Philips Medical Systems
DICOM Conformance Statement

Integris V
with
High Speed DICOM Image Interface MCV 2973
and
DICOM RIS Interface MCV 3031

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**Philips
Medical
Systems**

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1 Introduction

This section provides general information about the scope, intended audience and contents of this Conformance Statement and how to use it.

1.1 Scope and field of application

The scope of this DICOM Conformance Statement is to facilitate data exchange between equipment of Philips Medical Systems and with equipment of other vendors. This document specifies the compliance to the DICOM standard, formally called the NEMA PS 3.X-1996 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), Service Elements 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. The conformance to the DICOM standard is a key element of the Inturis Program (see [INTURIS]).

1.2 Intended audience

This Conformance Statement is intended for:
- (potential) clients,
- marketing staff interested in data exchange functionality,
- system integrators and Customer Support Engineers of medical equipment,
- software engineers 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 section 2 through 7 and follows the contents and structuring requirements of DICOM PS 3.2-1996.
Additionally, the sections following 7 (if present) specify the details of the applied IODs and Service Elements.

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 3.3-1996.
The word Philips in this document refers to Philips Medical Systems.

1.5 References

[DICOM]   The Digital Imaging and Communications in Medicine (DICOM) standard:
            NEMA PS 3.X 1996 (X refers to the part 1 - 13)
            National Electrical Manufacturers Association (NEMA) Publication Sales
            1300 N. 17th Street, Suite 1847

Rosslyn, Va. 22209, United States of America

[INTURIS]   Philips Inturis Program
             Integrated Clinical Solutions
             Philips Medical Systems Nederland B.V. (see address at page ii)
EASYVISION R4.2
             Conformance Statement Document Number 4522 220 84552

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 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 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 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 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
- NEMA   National Electrical Manufacturers Association
- 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 Integris V in combination with the EasyVision R 4.2 will be referred to as Integris.
The direct output from the Integris will be referred to as Integris V.

2.1 Implementation model for the Integris.

The <u>Integris</u> system of Philips Medical System is an X-Ray imaging generating system. The System contains:
- a DICOM Image export function to transfer DICOM Cardio Images (Single Frame XA, (un)processed, (un)compressed) and Secondary Capture
- CD-Medical output for Cardio images, see the Conformance Statement CDM 3300 - Release 1.1.7 12 NC 4522 482 72241
- Modality Worklist Management
- Modality Performed Procedure Step

The <u>Integris **V**</u> system of Philips Medical System is an X-Ray imaging generating system. The System contains:
- a DICOM Image export function to transfer DICOM Secondary Capture Images.

The above DICOM functionality is described in this document.

2.1.1 Application Data Flow Diagram for the Integris.

The Integris behaves as one Implementation model as shown in Figure 2-2 on page 6.

The images to be sent are selected from one examination. At export request the images will be converted into DICOM format and sent out to a remote destination.
These images are intended for viewing purposes.

2.1.2 Functional definition of Application Entities

The EasyVision DICOM Image Export AE acts as a Service Class User (SCU) of the Storage Service Class. When the export is initiated, the AE will open an association to the remote system. The selected images and related image data are converted into a DICOM message to be sent to the remote system.

Figure 2-1: Topology Image
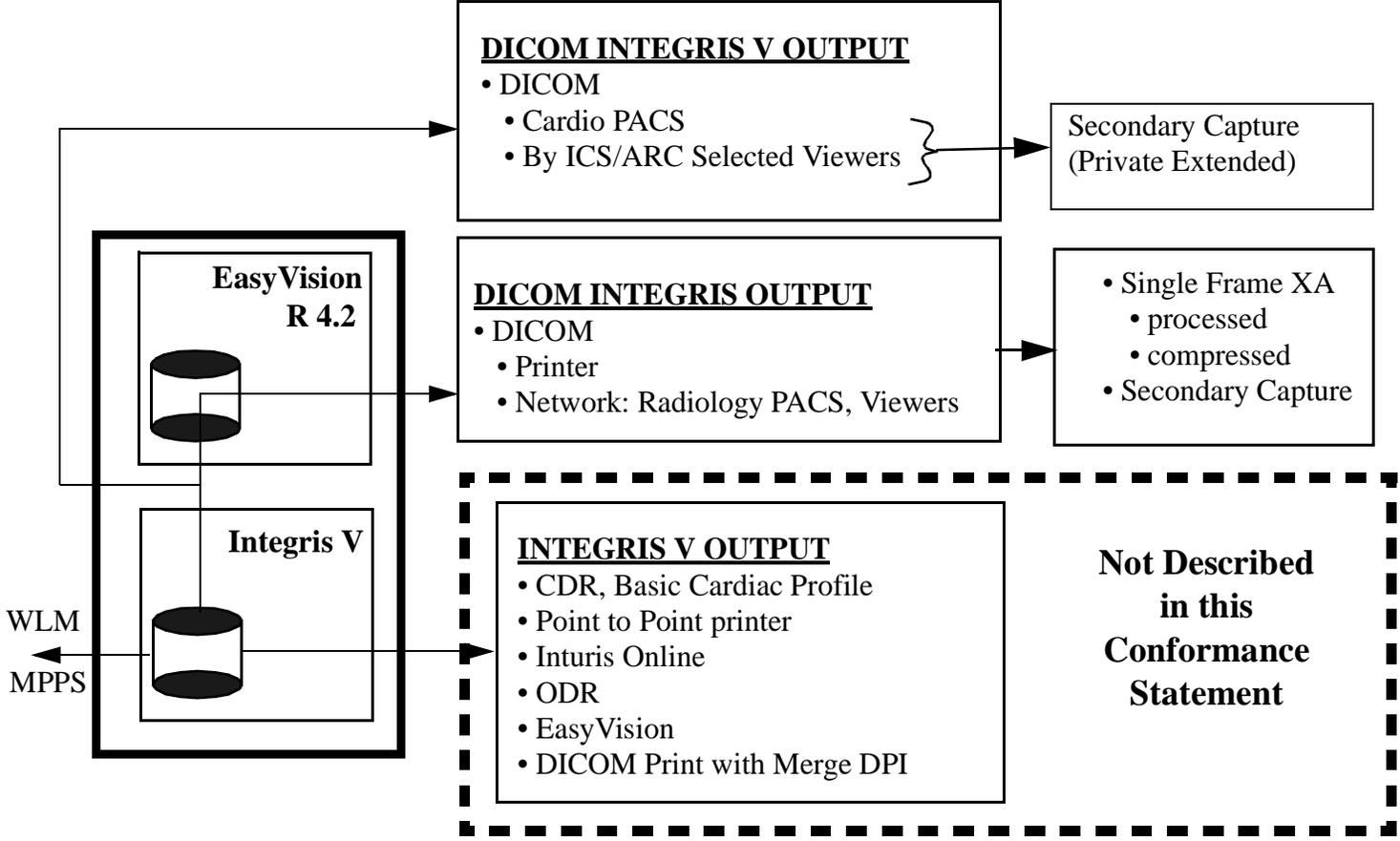
MWL = Modality Worklist Query/Retrieve
MPPS = Modality Performed Procedure Step
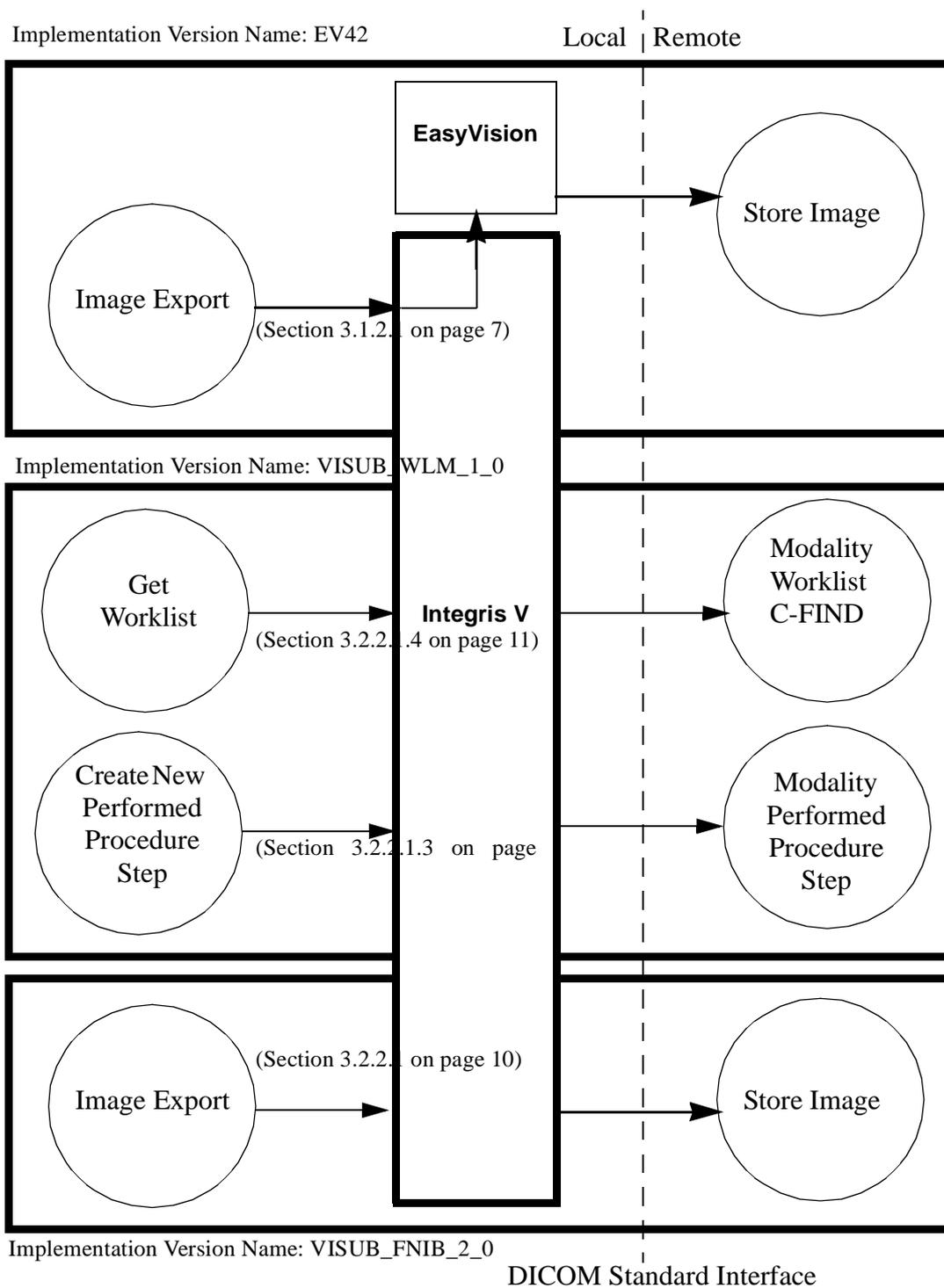
Figure 2-2: The Integris V/EasyVision DICOM Implementation Model (with references to the related sections)

3 AE Specifications

See also Chapter 3 "EasyVision 4.2 Conformance Statement, Section 1.5 on page 1".

3.1 DICOM Integris AE Specification for Integris Image Storage

The EasyVision DICOM Storage Application Entity provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCU:

Table 3-1: Supported SOP Classes by the EasyVision AE as SCU

SOP Class Name	UID
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7
X-Ray Angiographic Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.12.1

3.1.1 Association Establishment Policies

3.1.1.1 General

The Integris has a fixed PDU size of 16k.

3.1.1.2 Number of Associations

Integris will establish one association at a time.

3.1.1.3 Asynchronous Nature

Integris does not support asynchronous operations and will not perform asynchronous window negotiation.

3.1.1.4 Implementation Identifying Information

The Implementation Class UID is: 1.3.46.670589.5.2.11
The Implementation version name is: EV42

3.1.2 Association Initiation Policy

Integris initiates associations as a result of the following local Real-World activities:
• The image Export request to send the selected images via the EasyVision to a remote system.

3.1.2.1 Request to send images from EasyVision to a remote system

3.1.2.1.1   Associated Real-World Activity

After selection of a photo-file and/or one or more runs, these images will be sent when initiating the Send command. Integris initiates through the EasyVision one association to the pre-configured peer system and uses it to send the selected images via C-STORE requests (and receives the associated C-STORE responses). The association is released by Integris after successful transfer of the images or when an error occurs.
Integris handles each send request one after another.

3.1.2.1.2   Proposed Presentation Context

Integris will propose the following presentation contexts:

Table 3-2: Proposed Presentation Contexts for SC and X-Ray C-STORE through the EasyVision

Presentation Context table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotia-tion
Name	UID	Name List	UID List		
Secondary Capture Image Storage - STORE	1.2.840.10008.5.1.4.1.1.7	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
X-Ray Angiographic Image Storage - STORE	1.2.840.10008.5.1.4.1.1.12.1	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   C-STORE SCU Conformance

The images are send through the EasyVision to the STORE SCP. See for details the Conform-ance Statement of the EasyVision

3.1.2.1.4   SC SCU Conformance

Table 3-3 lists the applied Conditional (DICOM Type 1C and 2C) and Optional (DICOM Type 3) attributes of the SC Image IOD.

Table 3-3: Applied Conditional and Optional Attributes of the SC Image IOD

Information Entity	Module	Conditional Attributes	Optional Attributes
Patient	Patient	-	-
Study	General Study	-	-
Series	General Series	-	Series Date, Series Time, Performing Physician's Name
Equipment	General Equipment	-	Institution Name, Manufacturer's Model Name, Software Version(s)
	SC Equipment	-	-
Image	General Image	Patient Orientation	Image Type, Acquisition Date, Acquisition Time, Acquisition Number, Images in Acquisition, Derivation Description
	Image Pixel	-	-
	SOP Common	Specific Character Set	-

3.1.2.1.5   XA SCU Conformance

Table 3-4 lists the applied Conditional (DICOM Type 1C and 2C) and Optional (DICOM Type 3) attributes of the XA Image IOD.

Table 3-4: Applied optional Modules and Attributes of the XA Image IOD

IE	Module	Conditional Attributes	Optional Attributes
Patient	Patient	-	-
Study	General Study	-	-
Series	General Series	-	Series Date, Series Time, Performing Physician's Name
Equipment	General Equipment	-	Institution Name, Station Name, Manufacturer's Model Name, Software Version(s)
Image	General Image	Patient Orientation	-
	Image Pixel	Pixel Aspect Ratio	-
	Display Shutter (applied optional Module)	Shutter Left Vertical Edge, Shutter Right Vertical Edge, Shutter Upper Horizontal Edge, Shutter Lower Horizontal Edge	-
	X-Ray Image	High Bit	-
	X-Ray Acquisition	Exposure Time, X-Ray Tube Current, Exposure	Intensifier Size
	XA-Positioner	-	Distance Source to Detector
	VOI LUT (applied optional Module)	Window Width	Window Center
	SOP Common	Specific Character Set	-

3.2 DICOM Integris AE Specification for MPPS and WLM

The Integris DICOM Storage Application Entity provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCU:

Table 3-5: Supported SOP Classes by the Integris AE as SCU

SOP Class Name	UID
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3
Modality Worklist Information Model - FIND SOP Class	1.2.840.10008.5.1.4.31

3.2.1 Association Establishment Policies

3.2.1.1 General

The Integris has a fixed PDU size of 16k.

3.2.1.2 Number of Associations

Integris will establish one association at a time.

3.2.1.3 Asynchronous Nature

Integris does not support asynchronous operations and will not perform asynchronous window negotiation.

3.2.1.4 Implementation Identifying Information

For the Integris:
The Implementation Class UID is: 1.3.46.670589.7.5.1.5
The Implementation version name is: VISUB_FNIB_2.0

3.2.2 Association Initiation Policy

Integris initiates associations as a result of the following local Real-World activities:
- ?

3.2.2.1 Request to send images from Integris to a remote system

3.2.2.1.1 Associated Real-World Activity

?.

3.2.2.1.2 Proposed Presentation Context

Integris will propose the following presentation contexts:

Table 3-6: Proposed Presentation Contexts for WLM and MPPS through Integris

Presentation Context table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotia-tion
Name	UID	Name List	UID List		
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
Modality Worklist Information Model - FIND SOP Class	1.2.840.10008.5.1.4.31	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

3.2.2.1.3 Modality Performed Procedure Step Conformance

The Modality Performed procedure Step signals the RIS/HIS that a procedure has been finished and will provide the HIS/RIS with data concerning this Performed procedure.

Table 3-7 lists the applied Conditional (DICOM Type 1C and 2C) and Optional (DICOM Type 3) attributes in the Modality Performed Procedure Step IOD, MPPS N-CREATE.

Table 3-7: Applied Conditional and Optional Attributes of the Modality Performed Procedure Step IOD N-CREATE

Module	Conditional Attributes	Optional Attributes
SOP Common	Specific Character Set.	-
Private Exposure Information **Private**	-	Exposure Start Time, Scan Options, Distance Source to Detector (SID), Intensifier Size, APR name, Frame Rate
Image Acquisition Results	-	Code Meaning
Performed Procedure Step Information	-	Code Meaning
Performed Procedure Step Relationship	-	Code Meaning
Quantative Analysis Results **Private**	-	-
Radiation Dose **Extended**	-	Total Time of Fluoroscopy, Total Number of Exposures, Accumulated Fluoroscopy Dose, Accumulated Exposure Dose, Total Dose, Total Number of Frames

Table 3-8 lists the applied Conditional (DICOM Type 1C and 2C) and Optional (DICOM Type 3) attributes in the Modality Performed Procedure Step IOD, MPPS N-SET

Table 3-8: Applied Conditional and Optional Attributes of the Modality Performed Procedure Step IOD N-SET

Module	Conditional Attributes	Optional Attributes
SOP Common	Specific Character Set.	-
Performed Procedure Step Information	-	-

3.2.2.1.4   Modality Worklist Query/Retrieve Conformance

The Modality Worklist Query/Retrieve C-FIND will issue a request for a Worklist to the HIS/RIS and will behave as defined in the standard. Data returned from the HIS/RIS will be exported in the Store XA as well as the SC and will also be used to provide the Modality Performed Procedure Step with data. See chapter 8 for a detailed list concerning the requested attributes.

3.3 DICOM Integris V AE Specification for the Image Export

The Integris V DICOM Storage Application Entity provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCU:

Table 3-9: Supported SOP Classes by the Integris AE as SCU

SOP Class Name	UID
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7

3.3.1 Association Establishment Policies for C-Store

3.3.1.1 General

Integris has a fixed PDU size of 112k.

3.3.1.2 Number of Associations

Integris will establish one association at a time.

3.3.1.3 Asynchronous Nature

Integris does not support asynchronous operations and will not perform asynchronous window negotiation.

3.3.1.4 Implementation Identifying Information

Concerning the SC STORE:
The Implementation Class UID is: 1.3.46.670589.7.5.1.5
The implementation version name is: VISUB_FNIB_2_0

3.3.2 Association Initiation Policy for Image Export

Integris initiates associations as a result of the following local Real-World activities:
• The Image Export Request to send the selected photo-file images from the Integris V to a remote system (Section 3.2.2.1 on page 10).

3.3.2.1 Request to send images from Integris V to a remote system

3.3.2.1.1 Associated Real-World Activity

After selection of a photo-file and/or one or more runs, these images will be sent when initiating the Send command. Integris initiates one association to the pre-configured peer system and uses it to send the selected images via C-STORE requests (and receives the associated C-STORE responses). The association is released by Integris after successful transfer of the images or when an error occurs.

Integris handles each send request one after another.

3.3.2.1.2 Proposed Presentation Contexts

Integris will propose the following presentation contexts:

Table 3-10: Proposed Presentation Contexts

Presentation Context table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotia-tion
Name	UID	Name List	UID List		
Secondary Capture Image Storage - STORE	1.2.840.10008.5.1.4.1.1.7	ILE ELE	1.2.840.10008.1.2 1.2.840.10008.1.2.1	SCU	None

3.3.2.1.3　C-STORE SCU Conformance

Integris has the following behaviour on successful (with or without warnings) and unsuccessful transfer of images:
- Success (return status 0000)
  The successful transfer is indicated on the console: 'Done'.
- Refused (return status A7xx), Error (return status A9xx or Cxxx) and Warning (return status B00x)
  The failed transfer is indicated on the console: 'Network Error'. The reason is not shown.

While busy with transfer, the status Busy is shown on the Integris console.

Extended negotiation is not supported.

3.3.2.1.4　SC SCU Conformance

Table 3-11 lists the applied Conditional (DICOM Type 1C and 2C) and Optional (DICOM Type 3) attributes in the SC Image IOD.

Table 3-11: Applied Conditional and Optional Attributes of the SC Image IOD

IE	Module	Conditional Attributes	Optional Attributes
Patient	Patient	-	-
Study	General Study	-	-
Series	General Series	Referenced SOP Class UID, Referenced SOP Instance UID, Code Value, Coding Scheme Designator, Scheduled Procedure Step ID, Requested Procedure ID	Series Date, Series Time, Performing Physician's Name, Referenced Study Component Sequence, Performed Procedure Step Start Date, Performed Procedure Step Start Time, Performed Procedure step ID, Performed Procedure Step Description, Request Attributes Sequence, Scheduled Procedure Step Description, Scheduled Action Item Code Sequence, Code Meaning

Table 3-11: Applied Conditional and Optional Attributes of the SC Image IOD (Continued)

IE	Module	Conditional Attributes	Optional Attributes
Equipment	General Equipment	-	Institution Name, Station Name, Manufacturer's Model Name, Software Version(s)
	SC Equipment	-	-
Image	General Image	-	Image Type
	Image Pixel	-	-
	SOP Common	Specific Character Set	-
	VOI LUT	Window Width	Window Center

4 Communication Profiles

4.1 Profile for Image Export for the Integris

4.1.1 Supported Communication Stacks

The Integris application provides DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.1.2 TCP/IP Stack

Integris inherits its TCP/IP stack from the SUN Solaris system upon which it executes.

4.1.2.1 Physical Media Support

Ethernet ISO.8802-3. Standard AUI, optional twisted pair 10-BaseT.

4.2 Profile for MPPS and WLM for the Integris

The Integris application provides DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.2.1 Supported Communication Stacks

Integris provides DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.2.2 TCP/IP Stack

Integris uses the TCP/IP program stack of RMX.

4.2.2.1 Physical Media Support

Integris supports Ethernet (ISO 8802-3), 10-BaseT for the DICOM RIS Interface MCV 3031.

4.3 Profile for Image Export for the Integris V

The Integris application provides DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.3.1 Supported Communication Stacks

Integris provides DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.3.2 TCP/IP Stack

Integris uses the TCP/IP program stack of VxWorks for the image transport.

4.3.2.1 Physical Media Support

Integris supports Ethernet (ISO 8802-3),10/100-BaseT for the High Speed DICOM Image Interface MCV 2972.

5 Extensions/Specialization/Privatization

5.1 Integris Image Storage

See Chapter 5 of the EasyVision R4.2 Conformance Statement see Section 1.5 on page 1.

5.2 Modality Performed Procedure Step IOD

5.2.1 Quantative Analysis Result Module

The Quantitative Analysis Result Module, Table 8-38 on page 36, is a Private Extension on the standard.

5.2.2 Radiation Dose Module

The Radiation Dose Module, Table 8-39 on page 36, contains several Private Attributes which are an extension on the standard.

5.2.3 Private Exposure Information

The Private Exposure Information Module, Table 8-34 on page 31, is a Private Extension on the standard.

5.3 Integris V Image Storage

None.

6 Configuration

6.1 Integris Image Storage

See Chapter 6 of the EasyVision R4.2 Conformance Statement, Section 1.5 on page 1.

The configuration of the EasyVision has to be set for "Processing XA & RF Images before export". Otherwise the image quality will degrade.

6.2 Integris

6.2.1 AE Title/Presentation Address mapping for Integris

6.2.1.1 Local AE Titles and Presentation Addresses

The two Integris AE titles is configurable.

6.2.1.2 Remote AE Titles and Presentation Addresses

For remote applications that act as Service Class Provider the following additional information must be provided:
- The AE title, Section 6.3 on page 16
- The host name on which the application resides, Section 6.3 on page 16

6.3 Configurable parameters
- AE Title.

- Host Name.
- IP address.
- The port number is configurable

6.4 Integris V

6.4.1 AE Title/Presentation Address mapping for Integris

6.4.1.1 Local AE Titles and Presentation Addresses

The Integris V AE titles is configurable.

6.4.1.2 Remote AE Titles and Presentation Addresses

For remote applications that act as Service Class Provider the following additional information must be provided:
- The AE title, Section 6.3 on page 16
- The host name on which the application resides, Section 6.3 on page 16

6.5 Configurable parameters

- AE Title.
- Host Name.
- IP address.
- The port number is configurable

7 Support of Extended Character Sets

7.1 Integris

See Chapter 7of the EasyVision R4.2 Conformance Statement, see Section 1.5 on page 1.

7.2 Integris

Integris supports Extended Character Set "ISO_IR 100" which is the Latin alphabet ISO_IR No 100, supplementary set.

8 Overview applied IOD's for the Integris/Integris V

8.1 SC Image IOD for the Integris

The shaded boxes contain values which contents are obtained from the RIS/HIS via Modality Worklist Query/Retrieve.

Table 8-1: Applied Modules in the SC Image IOD

Information Entity	Module	Reference
Patient	Patient	Table 8-2
Study	General Study	Table 8-3
Series	General Series	Table 8-4
Equipment	General Equipment	Table 8-5
	SC Equipment	Table 8-6
Image	General Image	Table 8-7
	Image Pixel	Table 8-8
	SOP Common	Table 8-9

The details of these applied modules are given in the tables below. The list of possible values are given (if applicable).

Table 8-2: SC Image Storage SOP Class - Patient Module

Attribute Name	Tag	Note
Patient's Name	0010,0010	Patient's full legal name.
Patient ID	0010,0020	Primary hospital identification number or code for the patient.
Patient's Birth Date	0010,0030	Birth date of the patient.
Patient's Sex	0010,0040	Sex of the named patient. Applied value(s): F, M, O

Table 8-3: SC Image Storage SOP Class - General Study Module

Attribute Name	Tag	Note
Study Date	0008,0020	Date the Study started.
Study Time	0008,0030	Time the Study started.

Table 8-3: SC Image Storage SOP Class - General Study Module (Continued)

Attribute Name	Tag	Note
Accession Number	0008,0050	A RIS generated number which identifies the order for the Study.
Referring Physician's Name	0008,0090	Patient's referring physician.
Study Instance UID	0020,000D	Unique identifier for the Study.
Study ID	0020,0010	User or equipment generated Study identification.

Table 8-4: SC Image Storage SOP Class - General Series Module

Attribute Name	Tag	Note
Series Date	0008,0021	Date the Series started.
Series Time	0008,0031	Time the Series started.
Modality	0008,0060	Type of equipment that originally acquired the data used to create the Image. Applied value(s): XA
Performing Physician's Name	0008,1050	Name of the physicians administering the Series.
Series Instance UID	0020,000E	Unique identifier of the Series.
Series Number	0020,0011	A number that identifies this series.

Table 8-5: SC Image Storage SOP Class - General Equipment Module

Attribute Name	Tag	Note
Manufacturer	0008,0070	Manufacturer of the Equipment that produced the images. Applied value(s): Philips Medical Systems
Institution Name	0008,0080	Institution where the equipment is located that produced the digital images.
Manufacturer's Model Name	0008,1090	Manufacturer's model number of the equipment that produced the digital images. Applied value(s): P H I L I P S INTEGRIS H, P H I L I P S INTEGRIS V

Table 8-5: SC Image Storage SOP Class - General Equipment Module (Continued)

Attribute Name	Tag	Note
Software Version(s)	0018,1020	Manufacturer's designation of software version of the equipment that produced the digital images.

Table 8-6: SC Image Storage SOP Class - SC Equipment Module

Attribute Name	Tag	Note
Conversion Type	0008,0064	Describes the kind of image conversion. Applied value(s): WSD

Table 8-7: SC Image Storage SOP Class - General Image Module

Attribute Name	Tag	Note
Image Type	0008,0008	Applied value(s): DERIVED \ SECONDARY
Acquisition Date	0008,0022	
Acquisition Time	0008,0032	
Derivation Description	0008,2111	
Acquisition Number	0020,0012	
Image Number	0020,0013	A number that identifies the images.
Patient Orientation	0020,0020	
Images in Acquisition	0020,1002	

Table 8-8: SC Image Storage SOP Class - Image Pixel Module

Attribute Name	Tag	Note
Samples per Pixel	0028,0002	Number of samples (planes) in This image.
Photometric Interpretation	0028,0004	Specifies the intended interpretation of the pixel data. Applied value(s): MONOCHROME2
Rows	0028,0010	Number of rows in the image. Applied value(s): 1024, 960

Table 8-8: SC Image Storage SOP Class - Image Pixel Module (Continued)

Attribute Name	Tag	Note
Columns	0028,0011	Number of columns in the image. Applied value(s): 1280
Bits Allocated	0028,0100	Number of bits allocated for each pixel sample. Each sample shall have the same number of bits allocated. Applied value(s): 8
Bits Stored	0028,0101	Number of bits stored for each pixel sample. Applied value(s): 8
High Bit	0028,0102	Most significant bit for pixel sample data. Each sample shall have the same high bit. Applied value(s): 7
Pixel Representation	0028,0103	Data representation of the pixel samples. Each sample shall have the same pixel representation. Applied value(s): 0000
Pixel Data	7FE0,0010	A data stream of the pixel samples which comprise the Image

Table 8-9: SC Image Storage SOP Class - SOP Common Module

Attribute Name	Tag	Note
Specific Character Set	0008,0005	Character Set that expands or replaces the Basic Graphic Set. Applied value(s): ISO_IR 100
SOP Class UID	0008,0016	Uniquely identifies the SOP Class. Applied value(s): 1.2.840.10008.5.1.4.1.1.7
SOP Instance UID	0008,0018	Uniquely identifies the SOP Instance.

8.2 XA Image IOD for the Integris (single frame)

Table 8-10: XA Image IOD

Information Entity	Module	Reference
Patient	Patient	Table 8-11
Study	General Study	Table 8-12
Series	General Series	Table 8-13

Table 8-10: XA Image IOD

Information Entity	Module	Reference
Equipment	General Equipment	Table 8-14
Image	General Image	Table 8-15
	Image Pixel	Table 8-16
	Display Shutter	Table 8-17
	X-Ray Image	Table 8-18
	X-Ray Acquisition	Table 8-19
	XA Positioner	Table 8-20
	VOI LUT	Table 8-21
	SOP Common	Table 8-22

The details of these applied modules are given in the tables below. The list of possible values are given (if applicable). The situation that an attribute is present conditionally/optionally or that an attribute may contain a zero length value, is indicated too. Conditions and Defined/Enumerated Values of DICOM 3.0 are applicable but are not shown in the tables.

Table 8-11: XA Image Storage SOP Class - Patient Module

Attribute Name	Tag	Note
Patient's Name	0010,0010	Patients's full legal name.
Patient ID	0010,0020	Primary hospital identification number or code for the patient.
Patient's Birth Date	0010,0030	Birth date of the patient.
Patient's Sex	0010,0040	Sex of the named patient. Applied value(s): F, M, O

Table 8-12: XA Image Storage SOP Class - General Study Module

Attribute Name	Tag	Note
Study Date	0008,0020	User or equipment generated Study identifier.
Study Time	0008,0030	
Accession Number	0008,0050	A RIS generated number which identifies the order for the study.

Table 8-12: XA Image Storage SOP Class - General Study Module (Continued)

Attribute Name	Tag	Note
Referring Physician's Name	0008,0090	Patient's referring physician.
Study Instance UID	0020,000D	Unique identifier for the Study.
Study ID	0020,0010	User or equipment generated Study identifier.

Table 8-13: XA Image Storage SOP Class - General Series Module

Attribute Name	Tag	Note
Series Date	0008,0021	Date the Series started.
Series Time	0008,0031	Time the Series started.
Modality	0008,0060	Type of equipment that originally acquired the data used to create the image. Applied value(s): XA
Performing Physician's Name	0008,1050	Name of the physicians administering the Series.
Series Instance UID	0020,000E	Unique identifier of the Series.
Series Number	0020,0011	A number that identifies the Series.

Table 8-14: XA Image Storage SOP Class - General Equipment Module

Attribute Name	Tag	Note
Manufacturer	0008,0070	Manufacturer of the equipment that produced the digital images. Applied value(s): Philips Medical Systems
Institution Name	0008,0080	Institution where the equipment is located that produced the digital images.
Station Name	0008,1010	User defined name identifying the machine that produced the digital images.
Manufacturer's Model Name	0008,1090	Manufacturer's model number of the equipment that produced the digital images. Applied value(s): P H I L I P S INTEGRIS H, P H I L I P S INTEGRIS V
Software Version(s)	0018,1020	Manufacturer's designation of software version of the equipment that produced the digital images.

Table 8-15: XA Image Storage SOP Class - General Image Module

Attribute Name	Tag	Note
Image Number	0020,0013	
Patient Orientation	0020,0020	Always zero length.

Table 8-16: XA Image Storage SOP Class - Image Pixel Module

Attribute Name	Tag	Note
Rows	0028,0010	Number of rows in the image. Applied value(s): 1024, 480, 512, 960
Columns	0028,0011	Number of columns in the image. Applied value(s): 1024, 480, 512, 960
Pixel Aspect Ratio	0028,0034	Ratio of the vertical size and horizontal size of the pixels in the Image specified by a numeric pair: vertical pixel size (delimeter) horizontal pixel size. Values used: 1.0, 0.5 and 2.0. Applied value(s): 1, 2 \ 1, 2
Pixel Data	7FE0,0010	Non-substracted original acquired pixel data which comprise the image.

Table 8-17: XA Image Storage SOP Class - Display Shutter Module

Attribute Name	Tag	Note
Shutter Shape	0018,1600	Shape(s) of the shutter for the display. Applied value(s): RECTANGULAR
Shutter Left Vertical Edge	0018,1602	Location of the left edge of the rectangular shutter with respect to pixels in the Image given as columns.
Shutter Right Vertical Edge	0018,1604	Location of the right edge of the rectangular shutter with respect to pixels in the Image given as columns.
Shutter Upper Horizontal Edge	0018,1606	Location of the upper edge of the rectangular shutter with respect to pixels in the Image given as rows.

Table 8-17: XA Image Storage SOP Class - Display Shutter Module (Continued)

Attribute Name	Tag	Note
Shutter Lower Horizontal Edge	0018,1608	Location of the lower edge of the rectangular shutter with respect to pixels in the Image given as rows.

Table 8-18: XA Image Storage SOP Class - X-Ray Image Module

Attribute Name	Tag	Note
Image Type	0008,0008	Image identification characteristics. Applied value(s): DERIVED, ORIGINAL \ PRIMARY \ BIPLANE A, BIPLANE B, SINGLE PLANE
Referenced Image Sequence	0008,1140	A sequence which provides reference to a set of Image SOP Class/Instance pairs identifying other images significantly related to this image.
> Referenced SOP Class UID	0008,1150	
> Referenced SOP Instance UID	0008,1155	
Samples per Pixel	0028,0002	Applied value(s): 1
Photometric Interpretation	0028,0004	Specifies the intended interpretation of the pixel data. Applied value(s): MONOCHROME2
Bits Allocated	0028,0100	Number of bits allocated for each pixel sample. Applied value(s): 16, 8
Bits Stored	0028,0101	Number of bits stored for each pixel sample. Applied value(s): 10, 8
High Bit	0028,0102	Most significant bit for pixel sample data. Applied value(s): 7, 9
Pixel Representation	0028,0103	Data representation of the pixel samples. Applied value(s): 0000
Pixel Intensity Relationship	0028,1040	The relationship between the Pixel sample values and the X-Ray beam intensity. Applied value(s): DISP

Table 8-19: XA Image Storage SOP Class - X-Ray Acquisition Module

Attribute Name	Tag	Note
KVP	0018,0060	Peak kilo voltage output of the X-Ray generator used.
Exposure Time	0018,1150	Duration of X-Ray exposure in ms.
X-ray Tube Current	0018,1151	X-Ray Tube Current in mA.
Exposure	0018,1152	
Radiation Setting	0018,1155	Identifies the general level of X-Ray dose exposure. Applied value(s): GR, SC
Intensifier Size	0018,1162	Diameter of X-Ray intensifier in mm.

Table 8-20: XA Image Storage SOP Class - XA Positioner Module

Attribute Name	Tag	Note
Distance Source to Detector	0018,1110	
Positioner Primary Angle	0018,1510	
Positioner Secondary Angle	0018,1511	

Table 8-21: XA Image Storage SOP Class - VOI LUT Module

Attribute Name	Tag	Note
Window Center	0028,1050	The configuration of the EasyVision has to be set for "Processing XA & RF Images before export". Otherwise the image quality will degrade.
Window Width	0028,1051	The configuration of the EasyVision has to be set for "Processing XA & RF Images before export". Otherwise the image quality will degrade.

Table 8-22: XA Image Storage SOP Class - SOP Common Module

Attribute Name	Tag	Note
Specific Character Set	0008,0005	Applied value(s): ISO_IR 100
SOP Class UID	0008,0016	Uniquely identifies the Image Storage SOP Class. Applied value(s): 1.2.840.10008.5.1.4.1.1.12.1
SOP Instance UID	0008,0018	Uniquely identifies the SOP Instance.

8.3 Modality Worklist Query/Retrieve attribute Overview

Table 8-23: Modality Worklist Query/Retrieve Information Model for Integris H

Module	Reference
SOP Common	Table 8-24
Patient Identification	Table 8-25
Patient Demographic	Table 8-26
Visit Relationship	Table 8-27
Visit Identification	Table 8-28
Scheduled Procedure Step	Table 8-29
Requested Procedure	Table 8-30
Imaging Service Request	Table 8-31

Table 8-24: Modality Worklist Information Model - FIND SOP Class - SOP Common Module

Attribute Name	Tag	Note
Specific Character Set	0008,0005	ISO_IR 100

Table 8-25: Modality Worklist Information Model - FIND SOP Class - Patient Identification Module

Attribute Name	Tag	Note
Patient's Name	0010,0010	Always zero length, so match all for the query response.
Patient ID	0010,0020	Always zero length, so match all for the query response.

Table 8-26: Modality Worklist Information Model - FIND SOP Class - Patient Demographic Module

Attribute Name	Tag	Note
Patient's Birth Date	0010,0030	Always zero length, so match all for the query response.

Table 8-26: Modality Worklist Information Model - FIND SOP Class - Patient Demographic Module

Attribute Name	Tag	Note
Patient's Sex	0010,0040	Always zero length, so match all for the query response.

Table 8-27: Modality Worklist Information Model - FIND SOP Class - Visit Relationship Module

Attribute Name	Tag	Note
Referenced Patient Sequence	0008,1120	Always zero length, so match all for the query response.

Table 8-28: Modality Worklist Information Model - FIND SOP Class - Visit Identification Module

Attribute Name	Tag	Note
Institution Name	0008,0080	Always zero length, so match all for the query response

Table 8-29: Modality Worklist Information Model - FIND SOP Class - Scheduled Procedure Step Module

Attribute Name	Tag	Note
Scheduled Procedure Step Sequence	0040,0100	
> Modality	0008,0060	XA
> Scheduled Station AE Title	0040,0001	Configured AE Title of the Integris.
> Scheduled Procedure Step Start Date	0040,0002	Current date.
> Scheduled Procedure Step Start Time	0040,0003	Always zero length, so match all for the query response.
> Scheduled Performing Physician's Name	0040,0006	Always zero length, so match all for the query response.
> Scheduled Procedure Step Description	0040,0007	Always zero length, so match all for the query response.
> Scheduled Action Item Code Sequence	0040,0008	Always zero length.

Table 8-29: Modality Worklist Information Model - FIND SOP Class - Scheduled Procedure Step Module

Attribute Name	Tag	Note
> Scheduled Procedure Step ID	0040,0009	Always zero length, so match all for the query response.
> Scheduled Station Name	0040,0010	Always zero length, so match all for the query response.

Table 8-30: Modality Worklist Information Model - FIND SOP Class - Requested Procedure Module

Attribute Name	Tag	Note
Referenced Study Sequence	0008,1110	Always zero length, so match all for the query response.
Study Instance UID	0020,000D	Always zero length, so match all for the query response.
Requested Procedure Description	0032,1060	Always zero length, so match all for the query response.
Requested Procedure ID	0040,1001	Always zero length, so match all for the query response.

Table 8-31: Modality Worklist Information Model - FIND SOP Class - Imaging Service Request Module

Attribute Name	Tag	Note
Accession Number	0008,0050	Always zero length, so match all for the query response.
Referring Physician's Name	0008,0090	Always zero length, so match all for the query response.

8.4 Modality Performed Procedure Step IOD attribute Overview, N-CREATE

The shaded boxes contain values which contends are obtained from the RIS/HIS via the Modality Worklist Query/Retrieve.

Table 8-32: Modality Performed Procedure Step IOD N-CREATE for Integris H

Module	Reference
SOP Common	Table 8-33
Private Exposure Information (Private)	Table 8-34
Image Acquisition Result	Table 8-35
Performed Procedure Step Information	Table 8-36
Performed Procedure Step Relationship	Table 8-37
Quantitative Analysis Result (Private)	Table 8-38
Radiation Dose (Extended)	Table 8-39

Table 8-33: Modality Performed Procedure Step SOP Class - SOP Common Module

Attribute Name	Tag	Note
Specific Character Set	0008,0005	Applied Value(s): ISO_IR 100
SOP Class UID	0008,0016	Uniquely identifies the Modality Performed Procedure SOP Class. Applied value(s): 1.2.840.10008.3.1.2.3.3
SOP Instance UID	0008,0018	

The Italic attributes in the next table are an extension on the standard.

Table 8-34: Modality Performed Procedure SOP Class - Private Exposure Module

Attribute Name	Tag	Note
Private Creator	*0041, 0010*	*INTEGRIS 1.0*
Exposure Information Sequence	*0041,1050*	*A Sequence which provides additional information related to the exposures made during this Performed Procedure Step.*
> Private Creator Group 0009	*0009,0010*	*Applied value(s): INTEGRIS 1.0*

Table 8-34: Modality Performed Procedure SOP Class - Private Exposure Module (Continued)

Attribute Name	Tag	Note
> Exposure Channel	0009,1008	Exposure Channel in which the pixel data is acquired. Applied value(s): BIPLANE A, BIPLANE B, SINGLE PLANE \ SINGLE A, SINGLE B
> Exposure Start Time	0009,1032	The time this exposure started.
> Scan Options	0018,0022	Acquisition technique used during the exposure. Applied value(s): EKG
> KVP	0018,0060	Peak kilo voltage output of the X-Ray generator used.
> Distance Source to Detector(SID)	0018,1110	Distance in mm from the source to detector center.
> Exposure Time	0018,1150	Duration of X-Ray exposure in ms.
> X-ray Tube Current	0018,1151	X-Ray Tube Current in mA.
> Intensifier Size	0018,1162	Diameter of X-Ray intensifier in mm.
> Positioner Primary Angle	0018,1510	Position of the X-Ray Image intensifier about the patient from RAO to LAO direction where movement from RAO to vertical is positive.
> Positioner Secondary Angle	0018,1511	Position of the X-Ray Image Intensifier about the patient from the CAU to CRA direction where movement from CAU to vertical is positive. Specified in degrees.
> Private Creator Group 0019	0019,0020	Applied value(s): INTEGRIS 1.0
> APR Name	0019,2000	Name of Anatomical Programmed Radiographic used for the exposure.
> Frame Rate	0019,2040	Number of frames per second.
> Private Creator Group 0021	0021,0010	Applied value(s): INTEGRIS 1.0
> Exposure Number	0021,1012	A number identifying the exposure.
> Private Creator Group 0029	0029,0030	Applied value(s): INTEGRIS 1.0
> Number of Exposure Results	0029,3008	Number of X-Ray images acquired during the exposure. In case of non-digital exposure: 0.

Table 8-35: Modality Performed Procedure Step SOP Class - Image Acquisition Result Module

Attribute Name	Tag	Note
Modality	0008,0060	Type of equipment that originally acquired the data used to create the images associated with this Modality Performed Procedure Step. Applied value(s): XA
Study ID	0020,0010	user or equipment generated Study Identifier.
Performed Action Item Sequence	0040,0260	Sequence describing the Action Items performed for this Procedure Step. Always zero length.
> Code Value	0008,0100	
> Coding Scheme Designator	0008,0102	
> Code Meaning	0008,0104	
Performed Series Sequence	0040,0340	Attributes of the Series that comprise this Modality Performed Procedure Step.
> Retrieve AE Title	0008,0054	Title of the DICOM Application Entity where the Images and Standalone SOP Instances in this Series may be retrieved on the Network.
> Series Description	0008,103E	User provided description of the Series. Always zero length.
> Performing Physician's Name	0008,1050	Name of the physician administering this Series.
> Operator's name	0008,1070	Name of the operator who performed this Series. Always zero length.
> Referenced Image Sequence	0008,1140	A Sequence that provides reference to zero or more sets of Image SOP Class/Sop Instance pairs.
>> Referenced SOP Class UID	0008,1150	1.2.840.100008.5.1.4.1.1.12 1.2.840.100008.5.4.1.1.7
>> Referenced SOP Instance UID	0008,1155	Uniquely identifies the referenced SOP Instance.
> Protocol Name	0018,1030	User-defined description of the conditions under which the Series was performed.
> Series Instance UID	0020,000E	Unique identifier of the Series.
> Referenced Stand-alone SOP Instance Sequence	0040,0220	Uniquely identifies Standalone IODs such as LUTs, Curves or Overlays related to these images. Always zero length.
>> Referenced SOP Class UID	0008,1150	

Table 8-35: Modality Performed Procedure Step SOP Class - Image Acquisition Result Module

Attribute Name	Tag	Note
Referenced SOP Instance UID	0008,1155	

Table 8-36: Modality Performed Procedure Step SOP Class - Performed Procedure Step Information Module

Attribute Name	Tag	Note
Procedure Code Sequence	0008,1032	A sequence that conveys the (single) type of procedure performed. Always zero length.
Performed Station AE Title	0040,0241	AE Title of the modality in which the preformed procedure Step was performed.
Performed Station Name	0040,0242	An institution defined name for the modality on which the Performed Procedure was performed.
Performed Location	0040,0243	Description of the location at which the Performed Procedure Step was performed. Always zero length.
Performed Procedure Step Start Date	0040,0244	Date on which the Performed Procedure Step started.
Performed Procedure Step Start Time	0040,0245	Time on which the Performed Procedure Step started.
Performed Procedure Step End Date	0040,0250	Date on which the Performed Procedure Step ended.
Performed Procedure Step End Time	0040,0251	Time on which the Performed Procedure Step ended.
Performed Procedure Step Status	0040,0252	Contains the state of the Performed Procedure Step. Applied value(s): IN PROGRESS/COMPLETED.
Performed Procedure Step ID	0040,0253	User or equipment generated identifier of that part of a Procedure that has been carried out within this step. Always Unknown.
Performed Procedure Step Description	0040,0254	A description of the type of procedure performed. Always zero length.
Performed Procedure Type Description	0040,0255	Institution-generated description or classification of the Procedure Step that was performed. Always zero length.

Table 8-37: Modality Performed Procedure Step SOP Class - Performed Procedure Step Relationship Module

Attribute Name	Tag	Note
Patient's Name	0010,0010	Patient's full legal name.
Patient ID	0010,0020	Primary hospital identification number or code for the patient.
Patient's Birth Date	0010,0030	Birth date of the patient.
Patient's Sex	0010,0040	Sex of the named patient. Applied value(s): F, M, O
Referenced Patient Sequence	0008,1120	Uniquely identifies the Patient SOP Instance.
> Referenced SOP Class UID	0008,1150	
> Referenced SOP Instance UID	0008,1155	
Scheduled Step Attributes Sequence	0040,0270	Sequence containing attributes that are related to the scheduling of the Procedure Step.
> Accession Number	0008,0050	A departemental IS generated number which identifies the order for the Study.
> Referenced Study Sequence	0008,1110	Uniquely identifies the Study SOP Instance associated with this Scheduled Procedure Step.
>> Referenced SOP Class UID	0008,1150	Uniquely identifies the referenced SOP Class.
>> Referenced SOP Instance UID	0008,1155	Uniquely identifies the referenced SOP Instance.
> Study Instance UID	0020,000D	Unique identifier for the Study.
> Requested Procedure Description	0032,1060	Institution-generated administrative description or classification of the Requested procedure.
> Scheduled Procedure Step Description	0040,0007	Institution-generated description or classification of the Scheduled Procedure Step to be performed.
> Scheduled Action Item Code Sequence	0040,0008	Sequence describing the Scheduled Action Item(s) following a specified coding scheme.
>> Code Value	0008,0100	
>> Coding Scheme Designator	0008,0102	
>> Code Meaning	0008,0104	
> Scheduled Procedure Step ID	0040,0009	Identifier which identifies the Scheduled Procedure Step.

Table 8-37: Modality Performed Procedure Step SOP Class - Performed Procedure Step Relationship Module (Continued)

Attribute Name	Tag	Note
> Requested Procedure ID	0040,1001	Identifier which identifies the Requested Procedure in the Imaging Service Request.

The Italic attributes in the next table are an extension on the standard.

Table 8-38: Modality Performed Procedure Step SOP Class - Quantative Analysis Result Module (Private) Section 5.2.1 on page 16

Attribute Name	Tag	Note
Private Creator Group 0049	*0049,0010*	
QA Program name Results Sequence	*0049,1010*	
> Referenced Image Sequence	*0008,1140*	
>> Referenced SOP Class UID	*0008,1150*	*Uniquely identifies the referenced X-Ray Angiographic Image Storage SOP Class. Applied value(s): 1.2.840.10008.5.1.4.1.1.12.1*
>> Referenced SOP Instance UID	*0008,1155*	
> Private Creator Group 0049	*0049,0010*	

The Italic attributes in the next table are an extension on the standard.

Table 8-39: Modality Performed Procedure Step SOP Class - Radiation Dose Module (Extended) Section 5.2.2 on page 16

Attribute Name	Tag	Note
Total Time of Fluoroscopy	0040,0300	Total duration of X-Ray exposure during fluoroscopy in seconds (pedal time) during this Performed Procedure Step.
Total Number of Exposures	0040,0301	Total number of exposures made during this Performed Procedure Step. The number includes non-digital and digital images.
Private Creator Group 0041	*0041,0010*	*Applied value(s): INTEGRIS 1.0*
Accumulated Fluoroscopy Dose	*0041,1020*	*Dose measured in dGy to which the patient has been exposed during fluoroscopy during this Performed Procedure Step.*

Table 8-39: Modality Performed Procedure Step SOP Class - Radiation Dose Module (Extended) Section 5.2.2 on page 16 (Continued)

Attribute Name	Tag	Note
Accumulated Exposure Dose	0041,1030	Dose measured in dGy to which the patient has been exposed during this Performed Procedure Step.
Total Dose	0041,1040	Total dose measured in dGy to which the patient has been exposed during this Performed Procedure Step.
Total Number of Frames	0041,1041	Total number of images (frames) acquired during this Performed Procedure Step.

8.5 Modality Performed Procedure Step IOD attribute Overview, N-SET

Table 8-40: Modality Performed Procedure Step IOD N-SET for Integris H

Module	Reference
SOP Common	Table 8-41
Performed Procedure Step Information	Table 8-42

Table 8-41: Modality Performed Procedure Step SOP Class - SOP Common Module

Attribute Name	Tag	Note
SOP Class UID	0008,0016	Applied value(s): 1.2.840.10008.3.1.2.3.3
SOP Instance UID	0008,0018	

Table 8-42: Modality Performed Procedure Step SOP Class - Performed Procedure Step Information Module

Attribute Name	Tag	Note
Performed Procedure Step Status	0040,0252	Applied value(s): COMPLETED

8.6 SC Image IOD for the Integris V attribute overview

The shaded boxes contain values which contents are obtained from the RIS/HIS via Modality Worklist Query/Retrieve.

Table 8-43: Applied Modules in the SC Image IOD For the Integris H

Information Entity	Module	Usage	Reference
Patient	Patient	M	Table 8-44
Study	General Study	M	Table 8-45
Series	General Series	M	Table 8-46
Equipment	General Equipment	U	Table 8-47
	SC Equipment	M	Table 8-48
Image	General Image	M	Table 8-49
	Image Pixel	M	Table 8-50
	VOI LUT	U	Table 8-51
	SOP Common	M	Table 8-52

Table 8-44: Secondary Capture Image Storage SOP Class - Patient Module

Attribute Name	Tag	Note
Patient's Name	0010,0010	Patient's full legal name.
Patient ID	0010,0020	Primary hospital identification number or code for the patient.
Patient's Birth Date	0010,0030	Birth date of the patient.
Patient's Sex	0010,0040	Sex of the named patient. Applied value(s): F, M, O

Table 8-45: Secondary Capture Image Storage SOP Class - General Study Module

Attribute Name	Tag	Note
Study Date	0008,0020	Date the Study started.
Study Time	0008,0030	Time the Study started.
Accession Number	0008,0050	A RIS generated number which identifies the order for the Study.

Table 8-45: Secondary Capture Image Storage SOP Class - General Study Module (Continued)

Attribute Name	Tag	Note
Referring Physician's Name	0008,0090	Patient's referring physician.
Study Instance UID	0020,000D	Unique identifier for the Study.
Study ID	0020,0010	User or equipment generated Study identification.

Table 8-46: Secondary Capture Image Storage SOP Class - General Series Module

Attribute Name	Tag	Note
Series Date	0008,0021	Date the Series started.
Series Time	0008,0031	Time the Series started.
Modality	0008,0060	Type of equipment that originally acquired the data used to create the Image. Applied value(s): XA
Performing Physician's Name	0008,1050	Name of the physicians administering the Series.
Referenced Study Component Sequence	0008,1111	Uniquely identifies the Study Component SOP Instance or Modality Performed Procedure Step Instance to which the Series is related.
> Referenced SOP Class UID	0008,1150	Uniquely identifies the referenced Modality Performed Procedure SOP Class. Applied value(s): 1.2.840.10008.3.1.2.3.3
> Referenced SOP Instance UID	0008,1155	Uniquely identifies the referenced SOP Instance.
Series Instance UID	0020,000E	Unique identifier of the Series.
Series Number	0020,0011	A number that identifies this series. Applied value(s): 1
Performed Procedure Step Start Date	0040,0244	Date on which the Performed procedure Step Started.
Performed Procedure Step Start Time	0040,0245	Time on which the Performed Procedure Step Started.
Performed Procedure Step ID	0040,0253	identification of that part of a Procedure that has been carried out within this step.
Performed Procedure Type Description	0040,0255	Institution-generated description or classification of the Procedure Step that was performed.

Table 8-46: Secondary Capture Image Storage SOP Class - General Series Module (Continued)

Attribute Name	Tag	Note
Request Attributes Sequence	0040,0275	Sequence that contains attributes from the Imaging Service Request.
> Scheduled Procedure Step Description	0040,0007	Institution-generated description or classification of the Scheduled Procedure Step to be performed.
> Scheduled Action Item Code Sequence	0040,0008	Sequence describing the Scheduled Action Item(s) following a specific coding scheme.
>>Code Value	0008,0100	
>> Coding Scheme Designator	0008,0102	
>> Code Meaning	0008,0104	
> Scheduled Procedure Step ID	0040,0009	Identifier which identifies the requested Procedure in the Imaging Service request.
> Requested Procedure ID	0040,1001	Identifier which identifies the Scheduled Procedure Step.

Table 8-47: Secondary Capture Image Storage SOP Class - General Equipment Module

Attribute Name	Tag	Note
Manufacturer	0008,0070	Manufacturer of the Equipment that produced the images. Applied value(s): Philips Medical Systems (Netherlands)
Institution Name	0008,0080	Institution where the equipment is located that produced the digital images.
Institution Address	0008,0081	
Station Name	0008,1010	User defined name identifying the machine that produced the digital images.
Manufacturer's Model Name	0008,1090	manufacturer's model number of the equipment that produced the digital images. Applied value(s): P H I L I P S INTEGRIS H, P H I L I P S INTEGRIS V
Software Version(s)	0018,1020	Manufacturer's designation of software version of the equipment that produced the digital images.

Table 8-48: Secondary Capture Image Storage SOP Class - SC Equipment Module

Attribute Name	Tag	Note
Conversion Type	0008,0064	Describes the kind of image conversion. Applied value(s): WSD

Table 8-49: Secondary Capture Image Storage SOP Class - General Image Module

Attribute Name	Tag	Note
Image Type	0008,0033	
Image Number	0020,0013	A number that identifies the images.
Patient Orientation	0020,0020	Patient direction of the rows and columns of the image.

Table 8-50: 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	Specifies the intended interpretation of the pixel data. Applied value(s): MONOCHROME2
Rows	0028,0010	Number of rows in the image. Applied value(s): 1024
Columns	0028,0011	Number of columns in the image. Applied value(s): 1280
Bits Allocated	0028,0100	Number of bits allocated for each pixel sample. Each sample shall have the same number of bits allocated. Applied value(s): 8
Bits Stored	0028,0101	Number of bits stored for each pixel sample. Applied value(s): 8
High Bit	0028,0102	Most significant bit for pixel sample data. Each sample shall have the same high bit. Applied value(s): 7

Table 8-50: Secondary Capture Image Storage SOP Class - Image Pixel Module (Continued)

Attribute Name	Tag	Note
Pixel Representation	0028,0103	Data representation of the pixel samples. Each sample shall have the same pixel representation. Applied value(s): 0000
Pixel Data	7FE0,0010	A data stream of the pixel samples which comprise the Image.

Table 8-51: Secondary Capture Image Storage SOP Class - VOI LUT Module

Attribute Name	Tag	Note
Window Center	0028,1050	Applied value(s): 128
Window Width	0028,1051	Applied value(s): 225

Table 8-52: Secondary Capture Image Storage SOP Class - SOP Common Module

Attribute Name	Tag	Note
Specific Character Set	0008,0005	Character Set that expands or replaces the Basic Graphic Set Applied value(s): ISO_IR 100
SOP Class UID	0008,0016	Uniquely identifies the SOP Class. Applied value(s): 1.2.840.10008.5.1.4.1.1.7
SOP Instance UID	0008,0018	Uniquely identifies the SOP Instance.

9 Known Problems, Specializations

- The EasyVision R4.2 can not distinguish between Vascular and Cardio input.
- Data received from the RIS can not be modified on the Integris H.
- Patient data information entered locally in the Integris can be changed.
- The system does not check or provide a warning is case of misinformation
- Before any images are transferred the FNIB will open a dummy association and immediately closes it without sending any information.
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