media File Set ID	(0088,0130)	U	Not used
>Storage Media File – Set UID	(0088,0140)	U	Not used
Failed SOP Sequence	(0008,1198)	M	Supported N-Event-RQ
>References SOP Class UID	(0008,1150)	M	Supported
>Referenced SOP Instance UID	(0008,1155)	M	Supported
>Failure Reason	(0008,1197)	M	Supported

## 9.7 Overview of the Applied Comprehensive SR IOD

The Comprehensive SR IOD specifies a class of documents, the content of which may include textual and coded information, numeric measurement values, references to the DICOM Composite Instances.

The modules selected from the IOD module table of DICOM 3.0 are given in the table below.

**Table 9.7-1: Applied Modules in the Comprehensive SR IOD**

Information Entity	Module	Usage	Details
Patient	Patient	M	See Table 9.1-3
Study	General Study	M	See Table 9.1-4
	Patient Study	U	See Table 9.1.5
Series	SR Document Series	M	See Table 9.7-2
Equipment	General Equipment	M	See Table 9.1-7
Document	SR Document General	M	See Table 9.7-3
	SR Document Content	M	See Table 9.7-4
	SOP Common	M	See Table 9.7-5

The details of these applied Comprehensive SR IOD modules are given in the tables. The list of possible values is given, if applicable. If an attribute may be present conditionally/optionally or may contain a zero length value, this is also indicated.

**Table 9.7-2: SR Document Series**

Attribute Name	Tag	Type	Note
Modality	(0008,0060)	1	SR
SeriesInstanceUID	(0020,000E)	1	Generated at creation of the Series
SeriesNumber	(0020,0011)	1	Auto generated
Referenced Performed Procedure Step Sequence	(0008,1111)	2	Value set to EMPTY



**Table 9.7-3: SR Document General**

Attribute Name	Tag	Type	Note
Content Date	(0008,0023)	1	Date of SR document creation, based upon when user action that content creation started
Content Time	(0008,0033)	1	Time of SR document creation, based upon when user action that content creation started
Instance Number	(0020,0013)	1	See Table 9.1-8: General Image Module
Verifying Observer Sequence	(0040,A073)	1C	Not Used
Predecessor Documents Sequence	(0040,A360)	1C	Not Used
Referenced Request Sequence	(0040,A370)	1C	Not Used
Performed Procedure Code Sequence	(0040,A372)	2	Value set to EMPTY
Current Requested Procedure Evidence Sequence	(0040,A375)	1C	Not Used
Pertinent Other Evidence Sequence	(0040,A385)	1C	Not Used
Completion Flag	(0040,A491)	1	PARTIAL
Verification Flag	(0040,A493)	1	UNVERIFIED
Identical Documents Sequence	(0040,A525)	1C	Not Used

**Table 9.7-4: SR Document Content**

Attribute Name	Tag	Type	Note
Observation Date Time	(0040,A032)	1C	Not used
Value Type	(0040,A040)	1	CONTAINER
Concept Name Code	(0040,A043)	1C	Describes the SR document content header. See section 9.7.1

Sequence			
Continuity Of Content	(0040,A050)	1C	SEPARATE
Content Template Sequence	(0040,A504)	1C	Template used for this content item.
>Mapping Resource	(0008,0105)	1	Mapping Resource that defines the template. 'BKCMR'
>Template Identifier	(0040,DB00)	1	Template identifier 'BK1000'
Content Sequence	(0040,A730)	1C	Sequence of SR document content items. See section 9.7.1

**Table 9.7-5: SOP Common Module**

Attribute Name	Tag	Type	Note
SOP Class UID	(0008,0016)	1	For Comprehensive SR: "1.2.840.10008.5.1.4.1.1.88.33"
SOP Instance UID	(0008,0018)	1	Generated when SR is created
Specific Character Set	(0008,0005)	1C	Set according to selected language on the scanner. See section 7.

## 9.7.1 Overview of SR Document Content Descriptions

### 9.7.1.1 SR Document Content Template

BK Ultrasound Systems supports the following DICOM SR root templates for Comprehensive SR SOP Instances created, generated, or displayed by the systems.

**Table 9.7-6: DICOM SR Root Templates**

Template ID	Template Name
BK1000	Generic Ultrasound Structured Report

### 9.7.1.2 DICOM Standard Extended and Private Template

BK Ultrasound Systems supports the DICOM standard extended and private defined templates in the following sections.

#### 9.7.1.2.1 TID BK1000 Generic Ultrasound Structured Report – Private User Defined

The Generic Ultrasound Structured Report template Table 9.7-7: TID BK1000 – Generic Ultrasound Structured Report provides the specific codes for user defined measurements and calculations with public/private code designator schemes.

The TID BK1000 is used for all ExamTypes.

**Table 9.7-7: TID BK1000 – Generic Ultrasound Structured Report**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (PC-00001, PC, "Generic Ultrasound Structured Report")	1	M		
2	>	HAS OBS CONTEXT	INCLUDE	DTID (1001) Observation Context	1	M		Person Name value of Performing-Physician
3	>	CONTAINS	CONTAINER	EV (111028, DCM, "Image Library")	1	U		
4	>>	CONTAINS	IMAGE	No purpose of reference	1-n	M		DCID(12224) Ultrasound Image Modes
5	>	CONTAINS	INCLUDE	DTID (BK100) Summary Section	1	U		
6	>	CONTAINS	INCLUDE	DTID (BK200) Ultrasound Measurements Section	1	U		

**Table 9.7-8: TID BK100 - Summary Section**

Description:								
Comments and observations of the procedure of immediate clinical interest								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121111, DCM, "Summary")	1	M		
2	>	CONTAINS	TEXT	EV(DCM,121106,"Comment")	1	M		Text Value of Report Remarks

**Table 9.7-9: TID BK200 – Ultrasound Measurements Section**

Description:								
Main section of the Generic Ultrasound Structured Report. Consists of a number of containers relating to specific examination types.								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint

1			CONTAINER	DT (PC-00002, PC, "Ultrasound Measurements")	1	U		
2	>	CONTAINS	INCLUDE	DTID (BK1000) General Measurements	1	U		
2	>	CONTAINS	INCLUDE	DTID (BK1100) Brachytherapy Measurements	1	U		
3	>	CONTAINS	INCLUDE	DTID (BK1200) Penile Measurements	1	U		
4	>	CONTAINS	INCLUDE	DTID (BK1300) Prostate Measurements	1	U		
5	>	CONTAINS	INCLUDE	DTID (BK1400) Bladder Measurements	1	U		
6	>	CONTAINS	INCLUDE	DTID (BK1500) Renal Measurements	1	U		
7	>	CONTAINS	INCLUDE	DTID (BK1600) Testis Measurements	1	U		
8	>	CONTAINS	INCLUDE	DTID (BK1700) Breast Measurements	1	U		
9	>	CONTAINS	INCLUDE	DTID (BK1800) Thyroid Measurements	1	U		
	>	CONTAINS	INCLUDE	DTID (BK1900) OB-GYN Measurements	1	U		

**Table 9.7-10: TID BK1000 – General Measurements**

Description:								
Measurements related to the Generic measurements and General calc package								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1	>	CONTAINS	INCLUDE	DTID gn03 "General Ultrasound Section"	1	U		
2	>	CONTAINS	INCLUDE	DTID gn10 "General Vascular Ultrasound Section"	1	U		

**Table 9.7-11: TID gn03 – General Ultrasound Section**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		

2	>	CONTAINS	CONTAINER	EV (38266002, SCT, "Entire body")	1	U		
3	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(121206, DCM, "Distance") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
4	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(121206, DCM, "Distance") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
5	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(121211, DCM, "Path length") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
6	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(121211, DCM, "Path length") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
7	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(74551000, SCT, "Circumference") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
8	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(42798000, SCT, "Area") \$Units = EV(cm2, UCUM, "cm2")
9	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(74551000, SCT, "Circumference") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
10	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(42798000, SCT, "Area") \$Units = EV(cm2, UCUM, "cm2")
11	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16841, 99BKMED, "Outer Diameter")

								\$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
12	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16840, 99BKMED, "Inner Diameter") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
13	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16890, 99BKMED, "%Reduction") \$Units = EV(%, UCUM, "%")
14	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16841, 99BKMED, "Outer Diameter") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
15	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16840, 99BKMED, "Inner Diameter") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
16	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16890, 99BKMED, "%Reduction") \$Units = EV(%, UCUM, "%")
17	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16832, 99BKMED, "Area of outer ellipse") \$Units = EV(cm2, UCUM, "cm2")
18	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16831, 99BKMED, "Area of inner ellipse") \$Units = EV(cm2, UCUM, "cm2")
19	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16890, 99BKMED, "%Reduction") \$Units = EV(%, UCUM, "%")
20	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16832, 99BKMED, "Area of outer ellipse") \$Units = EV(cm2, UCUM, "cm2")

21	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16831, 99BKMED, "Area of inner ellipse") \$Units = EV(cm2, UCUM, "cm2")
22	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16890, 99BKMED, "%Reduction") \$Units = EV(%, UCUM, "%")
23	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(20227-5, LN, "M-mode Height") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
24	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(20227-5, LN, "M-mode Height") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
25	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16870, 99BKMED, "Hip developmental dysplasia alpha angle") \$Units = EV(deg, UCUM, "degrees")
26	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16871, 99BKMED, "Hip developmental dysplasia beta angle") \$Units = EV(deg, UCUM, "degrees")
27	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16870, 99BKMED, "Hip developmental dysplasia alpha angle") \$Units = EV(deg, UCUM, "degrees")
28	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16871, 99BKMED, "Hip developmental dysplasia beta angle") \$Units = EV(deg, UCUM, "degrees")
29	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(1483009, SCT, "Angle") \$Units = EV(deg, UCUM, "degrees")

30	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(1483009, SCT, "Angle") \$Units = EV(deg, UCUM, "degrees")
31	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16881, 99BKMED, "Strain ratio") \$Units = EV(1, UCUM, "no units")
32	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16881, 99BKMED, "Strain ratio") \$Units = EV(1, UCUM, "no units")
33	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(81827009, SCT, "Diameter") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
34	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(81827009, SCT, "Diameter") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
35	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16880, 99BKMED, "E/B ratio") \$Units = EV(1, UCUM, "no units")
36	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(81827009, SCT, "Diameter") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
37	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(81827009, SCT, "Diameter") \$Units = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")
38	>>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U		\$Measurement = EV(GN-16880, 99BKMED, "E/B ratio") \$Units = EV(1, UCUM, "no units")
39	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U		\$GroupName = EV(38266002, SCT, "Entire body")



							<p>\$Width = EV (103355008, SCT, "Width")</p> <p>\$Length = EV (410668003, SCT, "Length")</p> <p>\$Height = EV (121207, DCM, "Height")</p> <p>\$Volume = EV (121221, DCM, "Volume of ellipsoid")</p> <p>\$VolumeUnits = EV (ml, UCUM, "ml")</p> <p>\$DistanceUnits = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")</p>
40	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U	<p>\$GroupName = EV (38266002, SCT, "Entire body")</p> <p>\$Width = EV (103355008, SCT, "Width")</p> <p>\$Length = EV (410668003, SCT, "Length")</p> <p>\$Height = EV (121207, DCM, "Height")</p> <p>\$Volume = EV (121221, DCM, "Volume of ellipsoid")</p> <p>\$VolumeUnits = EV (ml, UCUM, "ml")</p> <p>\$DistanceUnits = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")</p>
41	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U	<p>\$GroupName = EV (38266002, SCT, "Entire body")</p> <p>\$Width = EV (103355008, SCT, "Width")</p> <p>\$Height = EV (121207, DCM, "Height")</p> <p>\$Volume = EV (GN-16835, 99BKMED, "Volume from HW")</p> <p>\$VolumeUnits = EV (ml, UCUM, "ml")</p> <p>\$DistanceUnits = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")</p>
42	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U	<p>\$GroupName = EV (38266002, SCT, "Entire body")</p>

							<p>\$Width = EV (103355008, SCT, "Width")</p> <p>\$Height = EV (121207, DCM, "Height")</p> <p>\$Volume = EV (GN-16835, 99BKMED, "Volume from HW")</p> <p>\$VolumeUnits = EV (ml, UCUM, "ml")</p> <p>\$DistanceUnits = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")</p>
43	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U	<p>\$GroupName = EV (38266002, SCT, "Entire body")</p> <p>\$Width = EV (103355008, SCT, "Width")</p> <p>\$Height = EV (121207, DCM, "Height")</p> <p>\$Area = EV (GN-16830, 99BKMED, "Area of ellipse")</p> <p>\$Volume = EV (GN-16835, 99BKMED, "Volume from HW")</p> <p>\$AreaUnits = EV (cm2, UCUM, "cm2")</p> <p>\$VolumeUnits = EV (ml, UCUM, "ml")</p> <p>\$DistanceUnits = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")</p>
44	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U	<p>\$GroupName = EV (38266002, SCT, "Entire body")</p> <p>\$Width = EV (103355008, SCT, "Width")</p> <p>\$Height = EV (121207, DCM, "Height")</p> <p>\$Area = EV (GN-16830, 99BKMED, "Area of ellipse")</p> <p>\$Volume = EV (GN-16835, 99BKMED, "Volume from HW")</p> <p>\$AreaUnits = EV (cm2, UCUM, "cm2")</p> <p>\$VolumeUnits = EV (ml, UCUM, "ml")</p> <p>\$DistanceUnits = EV(cm, UCUM, "cm") or EV(mm, UCUM, "mm")</p>

**Table 9.7-12: TID gn10 – General Vascular Ultrasound Section**

Description:								
General/Generic vascular measurements								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1	>	CONTAINS	INCLUDE	DTID 5103 “Vascular Ultrasound Section”	1	U		\$GroupName = EV (38266002, SCT, "Entire body") \$SectionLaterality = EV (66459002, SCT, "Unilateral") \$Anatomy = EV (38266002, SCT, "Entire body")

**General Measurement Post-Coordination**

Section TID gn10 “General Vascular Ultrasound Section” and Section TID 5104 “Vascular Ultrasound Measurement Group” are used for permutations of these measurement results:

**Table 9.7-13: General Measurement Post-Coordination**

TID 5104 \$Measurement				Units		
CSD	CV	CM	From CID	CSD	CV	CM
LN	11726-7	Peak Systolic Velocity	CID 12120	UCUM	cm/s	cm/s
LN	11653-3	End Diastolic Velocity	CID 12120	UCUM	cm/s	cm/s
LN	11665-7	Minimum Diastolic Velocity	CID 12120	UCUM	cm/s	cm/s
LN	12008-9	Pulsatility Index	CID 12121	UCUM	1	no units
LN	12023-8	Resistivity Index	CID 12121	UCUM	1	no units
LN	8867-4	Heart Rate	CID 12220	BK	b/min	b/min
LN	20352-1	Time averaged mean velocity	CID 12120	UCUM	cm/s	cm/s
LN	11692-1	Time averaged peak velocity	CID 12120	UCUM	cm/s	cm/s
LN	12144-2	Systolic to Diastolic Velocity Ratio	CID 12121	UCUM	1	no units
LN	20354-7	Velocity Time Integral	CID 12120	UCUM	cm	cm
LN	20168-1	Acceleration Time	CID 12122	UCUM	ms	ms

LN	20217-6	Deceleration Time	CID 12122	UCUM	ms	ms
DCM	110828	Flow Velocity	CID 12120	UCUM	cm/s	cm/s
LN	33867-3	Velocity Ratio	CID 12121	UCUM	1	no units
SCT	42798000	Area	CID 7471	UCUM	cm2	cm2
99BKMED	GN-16891	Volume Flow	Private code	UCUM	ml/min	ml/min

**Table 9.7-14: TID BK1100 – Brachytherapy Measurements**

Description:								
Container with measurements related to the Brachytherapy calc package								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")				
2	>	HAS CONCEPT MODE	CODE	EV (363698007, SCT, "Finding Site")	1	M		(41216001, SCT, "Prostate")
3	>	CONTAINS	INCLUDE	DTID (pb04) Planimetry Summation Volume Group	1	U		\$GroupName = EV (41216001, SRT, "Prostate")  \$Volume = EV (15315-5, LN, "Prostate Volume by derived by planimetry (US)")  \$Area = EV (PC-22003, PC, "Prostate Area by US")  \$SpacingBetweenSlices = EV (15316-3, LN, "Volume planimetry Stepsize")  \$VolumeUnits = EV (cc, BK, "cc")  \$AreaUnits = EV (cm2, UCUM, "cm2")  \$LinearUnits = EV (mm, UCUM, "mm") or EV(cm, UCUM, "cm")

**Table 9.7-15: TID pb04 – Planimetry Summation Volume Group**

Description:								
Container which groups a Planimetry measurement								
Parameters:								
\$GroupName            The name of the volume group that is an anatomical structure								
\$Volume                Concept name of volume measurement								
\$Area                    Concept name of area measurements								
\$\$SpacingBetweenSlices    Concept name of spacing between slices (step size)								
\$VolumeUnits            Units of volume measurement								
\$AreaUnits                Units of area measurement								
\$LinearUnits              Units of linear measurement								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	\$GroupName	1	M		
2	>	CONTAINS	INCLUDE	DTID (BK300) Measurement Result	1	M		\$Measurement = \$Volume \$Units = \$VolumeUnits \$Method = EV (122503, DCM, "Integration of sum of closed areas on contiguous slices")
3	>	CONTAINS	NUM	EV (PC-22002, PC, "Number of slices used for sum of areas")	1	M		UNITS = ({slices}, UCUM, "slices")
4	>	CONTAINS	NUM	\$\$SpacingBetweenSlices	1	M		UNITS = \$LinearUnits
5	>	CONTAINS	INCLUDE	DTID (BK300) Measurement Result	1-n	M		\$Measurement = \$Area \$Units = \$AreaUnits \$Method = EV (125220, DCM, "Planimetry")

**Table 9.7-16: TID BK1200 – Penile Measurements**

Description:								
Penile measurements.								

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		CONTAINS	INCLUDE	DTID 5103 “Vascular Ultrasound Section”	1	U		\$SectionScope = DT (363673006, SCT, "Vascular structure of penis")  \$SectionLaterality = EV (66459002, SCT, "Unilateral")  \$Anatomy = DCID pn102 “Unilateral Penile Veins”  \$FunctionalCondition = EV (264938003, SCT, "Flaccid")
2		CONTAINS	INCLUDE	DTID 5103 “Vascular Ultrasound Section”	1	U		\$SectionScope = DT (363673006, SCT, "Vascular structure of penis")  \$SectionLaterality = EV (7771000, SCT, "Left")  \$Anatomy = DCID pn100 “Penile Arteries”  \$FunctionalCondition = EV (264938003, SCT, "Flaccid")  \$Method = EV (8359006, SCT, "Automated")
3		CONTAINS	INCLUDE	DTID 5103 “Vascular Ultrasound Section”	1	U		\$SectionScope = DT (363673006, SCT, "Vascular structure of penis")  \$SectionLaterality = EV (7771000, SCT, "Left")  \$Anatomy = DCID pn100 “Penile Arteries”  \$FunctionalCondition = EV (264938003, SCT, "Flaccid")  \$Method = EV (87982008, SCT, "Manual")
4		CONTAINS	INCLUDE	DTID 5103 “Vascular Ultrasound Section”	1	U		\$SectionScope = DT (363673006, SCT, "Vascular structure of penis")  \$SectionLaterality = EV (24028007, SCT, "Right")  \$Anatomy = DCID pn100 “Penile Arteries”  \$FunctionalCondition = EV (264938003, SCT, "Flaccid")

							\$Method = EV (8359006, SCT, "Automated")
5		CONTAINS	INCLUDE	DTID 5103 "Vascular Ultrasound Section"	1	U	<p>\$SectionScope = DT (363673006, SCT, "Vascular structure of penis")</p> <p>\$SectionLaterality = EV (24028007, SCT, "Right")</p> <p>\$Anatomy = DCID pn100 "Penile Arteries"</p> <p>\$FunctionalCondition = EV (264938003, SCT, "Flaccid")</p> <p>\$Method = EV (87982008, SCT, "Manual")</p>
6		CONTAINS	INCLUDE	DTID 5103 "Vascular Ultrasound Section"	1	U	<p>\$SectionScope = DT (363673006, SCT, "Vascular structure of penis")</p> <p>\$SectionLaterality = EV (66459002, SCT, "Unilateral")</p> <p>\$Anatomy = DCID pn102 "Unilateral Penile Veins"</p> <p>\$FunctionalCondition = EV (PN-00001, 99KBMED, "Post-injection")</p> <p>\$PostInjectionTime = e.g., 5, 10, 15, 20, 25 or 30 mins</p>
7		CONTAINS	INCLUDE	DTID 5103 "Vascular Ultrasound Section"	1-n	U	<p>\$SectionScope = DT (363673006, SCT, "Vascular structure of penis")</p> <p>\$SectionLaterality = EV (7771000, SCT, "Left")</p> <p>\$Anatomy = DCID pn100 "Penile Arteries"</p> <p>\$FunctionalCondition = EV (PN-00001, 99KBMED, "Post-injection")</p> <p>\$PostInjectionTime = e.g., 5, 10, 15, 20, 25 or 30 mins</p> <p>\$Method = EV (8359006, SCT, "Automated")</p>
8		CONTAINS	INCLUDE	DTID 5103 "Vascular Ultrasound Section"	1-n	U	<p>\$SectionScope = DT (363673006, SCT, "Vascular structure of penis")</p> <p>\$SectionLaterality = EV (7771000, SCT, "Left")</p>

							<p>\$Anatomy = DCID pn100 “Penile Arteries”</p> <p>\$FunctionalCondition = EV (PN-00001, 99KBMED, "Post-injection")</p> <p>\$PostInjectionTime = e.g., 5, 10, 15, 20, 25 or 30 mins</p> <p>\$Method = EV (87982008, SCT, "Manual")</p>
9		CONTAINS	INCLUDE	DTID 5103 “Vascular Ultrasound Section”	1-n	U	<p>\$SectionScope = DT (363673006, SCT, "Vascular structure of penis")</p> <p>\$SectionLaterality = EV (24028007, SCT, "Right")</p> <p>\$Anatomy = DCID pn100 “Penile Arteries”</p> <p>\$FunctionalCondition = EV (PN-00001, 99KBMED, "Post-injection")</p> <p>\$PostInjectionTime = e.g., 5, 10, 15, 20, 25 or 30 mins</p> <p>\$Method = EV (8359006, SCT, "Automated")</p>
10		CONTAINS	INCLUDE	DTID 5103 “Vascular Ultrasound Section”	1-n	U	<p>\$SectionScope = DT (363673006, SCT, "Vascular structure of penis")</p> <p>\$SectionLaterality = EV (24028007, SCT, "Right")</p> <p>\$Anatomy = DCID pn100 “Penile Arteries”</p> <p>\$FunctionalCondition = EV (PN-00001, 99KBMED, "Post-injection")</p> <p>\$PostInjectionTime = e.g., 5, 10, 15, 20, 25 or 30 mins</p> <p>\$Method = EV (87982008, SCT, "Manual")</p>

**Table 9.7-17: CID pn100. Penile Arteries**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
FMA	22045	Cavernous part of deep artery of penis



**Table 9.7-18: CID pn102. Unilateral Penile Veins**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
SCT	367732002	Deep dorsal vein of penis

**Penile Measurement Post-Coordination**

Section TID BK1200 “Penile Measurements” and Section TID 5104 “Vascular Ultrasound Measurement Group” are used for permutations of these measurement results:

**Table 9.7-19: Penile Vascular Measurement Results**

TID 5104 \$Measurement				Units		
CSD	CV	CM	From CID	CSD	CV	CM
LN	11726-7	Peak Systolic Velocity	CID 12120	UCUM	cm/s	cm/s
LN	11653-3	End Diastolic Velocity	CID 12120	UCUM	cm/s	cm/s
LN	12008-9	Pulsatility Index	CID 12121	UCUM	1	No units
LN	12023-8	Resistivity Index	CID 12121	UCUM	1	No units
SCT	81827009	Diameter	CID 12122	UCUM	cm or mm	cm or mm

Over these functional conditions, measurement methods and branches:

**Table 9.7-20: Penile Measurement Post-Coordination**

TID 5103 \$SectionScope			TID 5103 \$Section Laterality			TID 5103 \$Anatomy				TID \$5103 \$FunctionalCondition			TID 5103 \$MeasurementMethod			TID 5104 (125101, DSM, “Vessel Branch”)			
CSD	CV	CM	CSD	CV	CM	CSD	CV	CM	From CID	CSD	CV	CM	CS D	CV	CM	CS D	CV	CM	From CID
SCT	363673006	Vascular structure of penis	SCT	66459002	Unilateral	SCT	367732002	Deep dorsal vein of penis	CID pn102	SCT	264938003	Flaccid	-	-	-	-	-	-	-
SCT	363673006	Vascular structure of penis	SCT	7771000	Left	FMA	22045	Cavernous part of deep artery of penis	CID pn100	SCT	264938003	Flaccid	SCT	8359006	Automated	SCT	7771000	Left	CID 12117
SCT	363673006	Vascular structure of penis	SCT	7771000	Left	FMA	22045	Cavernous part of deep artery of penis	CID pn100	SCT	264930003	Flaccid	SCT	87982008	Manual	SCT	7771000	Left	CID 12117
SCT	363673006	Vascular structure of penis	SCT	24028007	Right	FMA	22045	Cavernous part of deep	CID pn100	SCT	264938003	Flaccid	SCT	8359006	Automated	SCT	24028007	Right	CID 12117

								artery of penis											
SCT	363673006	Vascular structure of penis	SCT	24028007	Right	FMA	22045	Cavernous part of deep artery of penis	CID pn100	SCT	264930003	Flaccid	SCT	87982008	Manual	SCT	24028007	Right	CID 12117
SCT	363673006	Vascular structure of penis	SCT	66459002	Unilateral	SCT	367732002	Deep dorsal vein of penis	CID pn102	99B KME D	PN-00001	Post-injection	-	-	-	-	-	-	-
SCT	363673006	Vascular structure of penis	SCT	7771000	Left	FMA	22045	Cavernous part of deep artery of penis	CID pn100	99B KME D	PN-00001	Post-injection	SCT	8359006	Automated	SCT	7771000	Left	CID 12117
SCT	363673006	Vascular structure of penis	SCT	7771000	Left	FMA	22045	Cavernous part of deep artery of penis	CID pn100	99B KME D	PN-00001	Post-injection	SCT	87982008	Manual	SCT	7771000	Left	CID 12117

SCT	363673006	Vascular structure of penis	SCT	24028007	Right	FMA	22045	Cavernous part of deep artery of penis	CID pn100	99B KME D	PN-00001	Post-injection	SCT	8359006	Automated	SCT	24028007	Right	CID 12117
SCT	363673006	Vascular structure of penis	SCT	24028007	Right	FMA	22045	Cavernous part of deep artery of penis	CID pn100	99B KME D	PN-00001	Post-injection	SCT	87982008	Manual	SCT	24028007	Right	CID 12117

**Table 9.7-21: TID BK1300 – Prostate Measurements**

Description:								
Container with measurements related to the Prostate Exam Type								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		(41216001, SCT, "Prostate")
3	>	CONTAINS	INCLUDE	DTID (5016) LHW Volume Group	1	U		\$GroupName = EV (41216001, SCT, "Prostate")  \$Width = EV (15302-3, LN, "Prostate Width by US")  \$Length = EV (15303-1, LN, "Prostate Length by US")  \$Height = EV (15301-5, LN, "Prostate Height by US")  \$Volume = EV (15308-0, LN, "Prostate Volume from HWL by US")  \$VolumeUnits = EV (cc, BK, "cc")  \$DistanceUnits = EV (cm, UCUM, "cm") or EV(mm, UCUM, "mm")  \$Method = EV(87982008, SCT, Manual)
4	>>	CONTAINS	TEXT	EV (15323-9, LN, "Prostate specific Ag/Prostate volume from HWL by US")	1	U		
5	>>>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	U		(41216001, SCT, "Prostate")
6	>	CONTAINS	INCLUDE	DTID (5016) LHW Volume Group	1	U		\$GroupName = EV (41216001, SCT, "Prostate")  \$Width = EV (15302-3, LN, "Prostate Width by US")

							<p>\$Length = EV (15303-1, LN, "Prostate Length by US")</p> <p>\$Height = EV (15301-5, LN, "Prostate Height by US")</p> <p>\$Volume = EV (15308-0, LN, "Prostate Volume from HWL by US")</p> <p>\$VolumeUnits = EV (cc, BK, "cc")</p> <p>\$DistanceUnits = EV (cm, UCUM, "cm") or EV(mm, UCUM, "mm")</p> <p>\$Method = EV(8359006, SCT, Automated)</p>
7	>>	CONTAINS	TEXT	EV (15323-9, LN, "Prostate specific Ag/Prostate volume from HWL by US")	1	U	
8	>>>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	U	(41216001, SCT, "Prostate")
9	>	CONTAINS	INCLUDE	DTID (5016) LHW Volume Group	1	U	<p>\$GroupName = EV (41216001, SCT, "Prostate")</p> <p>\$Width = EV (15302-3, LN, "Prostate Width by US")</p> <p>\$Height = EV (15301-5, LN, "Prostate Height by US")</p> <p>\$Volume = EV (PC-16000, PC, "Prostate Volume from Ellipse by US")</p> <p>\$VolumeUnits = EV (cc, BK, "cc")</p> <p>\$DistanceUnits = EV (cm, UCUM, "cm") or EV(mm, UCUM, "mm")</p>
10	>>	CONTAINS	TEXT	EV (15323-9, LN, "Prostate specific Ag/Prostate volume from HWL by US")	1	U	
11	>>>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	U	(41216001, SCT, "Prostate")

**Table 9.7-22: TID BK1400 – Bladder Measurements**

Description:								
Container with measurements related to the Bladder								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070,DCM, "Findings")				
2	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		(89837001, SCT, "Bladder")
3	>	CONTAINS	INCLUDE	DTID (5016) LHW Volume Group	1	U		\$GroupName = EV (89837001, SCT, "Bladder") \$FunctionalCondition = EV (109134, DCM, "Prior to voiding") \$Width = EV (15299-1, LN, "Bladder Width by US") \$Length = EV (15300-7, LN, "Bladder Length by US") \$Height = EV (15298-3, LN, "Bladder Height by US") \$Volume = EV (15309-8, LN, "Bladder Volume from HWL by US") \$VolumeUnits = EV (ml, UCUM, "ml") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
4	>	CONTAINS	INCLUDE	DTID (5016) LHW Volume Group	1	U		\$GroupName = EV (89837001, SCT, "Bladder") FunctionalCondition = EV (109135, DCM, "Post voiding") \$Width = EV (15299-1, LN, "Bladder Width by US") \$Length = EV (15300-7, LN, "Bladder Length by US")



							<p>\$Height = EV (15298-3, LN, "Bladder Height by US")</p> <p>\$Volume = EV (15309-8, LN, "Bladder Volume from HWL by US")</p> <p>\$VolumeUnits = EV (ml, UCUM, "ml")</p> <p>\$DistanceUnits = EV (cm, "UCUM, "cm") or \$DistanceUnits = EV (mm, "UCUM, "mm")</p>
5	>	CONTAINS	INCLUDE	DTID (300) Measurement	1	U	<p>\$Measurement = (PC-13002, PC, "Micturated Volume from HWL")</p>
6	>	CONTAINS	INCLUDE	DTID (5016) LHW Volume Group	1	U	<p>\$GroupName = EV (89837001, SCT, "Bladder")</p> <p>FunctionalCondition = EV (109134, DCM, "Prior to voiding")</p> <p>\$Width = EV (15299-1, LN, "Bladder Width by US")</p> <p>\$Height = EV (15298-3, LN, "Bladder Height by US")</p> <p>\$Volume = EV (PC-13004, PC, "Bladder Volume from Ellipse by US")</p> <p>\$VolumeUnits = EV (ml, UCUM, "ml")</p> <p>\$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")</p>
7	>	CONTAINS	INCLUDE	DTID (5016) LHW Volume Group	1	U	<p>\$GroupName = EV (89837001, SRT, "Bladder")</p> <p>FunctionalCondition = EV (109135, DCM, "Post voiding")</p> <p>\$Width = EV (15299-1, LN, "Bladder Width by US")</p>

								\$Height = EV (15298-3, LN, "Bladder Height by US")  \$Volume = EV (PC-13004, PC, "Bladder Volume from Ellipse by US")  \$VolumeUnits = EV (ml, UCUM, "ml")  \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
8	>	CONTAINS	INCLUDE	DTID (300) Measurement	1	U		\$Measurement = (PC-13003, PC, "Micturated Volume from Ellipse")

**Table 9.7-23: TID BK1500 – Renal Measurements**

Description:								
Container with measurements related to the Renal Exam Type								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1	>	CONTAINS	INCLUDE	DTID kd03 “Kidney Ultrasound Section”	1	U		
2	>	CONTAINS	INCLUDE	DTID kd10 “Kidney Vascular Ultrasound Section”	1	U		

**Table 9.7-24: TID kd03 – Kidney Ultrasound Section**

Description:								
Non-vascular kidney measurements.								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		(64033007, SCT, "Kidney")
3	>	CONTAINS	INCLUDE	DTID 5016 “LWH” Volume Group”	1	U		\$GroupName = EV (64033007, SCT, "Kidney")

								\$Width = EV (15290-0, LN, "Kidney - right width by US") \$Length = EV (15291-8, LN, "Kidney - right length by US") \$Height = EV (15289-2, LN, "Kidney - right height by US") \$Volume = EV (15305-6, LN, "Kidney - right volume by from HWL (US)") \$VolumeUnits = EV (cc, BK, "cc") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
4	>	CONTAINS	INCLUDE	DTID 5016 "LWH" Volume Group"	1	U		\$GroupName = EV (64033007, SCT, "Kidney") \$Width = EV (15287-6, LN, "Kidney - left width by US") \$Length = EV (15288-4, LN, "Kidney - left length by US") \$Height = EV (15286-8, LN, "Kidney - left height by US") \$Volume = EV (15304-9, LN, "Kidney - left volume by from HWL (US)") \$VolumeUnits = EV (cc, BK, "cc") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")

**Table 9.7-25: TID kd10 – Kidney Vascular Ultrasound Section**

Description:								
Vascular kidney measurements.								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1	>	CONTAINS	INCLUDE	DTID 5103 "Vascular Ultrasound Section"	1	U		\$SectionScope = DT (303402001, SCT, "Vascular Structure Of Kidney") \$SectionLaterality = EV (7771000, SCT, "Left") \$Anatomy = DCID 12115 "Renal Vessels" \$AnatomyRatio = DCID 12124 "Renal Ratios"

2	>	CONTAINS	INCLUDE	DTID 5103 "Vascular Ultrasound Section"	1	U	\$SectionScope = DT (303402001, SCT, "Vascular Structure Of Kidney") \$SectionLaterality = EV (24028007, SCT, "Right") \$Anatomy = DCID 12115 "Renal Vessels" \$AnatomyRatio = DCID 12124 "Renal Ratios"
3	>	CONTAINS	INCLUDE	DTID 5103 "Vascular Ultrasound Section"	1	U	\$SectionScope = DT (118634008, SCT, "Artery of Abdomen") \$SectionLaterality = EV (66459002, SCT, "Unilateral") \$Anatomy = (7832008, SCT, "Abdominal aorta")



### Kidney Measurement Post-Coordination

Section TID k10 – “Kidney Vascular Ultrasound Sections” and Section TID 5104 “Vascular Ultrasound Measurement Group” are used for permutations of these measurement results:

**Table 9.7-26: Kidney Vascular Measurement Results**

TID 5104 \$Measurement				Units		
CSD	CV	CM	From CID	CSD	CV	CM
LN	11726-7	Peak Systolic Velocity	CID 12120	UCUM	cm/s	cm/s
LN	11653-3	End Diastolic Velocity	CID 12120	UCUM	cm/s	cm/s
LN	12008-9	Pulsatility Index	CID 12121	UCUM	1	No units
LN	12023-8	Resistivity Index	CID 12121	UCUM	1	No units

Over these vessel segments:



**Table 9.7-27: Kidney Measurement Post-Coordination**

TID 5103 \$SectionScope			TID 5103 \$SectionLaterality			TID 5103 \$Anatomy				TID 5104 (106233006, SCT, "Topographical Modifier")				TID 5104 (125101, DCM, "Vessel Branch")			
CSD	CV	CM	CSD	CV	CM	CSD	CV	CM	From CID	CSD	CV	CM	From CID	CSD	CV	CM	From CID
SCT	303402001	Vascular Structure of Kidney	SCT	7771000	Left	SCT	2841007	Renal Artery	CID 12115	SCT	40415009	Proximal	CID 12116	-	-	-	-
SCT	303402001	Vascular Structure of Kidney	SCT	7771000	Left	SCT	2841007	Renal Artery	CID 12115	SCT	103342007	Mid-longitudinal	CID 12116	-	-	-	-
SCT	303402001	Vascular Structure of Kidney	SCT	7771000	Left	SCT	2841007	Renal Artery	CID 12115	SCT	46053002	Distal	CID 12116				
SCT	303402001	Vascular Structure of Kidney	SCT	7771000	Left	SCT	85383006	Accessory Renal Artery	CID 12115	-	-	-	-	-	-	-	-
SCT	303402001	Vascular Structure of Kidney	SCT	7771000	Left	SCT	274231001	Arcuate Artery of the Kidney	CID 12115	-	-	-	-	-	-	-	-
SCT	303402001	Vascular Structure of Kidney	SCT	7771000	Left	SCT	120234003	Segmental Artery	CID 12115	-	-	-	-	SCT	261089000	Inferior	CID 12117

SCT	303402001	Vascular Structure of Kidney	SCT	7771000	Left	SCT	120234003	Segmental Artery	CID 12115	-	-	-	-	NCIt	C25569	Middle	CID 12117
SCT	303402001	Vascular Structure of Kidney	SCT	7771000	Left	SCT	120234003	Segmental Artery	CID 12115	-	-	-	-	SCTt	264217000	Superior	CID 12117
SCT	303402001	Vascular Structure of Kidney	SCT	7771000	Left	SCT	274143007	Interlobar Artery of Kidney	CID 12115	-	-	-	-	-	-	-	-
SCT	303402001	Vascular Structure of Kidney	SCT	7771000	Left	SCT	274329007	Interlobular Artery of Kidney	CID 12115	-	-	-	-	-	-	-	-
SCT	303402001	Vascular Structure of Kidney	SCT	7771000	Left	SCT	397405001	Hilar Artery	CID 12115	-	-	-	-	-	-	-	-
SCT	303402001	Vascular Structure of Kidney	SCT	24028007	Right	SCT	2841007	Renal Artery	CID 12115	SCT	40415009	Proximal	CID 12116	-	-	-	-
SCT	303402001	Vascular Structure of Kidney	SCT	24028007	Right	SCT	2841007	Renal Artery	CID 12115	SCT	103342007	Mid-longitudinal	CID 12116	-	-	-	-
SCT	303402001	Vascular Structure	SCT	24028007	Right	SCT	2841007	Renal Artery	CID 12115	SCT	46053002	Distal	CID 12116				

		of Kidney															
SCT	303402001	Vascular Structure of Kidney	SCT	24028007	Right	SCT	85383006	Accessory Renal Artery	CID 12115	-	-	-	-	-	-	-	-
SCT	303402001	Vascular Structure of Kidney	SCT	24028007	Right	SCT	274231001	Arcuate Artery of the Kidney	CID 12115	-	-	-	-	-	-	-	-
SCT	303402001	Vascular Structure of Kidney	SCT	24028007	Right	SCT	120234003	Segmental Artery	CID 12115	-	-	-	-	SCT	261089000	Inferior	CID 12117
SCT	303402001	Vascular Structure of Kidney	SCT	24028007	Right	SCT	120234003	Segmental Artery	CID 12115	-	-	-	-	NCIt	C25569	Middle	CID 12117
SCT	303402001	Vascular Structure of Kidney	SCT	24028007	Right	SCT	120234003	Segmental Artery	CID 12115	-	-	-	-	SCTt	264217000	Superior	CID 12117
SCT	303402001	Vascular Structure of Kidney	SCT	24028007	Right	SCT	274143007	Interlobar Artery of Kidney	CID 12115	-	-	-	-	-	-	-	-
SCT	303402001	Vascular Structure of Kidney	SCT	24028007	Right	SCT	274329007	Interlobular Artery of Kidney	CID 12115	-	-	-	-	-	-	-	-



SCT	303402001	Vascular Structure of Kidney	SCT	24028007	Right	SCT	397405001	Hilar Artery	CID 12115	-	-	-	-	-	-	-
SCT	118634008	Artery of Abdomen	SCT	66459002	Unilateral	SCT	7832008	Abdominal Aorta	CID 12112	SCT	40415009	Proximal	CID 12116	-	-	-
SCT	118634008	Artery of Abdomen	SCT	66459002	Unilateral	SCT	7832008	Abdominal Aorta	CID 12112	SCT	103342007	Mid-longitudinal	CID 12116	-	-	-
SCT	118634008	Artery of Abdomen	SCT	66459002	Unilateral	SCT	7832008	Abdominal Aorta	CID 12112	SCT	46053002	Distal	CID 12116	-	-	-

**Table 9.7-28: TID BK1600 – Testis Measurements**

Description:								
Testis calc package measurements								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1	>	CONTAINS	INCLUDE	DTID te03 “Testis Ultrasound Section”	1	U		
2	>	CONTAINS	INCLUDE	DTID ep03 “Epididymis Ultrasound Section”	1	U		
3	>	CONTAINS	INCLUDE	DTID sc03 “Scrotum Ultrasound Section”	1	U		

**Table 9.7-29: TID te03 – Testis Ultrasound Section**

Description:								
Testis measurements								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		(40689003, SCT, "Testis")
3	>	CONTAINS	INCLUDE	DTID 5016 “LWH Volume Group”	1	U		\$GroupName = EV (40689003, SCT, "Testis") \$Width = EV (15296-7, LN, "Testis - right Width by US") \$Length = EV (15297-5, LN, "Testis - right Length by US") \$Height = EV (15295-9, LN, "Testis - right Height by US") \$Volume = EV (15307-2, LN, "Testis - right Volume by derived from height, width and length (US)") \$VolumeUnits = EV (cc, BK, "cc") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")

4	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U		\$GroupName = EV (40689003, SCT, "Testis") \$Width = EV ("15293-4, LN, "Testis - left Width by US") \$Length = EV (15294-2, LN, "Testis - left Length by US") \$Height = EV (15292-6, LN, "Testis - left Height by US") \$Volume = EV (15306-4, LN, "Testis - left Volume by derived from height, width and length (US)") \$VolumeUnits = EV (cc, BK, "cc") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
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**Table 9.7-30: TID ep03 – Epididymis Ultrasound Section**

Description:								
Epididymis measurements								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		(87644002, SCT, "Epididymis")
3	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U		\$GroupName = EV (87644002, SCT, "Epididymis") \$Width = EV (EP-00101, 99BKMED, "Epididymis - right Width by US") \$Length = EV (EP-00102, 99BKMED, "Epididymis - right Length by US") \$Height = EV (EP-00103, 99BKMED, "Epididymis - right Height by US") \$Volume = EV (EP-00104, 99BKMED, "Epididymis - right Volume by HWL (US)")

								\$VolumeUnits = EV (cc, BK, "cc") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
4	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U		\$GroupName = EV (87644002, SCT, "Epididymis") \$Width = EV (EP-00111, 99BKMED, "Epididymis - left Width by US") \$Length = EV (EP-00112, 99BKMED, "Epididymis - left Length by US") \$Height = EV (EP-00113, 99BKMED, "Epididymis - left Height by US") \$Volume = EV (EP-00114, 99BKMED, "Epididymis - left Volume by HWL (US)") \$VolumeUnits = EV (cc, BK, "cc") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")

**Table 9.7-31: TID sc03 – Scrotum Ultrasound Section**

Description:								
Scrotum measurements								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		(20233005, SCT, "Scrotum")
3	>	CONTAINS	INCLUDE	DTID BK300 "Measurement Result"	1	U		\$Measurement = (SC-00201, 99BKMED, "Scrotum skin thickness - right by US") \$Units = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm") \$TargetSite = EV (81992007, SCT, "Skin of scrotum")

								\$TargetSiteLaterality = EV (24028007, SCT, "Right")
4	>	CONTAINS	INCLUDE	DTID BK300 "Measurement Result"	1	U		\$Measurement = (SC-00201, 99BKMED, "Scrotum skin thickness - right by US")  \$Units = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")  \$TargetSite = EV (81992007, SCT, "Skin of scrotum")  \$TargetSiteLaterality = EV (7771000, SCT, "Left")

**Table 9.7-32: TID BK1700 – Breast Measurements**

Description:								
Breast measurements								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		(76752008, SCT, "Breast")
3	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1-n	U		\$GroupName = EV (80248007, SCT, "Left breast")  \$FindingType = EV (52988006, SCT, "Lesion")  \$Width = EV (103355008, SCT, "Width")  \$Length = EV (410668003, SCT, "Length")  \$Height = EV (121207, DCM, "Height")  \$Volume = EV (121221, DCM, "Volume of ellipsoid")  \$VolumeUnits = EV (cc, BK, "cc")  \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")

4	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1-n	U		\$GroupName = EV (73056007, SCT, "Right breast") \$FindingType = EV (52988006, SCT, "Lesion") \$Width = EV (103355008, SCT, "Width") \$Length = EV (410668003, SCT, "Length") \$Height = EV (121207, DCM, "Height") \$Volume = EV (121221, DCM, "Volume of ellipsoid") \$VolumeUnits = EV (cc, BK, "cc") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
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**Table 9.7-33: TID BK1800 – Thyroid Measurements**

Description:								
Thyroid measurements								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		(69748006, SCT, "Thyroid")
3	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1-n	U		\$GroupName = EV (79163004, SCT, "Left lobe of thyroid") \$FindingType = EV (27925004, SCT, "Nodule") \$Width = EV (103355008, SCT, "Width") \$Length = EV (410668003, SCT, "Length") \$Height = EV (121207, DCM, "Height") \$Volume = EV (121221, DCM, "Volume of ellipsoid") \$VolumeUnits = EV (cc, BK, "cc")

							\$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
4	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1-n	U	\$GroupName = EV (29565003, SCT, "Right lobe of thyroid") \$FindingType = EV (27925004, SCT, "Nodule") \$Width = EV (103355008, SCT, "Width") \$Length = EV (410668003, SCT, "Length") \$Height = EV (121207, DCM, "Height") \$Volume = EV (121221, DCM, "Volume of ellipsoid") \$VolumeUnits = EV (cc, BK, "cc") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
5	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U	\$GroupName = EV (79163004, SCT, "Left lobe of thyroid") \$FindingType = EV (119281005, SCT, "Lobe of thyroid") \$Width = EV (103355008, SCT, "Width") \$Length = EV (410668003, SCT, "Length") \$Height = EV (121207, DCM, "Height") \$Volume = EV (121221, DCM, "Volume of ellipsoid") \$VolumeUnits = EV (cc, BK, "cc") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
6	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U	\$GroupName = EV (29565003, SCT, "Right lobe of thyroid") \$FindingType = EV (119281005, SCT, "Lobe of thyroid")

								\$Width = EV (103355008, SCT, "Width") \$Length = EV (410668003, SCT, "Length") \$Height = EV (121207, DCM, "Height") \$Volume = EV (121221, DCM, "Volume of ellipsoid") \$VolumeUnits = EV (cc, BK, "cc") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
7	>	CONTAINS	INCLUDE	DTID 1501 "Measurement and Qualitative Evaluation Group"	1	U		\$Measurement = DT (410668003, SCT, "Length") \$Units = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm") \$TargetSite = EV (40867004, SCT, "Thyroid isthmus") \$FindingType = EV (362892003, SCT, "Thyroid part")

**Table 9.7-34: TID BK1900 – OB-GYN Measurements**

Description:								
OB-GYN measurements								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1	>	CONTAINS	INCLUDE	DTID 5002 "OB-GYN Procedure Summary Section"	1	U		
2	>	CONTAINS	INCLUDE	DTID 5005 "Fetal Biometry Section"	1	U		
3	>	CONTAINS	INCLUDE	DTID 5006 "Fetal Long Bones Section"	1	U		
4	>	CONTAINS	INCLUDE	DTID 5007 "Fetal Cranium Section"	1	U		
5	>	CONTAINS	INCLUDE	DTID 5011 "Early Gestation Section"	1	U		
6	>	CONTAINS	INCLUDE	DTID 5010 "Amniotic Sac Section"	1	U		



7	>	CONTAINS	INCLUDE	DTID 5015 "Pelvis and Uterus Section"	1	U		
8	>	CONTAINS	INCLUDE	DTID 5012 "Ovaries Section"	1	U		
9	>	CONTAINS	INCLUDE	DTID 5013 "Follicles Section"	1	U		\$Laterality = EV (7771000, SCT, "Left")
10	>	CONTAINS	INCLUDE	DTID 5013 "Follicles Section"	1	U		\$Laterality = EV (24028007, SCT, "Right")
11	>	CONTAINS	CONTAINER	EV (121070, DCM, "Findings")	1	U		
12	>>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		EV (281496003, SCT, "Pelvic Vascular Structure")
13	>>	CONTAINS	INCLUDE	DTID 5026 "OB-GYN Pelvic Vascular Ultrasound Measurement Group"	1-n	M		\$AnatomyGroup = DCID 12140 "Pelvic Vasculature Anatomical Location"

#### OB-GYN Measurement Post-Coordination

Section TID 5002 "OB-GYN Procedure Summary Section", Section TID 5003 "OB-GYN Fetus Summary", Section TID 5005 "Fetal Biometry Section", Section TID 5006 "Fetal Long Bones Section", Section TID 5007 "Fetal Cranium Section", Section TID 5010 "Amniotic Sac Section", Section 5011 "Early Gestation Section", Section TID 5015 "Pelvis and Uterus Section" are used for permutations of these measurements:

**Table 9.7-35: OB-GYN Biometric Measurement Post-Coordination**

Section	\$BiometryType or \$Measurement				\$TargetSite			
	CSD	CV	CM	From CID	CSD	CV	CM	From CID
TID 5002 OB-GYN Procedure Summary Section > TID 5003 OB-GYN Fetus Summary	LN	11885-1	Gestational Age by LMP	CID 12019 OB-GYN Fetus Summary	-	-	-	-
TID 5002 OB-GYN Procedure Summary Section > TID 5003 OB-GYN Fetus Summary	LN	11888-5	Composite Ultrasound Age	CID 12019 OB-GYN Fetus Summary	-	-	-	-
TID 5002 OB-GYN Procedure Summary Section > TID 5003 OB-GYN Fetus Summary	LN	11727-5	Estimated Weight	CID 12019 OB-GYN Fetus Summary	-	-	-	-

TID 5002 OB-GYN Procedure Summary Section > TID 5003 OB-GYN Fetus Summary	99BKMED	OB-00001	Estimated Weight Author	CID 12019 OB-GYN Fetus Summary	-	-	-	-
TID 5002 OB-GYN Procedure Summary Section > TID 5003 OB-GYN Fetus Summary	LN	11948-7	Fetal Heart Rate	CID 12019 OB-GYN Fetus Summary	-	-	-	-
TID 5005 Fetal Biometry Section	LN	11820-8	Biparietal Diameter	CID 12005 Fetal Biometry Measurements	SCT	89546000	Skull	CID 12020 Fetal Biometry Anatomic Sites
TID 5005 Fetal Biometry Section	LN	11851-3	Occipital-Frontal Diameter	CID 12005 Fetal Biometry Measurements	SCT	89546000	Skull	CID 12020 Fetal Biometry Anatomic Sites
TID 5005 Fetal Biometry Section	LN	11984-2	Head Circumference	CID 12005 Fetal Biometry Measurements	SCT	89546000	Skull	CID 12020 Fetal Biometry Anatomic Sites
TID 5005 Fetal Biometry Section	LN	11979-2	Abdominal Circumference	CID 12005 Fetal Biometry Measurements	SCT	113345001	Abdomen	CID 12020 Fetal Biometry Anatomic Sites
TID 5005 Fetal Biometry Section	LN	11963-6	Femur Length	CID 12005 Fetal Biometry Measurements	SCT	71341001	Femur	CID 12020 Fetal Biometry Anatomic Sites
TID 5005 Fetal Biometry Section	LN	11818-2	Anterior-Posterior Abdominal Diameter	CID 12005 Fetal Biometry Measurements	SCT	113345001	Abdomen	CID 12020 Fetal Biometry Anatomic Sites
TID 5005 Fetal Biometry Section	LN	11862-0	Transverse Abdominal Diameter	CID 12005 Fetal Biometry Measurements	SCT	113345001	Abdomen	CID 12020 Fetal Biometry Anatomic Sites
TID 5005 Fetal Biometry Section	99BKMED	CM-94761	Mean Abdominal Diameter	CID 12005 Fetal Biometry Measurements	SCT	113345001	Abdomen	CID 12020 Fetal Biometry Anatomic Sites
TID 5005 Fetal Biometry Section	LN	11965-1	Foot Length	CID 12005 Fetal Biometry Measurements	SCT	56459004	Foot	CID 12020 Fetal Biometry Anatomic Sites
TID 5006 Fetal Long Bones Section	LN	11962-8	Clavicle length	CID 12006 Fetal Long Bones Biometry Measurements	SCT	51299004	Clavicle	CID 12021 Fetal Long Bone Anatomic Sites

TID 5006 Fetal Long Bones Section	LN	11966-9	Humerus length	CID 12006 Fetal Long Bones Biometry Measurements	SCT	85050009	Humerus	CID 12021 Fetal Long Bone Anatomic Sites
TID 5006 Fetal Long Bones Section	LN	11969-3	Ulna length	CID 12006 Fetal Long Bones Biometry Measurements	SCT	23416004	Ulna	CID 12021 Fetal Long Bone Anatomic Sites
TID 5006 Fetal Long Bones Section	LN	11968-5	Tibia length	CID 12006 Fetal Long Bones Biometry Measurements	SCT	12611008	Tibia	CID 12021 Fetal Long Bone Anatomic Sites
TID 5006 Fetal Long Bones Section	LN	11964-4	Fibula length	CID 12006 Fetal Long Bones Biometry Measurements	SCT	87342007	Fibula	CID 12021 Fetal Long Bone Anatomic Sites
TID 5007 Fetal Cranium Section	LN	12171-5	Lateral Ventricle width	CID 12007 Fetal Cranium	SCT	66720007	Lateral Ventricle	CID 12022 Fetal Cranium Anatomic Sites
TID 5007 Fetal Cranium Section	LN	11863-8	Transverse Cerebellar Diameter	CID 12007 Fetal Cranium	SCT	113305005	Cerebellum	CID 12022 Fetal Cranium Anatomic Sites
TID 5007 Fetal Cranium Section	LN	11860-4	Cisterna Magna length	CID 12007 Fetal Cranium	SCT	54165005	Cisterna Magna	CID 12022 Fetal Cranium Anatomic Sites
TID 5007 Fetal Cranium Section	LN	12146-7	Nuchal Fold thickness	CID 12007 Fetal Cranium	SCT	700032006	Occipital region of scalp	CID 12022 Fetal Cranium Anatomic Sites
TID 5007 Fetal Cranium Section	LN	11629-3	Binocular Distance	CID 12007 Fetal Cranium	SCT	363654007	Orbit	CID 12022 Fetal Cranium Anatomic Sites
TID 5011 Early Gestation Section	LN	11850-5	Gestational Sac Diameter	CID 12009 Early Gestation Biometry Measurements	-	-	-	-
TID 5011 Early Gestation Section	LN	11957-8	Crown Rump Length	CID 12009 Early Gestation Biometry Measurements	-	-	-	-
TID 5011 Early Gestation Section	LN	11816-6	Yolk Sac length	CID 12009 Early Gestation Biometry Measurements	-	-	-	-
TID 5011 Early Gestation Section	LN	33069-6	Nuchal Translucency	CID 12009 Early Gestation	-	-	-	-

				Biometry Measurements				
TID 5010 Amniotic Sac Section	LN	11627-7	Amniotic Fluid Index		-	-	-	-
TID 5010 Amniotic Sac Section	LN	11626-9	Second Quadrant Diameter (LUQ)	CID 12008 OB-GYN Amniotic Sac	-	-	-	-
TID 5010 Amniotic Sac Section	LN	11625-1	Third Quadrant Diameter (LLQ)	CID 12008 OB-GYN Amniotic Sac	-	-	-	-
TID 5010 Amniotic Sac Section	LN	11624-4	First Quadrant Diameter (RUQ)	CID 12008 OB-GYN Amniotic Sac	-	-	-	-
TID 5010 Amniotic Sac Section	LN	11623-6	Fourth Quadrant Diameter (RLQ)	CID 12008 OB-GYN Amniotic Sac	-	-	-	-
TID 5015 Pelvis and Uterus Section	LN	11961-0	Cervix Length	CID 12011 Ultrasound Pelvis and Uterus	SCT	71252005	Cervix	CID 12023 Pelvis and Uterus Anatomic Sites
TID 5015 Pelvis and Uterus Section	LN	12145-9	Endometrium Thickness	CID 12011 Ultrasound Pelvis and Uterus	SCT	2739003	Endometrium	CID 12023 Pelvis and Uterus Anatomic Sites

### OB-GYN Vascular Post-Coordination

Section TID 5026 “OB-GYN Pelvic Vascular Ultrasound Measurement Group” is used for permutations of these measurements:

**Table 9.7-36: OB-GYN Arterial Measurement Results**

TID 5026 \$MeasType				Units		
CSD	CV	CM	From CID	CSD	CV	CM
LN	11726-7	Peak Systolic Velocity	CID 12120	UCUM	cm/s	cm/s
LN	11653-3	End Diastolic Velocity	CID 12120	UCUM	cm/s	cm/s
LN	12023-8	Resistivity Index	CID 12121	UCUM	1	No units
LN	12144-2	Systolic to Diastolic Velocity Ratio	CID 12121	UCUM	1	No units

Over these vessels:

**Table 9.7-37: OB-GYN Arterial Measurement Post-Coordination**

TID 5025 \$Laterality			TID 5026 \$AnatomyGroup			
CSD	CV	CM	CSD	CV	CM	From CID
SCT	24028007	Right	SCT	12052000	Ovarian Artery	CID 12140
SCT	7771000	Left	SCT	12052000	Ovarian Artery	CID 12140
SCT	24028007	Right	SCT	91079009	Uterine Artery	CID 12140
SCT	7771000	Left	SCT	91079009	Uterine Artery	CID 12140
-	-	-	SCT	50536004	Umbilical Artery	CID 12140

**Table 9.7-38: TID BK300 – Measurement Result**

Description:								
Container which holds a measurement result								
Parameters:								
\$Measurement Coded term or Context Group for Concept Name of measurement								
\$Units Units of measurement								
\$TargetSite Value(s) for Anatomic Location of measurement								
\$TargetSiteLaterality Laterality Value for Anatomic Location of Measurement								
\$Method Value for Measurement Method								
\$Derivation Derivation of Measurement								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (PC-10000, PC, "Result")	1	M		
2	>	CONTAINS	NUM	\$Measurement	1	M		UNITS = \$Units
3	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1-n	U		\$TargetSite
4	>	HAS CONCEPT MOD	CODE	EV (272741003, SCT, "Laterality")	1	U		\$TargetSiteLaterality
5	>	HAS CONCEPT MOD	CODE	EV (370129005, SCT, "Measurement Method")	1	U		\$Method
6	>	HAS CONCEPT	CODE	EV (121401, DCM, "Derivation")	1	U		\$Derivation

		MOD					
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**Table 9.7-39: TID 1501 –Measurement and Qualitative Evaluation Group**

Description:								
Measurement and Qualitative Evaluation Group								
Parameters:								
		\$Measurement	Coded term or Context Group for Concept Name of measurement					
		\$Volume	Concept name of volume measurement					
		\$Units	Units of measurement					
		\$TargetSite	Value(s) for Anatomic Location of measurement					
		\$FindingType	Type of the finding					
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (125007, DCM, "Measurement Group")	1	M		
2	>	HAS OBS CONTEXT	TEXT	DT (112039, DCM, "Tracking Identifier")	1	U		
3	>	HAS OBS CONTEXT	UIDREF	EV (112040, DCM, "Tracking Unique Identifier")	1	U		
3b	>	CONTAINS	CODE	EV (121071, DCM, "Finding")	1	U		\$FindingType
10	>	CONTAINS	INCLUDE	DTID (BK300) Measurement Result	1-n	U		\$Measurement = \$Measurement \$TargetSite = \$TargetSite \$Units = \$Units

**Table 9.7-40: TID 5002 - OB-GYN Procedure Summary Section**

Description:								
OB-GYN Procedure Summary Section								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121111, DCM, "Summary")	1	M		
2	>	CONTAINS	DATE	DCID 12003 "OB-GYN Dates"	1-n	U		

6	>	CONTAINS	INCLUDE	BTID 5003 “OB-GYN Fetus Summary”	1-n	UC	No more than 1 inclusion per fetus	
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**Table 9.7-41: TID 5003 - OB-GYN Procedure Fetus Summary**

Description:								
OB-GYN Fetus Summary Section								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (125008, DCM, "Fetus Summary")	1	M		
2	>	HAS OBS CONTEXT	TEXT	EV (11951-1, LN, “Fetus ID”)	1	MC	IF this Template is invoked more than once to describe more than one fetus	
5	>	CONTAINS	INCLUDE	DTID 300 “Measurement”	1-n	U		\$Measurement = DCID 12019 “OB-GYN Fetus Summary”

**Table 9.7-42: TID 5005 – Fetal Biometry Section**

Description:								
OB-GYN Fetal Biometry Section								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (125002, DCM, "Fetal Biometry")	1	M		
2	>	HAS OBS CONTEXT	TEXT	EV (11951-1, LN, “Fetus ID”)	1	MC	IF this Template is invoked more than once to describe more than one fetus	
3	>	CONTAINS	INCLUDE	DTID 5008 “Fetal Biometry Group”	1-n	M		\$BiometryType = MemberOf {DCID 12005 “Fetal Biometry Measurements”}

									\$TargetSite = DCID 12020 "Fetal Biometry Anatomic Sites"
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**Table 9.7-43: TID 5006 - Fetal Long Bones Section**

Description:									
OB-GYN Fetal Long Bones Section									
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint	
1			CONTAINER	DT (125003, DCM, "Fetal Long Bones")	1	M			
2	>	HAS OBS CONTEXT	TEXT	EV (11951-1, LN, "Fetus ID")	1	MC	IF this Template is invoked more than once to describe more than one fetus		
3	>	CONTAINS	INCLUDE	DTID 5008 "Fetal Biometry Group"	1-n	M		\$BiometryType = MemberOf {DCID 12006 "Fetal Long Bones Biometry Measurements"} \$TargetSite = DCID 12021 "Fetal Long Bone Anatomic Sites"	

**Table 9.7-44: TID 5007 - Fetal Cranium Section**

Description:									
OB-GYN Fetal Cranium Section									
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint	
1			CONTAINER	DT (125004, DCM, "Fetal Cranium")	1	M			
2	>	HAS OBS CONTEXT	TEXT	EV (11951-1, LN, "Fetus ID")	1	MC	IF this Template is invoked more than once to describe more than one fetus		



3	>	CONTAINS	INCLUDE	DTID 5008 "Fetal Biometry Group"	1-n	M		\$BiometryType = MemberOf {DCID 12007 "Fetal Cranium"} \$TargetSite = DCID 12022 "Fetal Cranium Anatomic Sites"
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**Table 9.7-45: TID 5008 - Fetal Biometry Group**

Description:								
The Fetal Biometry Group template is a container for a biometric value and its associated growth metrics.								
Parameters:								
\$BiometryType The concept name of the biometry measurement								
\$TargetSite Value for Anatomic Location of the biometry measurement								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (125005, DCM, "Biometry Group")	1	M		
2	>	CONTAINS	INCLUDE	DTID BK300 "Measurement Result"	1-n	MC	At least one of row 2 and 3 shall be present	\$Measurement = \$BiometryType \$TargetSite = \$TargetSite
3	>	CONTAINS	NUM	EV (18185-9, LN, "Gestational Age")	1	M	At least one of row 2 and 3 shall be present	UNITS = EV (d, UCUM, "days")
3b	>	CONTAINS	TEXT	EV (OB-00101, 99BKMED, "Gestational Age Author")	1	MC	Present IF Row 3 is present	

**Table 9.7-46: TID 5010 - Amniotic Sac Section**

Description:								
A container for amniotic sac quadrant diameters and a derived index								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		DT (70847004, SCT, "Amniotic Sac")

3	>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	M		\$Measurement = DT (11627-7, LN, "Amniotic Fluid Index")
4	>	CONTAINS	INCLUDE	DTID 300 "Measurement"	4	U		\$Measurement = DCID 12008 "OB-GYN Amniotic Sac"

**Table 9.7-47: TID 5011 - Early Gestation Section**

Description:								
OB-GYN Early Gestation								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (125009, DCM, "Early Gestation")	1	M		
2	>	HAS OBS CONTEXT	TEXT	EV (11951-1, LN, "Fetus ID")	1	MC	IF this Template is invoked more than once to describe more than one fetus	
3	>	CONTAINS	INCLUDE	DTID 5008 "Fetal Biometry Group"	1-n	M		\$BiometryType = MemberOf {DCID 12009 "Early Gestation Biometry Measurements"}

**Table 9.7-48: CID 5012 - Ovaries Section**

Description:								
OB-GYN Ovarian findings, other than follicles								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		DT (15497006, SCT, "Ovary")
3	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U		\$GroupName = EV (15497006, SCT, "Ovary") \$Width = EV (11829-9, LN, "Left Ovary Width")

							<p>\$Length = EV (11840-6, LN, "Left Ovary Length")</p> <p>\$Height = EV (11857-0, LN, "Left Ovary Height")</p> <p>\$Volume = EV (12164-0, LN, "Left Ovary Volume")</p> <p>\$VolumeUnits = EV (cc, BK, "cc")</p> <p>\$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")</p>
4	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U	<p>\$GroupName = EV (15497006, SCT, "Ovary")</p> <p>\$Width = EV (11830-7, LN, "Right Ovary Width")</p> <p>\$Length = EV (11841-4, LN, "Right Ovary Length")</p> <p>\$Height = EV (11858-8, LN, "Right Ovary Height")</p> <p>\$Volume = EV (12165-7, LN, "Right Ovary Volume")</p> <p>\$VolumeUnits = EV (cc, BK, "cc")</p> <p>\$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")</p>
5	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1-n	U	<p>\$GroupName = EV (15497006, SCT, "Ovary")</p> <p>\$Laterality = EV (7771000, SCT, "Left")</p> <p>\$FindingType = EV (52988006, SCT, "Lesion")</p> <p>\$Width = EV (103355008, SCT, "Width")</p> <p>\$Length = EV (410668003, SCT, "Length")</p> <p>\$Height = EV (121207, DCM, "Height")</p> <p>\$Volume = EV (121221, DCM, "Volume of ellipsoid")</p> <p>\$VolumeUnits = EV (cc, BK, "cc")</p>

							\$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
6	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1-n	U	\$GroupName = EV (15497006, SCT, "Ovary") \$Laterality = EV (24028007, SCT, "Right") \$FindingType = EV (52988006, SCT, "Lesion") \$Width = EV (103355008, SCT, "Width") \$Length = EV (410668003, SCT, "Length") \$Height = EV (121207, DCM, "Height") \$Volume = EV (121221, DCM, "Volume of ellipsoid") \$VolumeUnits = EV (cc, BK, "cc") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
7	>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U	\$Measurement = EV (CM-94801, 99BKMED, "Left Corpus Luteum Diameter") \$Units = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
8	>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1	U	\$Measurement = EV (CM-94802, 99BKMED, "Right Corpus Luteum Diameter") \$Units = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")

**Table 9.7-49: TID 5013 - Follicles Section**

Description:	
Follicle metrics for left or right ovarian follicles.	
Parameters:	
\$Laterality	Ovary laterality

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		DT (24162005, SCT, "Ovarian Follicle")
3	>	HAS CONCEPT MOD	CODE	EV (272741003, SCT, "Laterality")	1	M		\$Laterality
5	>	CONTAINS	INCLUDE	DTID 5014 "Follicle Measurement Group"	1-n	U		
6	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1-n	U		\$GroupName = EV (24162005, SCT, "Ovarian Follicle") \$Width = EV (103355008, SCT, "Width") \$Length = EV (410668003, SCT, "Length") \$Height = EV (121207, DCM, "Height") \$Volume = EV (121221, DCM, "Volume of ellipsoid") \$VolumeUnits = EV (ml, UCUM, "ml") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm") \$Method = EV(87982008, SCT, "Manual")
7	>>	CONTAINS	INCLUDE	DTID BK300 "Measurement Result"	1	MC	IFF Row 6 is included	\$Measurement = EV(11793-7, LN, "Follicle Diameter") \$Units = EV(cm, UCUM, "cm") or EV (mm, UCUM, "mm") \$Method = EV (87982008, SCT, "Manual") \$Derivation = EV (56851009, SCT, "Maximum")

**Table 9.7-50: TID 5014 - Follicle Measurement Group**

Description:

Follicle metrics for one ovarian follicle.								
Parameters:								
\$Laterality			Ovary laterality					
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	EV (125007, DCM, "Measurement Group")	1	M		
2	>	HAS OBS CONTEXT	TEXT	EV (125010, DCM, "Identifier")	1	M		Unique among all groups of same laterality
4	>	CONTAINS	INCLUDE	DTID BK300 "Measurement Result"	1-n	U		\$Measurement = EV (11793-7, LN, "Follicle Diameter") \$Units = EV (cm, "UCUM, "cm") or EV(mm, UCUM, "mm") \$Method = DCID am01 "Automation of Measurement" \$Derivation = DCID de01 "Derivation of Measurement"

**Table 9.7-51: TID 5015 - Pelvis and Uterus Section**

Description:								
General measurements in the pelvis and uterus.								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (125011, DCM, "Pelvis and Uterus")	1	M		
2	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1	U		\$GroupName = EV (35039007, SCT, "Uterus") \$Width = EV (11865-3, LN, "Uterus Width") \$Length = EV (11842-2, LN, "Uterus Length") \$Height = EV (11859-6, LN, "Uterus Height") \$Volume = EV (33192-6, LN, "Uterus Volume") \$VolumeUnits = EV (cc, BK, "cc")

							\$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
2b	>	CONTAINS	INCLUDE	DTID 5016 "LWH Volume Group"	1-n	U	\$GroupName = EV (95315005, SCT, "Uterine fibroid") \$Width = EV (103355008, SCT, "Width") \$Length = EV (410668003, SCT, "Length") \$Height = EV (121207, DCM, "Height") \$Volume = EV (121221, DCM, "Volume of ellipsoid") \$VolumeUnits = EV (cc, BK, "cc") \$DistanceUnits = EV (cm, "UCUM, "cm") or EV (mm, "UCUM, "mm")
3	>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1-n	U	\$Measurement = DCID 12011 "Ultrasound Pelvis and Uterus" \$TargetSite = DCID 12023 "Pelvis and Uterus Anatomic Sites"

**Table 9.7-52: TID 5016 –LHW Volume Group**

Description:	
	Container which groups an LHW volume measurement
Parameters:	
\$GroupName	The name of the volume group that is an anatomical structure
\$Volume	Concept name of volume measurement
\$Length	Concept name of length measurement
\$Width	Concept name of width measurement
\$Height	Concept name of height measurement
\$DistanceUnits	Units of linear (height, weight, length) measurement
\$VolumeUnits	Units of volume measurement
\$FunctionalCondition	Functional condition present during measurement
\$Method	Value for Measurement Method

\$FindingType		Type of the finding						
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	\$GroupName	1	M		
1b	>	HAS CONCEPT MOD	CODE	EV (370129005, SCT, "Measurement Method")	1	U		\$Method
1c	>	HAS OBS CONTEXT	TEXT	EV (125010, DCM, "Identifier")	1	U		Unique among all groups of the same finding, site and laterality. Eg. "1", "2", etc. for nodules, fibroids or lesions
2	>	CONTAINS	INCLUDE	DTID (BK300) Measurement Result	1	MC	At least one of row 2, 2b, 3, 4, 5 shall be present	\$Measurement = \$Volume \$TargetSite = \$GroupName \$Units = \$VolumeUnits
2b	>	CONTAINS	INCLUDE	DTID (BK300) Measurement Result	1	MC	At least one of row 2, 2b, 3, 4, 5 shall be present	\$Measurement = \$Area \$TargetSite = \$GroupName \$Units = \$AreaUnits
3	>	CONTAINS	INCLUDE	DTID (BK300) Measurement Result	1-n	MC	At least one of row 2, 2b, 3, 4, 5 shall be present	\$Measurement = \$Length \$TargetSite = \$GroupName \$Units = \$DistanceUnits
4	>	CONTAINS	INCLUDE	DTID (BK300) Measurement Result	1-n	MC	At least one of row 2, 2b, 3, 4, 5 shall be present	\$Measurement = \$Width \$TargetSite = \$GroupName \$Units = \$DistanceUnits
5	>	CONTAINS	INCLUDE	DTID (BK300) Measurement Result	1-n	MC	At least one of row 2, 2b, 3, 4, 5 shall be present	\$Measurement = \$Height \$TargetSite = \$GroupName \$Units = \$DistanceUnits
6	>	CONTAINS	CODE	EV (F-047E7, SRT, "Functional observable")	1	U		\$FunctionalCondition
7	>	CONTAINS	CODE	EV (121071, DCM, "Finding")	1	U		\$FindingType

**Table 9.7-53: TID 5026 - OB-GYN Pelvic Vascular Ultrasound Measurement Group**

Description:



An Anatomy specific container of OB-GYN pelvic vascular measurements.

Parameters:

\$AnatomyGroup The concept name of the vascular anatomy

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	\$AnatomyGroup	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (272741003, SCT, "Laterality")	1	MC	IFF anatomy has laterality	DCID 244 "Laterality"
3	>	HAS CONCEPT MOD	TEXT	EV (112050, DCM, "Anatomic Identifier")	1	U		
3a	>	HAS OBS CONTEXT	TEXT	EV(11951-1, LN, "Fetus Id")	1	UC	IFF \$AnatomyGroup applies per fetus and there exists more than one fetus	
4	>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1-n	M		\$MeasType = DCID 12119 "Vascular Ultrasound Property"

**Table 9.7-54: TID 5103 –Vascular Ultrasound Section**

Description:

Sections of a vascular ultrasound report are section containers of an anatomic region consisting of measurement group containers that contain the measurements

Parameters:

\$SectionScope The concept name of the section heading modifier

\$SectionLaterality The laterality (if any) of the anatomy in this section heading

\$Anatomy The concept name of the vascular anatomy

\$AnatomyRatio The concept name of anatomy-coordinated ratio concepts

\$Method Value for Measurement Method

\$FunctionalCondition Functional condition present during measurement

\$PostInjectionTime Time since injection of a substance such as a vasodilator

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	DT (121070, DCM, "Findings")	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (363698007, SCT, "Finding Site")	1	M		\$SectionScope
3	>	HAS CONCEPT MOD	CODE	EV (272741003, SCT, "Laterality")	1	M		\$SectionLaterality
4	>	CONTAINS	INCLUDE	DTID 5104 "Vascular Ultrasound Measurement Group"	1-n	M		\$AnatomyGroup = \$Anatomy \$Method = \$Method \$FunctionalCondition = \$FunctionalCondition \$PostInjectionTime = \$PostInjectionTime
5	>	CONTAINS	INCLUDE	DTID 300 "Measurement"	1-n	U		\$Measurement = \$AnatomyRatio

**Table 9.7-55: TID 5104 –Vascular Ultrasound Measurement Group**

<p>Description:</p> <p style="padding-left: 40px;">This template is an anatomy specific container of measurements.</p> <p>Parameters:</p> <p style="padding-left: 40px;">\$AnatomyGroup      The concept name of the vascular anatomy</p> <p style="padding-left: 40px;">\$Method              Value for Measurement Method</p> <p style="padding-left: 40px;">\$FunctionalCondition    Functional condition present during measurement</p> <p style="padding-left: 40px;">\$PostInjectionTime      Time since injection of a substance such as a vasodilator</p>								
	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			CONTAINER	\$AnatomyGroup	1	M		
2	>	HAS CONCEPT MOD	CODE	EV (106233006, SCT, "Topographical Modifier")	1	U		DCID 12116 "Vessel Segment Modifiers"
3	>	HAS CONCEPT MOD	CODE	EV (125101, DCM, "Vessel Branch")	1-n	U		DCID 12117 "Vessel Branch Modifiers"

4	>	CONTAINS	INCLUDE	DTID BK300 "Measurement Result"	1-n	M		\$Measurement = DCID 12119 "Vascular Ultrasound Property" \$Method = \$Method
10	>>	HAS CONCEPT MOD	CODE	EV (364644000, SCT, "Functional observable")	1	U		\$FunctionalCondition
11	>>	CONTAINS	NUM	EV (PN-00003, 99BKMED, "Time since injection")	1	U		\$PostInjectionTime UNIT = EV (min, UCUM, "min")

**Table 9.7-56: CID am01 - Automation of Measurement**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SCT	8359006	Automated
SCT	87982008	Manual

**Table 9.7-57: CID 244 - Laterality**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SCT	7771000	Left
SCT	24028007	Right
SCT	66459002	Unilateral

**Table 9.7-58: CID de01 - Derivation of Measurement**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
INCLUDE CID 3488 Min/Max/Mean		
INCLUDE CID 3627 Measurement Type		

**Table 9.7-59: CID 3488 - Min/Max/Mean**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
SCT	56851009	Maximum
SCT	2556050017	Minimum
SCT	373098007	Mean

**Table 9.7-60: CID 3627 - Measurement Type**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
SCT	373098007	Mean
SCT	258104002	Measured

**Table 9.7-61: CID 12003 - OB-GYN Dates**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
LN	11779-6	EDD from LMP
LN	11955-2	LMP

**Table 9.7-62: CID 12005 - Fetal Biometry Measurements**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
LN	11979-2	Abdominal Circumference
LN	11818-2	Anterior-Posterior Abdominal Diameter
LN	11820-8	Biparietal Diameter
LN	11963-6	Femur Length
LN	11965-1	Foot Length
LN	11984-2	Head Circumference
LN	11851-3	Occipital-Frontal Diameter
LN	11862-0	Transverse Abdominal Diameter
99BKMED	CM-94761	Mean Abdominal Diameter

**Table 9.7-63: CID 12006 - Fetal Long Bones Biometry Measurements**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
LN	11966-9	Humerus length
LN	11967-7	Radius length
LN	11969-3	Ulna length
LN	11968-5	Tibia length
LN	11964-4	Fibula length
LN	11962-8	Clavicle length
LN	11963-6	Femur Length

**Table 9.7-64: CID 12007 - Fetal Cranium**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
LN	12171-5	Lateral Ventricle width
LN	11860-4	Cisterna Magna length
LN	12146-7	Nuchal Fold thickness
LN	11863-8	Transverse Cerebellar Diameter
LN	11629-3	Binocular Distance

**Table 9.7-65: CID 12008 - OB-GYN Amniotic Sac**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
LN	11624-4	First Quadrant Diameter
LN	11626-9	Second Quadrant Diameter
LN	11625-1	Third Quadrant Diameter
LN	11623-6	Fourth Quadrant Diameter
SCT	81827009	Diameter

**Table 9.7-66: CID 12009 - Early Gestation Biometry Measurements**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
LN	11957-8	Crown Rump Length
LN	11850-5	Gestational Sac Diameter
LN	11816-6	Yolk Sac length
LN	33069-6	Nuchal Translucency

**Table 9.7-67: CID 12011 - Ultrasound Pelvis and Uterus**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
LN	11961-0	Cervix Length
LN	12145-9	Endometrium Thickness

**Table 9.7-68: CID 12019 - OB-GYN Fetus Summary**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
LN	11885-1	Gestational Age by LMP
LN	11888-5	Composite Ultrasound Age

LN	11727-5	Estimated Weight
99BKMED	OB-00001	Estimated Weight Author
LN	11948-7	Fetal Heart Rate

**Table 9.7-69: CID 12020 - Fetal Biometry Anatomic Sites**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
SCT	113345001	Abdomen
SCT	113305005	Cerebellum
SCT	54165005	Cisterna Magna
SCT	71341001	Femur
SCT	56459004	Foot
SCT	89546000	Skull

**Table 9.7-70: CID 12021 - Fetal Long Bone Anatomic Sites**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
SCT	51299004	Clavicle
SCT	71341001	Femur
SCT	87342007	Fibula
SCT	62413002	Radius
SCT	12611008	Tibia
SCT	23416004	Ulna
SCT	85050009	Humerus

**Table 9.7-71: CID 12022 - Fetal Cranium Anatomic Sites**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
SCT	113305005	Cerebellum
SCT	54165005	Cisterna magna
SCT	66720007	Lateral Ventricle
SCT	700032006	Occipital region of scalp
SCT	363654007	Orbit

**Table 9.7-72: CID 12023 - Pelvis and Uterus Anatomic Sites**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
SCT	71252005	Cervix
SCT	2739003	Endometrium
SCT	35039007	Uterus
SCT	95315005	Uterine Fibroid

**Table 9.7-73: CID 12112 – Abdominal Arteries (Unilateral)**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
SCT	7832008	Abdominal Aorta

**Table 9.7-74: CID 12115 – Renal Vessels**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
SCT	397405001	Hilar Artery
SCT	2841007	Renal Artery
SCT	120234003	Segmental Artery
SCT	274143007	Interlobar Artery of Kidney
SCT	274329007	Interlobular Artery of Kidney
SCT	274231001	Arcuate Artery of the Kidney
SCT	85383006	Accessory Renal Artery

**Table 9.7-75: CID 12116 – Vessel Segment Modifiers**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
SCT	46053002	Distal
NCIt	C25569	Middle
SCT	103342007	Mid-longitudinal
SCT	40415009	Proximal

**Table 9.7-76: CID 12117 – Vessel Branch Modifiers**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
SCT	255561001	Medial
SCT	7771000	Left

SCT	261089000	Inferior
SCT	24028007	Right
SCT	264217000	Superior

**Table 9.7-77: CID 12119 – Vascular Ultrasound Property**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
INCLUDE CID 12120 Blood Velocity Measurements		
INCLUDE CID 12121 Vascular Indices and Ratios		
INCLUDE CID 12122 Other Vascular Properties		

**Table 9.7-78: CID 12120 – Blood Velocity Measurements**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
LN	11653-3	End Diastolic Velocity
LN	11665-7	Minimum Diastolic Velocity
LN	11726-7	Peak Systolic Velocity
LN	20352-1	Time averaged mean velocity
LN	11692-1	Time averaged peak velocity
LN	20354-7	Velocity Time Integral
DCM	110828	Flow Velocity

**Table 9.7-79: CID 12121 – Vascular Indices and Ratios**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
LN	12008-9	Pulsatility Index
LN	12023-8	Resistivity Index
LN	12144-2	Systolic to Diastolic Velocity Ratio
LN	33867-3	Velocity Ratio

**Table 9.7-80: CID 12122 – Other Vascular Properties**

Coding Scheme Designator (0008,0102)	Code Value (0008,0100)	Code Meaning (0008,0104)
LN	20168-1	Acceleration Time
LN	20217-6	Deceleration Time
SCT	81827009	Diameter



**Table 9.7-81: CID 12124 – Renal Ratios**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
LN	33869-9	Renal Artery/Aorta velocity ratio

**Table 9.7-82: CID 12140 - Pelvic Vasculature Anatomical Location**

<b>Coding Scheme Designator (0008,0102)</b>	<b>Code Value (0008,0100)</b>	<b>Code Meaning (0008,0104)</b>
SCT	50536004	Umbilical Artery
SCT	12052000	Ovarian Artery
SCT	91079009	Uterine Artery

## 9.8 Overview of the Applied Patient Root Query IOD

This section specifies in detail the applied attributes in the C-FIND Service Element of this supported SOP Class.

The Attribute Specific Character Set (0008,0005) is not included. The scanner will use predefined DICOM Character Sets depending upon the selected language. See table in section 7.

The values of key attributes are set in the search dialog where a list of key attributes is displayed.

Types of attributes used in Q/R Information Models (Column “Type”):

U: Unique Key Attribute

R: Required Key Attribute

O: Optional Key Attribute

Unique, required and options keys may be contained in the identifier of a C-FIND request.

Types of matching performed on key attributes (Column “Match”):

S: Single Value Matching

L: List of UID Matching

- U: Universal Matching
- W: Wild Card Matching
- R: Range Matching
- Q: Sequence Matching

**Table 9.8-1: Key Attributes for Patient Root Q/R Information Model - C-FIND**

Description	Tag	Type	Match	Note
<b>Patient Level</b>				
Patient's Name	(0010,0010)	R	W, U	
Patient ID	(0010,0020)	U	W, U	
Patient's Birth Date	(0010,0030)	O	R, S	
Patient's Sex	(0010,0040)	O	U	
Number of Patient Related Studies	(0020,1200)	O	U	
<b>Study Level</b>				
Patient ID	(0010,0020)	U	S	
Study Instance UID	(0020,000D)	U	U	
Study Date	(0008,0020)	R	R, S	
Study Time	(0008,0030)	R	U	
Accession Number	(0008,0050)	R	S, U	
Study ID	(0020,0010)	R	S, U	
Referring Physician's Name	(0008,0090)	O	W, U	
Study Description	(0008,1030)	O	U	
Number of Study Related Series	(0020,1206)	O	U	
Number of Study Related Instances	(0020,1208)	O	U	
<b>Series Level</b>				
Patient ID	(0010,0020)	U	S	
Study Instance UID	(0020,000D)	U	S	
Series Instance UID	(0020,000E)	U	U	
Modality	(0008,0060)	R	S, U	
Series Number	(0020,0011)	R	U	
<b>Composite Object Instance Level</b>				
Patient ID	(0010,0020)	U	S	
Study Instance UID	(0020,000D)	U	S	
Series Instance UID	(0020,000E)	U	S	

SOP Instance UID	(0008,0018)	U	U	
Instance Number	(0020,0013)	R	U	

### 9.9 Overview of the Applied Patient Root/Study Root Retrieve IOD

This section specifies in detail the applied attributes in the C-MOVE Service Element of this supported SOP Class.

The Attribute Specific Character Set (0008,0005) is not included. The scanner will use predefined DICOM Character Sets depending upon the selected language. See table in section 7.

Unique Keys are contained in the identifier of C-MOVE. Required and Optional Keys are not contained in the identifier of C-MOVE.

If the level of retrieval is STUDY, the move destination is the local AE title, and the default listening port for C-STORE sub-operation is 104. If the level of retrieval is IMAGE, the move destination is local AE title suffixed with “\_SCP”, and the default listening port for C-STORE sub-operation is 7878. When configuring AE titles and listening ports for move destination, attention should be taken to populate both of the above two entries.

**Table 9.9-1: Key Attributes for Patient Root / Study Root Q/R Information Model - C-MOVE**

Description	Tag	Note
Patient ID	(0010,0020)	Single value of Unique Key Attribute
Study Instance UID	(0020,000D)	Single value of Unique Key Attribute
Series Instance UID	(0020,000E)	Single value of Unique Key Attribute. Empty if retrieval level is STUDY
SOP Instance UID	(0008,0018)	List of UIDs. Empty if retrieval level is STUDY

**Table 9.9-2: Accepted Presentation Contexts for C-STORE Sub-operation of C-MOVE**

Abstract Syntax		Transfer Syntax	Role	Extended Negotiation
Name	UID			
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.830.10008.1.2.2 1.2.840.10008.1.2.4.57 1.2.840.10008.1.2.4.70 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.90 1.2.840.10008.1.2.4.91 1.2.840.10008.1.2.4.92 1.2.840.10008.1.2.4.93	SCP	None
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.830.10008.1.2.2 1.2.840.10008.1.2.4.57 1.2.840.10008.1.2.4.70 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.90 1.2.840.10008.1.2.4.91 1.2.840.10008.1.2.4.92 1.2.840.10008.1.2.4.93	SCP	None