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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Introduction ................................................................. 1
1.1 Scope and field of application ........................................... 1
1.2 Intended audience ........................................................ 1
1.3 Contents and structure ................................................... 1
1.4 Used definitions, terms and abbreviations ............................ 1
1.5 References ......................................................................... 1
1.6 Important note to the reader .............................................. 2
1.7 Acronyms and Abbreviations. .......................... 3
2 Implementation model ......................................................... 4
2.1 Implementation model for the Integris. ................................. 4
2.1.1 Application Data Flow Diagram for the Integris. ................. 4
2.1.2 Functional definition of Application Entities ..................... 4
3 AE Specifications ............................................................... 7
3.1 DICOM Integris AE Specification for Integris Image Storage ....... 7
3.1.1 Association Establishment Policies ................................. 7
3.1.2 Association Initiation Policy ........................................ 7
3.2 DICOM Integris AE Specification for MPPS and WLM ............... 9
3.2.1 Association Establishment Policies ................................. 10
3.2.2 Association Initiation Policy ........................................ 10
3.3 DICOM Integris V AE Specification for the Image Export ........... 12
3.3.1 Association Establishment Policies for C-Store ................. 12
3.3.2 Association Initiation Policy for Image Export ................ 12
4 Communication Profiles ...................................................... 15
4.1 Profile for Image Export for the Integris .............................. 15
4.1.1 Supported Communication Stacks ................................. 15
4.1.2 TCP/IP Stack ........................................................ 15
4.2 Profile for MPPS and WLM for the Integris ......................... 15
4.2.1 Supported Communication Stacks ................................. 15
4.2.2 TCP/IP Stack ........................................................ 15
4.3 Profile for Image Export for the Integris V .......................... 15
4.3.1 Supported Communication Stacks ................................. 15
4.3.2 TCP/IP Stack ........................................................ 15
5 Extensions/Specialization/Privatization ................................ 16
5.1 Integris Image Storage .................................................... 16
5.2 Modality Performed Procedure Step IOD ............................ 16
5.2.1 Quantitative Analysis Result Module ............................ 16
5.2.2 Radiation Dose Module .............................................. 16
5.2.3 Private Exposure Information ..................................... 16
5.3 Integris V Image Storage ................................................ 16
6 Configuration ................................................................. 16
6.1 Integris Image Storage .................................................... 16
6.2 Integris ................................................................. 16
6.2.1 AE Title/Presentation Address mapping for Integris ............ 16
6.3 Configurable parameters ................................................. 16
6.4 Integris V ................................................................. 17
6.4.1 AE Title/Presentation Address mapping for Integris ............ 17
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.5</td>
<td>Configurable parameters</td>
<td>17</td>
</tr>
<tr>
<td>7</td>
<td><strong>Support of Extended Character Sets</strong></td>
<td>17</td>
</tr>
<tr>
<td>7.1</td>
<td>Integris</td>
<td>17</td>
</tr>
<tr>
<td>7.2</td>
<td>Integris</td>
<td>17</td>
</tr>
<tr>
<td>8</td>
<td><strong>Overview applied IOD’s for the Integris/Integris V</strong></td>
<td>18</td>
</tr>
<tr>
<td>8.1</td>
<td>SC Image IOD for the Integris</td>
<td>18</td>
</tr>
<tr>
<td>8.2</td>
<td>XA Image IOD for the Integris (single frame)</td>
<td>21</td>
</tr>
<tr>
<td>8.3</td>
<td>Modality Worklist Query/Retrieve attribute Overview</td>
<td>28</td>
</tr>
<tr>
<td>8.4</td>
<td>Modality Performed Procedure Step IOD attribute Overview, N-CREATE</td>
<td>31</td>
</tr>
<tr>
<td>8.5</td>
<td>Modality Performed Procedure Step IOD attribute Overview, N-SET</td>
<td>37</td>
</tr>
<tr>
<td>8.6</td>
<td>SC Image IOD for the Integris V attribute overview</td>
<td>38</td>
</tr>
<tr>
<td>9</td>
<td><strong>Known Problems, Specializations</strong></td>
<td>42</td>
</tr>
</tbody>
</table>
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

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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 Integris 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 Integris V 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.
MWL = Modality Worklist Query/Retrieve
MPPS = Modality Performed Procedure Step

Figure 2-1: Topology Image
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>
<thead>
<tr>
<th>SOP Class Name</th>
<th>UID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary Capture Image Storage SOP Class</td>
<td>1.2.840.10008.5.1.4.1.1.7</td>
</tr>
<tr>
<td>X-Ray Angiographic Image Storage SOP Class</td>
<td>1.2.840.10008.5.1.4.1.1.12.1</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Abstract Syntax</th>
<th>Transfer Syntax</th>
<th>Role</th>
<th>Extended Negotiation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>UID</td>
<td>Name List</td>
<td>UID List</td>
</tr>
<tr>
<td>Secondary Capture Image Storage - STORE</td>
<td>1.2.840.10008.5.1.4.1.1.7</td>
<td>ILE</td>
<td>1.2.840.10008.1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELE</td>
<td>1.2.840.10008.1.2.1</td>
</tr>
<tr>
<td>X-Ray Angiographic Image Storage - STORE</td>
<td>1.2.840.10008.5.1.4.1.1.12.1</td>
<td>ILE</td>
<td>1.2.840.10008.1.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ELE</td>
<td>1.2.840.10008.1.2.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EBE</td>
<td>1.2.840.10008.1.2.2</td>
</tr>
</tbody>
</table>

3.1.2.1.3 C-STORE SCU Conformance

The images are send through the EasyVision to the STORE SCP. See for details the Conformance 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

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

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**

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

### 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**

<table>
<thead>
<tr>
<th>SOP Class Name</th>
<th>UID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modality Performed Procedure Step SOP Class</td>
<td>1.2.840.10008.3.1.2.3.3</td>
</tr>
<tr>
<td>Modality Worklist Information Model - FIND SOP Class</td>
<td>1.2.840.10008.5.1.4.31</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Name</th>
<th>UID</th>
<th>Role</th>
<th>Extended Negotiation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modality Performed Procedure Step SOP Class</td>
<td>1.2.840.10008.3.1.2.3.3</td>
<td>SCU</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>ILE ELE EBE</td>
<td>SCU</td>
<td>None</td>
</tr>
<tr>
<td>Modality Worklist Information Model - FIND SOP Class</td>
<td>1.2.840.10008.5.1.4.31</td>
<td>SCU</td>
<td>None</td>
</tr>
</tbody>
</table>

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

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

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

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

<table>
<thead>
<tr>
<th>Module</th>
<th>Conditional Attributes</th>
<th>Optional Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP Common</td>
<td>Specific Character Set.</td>
<td>-</td>
</tr>
<tr>
<td>Performed Procedure Step Information</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>SOP Class Name</th>
<th>UID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary Capture Image Storage SOP Class</td>
<td>1.2.840.10008.5.1.4.1.1.7</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Presentation Context table</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abstract Syntax</strong></td>
</tr>
<tr>
<td><strong>Name</strong></td>
</tr>
<tr>
<td>Secondary Capture Image Storage STORE</td>
</tr>
</tbody>
</table>

### 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

<table>
<thead>
<tr>
<th>IE</th>
<th>Module</th>
<th>Conditional Attributes</th>
<th>Optional Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>Patient</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Study</td>
<td>General Study</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Series</td>
<td>General Series</td>
<td>Referenced SOP Class UID, Referenced SOP Instance UID, Code Value, Coding Scheme Designator, Scheduled Procedure Step ID, Requested Procedure ID</td>
<td>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</td>
</tr>
</tbody>
</table>
### Table 3-11: Applied Conditional and Optional Attributes of the SC Image IOD (Continued)

<table>
<thead>
<tr>
<th>Module</th>
<th>Conditional Attributes</th>
<th>Optional Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>-</td>
<td>Institution Name, Station Name, Manufacturer’s Model Name, Software Version(s)</td>
</tr>
<tr>
<td>SC Equipment</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Image</td>
<td>-</td>
<td>Image Type</td>
</tr>
<tr>
<td>General Image</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Image Pixel</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SOP Common</td>
<td>Specific Character Set</td>
<td>-</td>
</tr>
<tr>
<td>VOI LUT</td>
<td>Window Width</td>
<td>Window Center</td>
</tr>
</tbody>
</table>
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 Quantitative 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 7 of 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

<table>
<thead>
<tr>
<th>Information Entity</th>
<th>Module</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>Patient</td>
<td>Table 8-2</td>
</tr>
<tr>
<td>Study</td>
<td>General Study</td>
<td>Table 8-3</td>
</tr>
<tr>
<td>Series</td>
<td>General Series</td>
<td>Table 8-4</td>
</tr>
<tr>
<td>Equipment</td>
<td>General Equipment</td>
<td>Table 8-5</td>
</tr>
<tr>
<td></td>
<td>SC Equipment</td>
<td>Table 8-6</td>
</tr>
<tr>
<td>Image</td>
<td>General Image</td>
<td>Table 8-7</td>
</tr>
<tr>
<td></td>
<td>Image Pixel</td>
<td>Table 8-8</td>
</tr>
<tr>
<td></td>
<td>SOP Common</td>
<td>Table 8-9</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s Name</td>
<td>0010,0010</td>
<td>Patient’s full legal name.</td>
</tr>
<tr>
<td>Patient ID</td>
<td>0010,0020</td>
<td>Primary hospital identification number or code for the patient.</td>
</tr>
<tr>
<td>Patient’s Birth Date</td>
<td>0010,0030</td>
<td>Birth date of the patient.</td>
</tr>
<tr>
<td>Patient’s Sex</td>
<td>0010,0040</td>
<td>Sex of the named patient. Applied value(s): F, M, O</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Date</td>
<td>0008,0020</td>
<td>Date the Study started.</td>
</tr>
<tr>
<td>Study Time</td>
<td>0008,0030</td>
<td>Time the Study started.</td>
</tr>
</tbody>
</table>
Table 8-3: SC Image Storage SOP Class - General Study Module (Continued)

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accession Number</td>
<td>0008,0050</td>
<td>A RIS generated number which identifies the order for the Study.</td>
</tr>
<tr>
<td>Referring Physician’s Name</td>
<td>0008,0090</td>
<td>Patient’s referring physician.</td>
</tr>
<tr>
<td>Study Instance UID</td>
<td>0020,000D</td>
<td>Unique identifier for the Study.</td>
</tr>
<tr>
<td>Study ID</td>
<td>0020,0010</td>
<td>User or equipment generated Study identification.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series Date</td>
<td>0008,0021</td>
<td>Date the Series started.</td>
</tr>
<tr>
<td>Series Time</td>
<td>0008,0031</td>
<td>Time the Series started.</td>
</tr>
</tbody>
</table>
| 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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
</table>
| 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)

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Version(s)</td>
<td>0018,1020</td>
<td>Manufacturer's designation of software version of the equipment that produced the digital images.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion Type</td>
<td>0008,0064</td>
<td>Describes the kind of image conversion. Applied value(s): WSD</td>
</tr>
</tbody>
</table>

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

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

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samples per Pixel</td>
<td>0028,0002</td>
<td>Number of samples (planes) in This image.</td>
</tr>
<tr>
<td>Photometric Interpretation</td>
<td>0028,0004</td>
<td>Specifies the intended interpretation of the pixel data. Applied value(s): MONOCHROME2</td>
</tr>
<tr>
<td>Rows</td>
<td>0028,0010</td>
<td>Number of rows in the image. Applied value(s): 1024, 960</td>
</tr>
</tbody>
</table>
Table 8-8: SC Image Storage SOP Class - Image Pixel Module (Continued)

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

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Character Set</td>
<td>0008,0005</td>
<td>Character Set that expands or replaces the Basic Graphic Set. Applied value(s): ISO_IR 100</td>
</tr>
<tr>
<td>SOP Class UID</td>
<td>0008,0016</td>
<td>Uniquely identifies the SOP Class. Applied value(s): 1.2.840.10008.5.1.4.1.1.7</td>
</tr>
<tr>
<td>SOP Instance UID</td>
<td>0008,0018</td>
<td>Uniquely identifies the SOP Instance.</td>
</tr>
</tbody>
</table>

8.2 XA Image IOD for the Integris (single frame)

Table 8-10: XA Image IOD

<table>
<thead>
<tr>
<th>Information Entity</th>
<th>Module</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>Patient</td>
<td>Table 8-11</td>
</tr>
<tr>
<td>Study</td>
<td>General Study</td>
<td>Table 8-12</td>
</tr>
<tr>
<td>Series</td>
<td>General Series</td>
<td>Table 8-13</td>
</tr>
</tbody>
</table>
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 8-10: XA Image IOD

<table>
<thead>
<tr>
<th>Information Entity</th>
<th>Module</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>General Equipment</td>
<td>Table 8-14</td>
</tr>
<tr>
<td>Image</td>
<td>General Image</td>
<td>Table 8-15</td>
</tr>
<tr>
<td></td>
<td>Image Pixel</td>
<td>Table 8-16</td>
</tr>
<tr>
<td></td>
<td>Display Shutter</td>
<td>Table 8-17</td>
</tr>
<tr>
<td></td>
<td>X-Ray Image</td>
<td>Table 8-18</td>
</tr>
<tr>
<td></td>
<td>X-Ray Acquisition</td>
<td>Table 8-19</td>
</tr>
<tr>
<td></td>
<td>XA Positioner</td>
<td>Table 8-20</td>
</tr>
<tr>
<td></td>
<td>VOI LUT</td>
<td>Table 8-21</td>
</tr>
<tr>
<td></td>
<td>SOP Common</td>
<td>Table 8-22</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s Name</td>
<td>0010,0010</td>
<td>Patients’s full legal name.</td>
</tr>
<tr>
<td>Patient ID</td>
<td>0010,0020</td>
<td>Primary hospital identification number or code for the patient.</td>
</tr>
<tr>
<td>Patient’s Birth Date</td>
<td>0010,0030</td>
<td>Birth date of the patient.</td>
</tr>
<tr>
<td>Patient’s Sex</td>
<td>0010,0040</td>
<td>Sex of the named patient. Applied value(s): F, M, O</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Date</td>
<td>0008,0020</td>
<td>User or equipment generated Study identifier.</td>
</tr>
<tr>
<td>Study Time</td>
<td>0008,0030</td>
<td></td>
</tr>
<tr>
<td>Accession Number</td>
<td>0008,0050</td>
<td>A RIS generated number which identifies the order for the study.</td>
</tr>
</tbody>
</table>
### Table 8-12: XA Image Storage SOP Class - General Study Module (Continued)

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referring Physician’s Name</td>
<td>0008,0090</td>
<td>Patient’s referring physician.</td>
</tr>
<tr>
<td>Study Instance UID</td>
<td>0020,000D</td>
<td>Unique identifier for the Study.</td>
</tr>
<tr>
<td>Study ID</td>
<td>0020,0010</td>
<td>User or equipment generated Study identifier.</td>
</tr>
</tbody>
</table>

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

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

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>0008,0070</td>
<td>Manufacturer of the equipment that produced the digital images.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Applied value(s): Philips Medical Systems</td>
</tr>
<tr>
<td>Institution Name</td>
<td>0008,0080</td>
<td>Institution where the equipment is located that produced the digital images.</td>
</tr>
<tr>
<td>Station Name</td>
<td>0008,1010</td>
<td>User defined name identifying the machine that produced the digital images.</td>
</tr>
<tr>
<td>Manufacturer’s Model Name</td>
<td>0008,1090</td>
<td>Manufacturer’s model number of the equipment that produced the digital images.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Applied value(s): PHILIPS INTEGRIS H, PHILIPS INTEGRIS V</td>
</tr>
<tr>
<td>Software Version(s)</td>
<td>0018,1020</td>
<td>Manufacturer’s designation of software version of the equipment that produced the digital images.</td>
</tr>
</tbody>
</table>
### Table 8-15: XA Image Storage SOP Class - General Image Module

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image Number</td>
<td>0020,0013</td>
<td></td>
</tr>
<tr>
<td>Patient Orientation</td>
<td>0020,0020</td>
<td>Always zero length.</td>
</tr>
</tbody>
</table>

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

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

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shutter Shape</td>
<td>0018,1600</td>
<td>Shape(s) of the shutter for the display. Applied value(s): RECTANGULAR</td>
</tr>
<tr>
<td>Shutter Left Vertical Edge</td>
<td>0018,1602</td>
<td>Location of the left edge of the rectangular shutter with respect to pixels in the Image given as columns.</td>
</tr>
<tr>
<td>Shutter Right Vertical Edge</td>
<td>0018,1604</td>
<td>Location of the right edge of the rectangular shutter with respect to pixels in the Image given as columns.</td>
</tr>
<tr>
<td>Shutter Upper Horizontal Edge</td>
<td>0018,1606</td>
<td>Location of the upper edge of the rectangular shutter with respect to pixels in the Image given as rows.</td>
</tr>
</tbody>
</table>
### Table 8-17: XA Image Storage SOP Class - Display Shutter Module (Continued)

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shutter Lower Horizontal Edge</td>
<td>0018,1608</td>
<td>Location of the lower edge of the rectangular shutter with respect to pixels in the Image given as rows.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image Type</td>
<td>0008,0008</td>
<td>Image identification characteristics. Applied value(s): DERIVED, ORIGINAL \ PRIMARY \ BIPLANE A, BIPLANE B, SINGLE PLANE</td>
</tr>
<tr>
<td>Referenced Image Sequence</td>
<td>0008,1140</td>
<td>A sequence which provides reference to a set of Image SOP Class/Instance pairs identifying other images significantly related to this image.</td>
</tr>
<tr>
<td>&gt; Referenced SOP Class UID</td>
<td>0008,1150</td>
<td></td>
</tr>
<tr>
<td>&gt; Referenced SOP Instance UID</td>
<td>0008,1155</td>
<td></td>
</tr>
<tr>
<td>Samples per Pixel</td>
<td>0028,0002</td>
<td>Applied value(s): 1</td>
</tr>
<tr>
<td>Photometric Interpretation</td>
<td>0028,0004</td>
<td>Specifies the intended interpretation of the pixel data. Applied value(s): MONOCHROME2</td>
</tr>
<tr>
<td>Bits Allocated</td>
<td>0028,0100</td>
<td>Number of bits allocated for each pixel sample. Applied value(s): 16, 8</td>
</tr>
<tr>
<td>Bits Stored</td>
<td>0028,0101</td>
<td>Number of bits stored for each pixel sample. Applied value(s): 10, 8</td>
</tr>
<tr>
<td>High Bit</td>
<td>0028,0102</td>
<td>Most significant bit for pixel sample data. Applied value(s): 7, 9</td>
</tr>
<tr>
<td>Pixel Representation</td>
<td>0028,0103</td>
<td>Data representation of the pixel samples. Applied value(s): 0000</td>
</tr>
<tr>
<td>Pixel Intensity Relationship</td>
<td>0028,1040</td>
<td>The relationship between the Pixel sample values and the X-Ray beam intensity. Applied value(s): DISP</td>
</tr>
</tbody>
</table>
Table 8-19: XA Image Storage SOP Class - X-Ray Acquisition Module

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

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance Source to Detector</td>
<td>0018,1110</td>
<td></td>
</tr>
<tr>
<td>Positioner Primary Angle</td>
<td>0018,1510</td>
<td></td>
</tr>
<tr>
<td>Positioner Secondary Angle</td>
<td>0018,1511</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Window Center</td>
<td>0028,1050</td>
<td>The configuration of the EasyVision has to be set for “Processing XA &amp; RF Images before export”. Otherwise the image quality will degrade.</td>
</tr>
<tr>
<td>Window Width</td>
<td>0028,1051</td>
<td>The configuration of the EasyVision has to be set for “Processing XA &amp; RF Images before export”. Otherwise the image quality will degrade.</td>
</tr>
</tbody>
</table>
### Table 8-22: XA Image Storage SOP Class - SOP Common Module

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Character Set</td>
<td>0008.0005</td>
<td>Applied value(s): ISO_IR 100</td>
</tr>
<tr>
<td>SOP Class UID</td>
<td>0008.0016</td>
<td>Uniquely identifies the Image Storage SOP Class.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Applied value(s): 1.2.840.10008.5.1.4.1.1.12.1</td>
</tr>
<tr>
<td>SOP Instance UID</td>
<td>0008.0018</td>
<td>Uniquely identifies the SOP Instance.</td>
</tr>
</tbody>
</table>
8.3 Modality Worklist Query/Retrieve attribute Overview

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

<table>
<thead>
<tr>
<th>Module</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP Common</td>
<td>Table 8-24</td>
</tr>
<tr>
<td>Patient Identification</td>
<td>Table 8-25</td>
</tr>
<tr>
<td>Patient Demographic</td>
<td>Table 8-26</td>
</tr>
<tr>
<td>Visit Relationship</td>
<td>Table 8-27</td>
</tr>
<tr>
<td>Visit Identification</td>
<td>Table 8-28</td>
</tr>
<tr>
<td>Scheduled Procedure Step</td>
<td>Table 8-29</td>
</tr>
<tr>
<td>Requested Procedure</td>
<td>Table 8-30</td>
</tr>
<tr>
<td>Imaging Service Request</td>
<td>Table 8-31</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Character Set</td>
<td>0008,0005</td>
<td>ISO_IR 100</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s Name</td>
<td>0010,0010</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
<tr>
<td>Patient ID</td>
<td>0010,0020</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s Birth Date</td>
<td>0010,0030</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
</tbody>
</table>
### Table 8-26: Modality Worklist Information Model - FIND SOP Class - Patient Demographic Module

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s Sex</td>
<td>0010,0040</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referenced Patient Sequence</td>
<td>0008,1120</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution Name</td>
<td>0008,0080</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled Procedure Step Sequence</td>
<td>0040,0100</td>
<td></td>
</tr>
<tr>
<td>&gt; Modality</td>
<td>0008,0060</td>
<td>XA</td>
</tr>
<tr>
<td>&gt; Scheduled Station AE Title</td>
<td>0040,0001</td>
<td>Configured AE Title of the Integris.</td>
</tr>
<tr>
<td>&gt; Scheduled Procedure Step Start Date</td>
<td>0040,0002</td>
<td>Current date.</td>
</tr>
<tr>
<td>&gt; Scheduled Procedure Step Start Time</td>
<td>0040,0003</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
<tr>
<td>&gt; Scheduled Performing Physician’s Name</td>
<td>0040,0006</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
<tr>
<td>&gt; Scheduled Procedure Step Description</td>
<td>0040,0007</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
<tr>
<td>&gt; Scheduled Action Item Code Sequence</td>
<td>0040,0008</td>
<td>Always zero length.</td>
</tr>
</tbody>
</table>
### Table 8-29: Modality Worklist Information Model - FIND SOP Class - Scheduled Procedure Step Module

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Scheduled Procedure Step ID</td>
<td>0040,0009</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
<tr>
<td>&gt; Scheduled Station Name</td>
<td>0040,0010</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referenced Study Sequence</td>
<td>0008,1110</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
<tr>
<td>Study Instance UID</td>
<td>0020,000D</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
<tr>
<td>Requested Procedure Description</td>
<td>0032,1060</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
<tr>
<td>Requested Procedure ID</td>
<td>0040,1001</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accession Number</td>
<td>0008,0050</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
<tr>
<td>Referring Physician’s Name</td>
<td>0008,0090</td>
<td>Always zero length, so match all for the query response.</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Module</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP Common</td>
<td>Table 8-33</td>
</tr>
<tr>
<td>Private Exposure Information (Private)</td>
<td>Table 8-34</td>
</tr>
<tr>
<td>Image Acquisition Result</td>
<td>Table 8-35</td>
</tr>
<tr>
<td>Performed Procedure Step Information</td>
<td>Table 8-36</td>
</tr>
<tr>
<td>Performed Procedure Step Relationship</td>
<td>Table 8-37</td>
</tr>
<tr>
<td>Quantitative Analysis Result (Private)</td>
<td>Table 8-38</td>
</tr>
<tr>
<td>Radiation Dose (Extended)</td>
<td>Table 8-39</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Character Set</td>
<td>0008,0005</td>
<td>Applied Value(s): ISO_IR 100</td>
</tr>
<tr>
<td>SOP Class UID</td>
<td>0008,0016</td>
<td>Uniquely identifies the Modality Performed Procedure SOP Class.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Applied value(s): 1.2.840.10008.3.1.2.3.3</td>
</tr>
<tr>
<td>SOP Instance UID</td>
<td>0008,0018</td>
<td></td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Creator</td>
<td>0041, 0010</td>
<td>INTEGRIS 1.0</td>
</tr>
<tr>
<td>Exposure Information Sequence</td>
<td>0041,1050</td>
<td>A Sequence which provides additional information related to the exposures made during this Performed Procedure Step.</td>
</tr>
<tr>
<td>&gt; Private Creator Group 0009</td>
<td>0009,0010</td>
<td>Applied value(s): INTEGRIS 1.0</td>
</tr>
</tbody>
</table>
Table 8-34: Modality Performed Procedure SOP Class - Private Exposure Module (Continued)

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; Exposure Channel</td>
<td>0009,1008</td>
<td>Exposure Channel in which the pixel data is acquired. Applied value(s): BIPLANE A, BIPLANE B, SINGLE PLANE \ SINGLE A, SINGLE B</td>
</tr>
<tr>
<td>&gt; Exposure Start Time</td>
<td>0009,1032</td>
<td>The time this exposure started.</td>
</tr>
<tr>
<td>&gt; Scan Options</td>
<td>0018,0022</td>
<td>Acquisition technique used during the exposure. Applied value(s): EKG</td>
</tr>
<tr>
<td>&gt; KVP</td>
<td>0018,0060</td>
<td>Peak kilo voltage output of the X-Ray generator used.</td>
</tr>
<tr>
<td>&gt; Distance Source to Detector(SID)</td>
<td>0018,1110</td>
<td>Distance in mm from the source to detector center.</td>
</tr>
<tr>
<td>&gt; Exposure Time</td>
<td>0018,1150</td>
<td>Duration of X-Ray exposure in ms.</td>
</tr>
<tr>
<td>&gt; X-ray Tube Current</td>
<td>0018,1151</td>
<td>X-Ray Tube Current in mA.</td>
</tr>
<tr>
<td>&gt; Intensifier Size</td>
<td>0018,1162</td>
<td>Diameter of X-Ray intensifier in mm.</td>
</tr>
<tr>
<td>&gt; Positioner Primary Angle</td>
<td>0018,1510</td>
<td>Position of the X-Ray Image intensifier about the patient from RAO to LAO direction where movement from RAO to vertical is positive.</td>
</tr>
<tr>
<td>&gt; Positioner Secondary Angle</td>
<td>0018,1511</td>
<td>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.</td>
</tr>
<tr>
<td>&gt; Private Creator Group 0019</td>
<td>0019,0020</td>
<td>Applied value(s): INTEGRIS 1.0</td>
</tr>
<tr>
<td>&gt; APR Name</td>
<td>0019,2000</td>
<td>Name of Anatomical Programmed Radiographic used for the exposure.</td>
</tr>
<tr>
<td>&gt; Frame Rate</td>
<td>0019,2040</td>
<td>Number of frames per second.</td>
</tr>
<tr>
<td>&gt; Private Creator Group 0021</td>
<td>0021,0010</td>
<td>Applied value(s): INTEGRIS 1.0</td>
</tr>
<tr>
<td>&gt; Exposure Number</td>
<td>0021,1012</td>
<td>A number identifying the exposure.</td>
</tr>
<tr>
<td>&gt; Private Creator Group 0029</td>
<td>0029,0030</td>
<td>Applied value(s): INTEGRIS 1.0</td>
</tr>
<tr>
<td>&gt; Number of Exposure Results</td>
<td>0029,3008</td>
<td>Number of X-Ray images acquired during the exposure. In case of non-digital exposure: 0.</td>
</tr>
</tbody>
</table>
Table 8-35: Modality Performed Procedure Step SOP Class - Image Acquisition Result Module

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modality</td>
<td>0008,0060</td>
<td>Type of equipment that originally acquired the data used to create the images associated with this Modality Performed Procedure Step. Applied value(s): XA</td>
</tr>
<tr>
<td>Study ID</td>
<td>0020,0010</td>
<td>user or equipment generated Study Identifier.</td>
</tr>
<tr>
<td>Performed Action Item Sequence</td>
<td>0040,0260</td>
<td>Sequence describing the Action Items performed for this Procedure Step. Always zero length.</td>
</tr>
<tr>
<td>&gt; Code Value</td>
<td>0008,0100</td>
<td></td>
</tr>
<tr>
<td>&gt; Coding Scheme Designator</td>
<td>0008,0102</td>
<td></td>
</tr>
<tr>
<td>&gt; Code Meaning</td>
<td>0008,0104</td>
<td></td>
</tr>
<tr>
<td>Performed Series Sequence</td>
<td>0040,0340</td>
<td>Attributes of the Series that comprise this Modality Performed Procedure Step.</td>
</tr>
<tr>
<td>&gt; Retrieve AE Title</td>
<td>0008,0054</td>
<td>Title of the DICOM Application Entity where the Images and Standalone SOP Instances in this Series may be retrieved on the Network.</td>
</tr>
<tr>
<td>&gt; Series Description</td>
<td>0008,103E</td>
<td>User provided description of the Series. Always zero length.</td>
</tr>
<tr>
<td>&gt; Performing Physician’s Name</td>
<td>0008,1050</td>
<td>Name of the physician administering this Series.</td>
</tr>
<tr>
<td>&gt; Operator’s name</td>
<td>0008,1070</td>
<td>Name of the operator who performed this Series. Always zero length.</td>
</tr>
<tr>
<td>&gt; Referenced Image Sequence</td>
<td>0008,1140</td>
<td>A Sequence that provides reference to zero or more sets of Image SOP Class/SOP Instance pairs.</td>
</tr>
<tr>
<td>&gt;&gt; Referenced SOP Class UID</td>
<td>0008,1150</td>
<td>1.2.840.100008.5.1.4.1.1.12 1.2.840.100008.5.4.1.1.7</td>
</tr>
<tr>
<td>&gt;&gt; Referenced SOP Instance UID</td>
<td>0008,1155</td>
<td>Uniquely identifies the referenced SOP Instance.</td>
</tr>
<tr>
<td>&gt; Protocol Name</td>
<td>0018,1030</td>
<td>User-defined description of the conditions under which the Series was performed.</td>
</tr>
<tr>
<td>&gt; Series Instance UID</td>
<td>0020,000E</td>
<td>Unique identifier of the Series.</td>
</tr>
<tr>
<td>&gt; Referenced Stand-alone SOP Instance Sequence</td>
<td>0040,0220</td>
<td>Uniquely identifies Standalone IODs such as LUTs, Curves or Overlays related to these images. Always zero length.</td>
</tr>
<tr>
<td>&gt;&gt; Referenced SOP Class UID</td>
<td>0008,1150</td>
<td></td>
</tr>
</tbody>
</table>
### Table 8-35: Modality Performed Procedure Step SOP Class - Image Acquisition Result Module

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referenced SOP Instance UID</td>
<td>0008,1155</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure Code Sequence</td>
<td>0008,1032</td>
<td>A sequence that conveys the (single) type of procedure performed. Always zero length.</td>
</tr>
<tr>
<td>Performed Station AE Title</td>
<td>0040,0241</td>
<td>AE Title of the modality in which the performed procedure Step was performed.</td>
</tr>
<tr>
<td>Performed Station Name</td>
<td>0040,0242</td>
<td>An institution defined name for the modality on which the Performed Procedure was performed.</td>
</tr>
<tr>
<td>Performed Location</td>
<td>0040,0243</td>
<td>Description of the location at which the Performed Procedure Step was performed. Always zero length.</td>
</tr>
<tr>
<td>Performed Procedure Step Start Date</td>
<td>0040,0244</td>
<td>Date on which the Performed Procedure Step started.</td>
</tr>
<tr>
<td>Performed Procedure Step Start Time</td>
<td>0040,0245</td>
<td>Time on which the Performed Procedure Step started.</td>
</tr>
<tr>
<td>Performed Procedure Step End Date</td>
<td>0040,0250</td>
<td>Date on which the Performed Procedure Step ended.</td>
</tr>
<tr>
<td>Performed Procedure Step End Time</td>
<td>0040,0251</td>
<td>Time on which the Performed Procedure Step ended.</td>
</tr>
<tr>
<td>Performed Procedure Step Status</td>
<td>0040,0252</td>
<td>Contains the state of the Performed Procedure Step. Applied value(s): IN PROGRESS/COMPLETED.</td>
</tr>
<tr>
<td>Performed Procedure Step ID</td>
<td>0040,0253</td>
<td>User or equipment generated identifier of that part of a Procedure that has been carried out within this step. Always Unknown.</td>
</tr>
<tr>
<td>Performed Procedure Step Description</td>
<td>0040,0254</td>
<td>A description of the type of procedure performed. Always zero length.</td>
</tr>
<tr>
<td>Performed Procedure Type Descrip-</td>
<td>0040,0255</td>
<td>Institution-generated description or classification of the Procedure Step that was performed. Always zero length.</td>
</tr>
<tr>
<td>Attribute Name</td>
<td>Tag</td>
<td>Note</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Patient’s Name</td>
<td>0010,0010</td>
<td>Patient’s full legal name.</td>
</tr>
<tr>
<td>Patient ID</td>
<td>0010,0020</td>
<td>Primary hospital identification number or code for the patient.</td>
</tr>
<tr>
<td>Patient’s Birth Date</td>
<td>0010,0030</td>
<td>Birth date of the patient.</td>
</tr>
<tr>
<td>Patient’s Sex</td>
<td>0010,0040</td>
<td>Sex of the named patient. Applied value(s): F, M, O</td>
</tr>
<tr>
<td>Referenced Patient Sequence</td>
<td>0008,1120</td>
<td>Uniquely identifies the Patient SOP Instance.</td>
</tr>
<tr>
<td>&gt; Referenced SOP Class UID</td>
<td>0008,1150</td>
<td></td>
</tr>
<tr>
<td>&gt; Referenced SOP Instance UID</td>
<td>0008,1155</td>
<td></td>
</tr>
<tr>
<td>Scheduled Step Attributes Sequence</td>
<td>0040,0270</td>
<td>Sequence containing attributes that are related to the scheduling of the Procedure Step.</td>
</tr>
<tr>
<td>&gt; Accession Number</td>
<td>0008,0050</td>
<td>A departemental IS generated number which identifies the order for the Study.</td>
</tr>
<tr>
<td>&gt; Referenced Study Sequence</td>
<td>0008,1110</td>
<td>Uniquely identifies the Study SOP Instance associated with this Scheduled Procedure Step.</td>
</tr>
<tr>
<td>&gt;&gt; Referenced SOP Class UID</td>
<td>0008,1150</td>
<td>Uniquely identifies the referenced SOP Class.</td>
</tr>
<tr>
<td>&gt;&gt; Referenced SOP Instance UID</td>
<td>0008,1155</td>
<td>Uniquely identifies the referenced SOP Instance.</td>
</tr>
<tr>
<td>&gt; Study Instance UID</td>
<td>0020,000D</td>
<td>Unique identifier for the Study.</td>
</tr>
<tr>
<td>&gt; Requested Procedure Description</td>
<td>0032,1060</td>
<td>Institution-generated administrative description or classification of the Requested procedure.</td>
</tr>
<tr>
<td>&gt; Scheduled Procedure Step</td>
<td>0040,0007</td>
<td>Institution-generated description or classification of the Scheduled Procedure Step to be performed.</td>
</tr>
<tr>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; Scheduled Action Item Code</td>
<td>0040,0008</td>
<td>Sequence describing the Scheduled Action Item(s) following a specified coding scheme.</td>
</tr>
<tr>
<td>Sequence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;&gt; Code Value</td>
<td>0008,0100</td>
<td></td>
</tr>
<tr>
<td>&gt;&gt; Coding Scheme Designator</td>
<td>0008,0102</td>
<td></td>
</tr>
<tr>
<td>&gt;&gt; Code Meaning</td>
<td>0008,0104</td>
<td></td>
</tr>
<tr>
<td>&gt; Scheduled Procedure Step ID</td>
<td>0040,0009</td>
<td>Identifier which identifies the Scheduled Procedure Step.</td>
</tr>
</tbody>
</table>
The Italic attributes in the next table are an extension on the standard.

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Creator Group 0049</td>
<td>0049,0010</td>
<td></td>
</tr>
<tr>
<td>QA Program name Results Sequence</td>
<td>0049,1010</td>
<td></td>
</tr>
<tr>
<td>&gt; Referenced Image Sequence</td>
<td>0008,1140</td>
<td></td>
</tr>
<tr>
<td>&gt;&gt; Referenced SOP Class UID</td>
<td>0008,1150</td>
<td>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</td>
</tr>
<tr>
<td>&gt;&gt; Referenced SOP Instance UID</td>
<td>0008,1155</td>
<td></td>
</tr>
<tr>
<td>&gt; Private Creator Group 0049</td>
<td>0049,0010</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Time of Fluoroscopy</td>
<td>0040,0300</td>
<td>Total duration of X-Ray exposure during fluoroscopy in seconds (pedal time) during this Performed Procedure Step.</td>
</tr>
<tr>
<td>Total Number of Exposures</td>
<td>0040,0301</td>
<td>Total number of exposures made during this Performed Procedure Step. The number includes non-digital and digital images.</td>
</tr>
<tr>
<td>Private Creator Group 0041</td>
<td>0041,0010</td>
<td>Applied value(s): INTEGRIS 1.0</td>
</tr>
<tr>
<td>Accumulated Fluoroscopy Dose</td>
<td>0041,1020</td>
<td>Dose measured in dGy to which the patient has been exposed during fluoroscopy during this Performed Procedure Step.</td>
</tr>
</tbody>
</table>
Table 8-39: Modality Performed Procedure Step SOP Class - Radiation Dose Module (Extended) Section 5.2.2 on page 16 (Continued)

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

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

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

<table>
<thead>
<tr>
<th>Module</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP Common</td>
<td>Table 8-41</td>
</tr>
<tr>
<td>Performed Procedure Step Information</td>
<td>Table 8-42</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP Class UID</td>
<td>0008,0016</td>
<td>Applied value(s): 1.2.840.10008.3.1.2.3.3</td>
</tr>
<tr>
<td>SOP Instance UID</td>
<td>0008,0018</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performed Procedure Step Status</td>
<td>0040,0252</td>
<td>Applied value(s): COMPLETED</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Information Entity</th>
<th>Module</th>
<th>Usage</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>Patient</td>
<td>M</td>
<td>Table 8-44</td>
</tr>
<tr>
<td>Study</td>
<td>General Study</td>
<td>M</td>
<td>Table 8-45</td>
</tr>
<tr>
<td>Series</td>
<td>General Series</td>
<td>M</td>
<td>Table 8-46</td>
</tr>
<tr>
<td>Equipment</td>
<td>General Equipment</td>
<td>U</td>
<td>Table 8-47</td>
</tr>
<tr>
<td></td>
<td>SC Equipment</td>
<td>M</td>
<td>Table 8-48</td>
</tr>
<tr>
<td>Image</td>
<td>General Image</td>
<td>M</td>
<td>Table 8-49</td>
</tr>
<tr>
<td></td>
<td>Image Pixel</td>
<td>M</td>
<td>Table 8-50</td>
</tr>
<tr>
<td></td>
<td>VOI LUT</td>
<td>U</td>
<td>Table 8-51</td>
</tr>
<tr>
<td></td>
<td>SOP Common</td>
<td>M</td>
<td>Table 8-52</td>
</tr>
</tbody>
</table>

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

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

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Date</td>
<td>0008.0020</td>
<td>Date the Study started.</td>
</tr>
<tr>
<td>Study Time</td>
<td>0008.0030</td>
<td>Time the Study started.</td>
</tr>
<tr>
<td>Accession Number</td>
<td>0008.0050</td>
<td>A RIS generated number which identifies the order for the Study.</td>
</tr>
</tbody>
</table>
Table 8-45: Secondary Capture Image Storage SOP Class - General Study Module (Continued)

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referring Physician’s Name</td>
<td>0008,0090</td>
<td>Patient’s referring physician.</td>
</tr>
<tr>
<td>Study Instance UID</td>
<td>0020,000D</td>
<td>Unique identifier for the Study.</td>
</tr>
<tr>
<td>Study ID</td>
<td>0020,0010</td>
<td>User or equipment generated Study identification.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series Date</td>
<td>0008,0021</td>
<td>Date the Series started.</td>
</tr>
<tr>
<td>Series Time</td>
<td>0008,0031</td>
<td>Time the Series started.</td>
</tr>
<tr>
<td>Modality</td>
<td>0008,0060</td>
<td>Type of equipment that originally acquired the data used to create the Image. Applied value(s): XA</td>
</tr>
<tr>
<td>Performing Physician’s Name</td>
<td>0008,1050</td>
<td>Name of the physicians administering the Series.</td>
</tr>
<tr>
<td>Referenced Study Component Sequence</td>
<td>0008,1111</td>
<td>Uniquely identifies the Study Component SOP Instance or Modality Performed Procedure Step Instance to which the Series is related.</td>
</tr>
<tr>
<td>&gt; Referenced SOP Class UID</td>
<td>0008,1150</td>
<td>Uniquely identifies the referenced Modality Performed Procedure SOP Class. Applied value(s): 1.2.840.10008.3.1.2.3.3</td>
</tr>
<tr>
<td>&gt; Referenced SOP Instance UID</td>
<td>0008,1155</td>
<td>Uniquely identifies the referenced SOP Instance.</td>
</tr>
<tr>
<td>Series Instance UID</td>
<td>0020,000E</td>
<td>Unique identifier of the Series.</td>
</tr>
<tr>
<td>Series Number</td>
<td>0020,0011</td>
<td>A number that identifies this series. Applied value(s): 1</td>
</tr>
<tr>
<td>Performed Procedure Step Start Date</td>
<td>0040,0244</td>
<td>Date on which the Performed procedure Step Started.</td>
</tr>
<tr>
<td>Performed Procedure Step Start Time</td>
<td>0040,0245</td>
<td>Time on which the Performed Procedure Step Started.</td>
</tr>
<tr>
<td>Performed Procedure Step ID</td>
<td>0040,0253</td>
<td>Identification of that part of a Procedure that has been carried out within this step.</td>
</tr>
<tr>
<td>Performed Procedure Type Description</td>
<td>0040,0255</td>
<td>Institution-generated description or classification of the Procedure Step that was performed.</td>
</tr>
</tbody>
</table>
### Table 8-46: Secondary Capture Image Storage SOP Class - General Series Module (Continued)

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

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer</td>
<td>0008,0070</td>
<td>Manufacturer of the Equipment that produced the images.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Applied value(s): Philips Medical Systems (Netherlands)</td>
</tr>
<tr>
<td>Institution Name</td>
<td>0008,0080</td>
<td>Institution where the equipment is located that produced the digital images.</td>
</tr>
<tr>
<td>Institution Address</td>
<td>0008,0081</td>
<td></td>
</tr>
<tr>
<td>Station Name</td>
<td>0008,1010</td>
<td>User defined name identifying the machine that produced the digital images.</td>
</tr>
<tr>
<td>Manufacturer’s Model Name</td>
<td>0008,1090</td>
<td>manufacturer’s model number of the equipment that produced the digital images.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Applied value(s): PHILIPS INTEGRIS H, PHILIPS INTEGRIS V</td>
</tr>
<tr>
<td>Software Version(s)</td>
<td>0018,1020</td>
<td>Manufacturer’s designation of software version of the equipment that produced the digital images.</td>
</tr>
</tbody>
</table>
### Table 8-48: Secondary Capture Image Storage SOP Class - SC Equipment Module

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion Type</td>
<td>0008,0064</td>
<td>Describes the kind of image conversion. Applied value(s): WSD</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image Type</td>
<td>0008,0033</td>
<td></td>
</tr>
<tr>
<td>Image Number</td>
<td>0020,0013</td>
<td>A number that identifies the images.</td>
</tr>
<tr>
<td>Patient Orientation</td>
<td>0020,0020</td>
<td>Patient direction of the rows and columns of the image.</td>
</tr>
</tbody>
</table>

### Table 8-50: Secondary Capture Image Storage SOP Class - Image Pixel Module

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samples per Pixel</td>
<td>0028,0002</td>
<td>Number of samples (planes) in This image. Applied value(s): 1</td>
</tr>
<tr>
<td>Photometric Interpretation</td>
<td>0028,0004</td>
<td>Specifies the intended interpretation of the pixel data. Applied value(s): MONOCHROME2</td>
</tr>
<tr>
<td>Rows</td>
<td>0028,0010</td>
<td>Number of rows in the image. Applied value(s): 1024</td>
</tr>
<tr>
<td>Columns</td>
<td>0028,0011</td>
<td>Number of columns in the image. Applied value(s): 1280</td>
</tr>
<tr>
<td>Bits Allocated</td>
<td>0028,0100</td>
<td>Number of bits allocated for each pixel sample. Each sample shall have the same number of bits allocated. Applied value(s): 8</td>
</tr>
<tr>
<td>Bits Stored</td>
<td>0028,0101</td>
<td>Number of bits stored for each pixel sample. Applied value(s): 8</td>
</tr>
<tr>
<td>High Bit</td>
<td>0028,0102</td>
<td>Most significant bit for pixel sample data. Each sample shall have the same high bit. Applied value(s): 7</td>
</tr>
</tbody>
</table>
Table 8-50: Secondary Capture Image Storage SOP Class - Image Pixel Module (Continued)

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

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Window Center</td>
<td>0028,1050</td>
<td>Applied value(s): 128</td>
</tr>
<tr>
<td>Window Width</td>
<td>0028,1051</td>
<td>Applied value(s): 225</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Tag</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Character Set</td>
<td>0008,0005</td>
<td>Character Set that expands or replaces the Basic Graphic Set. Applied value(s): ISO_IR 100</td>
</tr>
<tr>
<td>SOP Class UID</td>
<td>0008,0016</td>
<td>Uniquely identifies the SOP Class. Applied value(s): 1.2.840.10008.5.1.4.1.1.7</td>
</tr>
<tr>
<td>SOP Instance UID</td>
<td>0008,0018</td>
<td>Uniquely identifies the SOP Instance.</td>
</tr>
</tbody>
</table>

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.