

Philips Medical Systems

DICOM

CONFORMANCE STATEMENT



BV Family R1.2 XA

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DICOM Conformance Statement

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1. INTRODUCTION

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

1.1. Scope and Field of Application

The scope of this DICOM Conformance Statement is to facilitate data exchange with equipment of Philips Medical Systems. This document specifies the compliance to the DICOM standard (formally called the NEMA 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, Roles, Information Object Definitions (IOD) and Transfer Syntaxes.

The field of application is the integration of the Philips Medical Systems equipment into an environment of medical devices. This Conformance Statement should be read in conjunction with the DICOM standard and its addenda [DICOM].

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. Contents and Structure

The DICOM Conformance Statement is contained in chapter 2 through 7 and follows the contents and structuring requirements of DICOM PS 3.2.

1.4. Used Definitions, Terms and Abbreviations

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

The word Philips in this document refers to Philips Medical Systems.

1.5. References

1.5.1. [DICOM] The Digital Imaging and Communications in Medicine

(DICOM) standard (NEMA PS 3.X):
National Electrical Manufacturers Association (NEMA)
Publication Sales 1300 N. 17th Street, Suite 1847
Rosslyn, Va. 22209, United States of America

1.6. Important Note to the Reader

This Conformance Statement by itself does not guarantee successful interoperability of Philips equipment with non-Philips equipment. The user (or user's agent) should be aware of the following issues:

➤ 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 an IT 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 Philips equipment with non-Philips equipment.

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

➤ Validation

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

Where Philips equipment is linked to non-Philips 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 and image related data. It is the responsibility of the user (or user's agent) to specify the appropriate test suite and to carry out the additional validation tests.

➤ New versions of the DICOM Standard

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

The user should ensure that any non-Philips provider linking to Philips equipment, also adapts to future versions of the DICOM Standard. If not, the incorporation of DICOM enhancements into Philips equipment may lead to loss of connectivity (in case of networking) and incompatibility (in case of media).

1.7. General Acronyms and Abbreviations.

The following acronyms and abbreviations are used in the document.

➤ ACC	American College of Cardiology
➤ AE	Application Entity
➤ ACR	American College of Radiology
➤ ANSI	American National Standard Institute
➤ BOT	Basic Offset Table
➤ CD-R	CD Recordable
➤ CD-M	CD Medical
➤ DCI	Digital Cardio Imaging
➤ DCR	Dynamic Cardio Review
➤ DICOM	Digital Imaging and Communication in Medicine
➤ DIMSE	DICOM Message Service Element
➤ DIMSE-C	DICOM Message Service Element-Composite
➤ DIMSE-N	DICOM Message Service Element-Normalized
➤ ELE	Explicit VR Little Endian
➤ EBE	Explicit VR Big Endian
➤ FSC	File Set Creator
➤ GUI	Graphic User Interface
➤ HIS	Hospital Information System
➤ HL7	Health Level Seven
➤ ILE	Implicit VR Little Endian
➤ IOD	Information Object Definition
➤ ISIS	Information System - Imaging System
➤ JPEG	Joints Photographic Experts Group
➤ JPEG14	Lossless, Non-Hierarchical, First-Order Prediction (Process 14).
➤ MPPS	Modality Performed Procedure Step
➤ NEMA	National Electrical Manufacturers Association
➤ PACS	Picture Archiving and Communication System
➤ PDU	Protocol Data Unit
➤ RIS	Radiology Information System
➤ RWA	Real World Activity
➤ SC	Secondary Capture
➤ SCM	Study Component Management
➤ SCP	Service Class Provider
➤ SCU	Service Class User
➤ SOP	Service Object Pair
➤ TCP/IP	Transmission Control Protocol/Internet protocol
➤ UID	Unique Identifier
➤ WLM	Worklist Management

2. IMPLEMENTATION MODEL

The BV Family system of Philips Medical Systems is a mobile image generating system. The BV Family system is installed with an Export function based on the DICOM Image Storage to transfer image data from the system to a remote system and a DICOM print function to print image data. A RIS connection is installed to gain patient/study information.

The BV Family system Export function and the RIS interaction are described in this document.

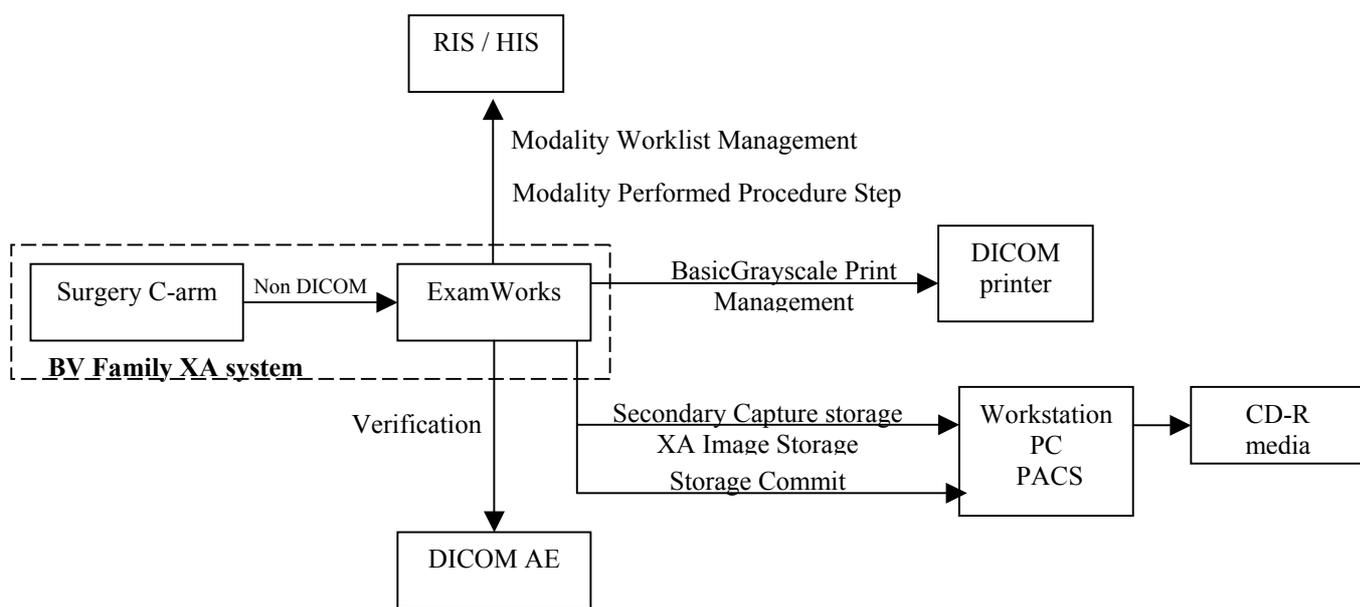


Figure 1. BV Family XA in a DICOM network

2.1. Application Data Flow Diagram

The BV Family system defines one DICOM Application Entity (AE) with 6 basic functions; BV Family system DICOM Print (part of BV Family export function), the BV Family system DICOM Image Storage (part of BV Family system export function), DICOM Storage Commit, DICOM verification, BV Family system DICOM Modality Worklist Query and DICOM Modality Performed Procedure Step function. The related Implementation Model is shown in Figure 2 on page 6.

A part of the BV Family system DICOM modality Worklist data will be shown on the user interface and is used as image attribute values when exporting or printing these images.

When an examination is exported by the BV Family system the images in this examination are automatically exported, a Storage Commit request is sent and a Modality Performed Procedure Step action is executed. When printing an examination the formatting of the printed page can be driven by an operator of the BV Family system via manual control.

In the case where the BV Family system DICOM Image Storage is used, the Images in the examination will be transmitted as separate Secondary Capture Images or as XA Images.

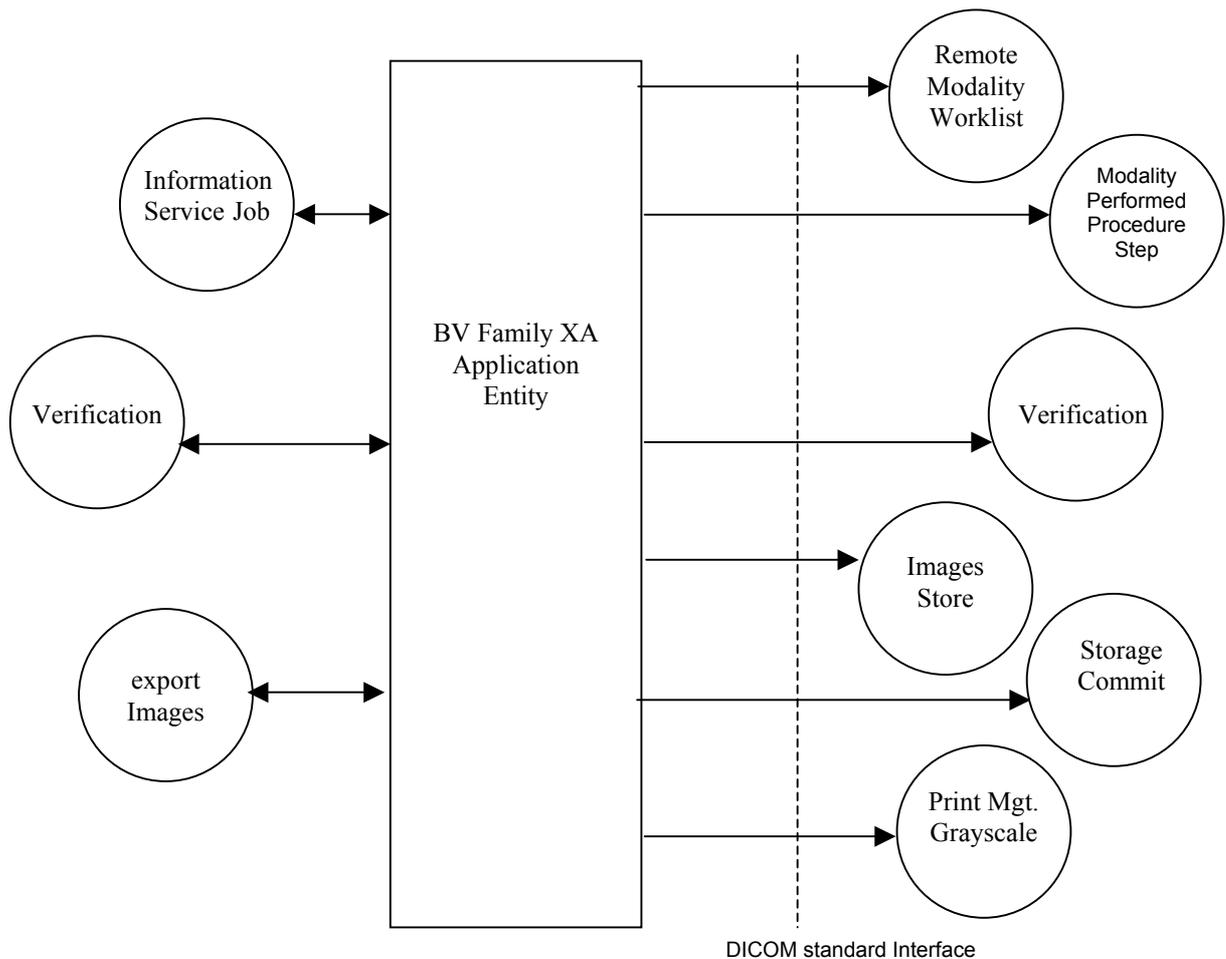


Figure 2. Implementation Model BV Family XA

As documented in the PS 3.4, the arrows in the diagram of Figure 2 have the following meanings:

- An arrow pointing to the right indicates the local application entity initiates an association.
- An arrow pointing to the left indicates the local application entity accepts an association.

2.2. Functional definition of Application Entities

The BV Family system DICOM Image Storage function acts as a Service Class User (SCU) of the Storage Service Class

The BV Family system DICOM Storage Commit function acts as a Service Class User (SCU) of the Storage Commitment Service Class.

The BV Family system DICOM Print function acts as a Service Class User (SCU) of the Print Management Service Class.

The BV Family system DICOM Worklist function acts as a Service class User (SCU) of the Basic Worklist Management Service Class. The DICOM Worklist is queried two times. The first time a Modality Worklist is obtained and this data is displayed in the scheduled patient list on the User Interface. The second time is used to enrich the image with the DICOM Worklist attributes. When the user uses the BV Family system Export, a DICOM Worklist request is done, it will receive the examination data from the RIS. This RIS data is stored in the resulting images of the examination.

The BV Family system DICOM Modality Performed Procedure Step (MPPS) function acts as a Service Class User (SCU) of the Study Management Service Class.

2.3. Sequencing of Real World Activities

The following sequence of Real World activities is supported by the system:

- First the user opens the patient administration page on the BV Family system console.
- When the user clicks on the “get Worklist” button, a Worklist is obtained from the RIS.
- The user selects a patient from the Worklist.
- The user acquires images on the Surgery C-arm.
- The user initiates the export function to export the images in an examination on the BV Family system.
- The Worklist request is sent automatically when a RIS is available (Query for WLM).
- When there is a mismatch between the RIS data and the Image data the user can export the data with either the RIS data or the Image data.
- By the Modality Performed Procedure Step function the RIS is informed about the completion of the Scheduled Procedure Step.
- The BV Family system automatically exports the selected images. The BV Family system DICOM Print Function prints a film conform the selected Layout or a Storage of the Images is done with the BV Family system DICOM Image export function; the images can be stored as Secondary Capture or XA Images.
- After Export of images, a Storage Commit request is automatically sent to the remote Storage system.

3. AE SPECIFICATIONS

3.1. BV Family system DICOM AE Specification

The BV Family system provides Standard Conformance to the following DICOM 3.0 SOP class as SCU:

Table 1. Supported SOP classes by BV Family system

SOP Class Name	UID
Verification SOP Class	1.2.840.10008.1.1
Basic Grayscale Print Management Meta SOP	1.2.840.10008.5.1.1.9
> Printer SOP Class	1.2.840.10008.5.1.1.16
> Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
> Basic Film Box SOP Class	1.2.840.10008.5.1.1.2
> Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7
XA Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1
Modality Worklist Information Model - FIND SOP Class	1.2.840.10008.5.1.4.31
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3

The BV Family system DICOM Application Entity does not support DICOM 3.0 SOP Classes as SCP.

3.1.1. Association Establishment Policies

3.1.1.1. General

The maximum length negotiation is included in all association establishment requests. The maximum length PDU for an association is 28672 bytes.

3.1.1.2. Number of Associations

The BV Family system may establish up to 10 associations simultaneous.

3.1.1.3. Asynchronous Nature

The BV Family system does not support asynchronous operations and will not perform asynchronous window negotiation.

3.1.1.4. Implementation Identifying Information

The Implementation Class UID:	1.3.46.670589.15.1.2.3
The implementation version name:	“ BV Family R1.2XA ”

3.1.2. Association Initiation Policy

On boot up, BV Family system will attempt to open an Association with any of the configured DICOM export (Print and Storage) targets. When an association fails the BV Family system retries (the time interval is configurable). If an association is not open, an attempt will be made to reopen the association when an Export operation is requested.

When the user clicks on the “get Worklist” button, a Worklist is obtained from the RIS (The BV Family system will initiate a Modality Worklist Information Query).

When the BV Family system Export function is called the BV Family system will initiate a Modality Worklist Information Query via the BV Family system DICOM Modality Worklist Query.

3.1.2.1. Verify Application Level Communication

3.1.2.1.1. Associated Real-World Activity

In the service mode of the BV Family system an association can be made to verify application level communication using the C-ECHO command.

3.1.2.1.2. Proposed Presentation Contexts

The BV Family system Verify will propose the following presentation contexts:

Table 2. Proposed Presentation Context

Abstract Syntax Name	UID	Transfer Syntax	UID List	Role	Extended Negotiation
Verification	1.2.840.10008.1.1	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

3.1.2.1.3. SOP Specific Conformance to Verify

The BV Family system provides standard conformance.

3.1.2.2. The BV Family system DICOM Worklist Management

3.1.2.2.1. Associated Real-World Activity

Before the acquisition the operator can request a DICOM Worklist from e.g. a RIS (query for Worklist).

The BV Family system DICOM AE initiates an association to query a remote Information System. Upon completion of the C-FIND the association is released.

Upon receiving a C-FIND response containing a Failure Status, the BV Family system aborts the association.

On export the BV Family system automatically request a DICOM Worklist (query for Image data).

3.1.2.2.2. Proposed Presentation Contexts

The BV Family system Worklist Management will propose the following presentation contexts:

Table 3. Proposed Presentation Contexts for the BV Family system Worklist

Abstract Syntax Name	UID	Transfer Syntax	UID List	Role	Extended Negotiation
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	ILE	1.2.840.10008.1.2	SCU	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		

3.1.2.2.3. SOP Specific Conformance to WLM SOP Class

Modality Worklist is accomplished according to the real world activity described earlier. The BV Family system Modality Worklist Query function provides Standard conformance to the Modality Worklist SOP Class. The attributes supported are documented in sections 3.1.2.2.3.1 on page 12 and 3.1.2.2.3.2 on page 14 of this document.

Following are the status codes that are processed by the BV Family system DICOM AE when received from a remote Modality Worklist SCP system:

Table 4. WLM STATUS

Service Status	Status Codes	Further Meaning	Behaviour upon receiving Status Codes
Refused	A700	Out of resources	Processing of the matches and the association is terminated. A message appears on the User Interface.
Failed	A900	Identifier does not match SOP Class	The association is terminated and the status is logged into the system error log. A message appears on the User Interface.
	Cxxx	Unable to process	Processing of the matches and the association is terminated. A message appears on the User Interface.
Cancel	FE00	Matching terminated due to cancel	Processing of the matches and the association is terminated.
Success	0000	Matching is complete - No final identifier is supplied	The association is released and the matches are stored.
Pending	FF00	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys.	Processing of the matches continues.
	FF01	Matches are continuing - Warning that one or more Option Keys were not supported for existence of this identifier.	Processing of the matches continues without any warnings or errors.

3.1.2.2.3.1. Query of Worklist

The modules selected from the modality Worklist Information Model IOD module tables of DICOM 3.0 are given in the tables below. The lists of possible attribute values are given.

Note:

- * Attribute can be used as match criterion.

Table 5. Modality Worklist Information Model - Patient Identification Module

Attribute Name	Tag	Note
Patient's Name	0010,0010	Can not handle " \"
Patient ID	0010,0020	

Table 6. Modality Worklist Information Model - Patient Demographic Module

Attribute Name	Tag	Note
Patient's Birth Date	0010,0030	
Patient's Sex	0010,0040	

Table 7. Modality Worklist Information Model - Visit Relationship Module

Attribute Name	Tag	Note
Referenced Patient Sequence	0008,1120	
>Referenced SOP Class UID	0008,1150	
>Referenced SOP Instance UID	0008,1155	

Table 8. Modality Worklist Information Model - Scheduled Procedure Step Module

Attribute Name	Tag	Note
Scheduled Procedure Step Sequence	0040,0100	
>Modality *	0008,0060	Applied Value(s): OT
>Scheduled Station AE Title *	0040,0001	
>Scheduled Procedure Step Start Date *	0040,0002	Value is <Today>.
>Scheduled Performing Physician's Name	0040,0006	
>Scheduled Action Item Code Sequence	0040,0008	
>>Code Value	0008,0100	
>>Coding Scheme Designator	0008,0102	
>>Code Meaning	0008,0104	
>Scheduled Procedure Step ID	0040,0009	Can be used for identification of Worklist entry for updating purpose.

Table 9. Modality Worklist Information Model - Requested Procedure Module

Attribute Name	Tag	Note
Referenced Study Sequence	0008,1110	
>Referenced SOP Class UID	0008,1150	
>Referenced SOP Instance UID	0008,1155	
Requested Procedure Code Sequence	0032,1064	
>Code Value	0008,0100	

Attribute Name	Tag	Note
>Coding Scheme Designator	0008,0102	
>Code Meaning	0008,0104	
Requested Procedure ID	0040,1001	Can be used for identification of Worklist entry for updating purpose.

Table 10. Modality Worklist Information Model - Imaging Service Request Module

Attribute Name	Tag	Note
Accession Number	0008,0050	Default used for identification of Worklist entry for updating purpose.

Table 11. Modality Worklist Information Model - Sop Common Module

Attribute Name	Tag	Note
Specific Character Set	0008,0005	

3.1.2.2.3.2. Query of Image data

The modules selected from the modality Worklist Information Model IOD module tables of DICOM 3.0 are given in the tables below. The lists of possible attribute values are given.

Note:

- * Attribute can be used as match criterion.

Table 12. Modality Worklist Information Model - Patient Identification Module

Attribute Name	Tag	Note
Patient's Name *	0010,0010	Can be used as matching key. Can not handle " \"
Patient ID *	0010,0020	Can be used as matching key.
Other Patient IDs	0010,1000	
Other Patient Names	0010,1001	

Table 13. Modality Worklist Information Model - Patient Demographic Module

Attribute Name	Tag	Note
Patient's Birth Date *	0010,0030	Can be used as matching key.
Patient's Birth Time	0010,0032	
Patient's Sex *	0010,0040	Can be used as matching key.
Patient's Weight	0010,1030	

Table 14. Modality Worklist Information Model - Visit Relationship Module

Attribute Name	Tag	Note
Referenced Patient Sequence	0008,1120	
>Referenced SOP Class UID	0008,1150	
>Referenced SOP Instance UID	0008,1155	

Table 15. Modality Worklist Information Model - Visit Identification Module

Attribute Name	Tag	Note
Admission ID	0038,0010	

Table 16. Modality Worklist Information Model - Visit Status Module

Attribute Name	Tag	Note
Current Patient Location	0038,0300	

Table 17. Modality Worklist Information Model - Scheduled Procedure Step Module

Attribute Name	Tag	Note
Scheduled Procedure Step Sequence	0040,0100	
>Modality	0008,0060	Applied Value(s): OT
>Requested Contrast Agent	0032,1070	
>Scheduled Station AE Title *	0040,0001	Can be used as matching key.
>Scheduled Procedure Step Start Date *	0040,0002	The image date is used as matching key.

Attribute Name	Tag	Note
>Scheduled Procedure Step Start Time	0040,0003	
>Scheduled Performing Physician's Name	0040,0006	
>Scheduled Procedure Step Description	0040,0007	
>Scheduled Action Item Code Sequence	0040,0008	
>>Code Value	0008,0100	
>>Coding Scheme Designator	0008,0102	
>>Coding Scheme Version	0008,0103	
>>Code Meaning	0008,0104	
>Scheduled Procedure Step ID	0040,0009	
>Scheduled Station Name	0040,0010	
>Scheduled Procedure Step Location	0040,0011	
>Pre-Medication	0040,0012	

Table 18. Modality Worklist Information Model - Requested Procedure Module

Attribute Name	Tag	Note
Referenced Study Sequence	0008,1110	
>Referenced SOP Class UID	0008,1150	
>Referenced SOP Instance UID	0008,1155	
Study Instance UID	0020,000D	
Requested Procedure Description	0032,1060	
Requested Procedure Code Sequence	0032,1064	
>Code Value	0008,0100	
>Coding Scheme Designator	0008,0102	
>Code Meaning	0008,0104	
Requested Procedure ID	0040,1001	
Requested Procedure Priority	0040,1003	
Patient Transport Arrangements	0040,1004	

Table 19. Modality Worklist Information Model - Imaging Service Request Module

Attribute Name	Tag	Note
Accession Number	0008,0050	
Referring Physician's Name	0008,0090	
Requesting Physician	0032,1032	

Table 20. Modality Worklist Information Model - Sop Common Module

Attribute Name	Tag	Note
Specific Character Set	0008,0005	

3.1.2.3. MPPS service

3.1.2.3.1. Associated Real-World Activity

The BV Family system Modality Performed Procedure Step function initiates an association to the MPPS server when the Export function is initiated and sends over an N-CREATE message with all appropriate information for the study. An N-SET message is then sent with end dates and time, with a status of COMPLETED. Upon completion of the N-SET, the association is released.

3.1.2.3.2. Proposed Presentation Contexts

The BV Family system DICOM AE will propose the following presentation contexts:

Table 21. Proposed Presentation Contexts for the Modality Performed Procedure Step

Abstract Syntax Name	UID	Transfer Syntax	UID List	Role	Extended Negotiation
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

3.1.2.3.3. SOP Specific Conformance to Modality Performed Procedure Step

The BV Family system provides standard conformance.

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

Table 22. Modality Performed Procedure Step SOP Class - N-SET-RQ - Image Acquisition Results Module

Attribute Name	Tag	Note
Performed Series Sequence	0040,0340	Received from WLM or empty when no Image WLM query is performed.
>Retrieve AE Title	0008,0054	Always empty.
>Series Description	0008,103E	Always empty.
>Performing Physician's Name	0008,1050	Received from WLM.
>Operator's Name	0008,1070	Entered by user.
>Referenced Image Sequence	0008,1140	
>>Referenced SOP Class UID	0008,1150	
>>Referenced SOP Instance UID	0008,1155	
>Protocol Name	0018,1030	Entered by user.
>Series Instance UID	0020,000E	
>Referenced Standalone SOP Instance Sequence	0040,0220	
>>Referenced SOP Class UID	0008,1150	
>>Referenced SOP Instance UID	0008,1155	

Table 23. Modality Performed Procedure Step SOP Class - N-SET-RQ - Performed Procedure Step Information Module

Attribute Name	Tag	Note
Performed Procedure Step End Date	0040,0250	
Performed Procedure Step End Time	0040,0251	
Performed Procedure Step Status	0040,0252	Applied Value(s): COMPLETED.

Attribute Name	Tag	Note
		DISCONTINUED

Table 24. Modality Performed Procedure Step SOP Class - N-CREATE-RQ - Sop Common Module

Attribute Name	Tag	Note
Specific Character Set	0008,0005	Applied Value(s): ISO 2022 IR 100

Table 25. Modality Performed Procedure Step SOP Class - N-CREATE-RQ - Image Acquisition Results Module

Attribute Name	Tag	Note
Modality	0008,0060	OT
Study ID	0020,0010	
Performed Protocol Code Sequence	0040,0260	Always Empty
Performed Series Sequence	0040,0340	Always Empty.

Table 26. Modality Performed Procedure Step SOP Class - N-CREATE-RQ - Performed Procedure Step Information Module

Attribute Name	Tag	Note
Procedure Code Sequence	0008,1032	Always Empty.
Performed Station AE Title	0040,0241	
Performed Station Name	0040,0242	Always Empty.
Performed Location	0040,0243	
Performed Procedure Step Start Date	0040,0244	
Performed Procedure Step Start Time	0040,0245	
Performed Procedure Step End Date	0040,0250	Always Empty.
Performed Procedure Step End Time	0040,0251	Always Empty.
Performed Procedure Step Status	0040,0252	Applied Value(s): IN PROGRESS
Performed Procedure Step ID	0040,0253	
Performed Procedure Step Description	0040,0254	Always Empty.
Performed Procedure Type Description	0040,0255	Always Empty.

Table 27. Modality Performed Procedure Step SOP Class - N-CREATE-RQ - Performed Procedure Step Relationship Module

Attribute Name	Tag	Note
Referenced Patient Sequence	0008,1120	Always Empty.
Patient's Name	0010,0010	Received from WLM or entered by operator when no Image WLM query is performed.
Patient ID	0010,0020	Received from WLM or entered by operator when no Image WLM query is performed.
Patient's Birth Date	0010,0030	Received from WLM or entered by operator when no Image WLM query is performed.
Patient's Sex	0010,0040	Received from WLM or entered by operator when no Image WLM query is performed. Applied Value(s): F, M, O
Scheduled Step Attribute Sequence	0040,0270	
>Accession Number	0008,0050	Received from WLM or empty when no Image WLM query is performed.
>Referenced Study Sequence	0008,1110	Received from WLM or empty when no Image WLM query is performed.
>Study Instance UID	0020,000D	Received from WLM or entered by operator when

Attribute Name	Tag	Note
		no Image WLM query is performed.
>Requested Procedure Description	0032,1060	Received from WLM or empty when no Image WLM query is performed.
>Scheduled Procedure Step Description	0040,0007	Received from WLM or empty when no Image WLM query is performed.
>Scheduled Protocol Code Sequence	0040,0008	Always Empty.
>Scheduled Procedure Step ID	0040,0009	Received from WLM or empty when no Image WLM query is performed.
>Requested Procedure ID	0040,1001	Received from WLM or empty when no Image WLM query is performed.

3.1.2.4. Storage Commitment Request

3.1.2.4.1. Associated Real-World Activity

Upon transfer of images for a procedure, the BV Family system initiates an association for the request of Storage Commitment on a remote Archive or PACS System. Upon completion of the N-ACTION, the association is released. In order to relate the N-ACTION to future updates the Transaction UID used is recorded. There are no timers related to the management of the association.

Upon receiving an N-ACTION response containing a Failure Status, the status will be logged to the system log file and the implementation will terminate the association.

For cases when the Storage Commitment SCP is not functioning (i.e. momentarily off-line), the BV Family system implementation queues the N-ACTION request for future re transmission. This queue is “non-blocking” which enables BV Family system to continue acquiring imaging procedures (i.e. studies) while the Storage Commitment SCP is off-line. A configurable timer is set to trigger the re transmission of the queued entries. Entries are not to be deleted from the queue unless done so by a successful transmission.

Upon receiving an N-EVENT-REPORT message containing failed requests, the status will be logged to the system log file.

The N-ACTION message is generated without operator interaction.

3.1.2.4.2. Proposed Presentation Contexts

The BV Family system DICOM AE will propose the following presentation contexts:

Table 28. Proposed Presentation Contexts for the Storage Commitment

Abstract Syntax Name	UID	Transfer Syntax	UID List	Role	Extended Negotiation
Storage Commitment Push Model	1.2.840.10008.1.20.1	ILE ELE EBE	1.2.840.10008.1.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.2	SCU	None

3.1.2.4.3. SOP Specific Conformance to Storage Commit Service

Storage Commitment is accomplished according to the real world activity described earlier. The BV Family Storage Commitment AE provides Standard conformance to the Storage Commitment SOP Class.

Table 29. Storage Commitment Push Model SOP Class - N-ACTION-RQ - Storage Commitment Module

Attribute Name	Tag	Note
Transaction UID	0008,1195	
Referenced SOP Sequence	0008,1199	
>Referenced SOP Class UID	0008,1150	
>Referenced SOP Instance UID	0008,1155	

3.1.2.5. The BV Family system DICOM Image Storage Request

3.1.2.5.1. Associated Real-World Activity

The BV Family system transmits images via the DICOM Secondary Capture Image Storage or XA Image Storage Service Class using the Presentation Contexts defined in the Table30, to all of the selected storage target device(s).

3.1.2.5.2. Proposed Presentation Contexts

The BV Family system Storage will propose the following presentation contexts:

Table 30. Proposed Presentation Context

Abstract Syntax Name	UID	Transfer Syntax	UID List	Role	Extended Negotiation
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	JPEG14	1.2.840.10008.1.2.4.70	SCU	None
		ILE	1.2.840.10008.1.2		
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		
XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1	JPEG14	1.2.840.10008.1.2.4.70	SCU	None
		ILE	1.2.840.10008.1.2		
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		

The transfer syntaxes will be proposed in the order listed by default (Lossless Compression, and Uncompressed). The system can be configured to propose only the JPEG14 Transfer Syntax.

3.1.2.5.3. SOP Specific Conformance to Storage SOP Classes

The BV Family system DICOM Image Storage transmits the images from the examination from a specific patient on the user interface to all selected target device(s). Images are sent via the DICOM Secondary Capture Image Storage Service Class or XA Image Storage Service Class depending on the image format.

Images are transferred according to the real world activity described earlier. Each Secondary Capture Image will be sent individually with a C-STORE request. XA images are sent as multi-frame images.

Figure 3 gives an overview of the DICOM data model. Also an overview of the real life situation is given. The BV Families database contains several examinations (not patients). This means that when the patient information is changed it is only changed in one examination, in other examinations based on the same patient the patient information isn't changed.

An image in an examination contains information for only one patient. An examination has several runs, a run is a series of images. When images are exported with the Export function, information such as Patient name and study ID is the same for each individual image.

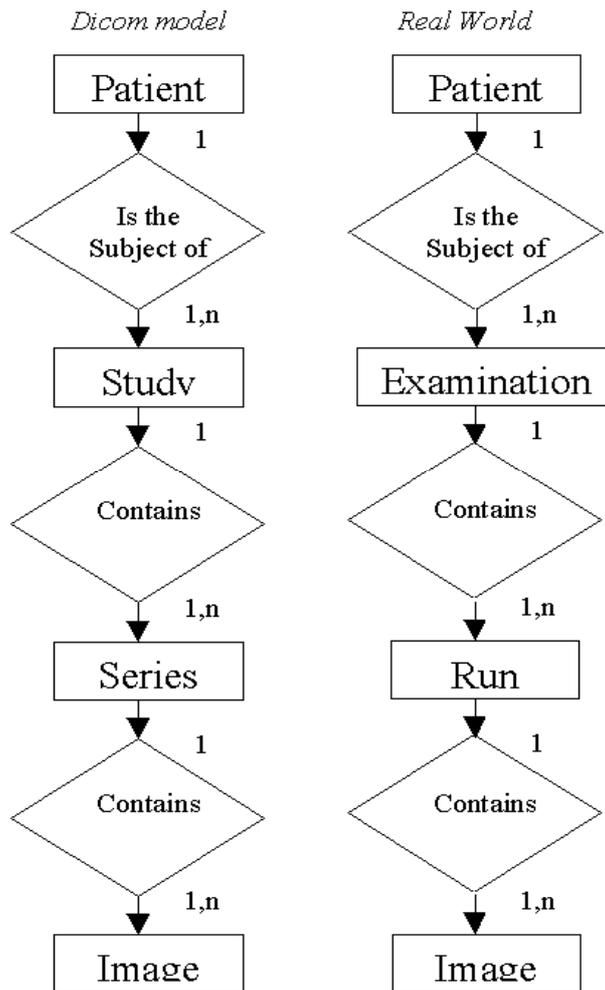


Figure 3. DICOM data model and BV Family data model

Upon receiving a C-STORE response containing an Error or a Refused status the implementation will release the association. All of the selected images generated of that examination will be considered by the BV Family system to have failed to transfer. The BV Family system DICOM AE has the ability to automatically recover from this situation and will attempt to send all the images at a later time. This retry mechanism will continue until the transfer of all images is successful.

In Table 31 an overview is given of the possible errors that can occur.

Table 31. C-STORE STATUS

Service Status	Codes	Further Meaning Status
Refused	A7xx	Out of Resources, status logged in system file.
Error	A9xx	Data Set does not match SOP Class, status logged in system file.
	Cxxx	Cannot understand
Warning	B000	Coercion of Data Elements, status logged in system file.
	B007	Data Set does not match SOP Class
	B006	Elements Discarded
Success	0000	

Note: Errors that occur are logged in a system file, no information is given to the user through user interface.

3.1.2.5.3.1. SC Image IOD

The details of applied modules are given in the tables below. The lists of possible attribute values are given. It is indicated whether Attribute is provided by WLM or entered by the operator.

Table 32. Secondary Capture Image Storage SOP Class - Patient Module

Attribute Name	Tag	Note
Patient's Name	0010,0010	Provided by WLM or entered by operator.
Patient ID	0010,0020	Provided by WLM or entered by operator.
Patient's Birth Date	0010,0030	Provided by WLM or entered by operator.
Patient's Birth Time	0010,0032	Provided by WLM.
Patient's Sex	0010,0040	Provided by WLM or entered by operator.
Other Patient IDs	0010,1000	Provided by WLM.
Other Patient Names	0010,1001	Provided by WLM.

Table 33. Secondary Capture Image Storage SOP Class - General Study Module

Attribute Name	Tag	Note
Study Date	0008,0020	
Study Time	0008,0030	
Accession Number	0008,0050	Provided by WLM or entered by operator.
Referring Physician's Name	0008,0090	Provided by WLM.
Study Description	0008,1030	Examination type selected by operator.
Referenced Study Sequence	0008,1110	Provided by WLM.
>Referenced SOP Class UID	0008,1150	
>Referenced SOP Instance UID	0008,1155	
Study Instance UID	0020,000D	Provided by WLM or generated by the BV Family system.
Study ID	0020,0010	Provided by WLM.

Table 34. Secondary Capture Image Storage SOP Class - Patient Study Module

Attribute Name	Tag	Note
Patient's Weight	0010,1030	Provided by WLM.

Table 35. Secondary Capture Image Storage SOP Class - General Series Module

Attribute Name	Tag	Note
Modality	0008,0060	Applied Value(s): OT
Performing Physician's Name	0008,1050	Copied from scheduled performing physician's name if this provided by WLM or can be entered by Operator.
Referenced Study Component Sequence	0008,1111	
>Referenced SOP Class UID	0008,1150	
>Referenced SOP Instance UID	0008,1155	
Protocol Name	0018,1030	Provided by WLM or entered by operator.
Series Instance UID	0020,000E	
Series Number	0020,0011	
Performed Procedure Step Start Date	0040,0244	
Performed Procedure Step Start Time	0040,0245	
Performed Procedure Step ID	0040,0253	
Request Attributes Sequence	0040,0275	
>Scheduled Procedure Step Description	0040,0007	
>Scheduled Procedure Step ID	0040,0009	
>Requested Procedure ID	0040,1001	

Table 36. Secondary Capture Image Storage SOP Class - General Equipment Module

Attribute Name	Tag	Note
Manufacturer	0008,0070	Applied Value(s): Philips Medical Systems
Institution Name	0008,0080	Fixed value (Configurable).
Station Name	0008,1010	Fixed value (Configurable).
Manufacturer's Model Name	0008,1090	Applied Value(s): BV Family XA

Table 37. Secondary Capture Image Storage SOP Class - Sc Image Equipment Module

Attribute Name	Tag	Note
Conversion Type	0008,0064	Applied Value(s): DI, DV
Secondary Capture Device ID	0018,1010	
Secondary Capture Device Manufacturer	0018,1016	
Secondary Capture Device Manufacturer's Model Name	0018,1018	
Secondary Capture Device Software Version.	0018,1019	Applied Value(s): Examworks Version 1.4

Table 38. Secondary Capture Image Storage SOP Class - General Image Module

Attribute Name	Tag	Note
Image Type	0008,0008	Applied Value(s): DERIVED\SECONDARY
Instance Number	0020,0013	
Patient Orientation	0020,0020	Always Empty.

Table 39. Secondary Capture Image Storage SOP Class - Image Pixel Module

Attribute Name	Tag	Note
Samples per Pixel	0028,0002	Number of samples (planes) in this image. Applied Value(s): 1
Photometric Interpretation	0028,0004	
Rows	0028,0010	See Table 42
Columns	0028,0011	See Table 42
Bits Allocated	0028,0100	Applied Value(s): 8
Bits Stored	0028,0101	Applied Value(s): 8
High Bit	0028,0102	Applied Value(s): 7
Pixel Representation	0028,0103	Applied Value(s): 0000
Pixel Data	7FE0,0010	

Table 40. Secondary Capture Image Storage SOP Class - Sc Image Module

Attribute Name	Tag	Note
Date of Secondary Capture	0018,1012	
Time of Secondary Capture	0018,1014	
Pixel Aspect Ratio	0028,0034	If the Pixel Aspect Ratio is not 1:1. Ref. Table 42.

Table 41. Secondary Capture Image Storage SOP Class - Sop Common Module

Attribute Name	Tag	Note
Specific Character Set	0008,0005	Applied Value(s): ISO 2022 IR 100
SOP Class UID	0008,0016	
SOP Instance UID	0008,0018	

Table 42 gives an overview of the applied value(s) for Rows, Columns and Pixel Aspect Ratio.

Table 42. Overview of the applied value(s) for Rows, Columns and Pixel Aspect Ratio.

type	Columns	Rows	Pixel Aspect Ratio horizontal	Pixel Aspect Ratio Vertical
50 Hz, Square	1016	792	1	1
50 Hz, Non-square	1012	576	549	753

3.1.2.5.3.2. XA Image IOD

The details of applied modules are given in the tables below. The lists of possible attribute values are given. The situation that an attribute is present conditionally/optionally is indicated too.

Table 43. X-Ray Angiographic Image Storage SOP Class - Patient Module

Attribute Name	Tag	Note
Patient's Name	0010,0010	Provided by WLM or entered by operator.
Patient ID	0010,0020	Provided by WLM or entered by operator.
Patient's Birth Date	0010,0030	Provided by WLM or entered by operator.
Patient's Birth Time	0010,0032	Provided by WLM
Patient's Sex	0010,0040	Provided by WLM or entered by operator.
Other Patient IDs	0010,1000	Provided by WLM
Other Patient Names	0010,1001	Provided by WLM

Table 44. X-Ray Angiographic Image Storage SOP Class - General Study Module

Attribute Name	Tag	Note
Study Date	0008,0020	
Study Time	0008,0030	
Accession Number	0008,0050	Provided by WLM or entered by operator.
Referring Physician's Name	0008,0090	Provided by WLM.
Study Description	0008,1030	Examination type selected by operator.
Referenced Study Sequence	0008,1110	Provided by WLM
>Referenced SOP Class UID	0008,1150	
>Referenced SOP Instance UID	0008,1155	
Study Instance UID	0020,000D	Provided by WLM or generated by the BV Family System.
Study ID	0020,0010	

Table 45. X-Ray Angiographic Image Storage SOP Class - Patient Study Module

Attribute Name	Tag	Note
Patient's Weight	0010,1030	Provided by WLM.

Table 46. X-Ray Angiographic Image Storage SOP Class - General Series Module

Attribute Name	Tag	Note
Modality	0008,0060	Fixed value (Configurable). Applied Value(s): XA
Performing Physician's Name	0008,1050	
Referenced Study Component Sequence	0008,1111	
>Referenced SOP Class UID	0008,1150	
>Referenced SOP Instance UID	0008,1155	
Protocol Name	0018,1030	Attribute entered by user .
Series Instance UID	0020,000E	Unique identifier of the Series.
Series Number	0020,0011	A number that identifies the Series.
Performed Procedure Step Start Date	0040,0244	
Performed Procedure Step Start Time	0040,0245	
Performed Procedure Step ID	0040,0253	
Request Attributes Sequence	0040,0275	
>Scheduled Procedure Step Description	0040,0007	
>Scheduled Procedure Step ID	0040,0009	
>Requested Procedure ID	0040,1001	

Table 47. X-Ray Angiographic Image Storage SOP Class - General Equipment Module

Attribute Name	Tag	Note
Manufacturer	0008,0070	Fixed value. Applied Value(s): Philips Medical System
Institution Name	0008,0080	Fixed value (Configurable).
Station Name	0008,1010	Configurable name identifying the machine that produced the digital images.
Manufacturer's Model Name	0008,1090	Fixed value Applied Value(s): BV Family XA

Table 48. X-Ray Angiographic Image Storage SOP Class - General Image Module

Attribute Name	Tag	Note
Content Date	0008,0023	
Content Time	0008,0033	
Instance Number	0020,0013	
Patient Orientation	0020,0020	Always Empty.

Table 49. X-Ray Angiographic Image Storage SOP Class - Image Pixel Module

Attribute Name	Tag	Note
Rows	0028,0010	See Table 56
Columns	0028,0011	See Table 56
Pixel Aspect Ratio	0028,0034	
Pixel Data	7FE0,0010	

Table 50. X-Ray Angiographic Image Storage SOP Class - Cine Module

Attribute Name	Tag	Note
Start Trim	0008,2142	
Stop Trim	0008,2143	
Recommended Display Frame Rate	0008,2144	
Cine Rate	0018,0040	
Frame Time	0018,1063	

Table 51. X-Ray Angiographic Image Storage SOP Class - Multi-frame Module

Attribute Name	Tag	Note
Number of Frames	0028,0008	

Table 52. X-Ray Angiographic Image Storage SOP Class - X-ray Image Module

Attribute Name	Tag	Note
Image Type	0008,0008	Applied Value(s): ORIGINALPRIMARY
Samples per Pixel	0028,0002	Applied Value(s): 1
Photometric Interpretation	0028,0004	Applied Value(s): MONOCHROME2
Frame Increment Pointer	0028,0009	Frame Time (0018,1063)
Bits Allocated	0028,0100	Applied Value(s): 8
Bits Stored	0028,0101	Applied Value(s): 8
High Bit	0028,0102	Applied Value(s): 7
Pixel Representation	0028,0103	Applied Value(s): 0000
Pixel Intensity Relationship	0028,1040	Applied Value(s): LIN

Table 53. X-Ray Angiographic Image Storage SOP Class - X-ray Acquisition Module

Attribute Name	Tag	Note
KVP	0018,0060	Always Empty.
Field of View Shape	0018,1147	Applied Value(s): ROUND
Exposure Time	0018,1150	Always Empty.
X-Ray Tube Current	0018,1151	Always Empty.

Attribute Name	Tag	Note
Radiation Setting	0018,1155	Applied Value(s): GR, SC
Type of Filters	0018,1161	Applied Value(s): NONE
Intensifier Size	0018,1162	Applied Value(s): 150, 230, 310
Grid	0018,1166	Applied Value(s): IN

Table 54. X-Ray Angiographic Image Storage SOP Class - Xa Positioner Module

Attribute Name	Tag	Note
Distance Source to Detector	0018,1110	
Positioner Motion	0018,1500	Always Empty.
Positioner Primary Angle	0018,1510	Applied Value(s): 0
Positioner Secondary Angle	0018,1511	Applied Value(s): 0

Table 55. X-Ray Angiographic Image Storage SOP Class - Sop Common Module

Attribute Name	Tag	Note
Specific Character Set	0008,0005	Applied Value(s): ISO 2022 IR 100
SOP Class UID	0008,0016	
SOP Instance UID	0008,0018	

Table 56 gives an overview of the applied value(s) for Rows, Columns and Pixel Aspect Ratio.

Table 56. Overview of the applied value(s) for Rows, Columns and Pixel Aspect Ratio.

type	Columns	Rows	Pixel Aspect Ratio horizontal	Pixel Aspect Ratio Vertical
50 Hz, Square	792	792	1	1
50 Hz, Non-square	788	576	549	753

3.1.2.6. The BV Family system DICOM Print Request

3.1.2.6.1. Associated Real-World Activity

The BV Family system DICOM Print has the capability to print images via the DICOM Basic Print services using the Presentation Contexts defined in the Table shown in 3.1.2.6.2 on page 30, to all of the selected Print target device(s).

The BV Family system DICOM Print function will create a Film Session (based on the selected Layout) containing a single Film Box. The BV Family system DICOM AE will subsequently fill in the content of the image box and request the print at the Film Box level. The Film Session is deleted once the Print has completed. A new Film Session is created for each successive film.

BV Family system is configured to acquire Grayscale images, and to negotiate for Basic Grayscale DICOM print on each output.

3.1.2.6.2. Proposed Presentation Contexts

The BV Family system Print function will propose the following presentation contexts:

Table 57. Proposed Presentation Contexts for the BV Family system print

Abstract Syntax Name	UID	Transfer Syntax	UID List	Role	Extended Negotiation
Basic Grayscale Print Management Meta SOP	1.2.840.10008.5.1.1.9	ILE	1.2.840.10008.1.2	SCU	None
		ELE	1.2.840.10008.1.2.1		
		EBE	1.2.840.10008.1.2.2		

The following DIMSE Services are supported:

Table 58. Supported DIMSE Service Elements

SOP Class	Supported DIMSE Service Element
Printer SOP Class	N-GET, N-EVENT-REPORT
Basic Film Session SOP Class	N-CREATE
Basic Film Box SOP Class	N- CREATE
Basic Grayscale Image Box SOP Class	N-SET

3.1.2.6.3. SOP Specific Conformance to Print SOP Classes

The BV Family system DICOM Print function supports the Basic Grayscale Print Management SOP Classes. Films are printed according to the real world activity described earlier.

Upon receiving a normalised service response (N-CREATE, N-SET) containing a Failure Status, the BV Family system will release the association. The printing of the current Page will be considered failed. The BV Family system DICOM AE has the ability to automatically recover from this situation and will attempt to print the Page again. This retry mechanism will continue until the transfer of all images is successful.

Upon receiving a normalised service response (N-GET, N-EVENT-REPORT) containing a Failure Status, this status is ignored.

Errors that occur are logged in a system file, no information is given through the user interface.

The modules selected from the several print IOD module tables of DICOM 3.0 are given in the table below. The lists of possible attribute values are given. The situation that an attribute is present conditionally/optionally is indicated too

Note:

* Can be set in User Interface.

Table 59. Printer SOP Class - N-EVENT-REPORT-RSP - Printer Module

Attribute Name	Tag	Note
Printer Status Info	2110,0020	
Printer Name	2110,0030	Accepted but not used.

Table 60. Printer SOP Class - N-GET-RQ - Printer Module

Attribute Name	Tag	Note
Manufacturer	0008,0070	Accepted but not used.
Manufacturers Model Name	0008,1090	Accepted but not used.
Device Serial Number	0018,1000	Accepted but not used.
Date of Last Calibration	0018,1200	Accepted but not used.
Time of Last Calibration	0018,1201	Accepted but not used.
Printer Status	2110,0010	Displayed in user interface. Applied Value(s): FAILURE, NORMAL, WARNING
Printer Status Info	2110,0020	
Printer Name	2110,0030	Accepted but not used.

Table 61. Basic Film Box SOP Class - N-CREATE-RQ - Basic Film Box Presentation Module

Attribute Name	Tag	Note
Image Display Format *	2010,0010	Type of image display format Applied Value(s): STANDARD\1,1, STANDARD\1,2, STANDARD\2,2, STANDARD\2,3
Film Orientation	2010,0040	Film Orientation Applied Value(s): LANDSCAPE, PORTRAIT
Film Size ID	2010,0050	Film size identification Applied Value(s): 10INX12IN, 10INX14IN, 11INX14IN, 14INX14IN, 14INX17IN, 24CMX24CM, 24CMX30CM, 8INX10IN
Magnification Type	2010,0060	Interpolation type by which the printer magnifies the image in order to fit the image box on film Applied Value(s): BILINEAR, CUBIC, NONE, REPLICATE
Smoothing Type	2010,0080	Can be configured per printer. Applied Value(s): 0, 1, 10, 11, 12, 13, 14, 140, 15, 2, 3, 4, 5, 6, 7, 8, 9, ENHANCED, ENHANCED1, MEDIUM, NORMAL, SHARP, SMOOTH
Border Density	2010,0100	Density of the film areas surrounding and between images on the film Applied Value(s): BLACK, WHITE
Empty Image Density	2010,0110	Density of the image box area on the film that contains no image Applied Value(s): BLACK, WHITE
Min Density	2010,0120	Minimum density of the images on the film, expressed in hundredths of OD; if Min Density is lower than minimum printer density than Min Density is set to minimum printer density. Applied value(s): 0...300
Max Density	2010,0130	Maximum density of the images on the film, expressed in hundredths of OD; if Max Density is higher than maximum printer density than Max Density is set to maximum printer density. Applied value(s): 0...300
Trim	2010,0140	Specifies whether a trim box shall be printed surrounding each image on the film Applied Value(s): NO, YES
Configuration Information	2010,0150	Can be configured per printer.

Table 62. Basic Film Box SOP Class - N-CREATE-RQ - Basic Film Box Relationship Module

Attribute Name	Tag	Note
Referenced Film Session Sequence	2010,0500	
>Referenced SOP Class UID	0008,1150	Applied Value(s): 1.2.840.10008.5.1.1.1
>Referenced SOP Instance UID	0008,1155	

Table 63. Basic Film Session SOP Class - N-CREATE-RQ - Basic Film Session Presentation Module

Attribute Name	Tag	Note
Number of Copies *	2000,0010	Number of copies to be printed for each film of the film session Applied Value(s): 1, 2, 3, 4, 5, 6, 7, 8, 9
Print Priority	2000,0020	Specifies the priority of the print job Applied Value(s): HIGH, LOW
Medium Type	2000,0030	Type of medium on which the print job will be printed Applied Value(s): BLUE FILM, CLEAR FILM, NONE, PAPER, TRANSPARENCY
Film Destination	2000,0040	Film destination Applied Value(s): BIN_1, CURRENT, MAGAZINE, PROCESSOR
Film Session Label	2000,0050	Equal to study ID.

Table 64. Basic Grayscale Image Box SOP Class - N-SET-RQ - Image Box Pixel Presentation Module

Attribute Name	Tag	Note
Image Position	2020,0010	Generated
Polarity	2020,0020	Specifies whether minimum pixel values (after VOI LUT transformation) are to be printed black or white Applied Value(s): NORMAL, REVERSE
Preformatted Grayscale Image Sequence	2020,0110	
>Samples per Pixel	0028,0002	Applied Value(s): 1
>Photometric Interpretation	0028,0004	Applied Value(s): MONOCHROME2
>Rows	0028,0010	Value from install script. This install script is run when machine is installed.
>Columns	0028,0011	Value from install script. This install script is run when machine is installed.
>Pixel Aspect Ratio	0028,0034	Value from install script. This install script is run when machine is installed.
>Bits Allocated	0028,0100	Applied Value(s): 8
>Bits Stored	0028,0101	Applied Value(s): 8
>High Bit	0028,0102	Applied Value(s): 7
>Pixel Representation	0028,0103	Applied Value(s): 0x0000
>Pixel Data	7FE0,0010	

3.1.3. Association Acceptance Policy

The BV Family system does not accept any association.

4. COMMUNICATION PROFILES

4.1. TCP/IP Stack

The BV Family system provides DICOM 3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM 3.0 Standard. The TCP/IP stack is inherited from the BSD/OS 4.0.1 LINUX operating system.

4.1.1. Physical Media Support

- The BV Family system supports Ethernet v2.0 and IEEE 802.3, 10/100 BASE-T.

5. EXTENSIONS/SPECIALISATION'S/PRIVATISATION'S

BV Family system conforms to the Verify, Basic Print, Secondary Image Storage, XA Image Storage, Modality Worklist, Modality Performed Procedure Step and Storage Commit SOP Classes as Standard SOP Classes (i.e. no private attributes are defined).

Table 65. Mapping between UI elements and DICOM attributes

DICOM Attribute name	Tag	UI element	Note
Patient Name	(0008,0010)	Name	Max number of characters: 20
Scheduled Procedure Step ID	(0040,0009)	Examination ID	Max number of characters: 5
Performing Physician's Name	(0008,1050)	Phys	Max number of characters: 20
Study Description	(0008,1030)	Type	Max number of characters: 20
Patient ID	(0010,0020)	Registration	Max number of characters: 12 Visible on ExamWorks
Patient Birth Date	(0010,0030)	Birth Date	
Operators Name	(0008,1070)	Performing Technologist	Visible on ExamWorks
Protocol Name	(0018,1030)	Protocol Name	Visible on ExamWorks
Performing Physicians Name	(0008,1050)	Performing Physician	Visible on ExamWorks
Scheduled Procedure Step Description	(0040,0007)	Procedure	Visible on ExamWorks
Other DICOM attributes supported by the BV Family can be shown on Examworks and are named according the DICOM standard			

6. CONFIGURATION

The configuration of a BV Family system is done by means of updating configuration files. This should be done by Philips service engineers only.

6.1. AE Title/Presentation Address Mapping

The following fields are configurable for the BV Family system DICOM AE (local):

- Local AE Title
- Local IP Address

The following fields are configurable for every remote DICOM AE:

- Remote AE Titles
- Listening TCP/IP Port
- Remote IP Address
- Print, Storage and WLM service

7. SUPPORT OF EXTENDED CHARACTER SETS

The BV Family system supports Extended Character Set "ISO 2022 IR 100" which is the Latin alphabet NO1, supplementary set.