

# DICOM Conformance Statement

## MR Systems



*- This page is left intentionally empty -*

## 1. DICOM Conformance Statement Overview

This document is the DICOM Conformance Statement for MR systems later referred to as the MR System. This document holds for the following:

- Achieva dStream 1.5T
- Achieva dStream 3.0T
- BlueSeal SE
- BlueSeal XE
- Ingenia Ambition (S/X) 1.5T
- Ingenia Elition (S/X) 3.0T
- Ingenia Evolution 1.5T
- Ingenia Evolution 3.0T
- Ingenia (S) 1.5T
- Ingenia 3.0T
- Ingenia 1.5T CX
- Ingenia 3.0T CX
- Marlin 1.5T
- MR 5300
- MR 7700

The system creates the DICOM MR Image, Enhanced MR Image, MR Spectroscopy, Raw Data, Secondary Capture, CT Storage and RT Structure Set (Please refer to Chapter 8 for more details). These objects can be sent and received. It depends on the capabilities of the remote system, which of these objects are supported in the transactions. The capabilities of the remote systems are locally stored on the MR System in configuration files per DICOM node. In case the remote system does not support Enhanced MR Images, the MR System will send the object as standard ('classic') MR Images.

The MR System is a modality that generates MR Images. It supports the following DICOM functionality:

- DICOM Verification service (for both SCU and SCP).
- Storage of DICOM objects on a remote DICOM system.
- Commitment of stored DICOM objects on a remote DICOM system (Push Model).
- Querying for data on a remote DICOM system.
- Retrieval of DICOM objects from a remote DICOM system.
- Basic Worklist Management (BWLM).
- Implementation of Modality Performed Procedure Step (MPPS).
- Storage and Retrieval of DICOM objects per removable media.
- Printing of hardcopies on a remote DICOM printer.
- Query for data by a remote DICOM system.

The MR system includes the Real World Value Macro information in the MR Image and Enhanced MR Image objects.

The information in the RWV attributes is consistent with the information in the Rescaling attributes but might be differently scaled. Images of type APTW contain pixels that are outside of the range Real World Value First Value Mapped and Real World Value Last Value Mapped, such pixels have no real world values. As a result, a measurement that uses the Rescaling attributes might give a different value compared to the same measurement using the RWV attributes as not all Pixels might contribute to the measurement based on the real world values.

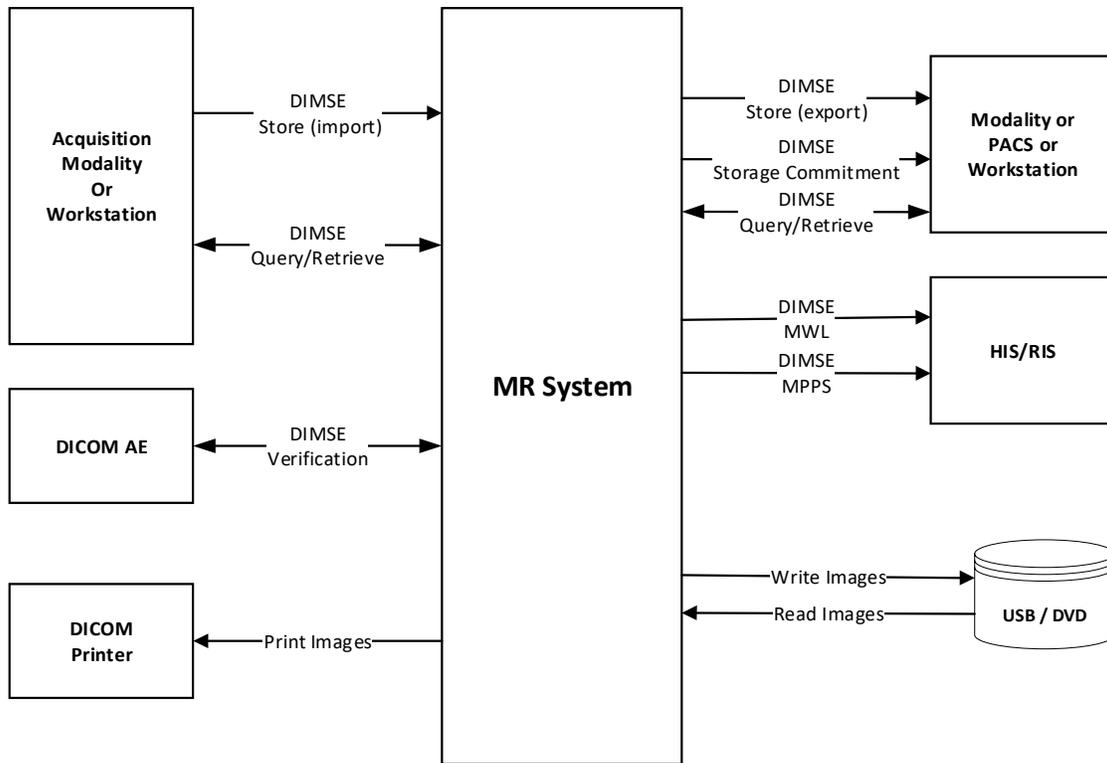


Figure 1: MR System in a DICOM network overview

Table 1: Network Services

SOP Class Name	UID	User of Service (SCU)	Provider of Service (SCP)
<b>Other</b>			
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes
<b>Print Management</b>			
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Yes	No
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No
>Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Yes	No
>Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Yes	No
<b>Query/Retrieve</b>			
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes
<b>Transfer</b>			
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Yes	No

SOP Class Name	UID	User of Service (SCU)	Provider of Service (SCP)
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Yes	Yes
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Yes	Yes
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Yes	No
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
Philips Private MR Spectrum Storage	1.3.46.670589.11.0.0.12.1	Yes	Yes
Philips Private MR Series Data Storage	1.3.46.670589.11.0.0.12.2	Yes	Yes
Philips Private MR Examcard Storage	1.3.46.670589.11.0.0.12.4	Yes	Yes
Workflow Management			
Modality Worklist Information Model - FIND SOP Class	1.2.840.10008.5.1.4.31	Yes	No
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3	Yes	No
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Yes	No

In case a remote DICOM system supports both the Enhanced MR Image Storage SOP Class and the MR Image Storage SOP Class and on the MR system both SOP Classes are enabled, then the MR system holds a preference to send data in the Enhanced format.

**Table 2: Media Services**

Media Storage Application Profile	File-set Creator (FSC)	File-set Updater (FSU)	File-set Reader (FSR)
USB			
General Purpose USB Media	Yes	Yes	Yes
DVD			
General Purpose DVD Interchange	Yes	No	Yes
CT/MR Studies on DVD Media	Yes	No	Yes

MR supports DVD (only DVD+RW) and USB devices for media storage. Image compression is not supported. Finalization of the DVD will automatically be done after the burning process has finished.

## 2. Contents

<b>1. DICOM CONFORMANCE STATEMENT OVERVIEW .....</b>	<b>3</b>
<b>2. CONTENTS .....</b>	<b>6</b>
<b>3. INTRODUCTION.....</b>	<b>9</b>
<b>3.1. REVISION HISTORY .....</b>	<b>9</b>
<b>3.2. AUDIENCE .....</b>	<b>9</b>
<b>3.3. REMARKS.....</b>	<b>9</b>
<b>3.4. DEFINITIONS, TERMS AND ABBREVIATIONS.....</b>	<b>10</b>
<b>3.5. REFERENCES.....</b>	<b>11</b>
<b>4. NETWORKING .....</b>	<b>12</b>
<b>4.1. IMPLEMENTATION MODEL .....</b>	<b>12</b>
4.1.1. Application Data Flow .....	12
4.1.2. Functional Definition of AE's .....	14
4.1.2.1. Functional Definition of MR System Network AE .....	14
4.1.2.2. Functional Definition of MR System Print.....	15
4.1.3. Sequencing of Real World Activities .....	16
4.1.3.1. Description of specific Sequencing of Integrated Workflow as performed by the MR AE.....	16
4.1.3.2. Description of specific Sequencing of Import Images per Query/Retrieve .....	17
<b>4.2. AE SPECIFICATIONS .....</b>	<b>17</b>
4.2.1. MR System Network AE.....	18
4.2.1.1. SOP Classes.....	18
4.2.1.2. Association Policies .....	19
4.2.1.2.1. General.....	19
4.2.1.2.2. Number of Associations.....	19
4.2.1.2.3. Asynchronous Nature .....	19
4.2.1.2.4. Implementation Identifying Information.....	19
4.2.1.2.5. Communication Failure Handling.....	19
4.2.1.3. Association Initiation Policy.....	20
4.2.1.3.1. (Real-World) Activity – Verification as SCU.....	22
4.2.1.3.2. (Real-World) Activity – Modality worklist as SCU.....	23
4.2.1.3.3. (Real-World) Activity – Modality Performed Procedure Step as SCU.....	32
4.2.1.3.4. (Real-World) Activity – FIND as SCU .....	38
4.2.1.3.5. (Real-World) Activity – MOVE as SCU .....	41
4.2.1.3.6. (Real-World) Activity – Image Export.....	44
4.2.1.3.7. (Real-World) Activity – Storage Commitment Push Model as SCU .....	48
4.2.1.4. Association Acceptance Policy.....	51
4.2.1.4.1. (Real-World) Activity – Verification as SCP .....	53
4.2.1.4.2. (Real-World) Activity – FIND as SCP.....	54
4.2.1.4.3. (Real-World) Activity – MOVE as SCP .....	57
4.2.1.4.4. (Real-World) Activity – Image Import.....	60
4.2.2. MR System Print .....	63
4.2.2.1. SOP Classes.....	63
4.2.2.2. Association Policies .....	64
4.2.2.2.1. General.....	64
4.2.2.2.2. Number of Associations.....	64
4.2.2.2.3. Asynchronous Nature .....	65
4.2.2.2.4. Implementation Identifying Information.....	65
4.2.2.2.5. Communication Failure Handling.....	65
4.2.2.3. Association Initiation Policy.....	65
4.2.2.3.1. (Real-World) Activity – Print Management as SCU.....	66
4.2.2.4. Association Acceptance Policy.....	86

**4.3. NETWORK INTERFACES** ..... **86**

4.3.1. Physical Network Interfaces ..... 86

4.3.2. Additional Protocols ..... 86

4.3.3. IPv4 and IPv6 Support ..... 86

**4.4. CONFIGURATION** ..... **87**

4.4.1. AE Title/Presentation Address Mapping ..... 87

4.4.1.1. Local Network settings ..... 87

4.4.1.2. Local AE Titles and listen port ..... 87

4.4.1.3. Remote AE Title/Presentation Address Mapping ..... 87

4.4.2. Configurable parameters ..... 88

**5. MEDIA INTERCHANGE** ..... **91**

**5.1. IMPLEMENTATION MODEL** ..... **91**

5.1.1. Application Data Flow Diagram ..... 91

5.1.2. Functional Definitions of AE's ..... 92

5.1.3. Sequencing of Real World Activities ..... 92

**5.2. AE SPECIFICATIONS** ..... **93**

5.2.1. MR Media AE - Specification ..... 93

5.2.1.1. File Meta Information for the MR Media AE ..... 93

5.2.1.2. Real-World Activities ..... 94

5.2.1.2.1. RWA - Read File-set ..... 94

5.2.1.2.2. RWA - Create File-set ..... 95

5.2.1.2.3. RWA - Update File-set ..... 95

**5.3. AUGMENTED AND PRIVATE APPLICATION PROFILES** ..... **96**

**5.4. MEDIA CONFIGURATION** ..... **96**

**6. SUPPORT OF CHARACTER SETS** ..... **97**

**7. SECURITY** ..... **100**

**7.1. SECURITY PROFILES** ..... **100**

7.1.1. Security Use Profiles ..... 100

7.1.2. Security Transport Connection Profiles ..... 100

7.1.3. Digital Signature Profiles ..... 102

7.1.4. Media Storage Security Profiles ..... 102

7.1.5. Attribute Confidentiality Profiles ..... 102

7.1.6. Network Address Management Profiles ..... 107

7.1.7. Time Synchronization Profiles ..... 107

7.1.8. Application Configuration Management Profiles ..... 107

7.1.9. Audit Trail Profiles ..... 108

7.1.9.1. Generation of Audit Records ..... 108

**7.2. ASSOCIATION LEVEL SECURITY** ..... **109**

**7.3. APPLICATION LEVEL SECURITY** ..... **109**

**8. ANNEXES OF APPLICATION "MR SYSTEM"** ..... **110**

**8.1. INFORMATION OBJECT DEFINITIONS (IODS) CONTENT** ..... **110**

8.1.1. Created SOP Instance ..... 110

8.1.1.1. List of created SOP Classes ..... 111

8.1.1.2. Information shared across multiple IODs ..... 111

8.1.1.2.1. Common Modules ..... 111

8.1.1.2.2. Common Functional Group Macros ..... 114

8.1.1.2.3. Common Private Modules ..... 114

8.1.1.2.4. Common Coded Values ..... 155

8.1.1.3. CT Image IOD ..... 155

8.1.1.3.1. CT Image IOD Specific Modules ..... 156

8.1.1.3.2. CT Image IOD Functional Group Macros ..... 161

8.1.1.3.3. CT Image Private Modules ..... 162

8.1.1.3.4. CT Image IOD Coded Values ..... 163

8.1.1.4. MR Image IOD .....	163
8.1.1.4.1. MR Image IOD Specific Modules.....	165
8.1.1.4.2. MR Image IOD Functional Group Macros.....	183
8.1.1.4.3. MR Image Private Modules .....	184
8.1.1.4.4. MR Image IOD Coded Values .....	184
8.1.1.5. Enhanced MR Image IOD .....	184
8.1.1.5.1. Enhanced MR Image IOD Specific Modules.....	186
8.1.1.5.2. Enhanced MR IOD Functional Group Macros.....	205
8.1.1.5.3. Enhanced MR IOD Private Modules .....	219
8.1.1.5.4. Enhanced MR IOD Coded Values .....	219
8.1.1.6. MR Spectroscopy IOD.....	219
8.1.1.6.1. MR Spectroscopy IOD Specific Modules .....	221
8.1.1.6.2. MR Spectroscopy Functional Group Macros .....	237
8.1.1.6.3. MR Spectroscopy IOD Private Modules .....	246
8.1.1.6.4. MR Spectroscopy IOD Coded Values.....	246
8.1.1.7. Secondary Capture Image IOD .....	246
8.1.1.7.1. Secondary Capture Image IOD Specific Modules.....	248
8.1.1.7.2. Secondary Capture Image IOD Functional Group Macros .....	260
8.1.1.7.3. Secondary Capture Image Private Modules .....	260
8.1.1.7.4. Secondary Capture Image IOD Coded Values .....	260
8.1.1.8. Grayscale Softcopy Presentation State IOD .....	260
8.1.1.8.1. Grayscale Softcopy Presentation State IOD Specific Modules.....	262
8.1.1.8.2. Grayscale Softcopy Presentation State IOD Functional Group Macros.....	273
8.1.1.8.3. Grayscale Softcopy Presentation State Private Modules.....	273
8.1.1.8.4. Grayscale Softcopy Presentation State IOD Coded Values .....	273
8.1.1.9. Raw Data IOD .....	273
8.1.1.9.1. Raw Data IOD Specific Modules.....	275
8.1.1.9.2. Raw Data IOD Functional Group Macros .....	286
8.1.1.9.3. Raw Data Private Modules .....	286
8.1.1.9.4. Raw Data IOD Coded Values .....	286
8.1.1.10. RT Structure Set IOD .....	287
8.1.1.10.1. RT Structure Set IOD Specific Modules.....	287
8.1.1.10.2. RT Structure Set IOD Functional Group Macros.....	291
8.1.1.10.3. RT Structure Set IOD Private Modules .....	291
8.1.1.10.4. RT Structure Set IOD Coded Values .....	292
8.1.1.11. Media Storage Directory IOD .....	292
8.1.1.11.1. Media Storage Directory IOD Specific Modules.....	292
8.1.1.11.2. Media Storage Directory IOD Functional Group Macros.....	295
8.1.1.11.3. Media Storage Directory IOD Private Modules .....	295
8.1.1.11.4. Media Storage Directory IOD Coded Values .....	296
8.1.2. Usage of Attributes from Received IOD .....	297
8.1.3. Attribute Mapping .....	297
8.1.4. Coerced/Modified fields.....	298
<b>8.2. DATA DICTIONARY OF PRIVATE ATTRIBUTES.....</b>	<b>298</b>
<b>8.3. CODED TERMINOLOGY AND TEMPLATES .....</b>	<b>299</b>
8.3.1. Context Groups .....	299
8.3.2. Template Specifications .....	299
8.3.3. Private code definitions .....	299
<b>8.4. GRAYSCALE IMAGE CONSISTENCY .....</b>	<b>299</b>
<b>8.5. STANDARD EXTENDED/SPECIALIZED/PRIVATE SOPS.....</b>	<b>299</b>
<b>8.6. PRIVATE TRANSFER SYNTAXES.....</b>	<b>300</b>

### 3. Introduction

The introduction specifies product and relevant disclaimers as well as any general information that the vendor feels is appropriate.

#### 3.1. Revision History

The revision history provides dates and differences of the different releases.

**Table 3: Revision History**

Document Version	Date of Issue	Description
01	29-Aug-2025	Initial Release of MR Systems

#### 3.2. Audience

This Conformance Statement is intended for:

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

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

#### 3.3. Remarks

The DICOM Conformance Statement is contained in chapter 4 through 8 and follows the contents and structuring requirements of DICOM PS 3.2.

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

- **Interoperability**  
 Interoperability refers to the ability of application functions, distributed over two or more systems, to work successfully together. The integration of medical devices into an IT environment may require application functions that are not specified within the scope of DICOM. Consequently, using only the information provided by this Conformance Statement does not guarantee interoperability of Philips equipment with non-Philips equipment.  
 It is the user's responsibility to analyze 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 ensure 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).

### 3.4. Definitions, Terms and Abbreviations

**Table 4: Definitions, Terms and Abbreviations**

Abbreviation/Term	Explanation
ACSE	Association Control Service Element
AE	Application Entity
AP	Application Profile
CD	Compact Disc
CT	Computed Tomography
DICOM	Digital Imaging and Communications in Medicine
DIMSE	DICOM Message Service Element
EBE	DICOM Explicit VR Big Endian
ELE	DICOM Explicit VR Little Endian
FSC	File-set Creator
PSC	Philips Support Connect (configuration editor)
FSR	File-set Reader
FSU	File-set Updater
GUI	Graphic User Interface
ILE	DICOM Implicit VR Little Endian
IOD	Information Object Definition
MPPS	Modality Performed Procedure Step
MR	Magnetic Resonance
NEMA	National Electrical Manufacturers Association
PDU	Protocol Data Unit
PDU	Protocol Data Units
RIS	Radiology Information System
RQ	Request

Abbreviation/Term	Explanation
RSP	Response
RT	Radiotherapy
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
UL	Upper Layer
USB	Universal Serial Bus
WLM	Worklist Management

### 3.5. References

[DICOM] Digital Imaging and Communications in Medicine, Parts 1 - 22 (NEMA PS 3.1- PS 3.22),  
 National Electrical Manufacturers Association  
 1300 North 17th Street  
 Suite 900  
 Arlington, Virginia 22209

Internet: <https://www.dicomstandard.org/current>

Note that at any point in time the official standard consists of the most recent yearly edition of the base standard plus all the supplements and correction items that have been approved as Final Text.

## 4. Networking

This section contains the networking related services (vs. the media related ones).

### 4.1. Implementation model

The implementation model consists of three sections:

- The application data flow diagram, specifying the relationship between the Application Entities and the "external world" or Real-World Activities,
- A functional description of each Application Entity, and
- The sequencing constraints among them.

#### 4.1.1. Application Data Flow

The MR System incorporates two networking Application Entities (AE). The related networking application data flow as a functional overview of the MR system is shown in figure below.

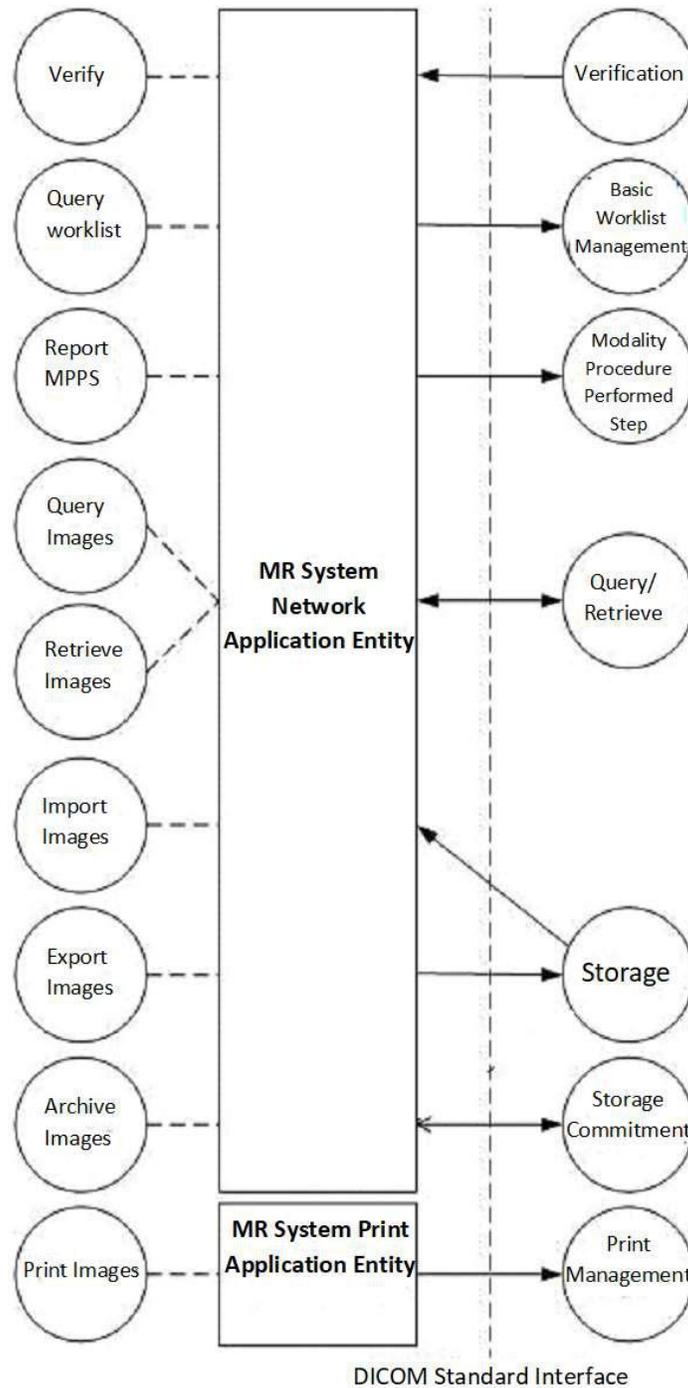


Figure 2: MR System AE Data Flow Diagram

### 4.1.2. Functional Definition of AE's

This section contains a functional definition for each individual local Application Entity.

#### 4.1.2.1. Functional Definition of MR System Network AE

##### Verification

The MR System Network AE as Verification SCP implements the RWA Verify to handle verification requests.

##### Query Worklist

The MR System Network AE as Basic Worklist Management SCU implements the RWA Query Worklist to request the worklist from a DICOM Radiology Information System (RIS).

The function is initiated on the MR System by selecting the "RIS" device. After receiving the worklist data from the RIS the MR System will display the worklist on the user interface.

After selection of the relevant patient record the received patient data is displayed. The tags Performed Procedure Step Start Date – 0x0040,0244 and Performed Procedure Step Start Time- 0x0040,0245, are updated to the current date and time before the patient data is stored in the local database.

##### Report MPPS

The MR System Network AE as SCU implements the RWA Report MPPS to create and update a Modality Performed Procedure Step object.

The RWA is initiated at the start of the first scan of a new examination to inform the DICOM Radiology Information System (RIS) (status "IN-PROGRESS").

When the image objects have been acquired and archived one may click the "Complete Examination" button when the MPPS is completed or the "discontinue" button if the MPPS is discontinued. The MR System Network AE will send a new MPPS notification with the status "COMPLETED" or "DISCONTINUED".

##### Query Images

The MR System Network AE as Query/Retrieve SCU implements the RWA Query Images to find Examinations on a remote system (e.g. PACS).

The MR System Network AE as Query/Retrieve SCP implements the RWA Query Images to let a remote system find Examinations on the MR system.

##### Retrieve Images

The MR System Network AE as Query/Retrieve SCU implements the RWA Retrieve Images to initiate MOVE of selected objects from a remote system (e.g. PACS).

The MR System Network AE as Query/Retrieve SCP implements the RWA Retrieve Images to move selected objects to another DICOM node.

##### Import Images

The MR System Network AE as Storage SCP implements the RWA Import Images to store images and related objects from a remote archive System using the relevant storage SOP classes.

The MR System Network AE will respond to a remote request and store the images in the patient database. DICOM instances

(Secondary Capture, original Grayscale Softcopy Presentation State, MR images from a Philips MR System and Private Philips MR SOP classes) may be imported for reference purposes only; when these are exported again then consistency and completeness cannot be guaranteed.

## Export Images

The MR System Network AE as Storage SCU implements the RWA Export Images to store images and related object data on a remote system using the relevant storage SOP classes.

The acquired images and object data, as selected per Examinations, can be sent to a selected remote system, either manually or automatically.

The MR System can be configured to send Grayscale Softcopy Presentation State data for the selected Images.

If the Grayscale Softcopy Presentation State object is not configured to send, it will be included in the selected images as private sequence and will be converted to an overlay.

By default, a considerable amount of information is stored in private attributes of the exported images and related objects. When modifying/processing those images such application is responsible for data consistency and therefore should use the private data elements with caution. These images cannot be imported anymore on the MR scanner.

- **Splitting series into different dimensions**

In the PSC of the MR system, options are present that can be used to split series on export from the MR system to a remote system. Parameters for series splitting are: Echo, Phases, Image Types, Dynamic and Diffusion b-value. Only one dimension can be split in order of priority.

Note that when several related split series are imported again from a remote node, these will be combined again into one series.

- **Converting images with color to color Secondary Capture images**

If Enhanced MR sop class is supported, Grey Scale Images with COLOR LUT is always exported as Grey Scale Enhanced MR Image.

If Enhanced MR Image sop class is not supported, then based on PSC option user can export it as Secondary Capture (RGB) or it can be sent as GrayScale MR Image.

Conversion of COLOR LUT data to Secondary capture cannot be reversed.

MR COLOR Image generated as RGB, will be exported as Secondary Capture Image irrespective of whether Enhanced MR SOP class is supported or not. It can be reversed back on Import.

## Archive Images

The MR System Network AE implements the RWA Archive Images to store (as Storage SCU) and, if configured, commit (as Storage Commitment SCU) images on the configured remote archive (e.g. PACS) using the Storage and Storage Commitment Push Model SOP class.

After sending a series of images to the archive, the MR System will request a storage commitment from this archive for all exported images and related objects. The storage commitment status is indicated in the Patient Directory User Interface. Deleting image(s) is independent of commitment from the PACS on the local MR system.

### 4.1.2.2. Functional Definition of MR System Print

The MR System Print AE as Print Management SCU implements the RWA Print Images to send and print images on a DICOM network printer using the Basic Grayscale Print Management Meta SOP class. After selecting the images, these can be sent to a DICOM network printer.

### 4.1.3. Sequencing of Real World Activities

#### 4.1.3.1. Description of specific Sequencing of Integrated Workflow as performed by the MR AE

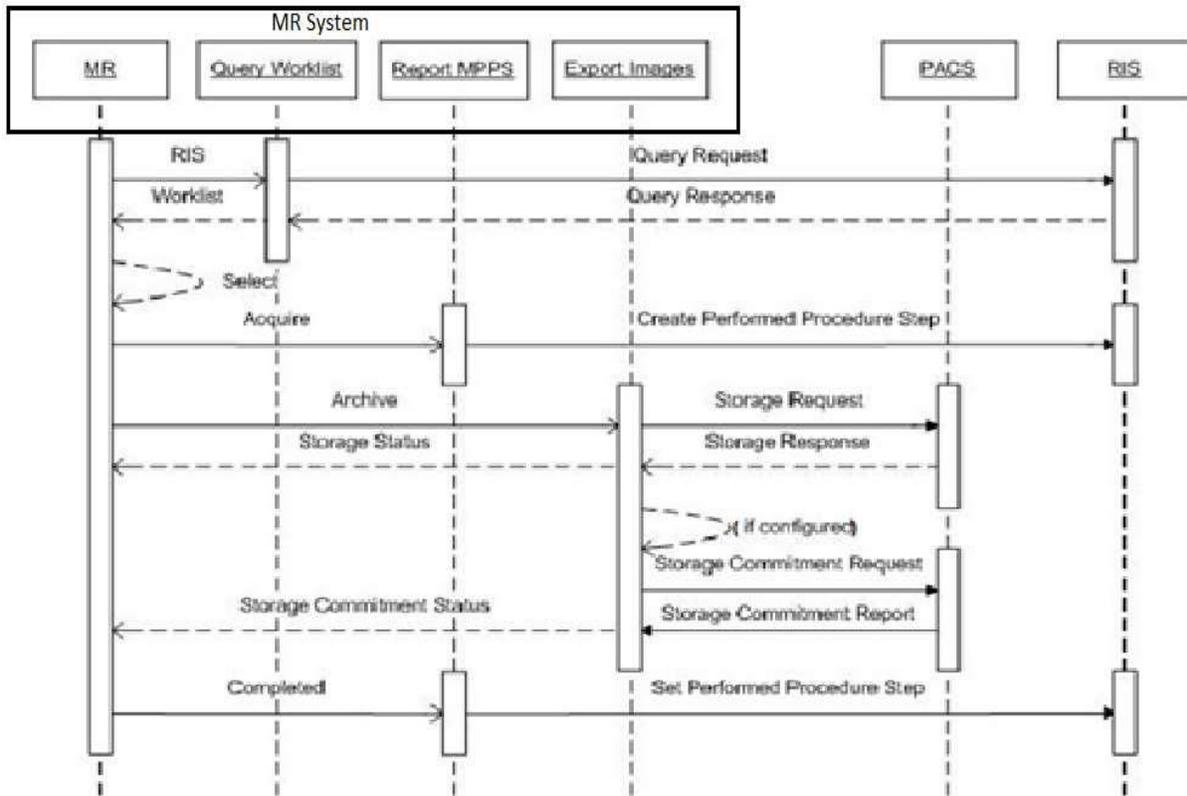


Figure 3: Sequencing of Integrated Workflow

Figure above shows a typical example of an integrated workflow (using a single acquisition, a single storage with commitment, without prefetching).

The MR System workflow is initiated by selecting the “RIS” device. After receiving the worklist data from the RIS the MR System will display the worklist on the user interface.

Then one may select a relevant patient record and add missing data or modify a restricted set of data only (as specified) before the received patient data is stored in the local database.

At the start and at the end of the acquisition/processing the configured MPPS system (RIS) is informed of the progress of the selected procedure step.

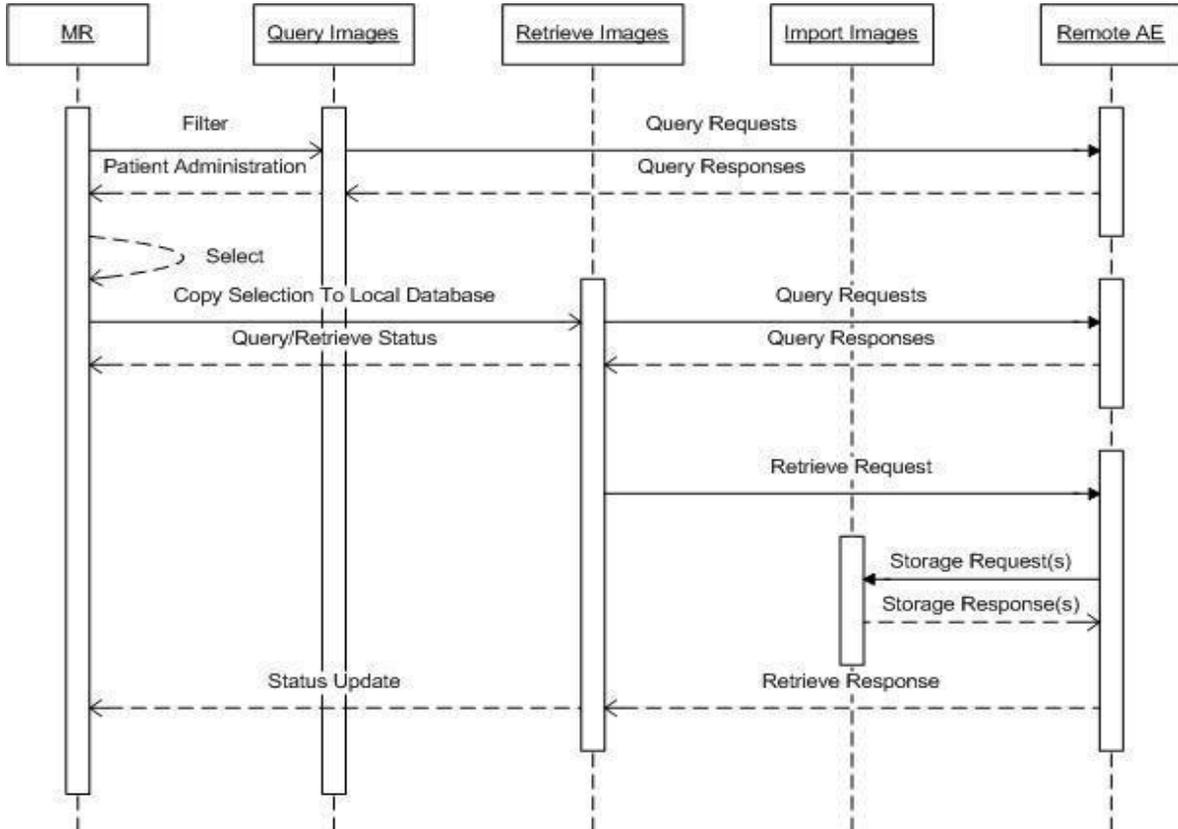
A remote system can send related images of one or more of the scheduled patients to the MR System (prefetching, for reference only).

After preparation of the scanner and the patient, the operator will perform the requested or locally planned procedure steps. Results may be MR images, Presentation State objects, object and screen-grabs stored as Secondary Capture images, MR Spectroscopy and Private Philips MR Series Data, images and other related objects; and data about the scan protocol and examcard data.

The created images are converted into DICOM objects that can be sent to the remote system or can be written on a DVD, USB or local disk. After storage in a remote archive the MR System will request a storage commitment, if configured.

**4.1.3.2. Description of specific Sequencing of Import Images per Query/Retrieve**

Figure below shows a typical example of a sequence for import of a series of images per Query/Retrieve (e.g. pre-fetching).



**Figure 4: Sequencing of import Images per Query/Retrieve**

The MR System sends initial query requests to the remote AE to find all Examinations matching the specified filter. After selecting the Examinations to be retrieved the copy selection to local database is initiated. This is followed by retrieve requests to the remote AE to move all required Series of Images. Then for each retrieve request the remote AE will store the related Images on the MR System. Query/Retrieve as SCP is supported by MR system.

Modality MR supports sending C-MOVE-RQ message with a move destination to its own AE only.

This section in the DICOM Conformance Statement is a set of Application Entity specifications. There are as many of these subsections as there are different AE's in the implementation.

**4.2. AE Specifications**

This section in the DICOM Conformance Statement is a set of Application Entity specifications. There are as many of these subsections as there are different AE's in the implementation.

### 4.2.1. MR System Network AE

Detail of this specific Application Entity is specified in this section.

#### 4.2.1.1. SOP Classes

This MR Application Entity provides Standard Conformance to the SOP Classes mentioned in the below table.

**Table 5: SOP Classes for MR AE**

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	Yes
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Yes	No
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3	Yes	No
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Yes	No
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Yes	Yes
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Yes	Yes
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Yes	No
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes
Modality Worklist Information Model - FIND SOP Class	1.2.840.10008.5.1.4.31	Yes	No
Philips Private MR Spectrum Storage	1.3.46.670589.11.0.0.12.1	Yes	Yes
Philips Private MR Series Data Storage	1.3.46.670589.11.0.0.12.2	Yes	Yes
Philips Private MR Examcard Storage	1.3.46.670589.11.0.0.12.4	Yes	Yes

MR Series can be exported either as Enhanced MR Image Storage or as ‘classic’ MR Image Storage. If both are supported by the destination, the Enhanced MR Image storage is preferred. This is configurable via PSC.

**Note:**

- RAW Data Storage is used to store MR Series Data and MR Examcard data if this is supported by the destination even if the Philips private SOP classes are supported.
- Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

**4.2.1.2. Association Policies**

Each AE specification contains a description of the general association establishment and acceptance policies of the AE.

**4.2.1.2.1. General**

The DICOM standard application context is specified in the below table.

**Table 6: DICOM Application Context**

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

**4.2.1.2.2. Number of Associations**

The number of simultaneous associations that an Application Entity may support as an Initiator or Acceptor is specified in below tables.

**Table 7: Number of associations as an Association Initiator for this AE**

Description	Value
Maximum number of simultaneous associations	4 (fixed)

**Table 8: Number of associations as an Association Acceptor for this AE**

Description	Value
Maximum number of simultaneous incoming associations	50 (fixed)

**4.2.1.2.3. Asynchronous Nature**

The MR System Network AE supports both synchronous and asynchronous operations for Storage Commitment. User will be able to configure synchronous or asynchronous.

**4.2.1.2.4. Implementation Identifying Information**

The value supplied for Implementation Class UID and version name are documented in below table.

**Table 9: DICOM Implementation Class and Version for MR AE**

Implementation Class UID	1.3.46.670589.54.2.1.0.0
Implementation Version Name	MR_1.0.0

**4.2.1.2.5. Communication Failure Handling**

The behavior of the AE during communication failure is summarized in below table.

**Table 10: Communication Failure Behavior**

Exception	Behavior
ARTIM Timeout	Association setup failed and is closed. The reason is logged and reported to the user.

**4.2.1.3. Association Initiation Policy**

The MR AE initiates associations as a result of the following events:

- The operator or a remote (Query/Retrieve) application copy selected images from the MR System.
- The operator requests to print selected images of the MR system database.
- The operator queries a remote database.
- The operator copies selected images from a remote database to another database.
- The archive requests storage commitment of images on a remote database.

The possible Reject Responses during Association are shown in below table.

**Table 11: Association Rejection response**

Result	Source	Reason/Diagnosis	Behavior
1 - rejectedpermanent	1 - DICOM UL service-user	1 - no-reason-given	The user will be informed. The information is logged in central log file.
		2 - application-context-name-not supported	The user will be informed. The information is logged in central log file.
		3 - calling-AE-title-not-recognized	The user will be informed. The information is logged in central log file.
		7 - called-AE-title-not-recognized	The user will be informed. The information is logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user will be informed. The information is logged in central log file.
		2 - protocol-version-notsupported	The user will be informed. The information is logged in central log file.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user will be informed. The information is logged in central log file.
		2 - local-limit-exceeded	The user will be informed. The information is logged in central log file.
2 - rejectedtransient	1 - DICOM UL service-user	1 - no-reason-given	The user will be informed. The information is logged in central log file.
		2 - application-context-name-notsupported	The user will be informed. The information is logged in central log file.
		3 - calling-AE-title-not-recognized	The user will be informed. The information is logged in central log file.
		7 - called-AE-title-not-recognized	The user will be informed. The information is logged in central log file.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user will be informed. The information is logged in central log file.
		2 - protocol-version-notsupported	The user will be informed. The information is logged in central log file.
	3 - DICOM UL service-provider	1 - temporary-congestion	The user will be informed. The information is logged in central log file.

Result	Source	Reason/Diagnosis	Behavior
	(Presentation related function)	2 - local-limit-exceeded	The user will be informed. The information is logged in central log file.

The possible association Abort Responses is listed in below table.

**Table 12: Association Abort Handling**

Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	When received, the Network AE terminates the connection and logs the event. This is Sent when: There are problems in SCU/SCP role negotiation. Any other problem than the ones specified for the MR System as SCU in the rows below. When received, the Network AE terminates the connection and logs the event.
	2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified
2 - DICOM UL service-provider (initiated abort)	1 - unrecognized-PDU	When received, the Network AE terminates the connection and logs the event. This is Sent when: - An unrecognized PDU type is received.
	2 - unexpected-PDU	When received, the Network AE terminates the connection and logs the event. This is Sent when: The received PDU type is not expected in the current state of connection.
	4 - unrecognized-PDUparameter	When received, the Network AE terminates the connection and logs the event. This is Sent when: - An unrecognized Associate PDU item is received.
	5 - unexpected-PDUparameter	When received, the Network AE terminates the connection and logs the event. This is Sent when: One of the Associate PDU items is received more than once. One of the Associate PDU items is received unexpectedly.

Source	Reason/Diagnosis	Behavior
	6 - invalid-PDU-parametervalue	<p>When received, the Network AE terminates the connection and logs the event.</p> <p>This is Sent when:</p> <ul style="list-style-type: none"> <li>One of the Associate PDU items is received more than once.</li> <li>One of the Associate PDU items is not received.</li> <li>There is mismatch in the application context names between the SCU and the SCP.</li> <li>Illegal Asynchronous Operations Window invoke value is received.</li> <li>Illegal Asynchronous Operations Window perform value is received.</li> <li>Unknown presentation context id is received.</li> <li>Unknown abstract syntax is received.</li> <li>The length or the format of a received PDU item is invalid.</li> </ul>

**4.2.1.3.1. (Real-World) Activity – Verification as SCU**

**4.2.1.3.1.1. Description and Sequencing of Activities**

As defined by the MR System RWA Verify, the Network AE acts as a Verification SCP for any remote Verification SCU.

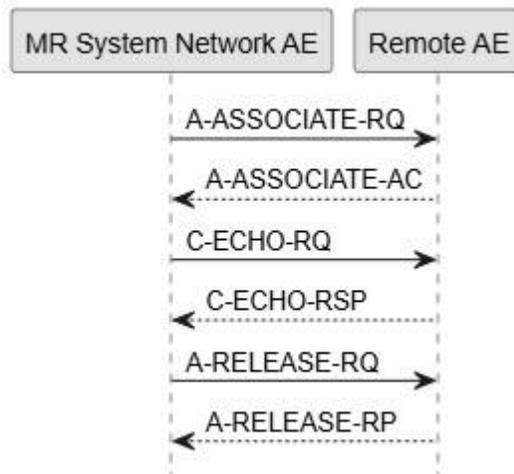


Figure 5: Sequencing of Verify

The Network AE accepts associations to verify application level communication using the C-ECHO command.

**4.2.1.3.1.2. Proposed Presentation Contexts**

The presentation contexts for Verification are defined in below table.

**Table 13: Proposed Presentation Contexts for (Real-World) Activity – Verification as SCU**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

The order of the proposed transfer syntaxes is configurable. The preferred transfer syntax is ELE and is chosen in case multiple Transfer Syntaxes are proposed in the Association Negotiation. The MR System Network AE can accept multiple proposed Presentation Contexts with the same SOP class but different Transfer Syntaxes. There is no check for duplicate contexts and these will therefore be accepted by MR. No extended negotiations supported by MR System Network AE.

**4.2.1.3.1.3. SOP Specific Conformance for Verification SOP Class**

**4.2.1.3.1.3.1. Dataset Specific Conformance for Verification C-ECHO-RQ**

The Dataset Specific Response behavior is as shown in below table.

**Table 14: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Confirmation	Message in log file.

**4.2.1.3.2. (Real-World) Activity – Modality worklist as SCU**

**4.2.1.3.2.1. Description and Sequencing of Activities**

The MR System RWA Query Worklist may be used to provide or update the worklist for the MR System.

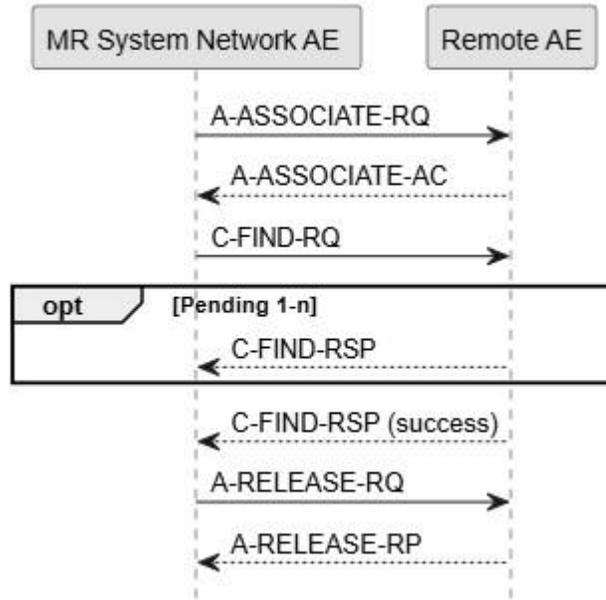


Figure 6: Sequencing of Query Worklist

The Query Worklist function is accessible through the MR System user interface. An association will be initiated to the configured remote system (typically a RIS) to send the worklist query. The RIS processes the query and returns the Worklist to the MR scanner (The scanning is allowed for any Modality Worklist response). After receiving the Worklist the association will be released.

There is no limit on the number of worklist results received and displayed.

When responses with different Scheduled station AE title is received, MR System automatically picks up the received AE title and allows to proceed for a scan. MR system has no restriction on Scheduled procedures that are not specific to MR Modality.

When responses with extra keys are received, MR System allows to proceed for scan. Behavior of the MWL claimed attributes are specified in Table 17.

4.2.1.3.2.2. Proposed Presentation Contexts

The proposed presentation contexts for Modality Worklist as SCU are defined in below table.

Table 15: Proposed Presentation Contexts for (Real-World) Activity – Modality worklist as SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Worklist Information Model – FIND SOP Class	1.2.840.1000 8.5.1.4.31	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

The order of the proposed transfer syntaxes is configurable. The preferred transfer syntax is ELE.

**4.2.1.3.2.3. SOP Specific Conformance for Modality Requested Procedure ID Scheduled Worklist Information Model - FIND SOP Class**

The MR System provides the RIS dialog to enter criteria for the matching keys. The use of Specific Character Set is as specified in [chapter 6](#), Support of Character Sets. Below table lists the attributes that are shown in the Patient Registration UI and provides the mapping of the DICOM attribute to the UI entry.

When Mandatory attributes are missing from RIS, MR System provides option for user to fill the missing mandatory attributes.

When MR System receives responses with optional attributes, MR System will add those attributes without any value and proceed for acquisition.

When Mandatory return key violation is sent in response, MR System continued querying for further studies without any error

When responses with missing mandatory attributes are received, MR System displayed that particular study.

When Mandatory attributes values are missing from RIR, MR system provides option for use to fill the missing values.

**Table 16: Mapping between UI Fields and DICOM Attributes for New Exam.**

UI Entry	DICOM Element Name	DICOM Element Tag	Exam Entry Editable	
			Manual	RIS
<b>Examination</b>				
Accession number	Accession Number	(0008,0050)	Yes	Yes
Referring Physician	Referring Physician's Name	(0008,0090)	Yes	Yes
Performing Physician	Performing Physician	(0008,1050)	Yes	Yes
Patient name	Patient's Name	(0010,0010)	Yes	Yes****
Patient ID	Patient ID	(0010,0020)	Yes	Yes*
Other Patient ID	Other Patient IDs	(0010,1000)	No	Yes
Date of birth	Patient's Birth Date	(0010,0030)	Yes	Yes*
Sex	Patient's Sex	(0010,0040)	Yes	Yes
Weight	Patient's Weight	(0010,1030)	Yes	Yes
	Scheduled Procedure Step Sequence	(0040,0100)	No	Yes
Study Description	Study Description	(0008,1030)	Yes	Yes
	> Scheduled Procedure Step Description of Scheduled Procedure Step ***	(0040,0007)	No	Yes
Study Date & Time	Study Date	(0008,0020)	Yes	Yes
	Performed Procedure Step Start Date	(0040,0244)	No	No

UI Entry	DICOM Element Name	DICOM Element Tag	Exam Entry Editable	
			Manual	RIS
	Performed Procedure Step End Date	(0040,0250)	No	No
Study Comments	Study Comments	(0032,4000)	Yes	Yes
	Comments on the Performed Procedure Step	(0040,0280)	Yes	Yes
Implant	Metal Implant Status	(2005,1578)	Yes	Yes
SAR Mode	SAR Operation Mode	(2005,1581)	Yes	Yes
Maximum SAR	MaxSAR	(2005,1575)	Yes	No
Max DB/dt	MaxDbDt	(2005,1574)	Yes	No
Maximum SAR B1+RMS	MRStudyB1rms	(2005,1587)	Yes	No
<b>General Worklist (RIS)</b>				
Medical Alerts	Medical Alerts	(0010,2000)	Yes	Yes
Allergies	Contrast Allergies	(0010,2110)	Yes	Yes
Pregnancy Status	Pregnancy Status	(0010,21C0)	Yes	Yes
Requested Procedure	Requested Procedure Code Sequence	(0032,1064)	No	Yes
Code Value	> Code Value	(0008,0100)	No	No
Code Scheme Designator	> Coding Scheme Designator	(0008,0102)	No	No
Code Scheme Version	>Coding Scheme Version	(0008,0103)	No	No
Code Meaning	> Code Meaning	(0008,0104)	No	No
Procedure ID	Requested Procedure ID	(0040,1001)	No	Yes
Comments	Requested Procedure Comments	(0040,1400)	No	Yes
Procedure Description	> Scheduled Procedure Step Description	(0040,0007)	No	No
<b>Scheduled Procedure Step</b>				
	Scheduled Procedure Step Sequence	(0040,0100)	No	Yes
Modality	> Modality	(0008,0060)	No	No
	> Scheduled Protocol Code Sequence	(0040,0008)	No	No
Code Value	>> Code Value	(0008,0100)	No	No

UI Entry	DICOM Element Name	DICOM Element Tag	Exam Entry Editable	
			Manual	RIS
Coding Scheme Designator	>> Coding Scheme Designator	(0008,0102)	No	No
Code Scheme Version	>> Coding Scheme Version	(0008,0103)	No	No
Code Meaning	>> Code Meaning	(0008,0104)	No	No
Procedure Step Description	> Scheduled Procedure Step Description	(0040,0007)	No	No
Procedure Step ID	> Scheduled Procedure Step ID	(0040,0009)	No	No
PreMedication	> Pre-Medication	(0040,0012)	No	No
Comments	> Comments on the Scheduled Procedure Step	(0040,0400)	No	No
Performed Procedure Step				
	Performed Protocol Code Sequence	(0040,0260)	No	Yes
Code Value	>> Code Value	(0008,0100)	Yes	Yes
Coding Scheme Designator	>> Coding Scheme Designator	(0008,0102)	Yes	Yes
Code Scheme Version	>> Coding Scheme Version	(0008,0103)	Yes	Yes
Code Meaning	>> Code Meaning	(0008,0104)	Yes	Yes
Comments	Study Comments	(0032,4000)	Yes	Yes
	Comments on the Performed Procedure Step**	(0040,0280)	Yes	Yes

\*Date of birth is editable only if it comes empty from the RIS.

\*\*Comments on the Performed Procedure Step are copied from the Comments on scheduled procedure Step.

\*\*\*Study Description is copied from Scheduled Procedure Step Description of Scheduled Procedure Step

\*\*\*\*Patient Name VR Limit is 64 characters; incase characters count exceeds the limit then it will be truncated in the UI.

**4.2.1.3.2.3.1. Dataset Specific Conformance for Modality Worklist Information Model - FIND SOP Class C-FIND-RQ**

Below table should be read as follows:

- Attribute Name: Attributes supported to build a Modality Worklist Request Identifier.
- Tag: DICOM tag for this attribute.
- VR: DICOM VR for this attribute.
- M: Matching Keys for (automatic) Worklist Update.

- R: Return Keys. An "X" indicates that this attribute as matching key can be used.
- Q: Interactive Query Key. An "X" indicates that this attribute as matching key can be used.
- D: Displayed Keys. An "X" indicates that this attribute is displayed when registering a new patient in the New Exam window.
- IOD: An "X" indicates that this attribute is included in all exported images after execution of the related Procedure Step.
- Type of matching: The following type of matching exists:
  - Single Value Matching
  - List of UID Matching
  - Wild Card Matching
  - Range Matching
  - Sequence Matching
  - Universal Matching

**Table 17: Worklist Request Identifier**

Attribute Name	Tag	VR	M	R	Q	D	IOD	Type of Matching	Comment
<b>Patient Identification Module</b>									
Other Patient IDs	0010,1000	LO		X			X		
Patient's Name	0010,0010	PN	X	X	X	X	X	Single value, Universal, WildCard	
Patient ID	0010,0020	LO	X	X	X	X	X	Single value, Universal, WildCard	Patient ID in UI
<b>Patient Demographic Module</b>									
Ethnic Group	0010,2160	SH		X			X		
Patient Comments	0010,4000	LT		X			X		
Patient's Birth Date	0010,0030	DA		X		X	X		
Patient's Sex	0010,0040	CS		X		X	X		
Patient's Weight	0010,1030	DS		X		X	X		
Patient's Size	0010,1020	DS		X			X		
<b>Patient Medical Module</b>									
Additional Patient History	0010,21B0	LT		X			X		
Allergies	0010,2110	LO		X		X	X		
Medical Alerts	0010,2000	LO		X		X	X		
Pregnancy Status	0010,21C0	US		X		X	X		
Names of Intended Recipients of Results	0040,1010	PN		X			X		

Attribute Name	Tag	VR	M	R	Q	D	IOD	Type of Matching	Comment
Patient's Institution Residence	0038,0400	LO		X			X		
Study Comments	0032,4000	LT		X			X		
Patient Comments	0010,4000	LT		X			X		
Patient's Birth Time	0010,0032	TM		X			X		
Performing Physician's Name	0008,1050	PN	X	X	X	X	X	Single value, Universal, WildCard	
Physician(s) of Record	0008,1048	PM		X			X		
Study Description	0008,1030	LO		X		X	X		
<b>Visit Status Module</b>									
Current Patient Location	0038,0300	LO		X					
<b>SOP Common Module</b>									
Specific Character Set	0008,0005	CS		X			X		Required if expanded/replacement character set used.
<b>Scheduled Procedure Step Module</b>									
Scheduled Procedure Step Sequence	0040,0100	SQ		X					
>Comments on the Scheduled Procedure Step	0040,0400	LT		X		X			
>Modality	0008,0060	CS	X	X	X	X	X	Single Value	Select ALL or MR. Default value is empty
>Pre-Medication	0040,0012	LO		X					
>Requested Contrast Agent	0032,1070	LO		X					
>Scheduled Performing Physician's Name	0040,0006	PN	X	X	X	X	X		
>Scheduled Procedure Step Description	0040,0007	LO		X		X	X		
>Scheduled Procedure Step End Date	0040,0004	DA		X		X	X		

Attribute Name	Tag	VR	M	R	Q	D	IOD	Type of Matching	Comment
>Scheduled Procedure Step End Time	0040,0005	TM		X			X		
>Scheduled Procedure Step ID	0040,0009	SH		X			X		
>Scheduled Procedure Step Location	0040,0011	SH		X					
>Scheduled Procedure Step Start Date	0040,0002	DA	X	X	X	X	X	Range	Date selection is required on the UI
>Scheduled Procedure Step Start Time	0040,0003	TM	X	X			X		
>Scheduled Procedure Step Status	0040,0020	CS		X					
>Scheduled Station AE Title	0040,0001	AE	X	X	X	X		Single Value	Select one of the configured AE Titles. Default value is the local AE Title.
>Scheduled Station Name	0040,0010	SH		X					
>Scheduled Protocol Code Sequence	0040,0008	SQ		X			X		
>>Code Meaning	0008,0104	LO		X			X		
>>Code Value	0008,0100	SH		X			X		
>>Coding Scheme Designator	0008,0102	SH		X			X		
>>Coding Scheme Version	0008,0103	SH		X			X		
Requested Procedure Module									
Names of Intended Recipients of Results	0040,1010	PN		X					
Requested Procedure Comments	0040,1400	LT		X			X		
Requested Procedure Description	0032,1060	LO		X			X		
Requested Procedure ID	0040,1001	SH	X	X	X	X	X	Single value, Universal, WildCard	
Study Instance UID	0020,000D	UI		X			X		
Referenced Study Sequence	0008,1110	SQ		X			X		

Attribute Name	Tag	VR	M	R	Q	D	IOD	Type of Matching	Comment
>Referenced SOP Class UID	0008,1150	UI		X			X		
>Referenced SOP Instance UID	0008,1155	UI		X			X		
Requested Procedure Code Sequence	0032,1064	SQ		X					
>Code Meaning	0008,0104	LO		X					
>Code Value	0008,0100	SH		X					
>Coding Scheme Designator	0008,0102	SH		X					
>Coding Scheme Version	0008,0103	SH		X					
Imaging Service Request Module									
Accession Number	0008,0050	SH	X	X	X	X	X	Single value, Universal, WildCard	Any value, Default value is empty.
Imaging Service Request Comments	0040,2400	LT		X					
Referring Physician's Name	0008,0090	PN		X		X	X		
Requesting Physician	0032,1032	PN		X			X		
Requesting Service	0032,1033	LO		X			X		

The possible Status Responses during a Worklist query are shown in below table.

**Table 18: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching is complete	The query results are displayed. The association is released. Report message in console.
Failed	A900	Identifier does not match SOP	No query results are displayed. The association is released. The reason is logged and reported by message in console.
	Cxxx	Unable to process	No query results are displayed. The association is released. The reason is logged and reported by message in console.
Refused	A700	Out of resources	No query results are displayed. The association is released. The reason is logged and reported by message in console.

Service Status	Error Code	Further Meaning	Behavior
	0122	SOP Class not supported	No query results are displayed. The association is released. The reason is logged and reported by message in console.
Pending	FF00	Matches are continuing – Current match is supplied and any optional keys were supported in the same manner as required keys	The Query Worklist job continues.
	FF01	Matches are continuing – Warning that one or more optional keys were not supported for existence and/or matching for this identifier	The Query Worklist job continues.
Cancel	FE00	Matching terminated due to Cancel request	No query results are displayed. The association is released. The reason is logged and reported by message in console. Note: No option to cancel the MWL query from MR System UI.

The possible Communication Failures during a Worklist query are shown in below table.

**Table 19: DICOM Command Communication Failure Behavior.**

Exception	Behavior
ARTIM Time-out	The Query Worklist job fails and the association is aborted. The reason is logged and reported to the user.
Association Time-out SCU	The association is released.
Association Aborted	The query fails. The reason is logged and reported to the user.

**4.2.1.3.3. (Real-World) Activity – Modality Performed Procedure Step as SCU**

**4.2.1.3.3.1. Description and Sequencing of Activities**

When the first scan of an examination is initiated the Network AE sets up an association to the MPPS server (typically a RIS) and sends an N-CREATE message with all appropriate information about the examination on the MR scanner; the status will be set to IN-PROGRESS.

After clicking the “Ready” or “Incomplete” button the Network AE will Archive Images that were acquired (only those that have not been archived yet) and send an N-SET message with the end date and end time and a status of respectively “COMPLETED” or “DISCONTINUED”. The MPPS function is independent of the use of storage commitment.

The sequence diagram in figure below shows the interaction for the MR System RWA Report MPPS.

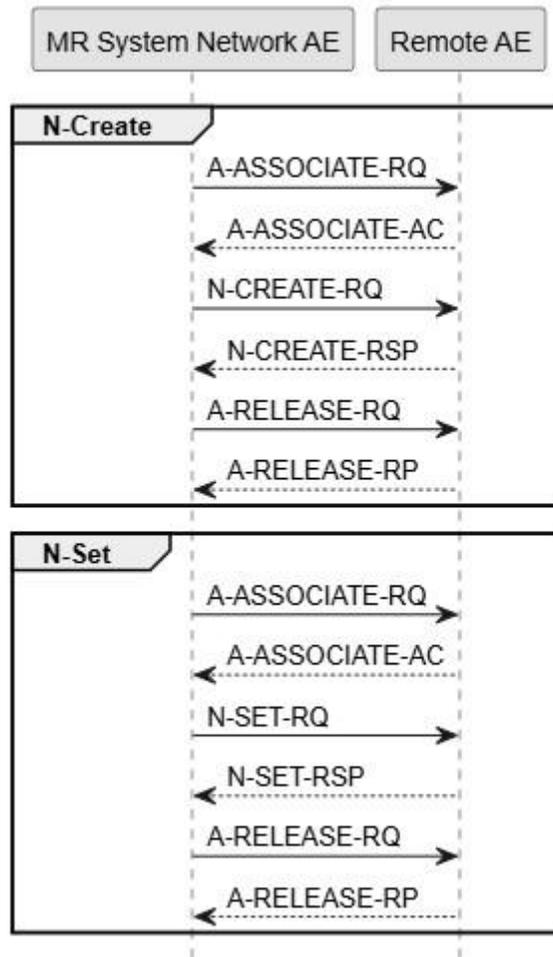


Figure 7: Sequencing of Report MPPS

4.2.1.3.3.2. Proposed Presentation Contexts

The presentation context proposed by Network AE for Report MPPS is defined in below table.

Table 20: Proposed Presentation Contexts for (Real-World) Activity – Modality Performed Procedure Step As SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

Note that the order of the proposed transfer syntaxes is configurable.

4.2.1.3.3.3. SOP Specific Conformance for Modality Performed Procedure Step SOP Class

The mapping of attributes for Report MPPS is specified in [chapter 8.1.2](#).

4.2.1.3.3.3.1. Dataset Specific Conformance for Modality Performed Procedure Step SOP Class N-CREATE-RQ

The possible responses behavior for N-CREATE-RQ is shown in below table.

Table 21: MPPS Request Identifiers for N-CREATE-RQ

Attribute Name	Tag	VR	Value	Comment
<b>SOP Common Module</b>				
Specific Character Set	0008,0005	CS	Default: ISO_IR 100. GB18030, ISO 2022 IR 100, ISO 2022 IR 101, ISO 2022 IR 109, ISO 2022 IR 110, ISO 2022 IR 126, ISO 2022 IR 127, ISO 2022 IR 13, ISO 2022 IR 138, ISO 2022 IR 144, ISO 2022 IR 148, ISO 2022 IR 149, ISO 2022 IR 166, ISO 2022 IR 6, ISO_IR 6, ISO_IR 100, ISO_IR 101, ISO_IR 109, ISO_IR 110, ISO_IR 126, ISO_IR 127, ISO_IR 13, ISO 2022 IR 87, ISO_IR 138, ISO_IR 144, ISO_IR 148, ISO_IR 166, ISO_IR 192	Attribute required if expanded character set used
<b>Performed Procedure Step Relationship Module</b>				
Patient ID	0010,0020	LO		
Patient's Birth Date	0010,0030	DA		
Patient's Name	0010,0010	PN		
Patient's Sex	0010,0040	CS	F, M, O	
Referenced Patient Sequence	0008,1120	SQ		
Scheduled Step Attributes Sequence	0040,0270	SQ		
>Accession Number	0008,0050	SH		
>Requested Procedure Description	0032,1060	LO		
>Requested Procedure Code Sequence	0032,1064	SQ		
>>Code Value	0008,0100	SH		
>>Coding Scheme Designator	0008,0102	SH		
>>Coding Scheme Version	0008,0103	SH		
>>Code Meaning	0008,0104	LO		
>Requested Procedure ID	0040,1001	SH		

Attribute Name	Tag	VR	Value	Comment
>Scheduled Procedure Step Description	0040,0007	LO		
>Scheduled Procedure Step ID	0040,0009	SH		
>Study Instance UID	0020,000D	UI		
>Referenced Study Sequence	0008,1110	SQ		
>>Referenced SOP Class UID	0008,1150	UI		
>>Referenced SOP Instance UID	0008,1155	UI		
>Scheduled Protocol Code Sequence	0040,0008	SQ		
>>Code Value	0008,0100	SH		
>>Coding Scheme Designator	0008,0102	SH		
>>Coding Scheme Version	0008,0103	SH		
>>Code Meaning	0008,0104	LO		
Performed Procedure Step Information Module				
Performed Location	0040,0243	SH		
Performed Procedure Step Description	0040,0254	LO		
Performed Procedure Step End Date	0040,0250	DA		
Performed Procedure Step End Time	0040,0251	TM		
Performed Procedure Step ID	0040,0253	SH		
Performed Procedure Step Start Date	0040,0244	DA		
Performed Procedure Step Start Time	0040,0245	TM		
Performed Procedure Step Status	0040,0252	CS	IN PROGRESS	
Performed Procedure Type Description	0040,0255	LO		
Performed Station AE Title	0040,0241	AE		
Performed Station Name	0040,0242	SH		
Performed Procedure Step Discontinuation Reason Code Sequence	0040,0281	SQ		
Procedure Code Sequence	0008,1032	SQ		

Attribute Name	Tag	VR	Value	Comment
>Code Value	0008,0100	SH		
>Coding Scheme Designator	0008,0102	SH		
>Coding Scheme Version	0008,0103	SH		
>Code Meaning	0008,0104	LO		
Image Acquisition Results Module				
Modality	0008,0060	CS	MR	Applied value: MR
Study Instance UID	0020,000D	UI		
Study ID	0020,0010	SH		
Performed Protocol Code Sequence	0040,0260	SQ		
>Code Value	0008,0100	SH		
>Coding Scheme Designator	0008,0102	SH		
>Coding Scheme Version	0008,0103	SH		
>Code Meaning	0008,0104	LO		
>Protocol Context Sequence	0040,0440	SQ		
Performed Series Sequence	0040,0340	SQ		Always EMPTY
>Code Value	0008,0100	SH		
>Coding Scheme Designator	0008,0102	SH		
>Coding Scheme Version	0008,0103	SH		
>Code Meaning	0008,0104	LO		
>Protocol Context Sequence	0040,0440	SQ		

The possible status responses for N-CREATE-RQ actions are shown in below table.

**Table 22: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Conformation, Matching is complete	The SCU has successfully returned all matching information. The association will be released. Message in console.
Failed	xxxx	(any other failure)	The Association is aborted using A-ABORT and the MPPS is marked as failed. The status meaning is logged and reported to the user. Message in console. The reason is logged.
	0110	Performed procedure step object may no longer be updated	(Error ID A710) Message in console. The reason is logged.

Service Status	Error Code	Further Meaning	Behavior
Warning	0116	Attribute Value Out of Range	The MPPS operation is considered successful but the status meaning is logged. Additional information in the Response identifying the attributes out of range will be logged (i.e. Elements in the Modification List / Attribute List)

**4.2.1.3.3.3.2. Dataset Specific Conformance for Modality Performed Procedure Step SOP Class N-SET-RQ**

The possible responses behavior for N-SET-RQ is shown below table.

**Table 23: MPPS Request Identifiers for N-SET-RQ**

Attribute Name	Tag	VR	Value	Comment
<b>Performed Procedure Step Information Module</b>				
Performed Procedure Step Description	0040,0254	LO		
Performed Procedure Step End Date	0040,0250	DA		
Performed Procedure Type Description	0040,0255	LO		
Performed Procedure Step End Time	0040,0251	TM		
Performed Procedure Step Status	0040,0252	CS	IN-PROGRESS COMPLETED, DISCONTINUED	
Performed Protocol Code Sequence	0040,0260	SQ		
>Code Value	0008,0100	SH		
>Coding Scheme Designator	0008,0102	SH		
>Coding Scheme Version	0008,0103	SH		
>Code Meaning	0008,0104	LO		
Specific Character Set	0008,0005	CS		
Procedure Code Sequence	0008,1032	SQ		
>Code Value	0008,0100	SH		
>Coding Scheme Designator	0008,0102	SH		
>Coding Scheme Version	0008,0103	SH		
>Code Meaning	0008,0104	LO		
Referenced Performed Procedure Step Sequence	0008,1111	SQ		
>Referenced SOP Class UID	0008,1150	UI		
>Referenced SOP Instance UID	0008,1155	UI		

Attribute Name	Tag	VR	Value	Comment
<b>Image Acquisition Results Module</b>				
Performed Series Sequence	0040,0340	SQ		
>Operators' Name	0008,1070	PN		
>Performing Physician's Name	0008,1050	PN		
>Protocol Name	0018,1030	LO		
>Retrieve AE Title	0008,0054	AE		
>Series Description	0008,103E	LO		
>Series Instance UID	0020,000E	UI		
>Referenced Image Sequence	0008,1140	SQ		
>Referenced Non-Image Composite SOP Instance Sequence	0040,0220	SQ		

Possible status responses from N-SET-RQ actions are shown in below table.

**Table 24: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Confirmation, The SCP has completed the operation successfully.	The association will be released. Message in console. The SCU has successfully returned all matching information
Failed	0110	Performed procedure step object may no longer be updated	(Error ID A710) Message in console. The reason is logged.
	xxxx	(Any other status code.)	The Association is aborted using A-ABORT and the MPPS is marked as failed. The status meaning is logged and reported to the user. Message in console. The reason is logged.
Warning	0116	Attribute Value Out of Range	The MPPS operation is considered successful but the status meaning is logged. Additional information in the Response identifying the attributes out of range will be logged (i.e. Elements in the Modification List/Attribute List)

**4.2.1.3.4. (Real-World) Activity – FIND as SCU**

**4.2.1.3.4.1. Description and Sequencing of Activities**

The MR System RWA Find as SCU (Find Remote Images) involves the query of a remote system to find matching data in the remote database. The operator queries a remote database by means of the query tool in the MR System. After clicking the Patient Directory and selecting the configured PACS/Network, the window offers the possibility to enter the required matching keys. The operator clicks on the “Search PACS/Network” button to activate the specified filter settings.

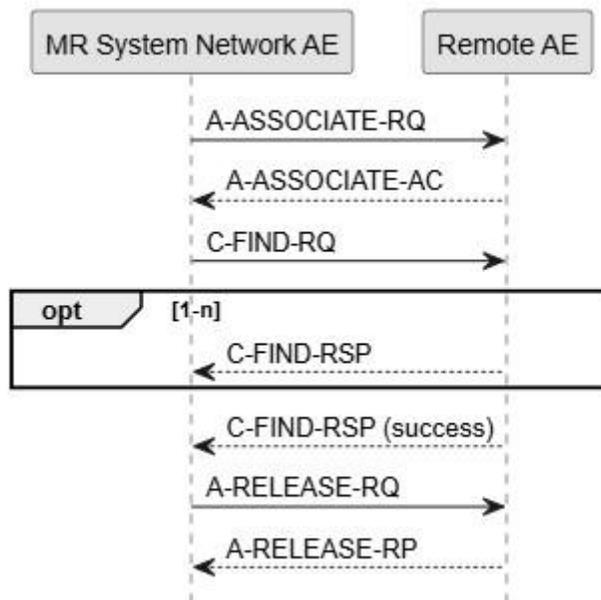


Figure 8: (Real World) Activity – Find Remote Images

The Network AE will try and request an association with the Query/Retrieve SCP. Then a query filter can be specified, and the Network AE initiates a new association to send query requests (as specified in the Filter dialog) to the Query/Retrieve SCP for Study level query (for Study Root model)  
 The association is released when the execution of the query completes.

4.2.1.3.4.2. Proposed Presentation Contexts

The proposed presentation contexts for FIND as SCU are defined in below table.

Table 25: Proposed Presentation Contexts for (Real-World) Activity – FIND As SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
	1.2.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

The order of the proposed transfer syntaxes is configurable. The preferred transfer syntax is ELE.

The MR System does not support extended negotiations.

4.2.1.3.4.3. SOP Specific Conformance for Study Root QR Information Model - FIND SOP Class

The MR System provides standard conformance to this SOP class. The MR System AE does not generate queries containing optional keys and it does not generate relational queries.

**4.2.1.3.4.3.1. Dataset Specific Conformance for Study Root QR Information Model - FIND SOP Class C-FIND-RQ**

In below table the supported query keys for each query level are described. Universal matching is supported as default.

**Table 26: Supported Query Keys for Study Root Information Model**

Study Root Information Model				
Attribute Name	Tag	VR	Matching Key Type	Comments
Query/Retrieve Level	0008,0052	CS		STUDY
Q/R Study Level				
Study Date	0008,0020	DA	Wild Card, Range	-
Accession Number	0008,0050	SH	Wild Card, Single Value	-
Modalities in Study	0008,0061	CS	Wild Card, Single Value	-
Study Description	0008,1030	LO	Wild Card, Single Value	-
Patient Name	0010,0010	PN	Wild Card, Single Value	-
Patient ID	0010,0020	LO	Wild Card, Single Value	-
Patient's Birth Date	0010,0030	DA	Wild Card, Single Value	-

The possible Status Responses for Study Root Information Model are shown in below table.

**Table 27: Status response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching is complete	The find results are displayed.
Refused	A700	Out of Resources	No find results are displayed. The reason is logged.
Failed	A900	Identifier does not match SOP class	No find results are displayed. The reason is logged.
	Cxxx	Unable to process	No find results are displayed. The reason is logged.
Cancel	FE00	Matching terminated due to Cancel Request	No find results are displayed. The reason is logged.
Pending	FF00	Matches are continuing – Current match is supplied and any optional keys were supported in the same manner as required keys	The find command continues.
	FF01	Matches are continuing – Warning that one or more optional keys were not supported for existence and/or matching for this identifier	The find command continues.

The possible Communication Failures for Study Root Information Model are listed in below table.

**Table 28: DICOM Command Communication Failure Behavior for Study Root Information Model.**

Exception	Behavior
ARTIM Time-out	N/A
Reply Time-out	The query fails and the association is aborted. The reason is logged and reported to the user.
Association Time-out SCU	The association is released.
Association Aborted	The query fails. The reason is logged and reported to the user.

**4.2.1.3.5. (Real-World) Activity – MOVE as SCU**

**4.2.1.3.5.1. Description and Sequencing of Activities**

The RWA Move as SCU (Move Remote Images) involves the retrieval of objects from a remote system by moving matching objects from the remote database to the local database or to another remote database.

The MR System Network AE initiates for each copy request an association to the selected remote DICOM node and uses this node to send the Retrieve (C-MOVE) request (and receives the associated responses). An examination may contain Images, Presentation states, Raw data objects or Private objects. For successfully operation all systems must be configured to make a Retrieve (C-MOVE) possible. In case the move is to a third station this must also be defined on both systems (MR system and system sending the objects). It is important that the definition on the MR system is consistent with the definition at the moving station.

The association is released after the final Retrieve (C-MOVE) response for the related request has been received (no more pending).

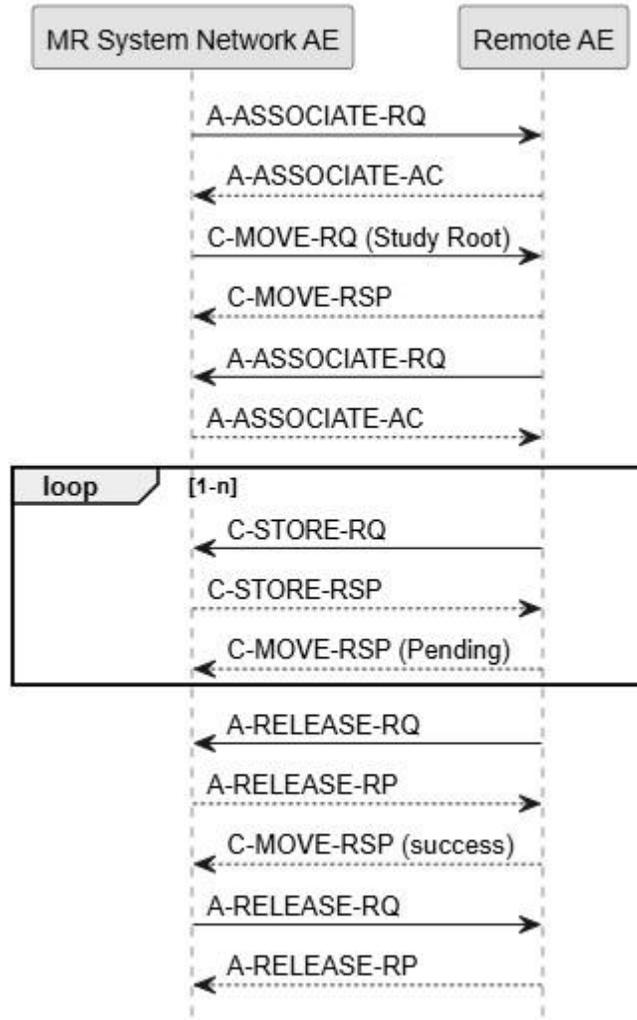


Figure 9: (Real World) Activity – Move Remote Images

4.2.1.3.5.2. Proposed Presentation Contexts

The presentation contexts for MOVE as SCU are defined in below table.

Table 29: Proposed Presentation Contexts for (Real-World) Activity – MOVE As SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4.1.2.2.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

The order of the proposed transfer syntaxes is configurable. The preferred transfer syntax is ELE. The MR System AE does not support extended negotiations.

**4.2.1.3.5.3. SOP Specific Conformance for Study Root QR Information Model - MOVE SOP Class**

The MR System provides standard conformance to this SOP class.

**4.2.1.3.5.3.1. Dataset Specific Conformance for Study Root QR Information Model - MOVE SOP Class C-MOVE-RQ**

The identifiers for C-MOVE as SCU are listed in below table.

**Table 30: Identifiers for MOVE Study Root Information Model as SCU**

Study Root Information Model			
Attribute Name	Tag	VR	Comment
Query/Retrieve Level	0008,0052	CS	Applied value: STUDY
Q/R Study level			
Study Instance UID	0020,000D	UI	

The DICOM Status Response for C-MOVE-RQ is shown in below table.

**Table 31: Status response for Study Root Information Model C-MOVE-RQ.**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Sub-operations complete-No Failures	The move job is marked as completed. The association is released.
Refused	A701	Out of Resources- Unable to calculate number of matches	The move job is marked as failed. The association is released. The reason is logged and reported to the user.
	A702	Out of Resources – Unable to perform sub-operations	The move job is marked as failed. The association is released. The reason is logged and reported to the user.
	A801	Move Destination unknown	The move job is marked as failed. The association is released. The reason is logged and reported to the user.
Failed	A900	Identifier does not match SOP class	The move job is marked as failed. The association is released. The reason is logged and reported to the user.
	Cxxx	Unable to process	The move job is marked as failed. The association is released. The reason is logged and reported to the user.
Cancel	FE00	Sub-operations terminated due to Cancel Indication	The move job is marked as failed. The association is released. The reason is logged and reported to the user.
Warning	B000	Sub-operations complete – One or more Failures	The move job is marked as completed. The association is released.
Pending	FF00	Sub-operations are continuing.	The move job continues.

The possible Communication Failures for C-MOVE-RQ are shown in below table.

**Table 32: DICOM Command Communication Failure Behavior for Study Root Information Model C-MOVE-RQ**

Exception	Behavior
ARTIM Time-out	The move job fails in case of association setup. The reason is logged and reported to the user.
Reply Time-out	The move job fails and the association is aborted. The reason is logged and reported to the user.
Association Time-out SCU	N/A
Association aborted	The move job fails. The reason is logged and reported to the user.

**4.2.1.3.6. (Real-World) Activity – Image Export**

**4.2.1.3.6.1. Description and Sequencing of Activities**

As defined by the MR System RWA Archive Images, using the local patient database one may export Images to the selected network destination by clicking the ‘Export’ button. For each selected Examination the Network AE will successively do the following actions.

Note: - For any other DICOM node configured as others, use Network button.

The Network AE initiates an association with the configured PACS node. Over this association all images, presentation states and other related data are exported. When the storage job has finished, be it successfully or not, the Network AE releases the association.

If the storage job failed, then the storage job has to be executed over again.

If storage commitment is configured for each exported Series, the Network AE requests storage commitment from the PACS. Each storage commitment request handles the storage commitment of one series of images over a separate association.

Figure below shows the sequence diagram for the storage of an Examination containing one Series of images.

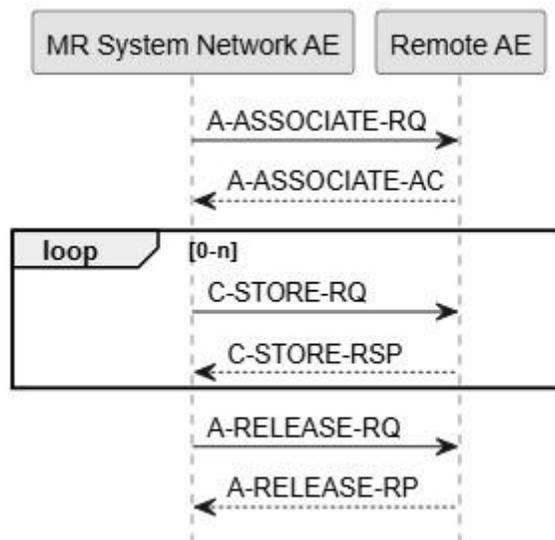


Figure 10: (Real Word) Activity - Export Images

4.2.1.3.6.2. Proposed Presentation Contexts

The presentation contexts proposed by Network AE for Image Export are defined in below table.

Table 33: Proposed Presentation Contexts for (Real-World) Activity – Image Export

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
RT Structure Set Storage SOP Class	1.2.840.10008.5.1.4.1.1.481.3	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, Non-Hierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Philips Private MR Spectrum Storage	1.3.46.670589.11.0.0.1.2.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Philips Private MR Series Data Storage	1.3.46.670589.11.0.0.1.2.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Philips Private MR Examcard Storage	1.3.46.670589.11.0.0.1.2.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

The order of the proposed transfer syntaxes is configurable. The preferred transfer syntax is ELE. The MR System AE does not support extended negotiations.

#### 4.2.1.3.6.3. SOP Specific Conformance for Storage SOP Classes

As Grayscale Softcopy Presentation State objects are stored as separate series together with the images they belong to. The Network AE initiates committing those Series in the same association if negotiated for, one after the other.

##### 4.2.1.3.6.3.1. Dataset Specific Conformance for C-STORE-RQ

The possible Status Responses for the export Images storage are shown in below table.

**Table 34: Status Response for C-STORE-RQ.**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Storage is complete. Successful stored	Message in console. The Export Images job continues. When the last image of the job has been stored the job is marked as Completed at the queue manager and the association is released.
Refused	A7xx	Out of Resources	The Export Images job fails and the association is released. The reason is logged and reported by message in console.
Error	A9xx	Data Set does not match SOP Class	The Export Images job fails and the association is released. The reason is logged and reported by message in console.
	Cxxx	Cannot understand	The store job fails and the association is released. The reason is logged and reported to the user.
Warning	B000	Coercion of Data Elements	Message in console. The Export Images job continues. When the last image of the job has been stored the job is marked as Completed at the queue manager and the association is released.
	B006	Elements Discard	Message in console. The Export Images job continues. When the last image of the job has been stored the job is marked as Completed at the queue manager and the association is released. The reason is logged.
	B007	Data Set does not match SOP Class	Message in console. The Export Images job continues. When the last image of the job has been stored the job is marked as Completed at the queue manager and the association is released.

When receiving a C-STORE response with ‘Refused’ or ‘Error’ status the Network AE releases the association. All the images associated with the job will be considered by the Network AE to have failed to transfer. The Network AE has the ability to automatically recover from this situation and will attempt to send all the images at a later time.

The possible communication failures during a C-STORE-RQ are listed in below table.

**Table 35: DICOM Command Communication Failure Behavior for C-STORE-RQ.**

Exception	Behavior
ARTIM Time-out	The store job fails in case of association setup. The reason is logged and reported to the user.
Reply Time-out	The store job fails in case of association setup. The reason is logged and reported to the user.
Association Time-out SCU	The association is released.
Association Aborted	The store job fails. The reason is logged and reported to the user.

4.2.1.3.7. (Real-World) Activity – Storage Commitment Push Model as SCU

4.2.1.3.7.1. Description and Sequencing of Activities

The Network AE supports both synchronous and asynchronous storage commitment. When synchronous storage commitment is configured and the event report is not received within the configured time-out interval, the Network AE releases the association and the storage commitment continues asynchronously. The Figure below shows the sequence diagram for the storage and asynchronous storage commitment of an Examination containing one Series of images.

If configured, Storage Commitment will be initiated in a new association after closing the storage of the related image storage (CSTORE). This new association will be open until the remote archive sends a storage commitment report (Synchronous) or when the configured maximum time is passed. When this maximum configured period is passed, it is the responsibility of the remote archive to setup a new association with MR System and send the storage commitment report (asynchronous behavior).

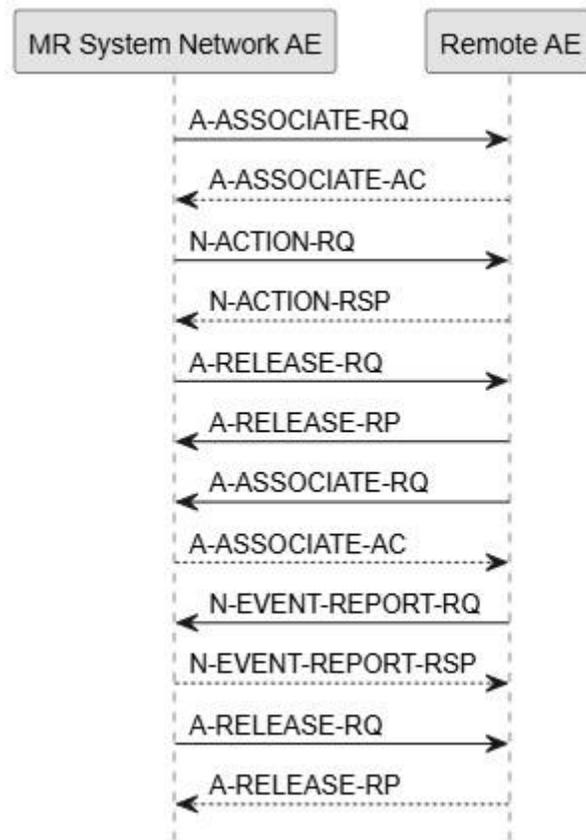


Figure 11: Sequencing of Storage Export with Synchronous Storage Commitment

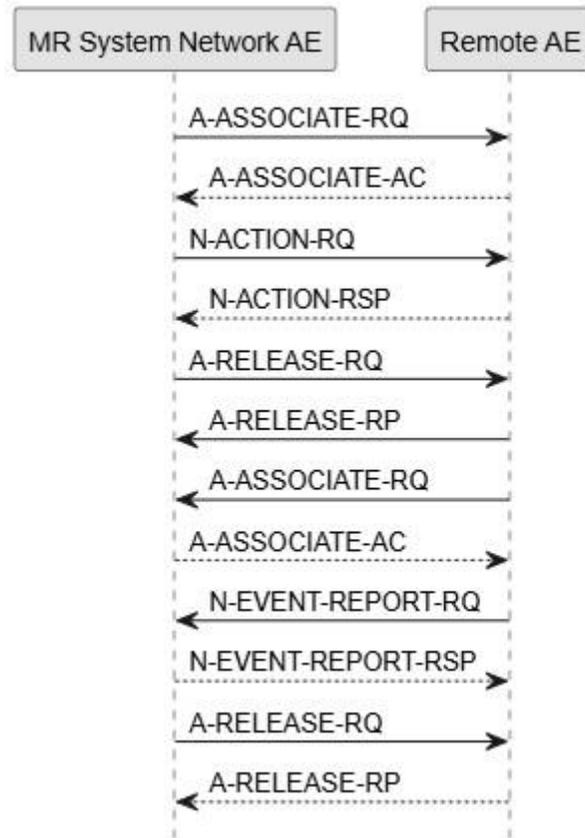


Figure 12: Sequencing of Storage Export with Asynchronous Storage Commitment

4.2.1.3.7.2. Proposed Presentation Contexts

The proposed presentation contexts for Storage Commitment Push Model as SCU are defined in below table.

Table 36: Proposed Presentation Contexts for (Real-World) Activity – Storage Commitment Push Model as SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

The order of the proposed transfer syntaxes is configurable. The preferred transfer syntax is ELE. The MR System AE does not support extended negotiations.

4.2.1.3.7.3. SOP Specific Conformance for Storage Commitment Push Model SOP Class

MR System conforms to the standard Storage Commitment model.

As Grayscale Softcopy Presentation State objects are stored as separate series together with the images they belong to, the Network AE will initiate separate associations for committing those Series – one after the other.

Based on the configuration provided in PSC, if the storage commitment is set to True for the network device, N-ACTION-RQ is triggered once all the entity transfer status is validated and updated. The storage commitment status is shown in the Patient Directory.

If the storage commitment failed, the operator is responsible for exporting the images again. It is user decision to delete the objects once it is archived. User can delete the object from SUT (deletion is supported at study and series level).

Details regarding the response behavior for the Archive Images storage commitment request are described in the next sections.

**4.2.1.3.7.3.1. Dataset Specific Conformance for Storage Commitment Push Model SOP Class N-EVENT-REPORT-RSP**

Details regarding the Dataset Specific response behavior for Storage Commitment Attributes for N-EVENT-REPORT-RSP are described in this section.

On receiving a storage commitment result with Event Type ID 1 (Storage Commitment Request Successful) the archive status of the examination is updated in the Administration window of the MR scanner.

On receiving a storage commitment result with Event Type ID 2 (Storage Commitment Request Complete – Failures Exist) the Network AE behaves as summarized in below table.

**Table 37: Status Response for N-EVENT-REPORT.**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Operation complete	Continues with waiting for storage commitment.
Failure	xxxx	(any failure)	The reason is logged.
	0110	Processing failure	Retry storage commitment request.
	0112	No such object instance	Retry store and storage commitment request.
	0119	Class / Instance conflict	Inform user and abort.
	0122	Referenced SOP class not supported	Inform user and abort.
	0131	Duplicate transaction	UID Inform user and abort.
	0213	Resource limitation	Retry storage commitment request.

The communication status behavior of the N-EVENT-REPORT is listed in below table.

**Table 38: DICOM Command Communication Failure Behavior for N-EVENT-REPORT.**

Exception	Behavior
ARTIM Time-out	The reason is logged.
Network Reply Time-out	The association is released. Continues with waiting for storage commitment.

Exception	Behavior
Association Time-out SCU	The association is released. Continues with waiting for storage commitment.
Association aborted	Continues with waiting for storage commitment.

#### 4.2.1.3.7.3.2. Dataset Specific Conformance for Storage Commitment Push Model SOP Class N-ACTION-RQ

This chapter describes the Dataset Specific response behavior for Storage Commitment Attribute N-ACTION-RQ.

**Table 39: Storage Commitment Attribute for N-ACTION-RQ**

Storage Commitment Module		
Attribute Name	Tag	Comment
Transaction UID	0008,1195	-
Referenced SOP Sequence	0008,1199	-
>Referenced SOP Class UID	0008,1150	-
>Referenced SOP Instance UID	0008,1155	-

The possible status responses for N-ACTION-RQ are shown in below table.

**Table 40: Status Response for N-ACTION-RQ.**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Conformation. Operation complete	The association will be released. Message in console.
Failure	xxxx	(any failure)	Message in console. The reason is logged.

The possible communication failures are shown in below table.

**Table 41: DICOM Command Communication Failure Behavior N-ACTION.**

Exception	Behavior
ARTIM Time-out	The reason is logged.
Reply Time-out	The association is released. The Archive Images job expects storage commitment report.
Association Time-out SCU	The association is released. The Archive Images job expects storage commitment report.
Association Aborted	The Archive Images job expects storage commitment report.

#### 4.2.1.4. Association Acceptance Policy

This section describes the conditions under which the MR system will accept an association from a remote system. The possible AE Association rejections are handled as shown in below table.

**Table 42: Association Reject Reasons Handling**

Result	Source	Reason/Diagnosis	Behavior
1 - rejected permanent	1 - DICOM UL service-user	1 – no reason given	Log entry.
		2 – application context name not supported	Log entry.
		3 – calling AE title not recognized	Log entry.
	2 - DICOM UL service provider (ACSE related function)	1 – no reason given	Log entry.
		2 – protocol version not supported	Log entry.
	3 - DICOM UL service provider (Presentation related function)	1 – temporary congestion	Log entry.
2 – local limit exceeded		Log entry.	
2 - rejected-transient	1 - DICOM UL service-user	1 - no-reason-given	Log entry.
		2 – application context name not supported	Log entry.
		3 – calling AE title not recognized	Log entry.
	2 - DICOM UL service provider (ACSE related function)	1 – no reason given	Log entry.
		2 – protocol version not supported	Log entry.
	3 - DICOM UL service provider (Presentation related function)	1 – temporary congestion	Log entry.
2 – local limit exceeded		Log entry.	

The possible Association aborts are handled as shown in below table.

**Table 43: Association Abort Policies Handling.**

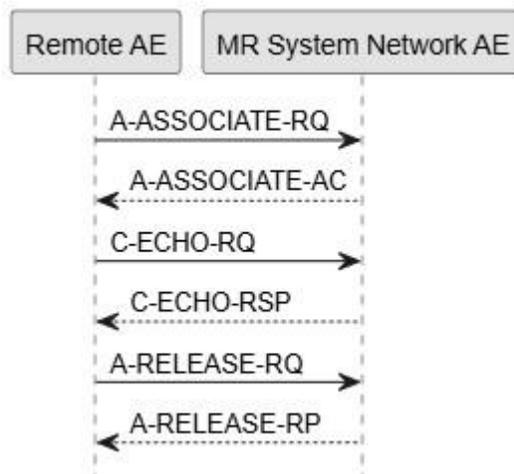
Source	Reason/Diagnosis	Behavior
0 - DICOM UL service-user (initiated abort)	0 - reason-not-specified	When received, the Network AE terminates the connection and logs the event. This is sent when: Association times out due to inactivity Any other problem than the ones specified for the MR System as SCP in the rows below.
2 - DICOM UL service-provider (initiated abort)	0 - reason-not-specified	When received, the Network AE terminates the connection and logs the event. This is sent when Import fails.
	1 - unrecognized-PDU	When received, the Network AE terminates the connection and logs the event. This is sent when an unrecognized PDU type is received.
	2 - unexpected-PDU	When received, the Network AE terminates the connection and logs the event. This is sent when the received PDU type is not expected in the current state of connection.

Source	Reason/Diagnosis	Behavior
	4 - unrecognized-PDU parameter	When received, the Network AE terminates the connection and logs the event. This is sent when an unrecognized Associate PDU item is received.
	5 - unexpected-PDU parameter	When received, the Network AE terminates the connection and logs the event. This is sent when: One of the Associate PDU items is received more than once. One of the Associate PDU items is received unexpectedly.
	6 - invalid-PDU-parameter value	When received, the Network AE terminates the connection and logs the event. This is sent when: One of the Associate PDU items is received more than once. One of the Associate PDU items is not received. Empty Called AE Title String (space-only) is received. Empty Calling AE Title String (space-only) is received. Unknown abstract syntax is received The length or the format of the received PDU item is invalid.

**4.2.1.4.1. (Real-World) Activity – Verification as SCP**

**4.2.1.4.1.1. Description and Sequencing of Activities**

As defined by the MR System RWA Verify, the Network AE will act as a Verification SCP for any remote SCU.



**Figure 13: (Real World) Activity – Request Verification**

The Network AE accepts associations to verify application level communication using the C-ECHO command.

**4.2.1.4.1.2. Accepted Presentation Contexts**

The acceptable presentation contexts for Verification as SCP are defined in below table.

**Table 44: Acceptable Presentation Contexts for (Real-World) Activity – Verification as SCP**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification SOP Class	1.2.840.10008.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

The order of the proposed transfer syntaxes is configurable. The preferred transfer syntax is ELE and shall be chosen in case multiple Transfer Syntaxes are proposed in the Association Negotiation.

The MR System does not support extended negotiations.

**4.2.1.4.1.3. SOP Specific Conformance for Verification SOP Class**

The MR System provides standard conformance to Verification SOP class as an SCP.

**4.2.1.4.1.3.1. Dataset Specific Conformance for Verification C-ECHO-RSP**

This section describes the dataset specific response behavior for Verification C-ECHO-RSP. This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

**Table 45: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Eg. Matching is complete	Eg. The SCP has successfully returned all matching information

**Table 46: DICOM Command Communication Failure Behavior for C-ECHO RSP**

Exception	Behavior
ARTIM Time-out	The verification request fails. The reason is logged.
Reply Time-out	The verification request fails, and association is aborted. The reason is logged.
Association Time-out SCU	The association is released.
Association aborted	The verification request fails. The reason is logged.

**4.2.1.4.2. (Real-World) Activity – FIND as SCP**

**4.2.1.4.2.1. Description and Sequencing of Activities**

The query dialog is initiated by the Remote AE. The Remote AE request an association with the MR AE to send query requests to the MR AE, starting with Patient or Study level query (for Patient Root (preferred) or Study Root model respectively through to Series level queries (i.e. no Image level queries).

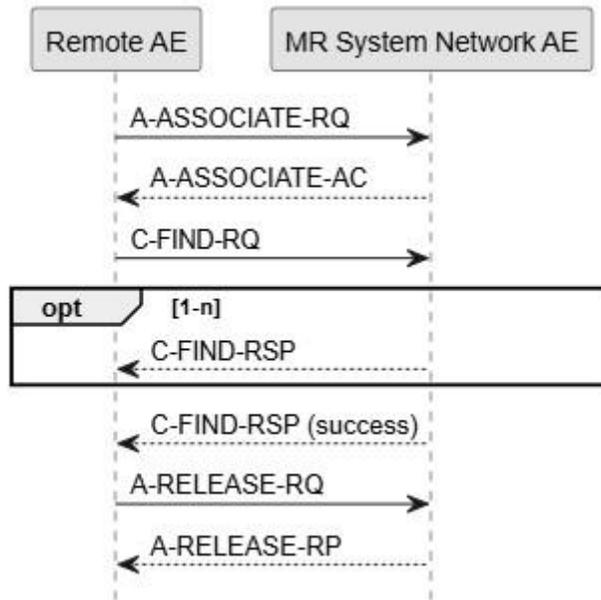


Figure 14: Sequencing of Query Images

#### 4.2.1.4.2.2. Accepted Presentation Contexts

The acceptable presentation contexts for FIND as SCP are defined in below table

Table 47: Acceptable Presentation Contexts for (Real-World) Activity – FIND as SCP

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root QR Information Model - FIND SOP Class	1.2.840.10008.5.1.4.1.2.2.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

The MR AE accepts all contexts that are common in the proposed and acceptable Presentation Contexts. This means that the MR AE can accept multiple proposed presentation contexts with the same SOP class but different transfer syntaxes.

There is no check for duplicate contexts, and these will therefore be accepted.

The MR AE does not support extended negotiations.

#### 4.2.1.4.2.3. SOP Specific Conformance for Study Root QR Information Model - FIND SOP Class

The MR AE provides standard conformance to the Query/Retrieve service class. Relational queries are not supported. The MR AE can handle simultaneous C-FIND requests.

When queried with optional keys, the MR AE will respond successfully for available keys if queried for universal matching; otherwise, MR AE will respond with warning.

When queried with optional keys with non-universal matching, the MR AE returns information using universal matching for those keys.

**4.2.1.4.2.3.1. Dataset Specific Conformance for Study Root QR Information Model - FIND SOP Class C-FIND-RSP**

Available Query keys for C-FIND-RSP are listed in below table.

**Table 48: Requested Query Keys for Study Root Information Model**

Study Root Information Model				
Attribute Name	Tag	VR	Type Of Matching	Comment
Query/Retrieve Level	0008,0052	CS	-	-
Specific Character Set	0008,0005	CS	-	-
Q/R Study level				
Accession Number	0008,0050	SH	Single value, Universal, WildCard	-
Ethnic Group	0010,2160	SH	Single value, Universal, WildCard	-
Patient ID	0010,0020	LO	Single value, Universal, WildCard	-
Patient's Birth Date	0010,0030	DA	Single value, Universal, Range	-
Patient's Name	0010,0010	PN	Single value, Universal, WildCard	-
Patient's Sex	0010,0040	CS	Single value, Universal, WildCard	-
Study Date	0008,0020	DA	Single value, Universal, Range	-
Study ID	0020,0010	SH	Single value, Universal, WildCard	-
Study Instance UID	0020,000D	UI	Single value, Universal, List of UID	-
Study Time	0008,0030	TM	Single value, Universal, Range	-
Q/R Series level				
Body Part Examined	0018,0015	CS	Universal	-
Modality	0008,0060	CS	Universal	MR
Series Date	0008,0021	DA	Single value, Universal, Range	-
Series Instance UID	0020,000E	UI	Single value, Universal, List of UID	-
Series Time	0008,0031	TM	Single value, Universal, Range	-

Below table shows the possible status response for the C-FIND-RSP.

**Table 49: Status Response for C-FIND-RSP**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching is complete	The C-FIND request handling is completed, no more C-FIND responses are sent.

Service Status	Error Code	Further Meaning	Behavior
Failed	A900	Identifier does not match SOP class	N.A.
	C000	Unable to process	The C-FIND request cannot be parsed. MR logs the reason.
Refused	A700	Out of Resources	N.A.
Pending	FF00	Matches are continuing	Current match is supplied and any optional keys were supported in the same manner as required keys The C-FIND responses are continuing.
	FF01	Matches are continuing	Warning that one or more optional keys were not supported for existence and/or matching for this identifier The C-FIND responses are continuing.
Cancel	FE00	Matching terminated due to Cancel Request	Cancel-response is not supported. The find command continues.

The possible Communication Failures are shown in the below table.

**Table 50: DICOM Command Communication Failure Behavior**

Exception	Behavior
ARTIM Time-out	The query fails in case of association setup. The reason is logged.
Reply Time-out	The query fails and association is aborted. The reason is logged.
Association Time-out SCU	The association is released.
Association Aborted The query fails.	The query fails. The reason is logged.

**4.2.1.4.3. (Real-World) Activity – MOVE as SCP**

**4.2.1.4.3.1. Description and Sequencing of Activities**

The MR system shall accept associations from systems that wish to retrieve images from the MR database using the C-MOVE command. After MR Retrieve Local Images the MR Export Images is started. Figure below shows the sequencing of retrieved images.

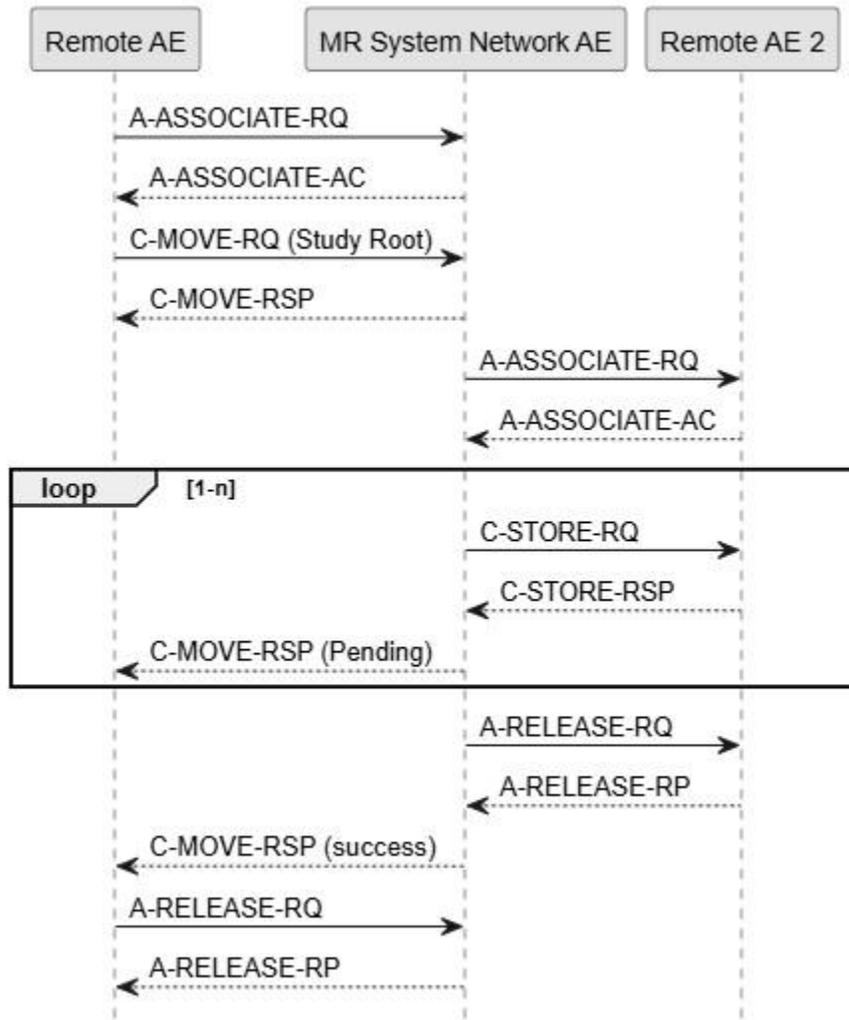


Figure 15: Sequencing of Retrieve Local Objects

4.2.1.4.3.2. Accepted Presentation Contexts

The acceptable presentation contexts for MOVE as SCP are shown in below table.

Table 51: Acceptable Presentation Contexts for (Real-World) Activity – MOVE As SCP

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Study Root QR Information Model - MOVE SOP Class	1.2.840.10008.5.1.4 .1.2.2.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

The MR AE accepts all contexts that are common in the proposed and acceptable Presentation Contexts. This means that the MR AE can accept multiple proposed Presentation Contexts with the same SOP class but different Transfer Syntaxes.

The order of the proposed transfer syntaxes is configurable.

There is no check for duplicate contexts, and these will therefore be accepted.

The MR AE does not support extended negotiations for Patient Root QR Information Model MOVE SOP class and for Study Root QR Information Model - MOVE SOP Class.

**4.2.1.4.3.3. SOP Specific Conformance for Study Root QR Information Model - MOVE SOP Class**

The MR AE provides standard conformance to the MOVE SOP class as an SCP.

**4.2.1.4.3.3.1. Dataset Specific Conformance for Study Root QR Information Model - MOVE SOP Class C-MOVE-RSP**

Below table shows the MOVE Identifiers for Study Root Information model.

**Table 52: Identifiers for MOVE Study Root Information Model as SCP**

Study Root Information Model			
Attribute Name	Tag	VR	Comment
Query/Retrieve Level	0008,0052	CS	Applied value: Study
Q/R Study level			
Study Instance UID	0020,000D	UI	-

The possible status Responses for the C-MOVE-RSP are shown in below table.

**Table 53: Status Response for C-MOVE**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Sub-operations complete – No Failures	The C-MOVE command has been completed.
Refused	A701	Out of Resources – Unable to calculate number of matches	N/A
	A702	Out of Resources – Unable to perform Suboperations	N/A
Failed	A801	Move Destination unknown	No C-STORE command will be sent. MR logs the reason.
	A900	Identifier does not match SOP class	N/A
Cancel	C000	Unable to process	The C-MOVE request cannot be parsed. No Store Command will be sent. MR logs the reason.
Warning	FE00	Sub-operations terminated due to Cancel Indication	The C-MOVE request is canceled, no more C-MOVE responses are sent.

Service Status	Error Code	Further Meaning	Behavior
Pending	B000	Sub-operations complete – One or more Failures	N/A

The possible communication failures for C-MOVE are shown in below table.

**Table 54: DICOM Command Communication Failure Behavior for C-MOVE.**

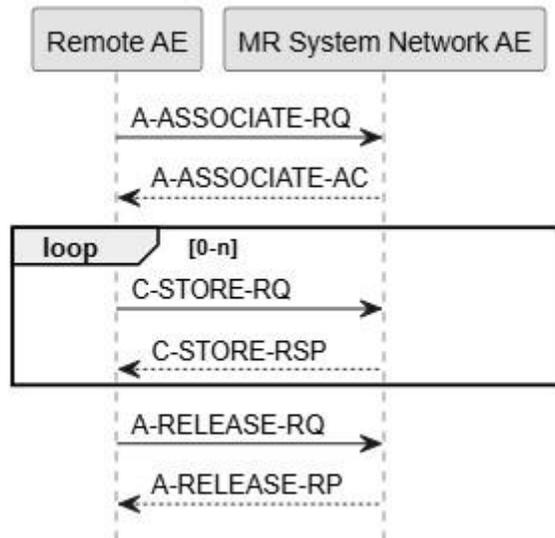
Exception	Behavior
ARTIM Time-out	The move job fails in case of association setup. The reason is logged.
Reply Time-out	The move job fails and association is aborted. The reason is logged.
Association Time-out SCU	The association is released.
Association aborted	The move job fails. The reason is logged.

**4.2.1.4.4. (Real-World) Activity – Image Import**

**4.2.1.4.4.1. Description and Sequencing of Activities**

As defined by the MR System RWA Import Images, the Network AE acts as a Storage SCP for any remote Storage SCU that is configured on the MR System, using an accepted presentation context.

The MR AE accepts associations from other systems that wish to store images in the MR System database, using the C-STORE command.



**Figure 16: (Real World) Activity - Import Images**

After the MR Network AE accepts an association from the remote Storage SCU the MR system will receive images from that remote Storage SCU, send store responses including the relevant status back, and releases the association on SCU request.

The MR supports a maximum number of incoming associations (default 4) for the set of SCPs. This number is configurable.

4.2.1.4.4.2. Accepted Presentation Contexts

The possible presentation contexts are shown in below table.

Table 55: Acceptable Presentation Contexts for (Real-World) Activity – Image Import

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, NonHierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, NonHierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.6	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
		JPEG Lossless, NonHierarchical, FOP (Process 14)	1.2.840.10008.1.2.4.70		
	1.3.46.670589.11.0.0.12.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Philips Private MR Spectrum Storage		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Philips Private MR Series Data Storage	1.3.46.670589.11.0.0.12.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Philips Private MR Examcard Storage	1.3.46.670589.11.0.0.12.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

The MR System AE does not support extended negotiations for Image Import.

The order of the proposed transfer syntaxes is configurable. The preferred transfer syntax is ELE.

#### 4.2.1.4.4.3. SOP Specific Conformance for Storage SOP Classes

The Network AE provides Level 2 (Full) conformance to the storage SOP classes.

Level 2 attributes indicates that all Type 1, Type 2, and Type 3

Attributes defined in the IOD etc. associated with the SOP Class, as well as any Standard Extended attributes (including private attributes) included in the SOP Instance, will be stored and may be accessed.

Secondary Capture images can be imported at any time and from any source.

However, the MR Network AE can only import MR images and belonging Presentation State objects that were created on a Philips System. These imported images may be used for reference only; successful further export is not guaranteed.

When the MR Network AE receives images that do not originate from a Philips MR System or no longer contain Philips MR Private tags, the MR Network AE responds with the success status (0000) but skips the objects since it is not understood by the system.

Images are considered to be originated from a Philips System if the SOP Instance UID of the image begins with the prefix "1.3.46.670589" or the Manufacturer contains the value "Philips".

#### 4.2.1.4.4.3.1. Dataset Specific Conformance for C-STORE-RSP

The possible Status Responses for C-STORE are shown in below table.

Table 56: Status Response for C-STORE-RSP

Service Status	Error Code	Further Meaning	Behavior (sent when)
Refused	A700	Out of resources	The local database is full; recovery from this condition is left to the SCU. The MR System sends the failure response, logs the condition, and aborts the association.

Service Status	Error Code	Further Meaning	Behavior (sent when)
Success	0000	Successful stored	The image(s) shall be stored in the local database.
Error	A900	Data Set does not match SOP Class	The image(s) cannot be parsed. The MR System sends the failure response, logs the condition, and aborts the association.
	0117	Invalid Object Instance	Study Instance UID/Series Instance UID is not present.
	C000	Cannot understand	The image(s) cannot be parsed/ SOP Instance UID is not present. The MR System sends the failure response, logs the condition.
Warning	B000	Coercion of Data Elements	The image(s) cannot be parsed. The MR System sends the failure response, logs the condition, and aborts the association.
	B007	Data Set does not match SOP Class	The image(s) cannot be parsed. The MR System sends the failure response, logs the condition, and aborts the association.
	B006	Elements Discarded	The image(s) cannot be parsed. The MR System sends the failure response, logs the condition, and aborts the association.

Below table shows the possible communication failures for C-STORE-RSP.

**Table 57: DICOM Command Communication Failure Behavior for C-STORE-RSP**

Exception	Behavior
ARTIM Time-out	The store job fails in case of association setup. The reason is logged.
Reply Time-out	The store job fails and association is aborted. The reason is logged.
Association Time-out SCU	The association is released.
Association aborted	When the import is aborted, same is logged in application log as Aborted and the store job is failed.

## 4.2.2. MR System Print

This chapter describes the Print AE in detail.

### 4.2.2.1. SOP Classes

This Application Entity provides Standard Conformance to the SOP Classes shown in below table.

**Table 58: SOP Classes for MR System Print**

SOP Class		User of Service (SCU)	Provider of Service (SCP)
Name	UID		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Yes	No
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Yes	No
>Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Yes	No
>Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No
>Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Yes	No
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Yes	No
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Yes	No
>Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Yes	No
>Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No
>Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Yes	No

Note: Any SOP specific behavior is documented later in the conformance statement in the applicable SOP specific conformance section.

**4.2.2.2. Association Policies**

This chapter describes the establishment of an association and the acceptance policies of the Print AE.

**4.2.2.2.1. General**

The following DICOM standard application context is specified.

**Table 59: DICOM Application Context**

Description	Value
Application Context Name	1.2.840.10008.3.1.1.1

**4.2.2.2.2. Number of Associations**

The number of simultaneous associations that the Print AE supports is specified in below table. The Print AE does not accept any incoming associations.

**Table 60: Number of associations as an Association Initiator for this AE**

Description	Value
Maximum number of simultaneous associations	1

#### 4.2.2.2.3. Asynchronous Nature

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

#### 4.2.2.2.4. Implementation Identifying Information

The following values are used for Implementation Class UID and Implementation Version Name.

**Table 61: DICOM Implementation Class and Version for MR System Print**

Implementation Class UID	1.3.46.670589.54.2.1.0.0
Implementation Version Name	MR 1.0

#### 4.2.2.2.5. Communication Failure Handling

The possible network communication failures are summarized in below table.

**Table 62: Communication Failure Behavior**

Exception	Behavior
ARTIM Timeout	The Association setup fails and using A-ABORT and the command is marked as failed. The reason is logged and reported to the user.
Association Aborted.	The Print Image job is marked as Failed. The reason is logged and reported to the user.
Association Time-Out SCU	The Association is Released.
Network reply Time-Out	The Association is Released.

#### 4.2.2.3. Association Initiation Policy

This section describes the conditions under which the Print AE initiates an Association.

The possible Status Responses are summarized in below table.

**Table 63: Response Status Handler Behavior**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Matching is complete, successful operation.	The SCP has successfully returned all matching information. The status is logged.

The possible Association Rejection responses are listed in below table.

**Table 64: Association Rejection response**

Result	Source	Reason/Diagnosis	Behavior
1 - rejectedpermanent	1 - DICOM UL service-user	1 - no-reason-given	The user is notified. If applicable the command will be retried. Log entry.
		2 - application-context-name-not supported	The user is notified. If applicable the command will be retried. Log entry.

Result	Source	Reason/Diagnosis	Behavior
		3 - calling-AE-title-not-recognized	The user is notified. If applicable the command will be retried. Log entry.
		7 - called-AE-title-not-recognized	The user is notified. If applicable the command will be retried. Log entry.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is notified. If applicable the command will be retried. Log entry.
		2 - protocol-version-notsupported	The user is notified. If applicable the command will be retried. Log entry.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user is notified. If applicable the command will be retried. Log entry.
		2 - local-limit-exceeded	The user is notified. If applicable the command will be retried. Log entry.
2 - rejectedtransient	1 - DICOM UL service-user	1 - no-reason-given	The user is notified. If applicable the command will be retried. Log entry.
		2 - application-context-name-notsupported	The user is notified. If applicable the command will be retried. Log entry.
		3 - calling-AE-title-not-recognized	The user is notified. If applicable the command will be retried. Log entry.
		7 - called-AE-title-not-recognized	The user is notified. If applicable the command will be retried. Log entry.
	2 - DICOM UL service-provider (ACSE related function)	1 - no-reason-given	The user is notified. If applicable the command will be retried. Log entry.
		2 - protocol-version-notsupported	The user is notified. If applicable the command will be retried. Log entry.
	3 - DICOM UL service-provider (Presentation related function)	1 - temporary-congestion	The user is notified. If applicable the command will be retried. Log entry.
		2 - local-limit-exceeded	The user is notified. If applicable the command will be retried. Log entry.

**4.2.2.3.1. (Real-World) Activity – Print Management as SCU**

**4.2.2.3.1.1. Description and Sequencing of Activities**

Before MR images can be printed, the Print AE must have an open association with the Printer. If no association is opened yet, the operator may initiate an association manually by enabling the selected printer in the “Print Job Control” window. If the association could not be established, the Print AE has a ‘Redo’ option in the job viewer to retry to establish an association. The received printer status is displayed in the Printer Status Tool.

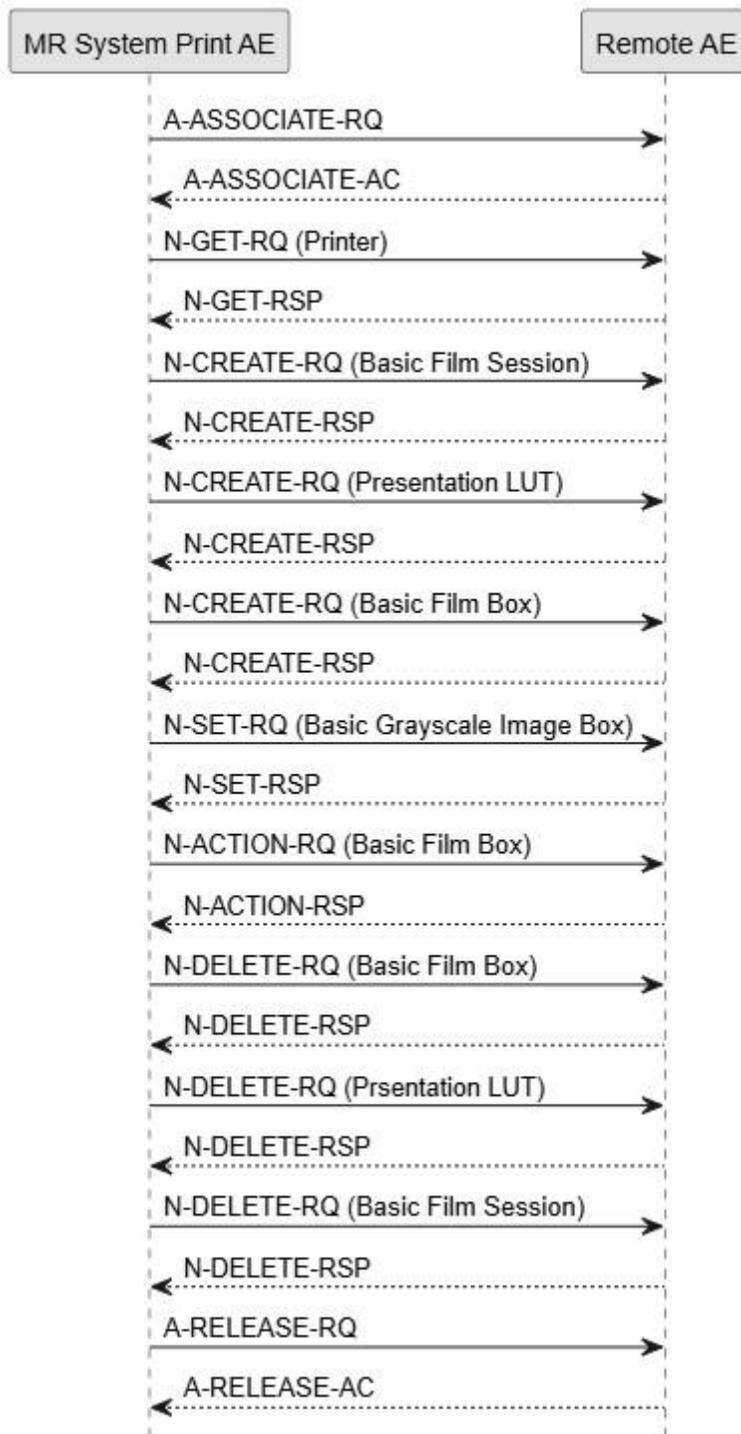


Figure 17: Sequencing of Print Images

Note that associations are proposed for grayscale and color printing. The following optional SOP classes from these Meta SOP classes are not supported:

- Print Job SOP class;
- Basic Annotation Box SOP class; - Reference Image Box SOP class.

The grayscale standard display function adjusts the brightness such that equal changes in P-Values will result in the same level of perceptibility.

The applied order of Print Service Elements (DIMSE's) is specified in figure above. Refer to the following sections for a description of the applied optional attributes in these Service Elements (i.e. non-mandatory attributes as Print SCU). Note that the Service Elements order is not specified by the DICOM standard. Overlay, Annotation (showing the values of some major identifying attributes) and Shutter information is processed in the images sent to the printer (i.e. burnt-in into the image).

The Status Codes of DIMSE Responses (Success, Warning, Failure) as returned by the printer will also be logged (for service purposes) and are mapped onto general print job status messages towards the operator. These User Interface messages indicate:

- "Job Completed" and has the meaning that the print job is accepted by the printer; the actual printing will be done afterwards.
- "Print Error" indicating that a failure occurred during the DICOM Print. Also, most warning messages (like default printer values applied on optional print attributes) are interpreted as a print error because this might result in a different content (print quality or print layout) than expected.

The following implementation remarks are important to achieve successful printing:

- The number of Film Boxes per Film Session is one.
- The number of images per Film Box is one.
- The images to be printed on one film are rendered by the Print AE into one logical image. This logical image is very large, depending on the pixel matrix size (pixels per line, lines per image). A rough indication is 20 Mbytes for grayscale. One should take this into account when selecting the DICOM printer and the printer configuration (e.g. the amount of memory).

The Print AE does not send an attribute list to the printer. Therefore, the mandatory attributes listed in the following sections are the only attributes that are required to be supported by the printer.

**4.2.2.3.1.2. Proposed Presentation Contexts**

The presentation contexts for Print Management as SCU are defined in below table.

**Table 65: Proposed Presentation Contexts for (Real-World) Activity – Print Management as SCU**

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9			SCU	None
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Printer SOP Class	1.2.840.10008.5.1.1.16	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		
>Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Implicit VR Little Endian	1.2.840.10008.1.2		

**4.2.2.3.1.3. SOP Specific Conformance for Basic Film Session SOP Class of the Basic Grayscale Print Management Meta SOP Class**

This section specifies each IOD created (including private IOD's).

Abbreviations used in the IOD tables for the column "Presence of Module" are:

ALWAYS The module is always present  
 CONDITIONAL The module is used under specified condition

Abbreviations used in the Module table for the column "Presence of Value" are:

ALWAYS The attribute is always present with a value  
 EMPTY The attribute is always present without any value (attribute sent zero length)  
 VNAP The attribute is always present and its Value is Not Always Present (attribute sent zero length if no value is present)  
 ANAP The attribute is present under specified condition

The abbreviations used in the Module table for the column "Source" are:

AUTO The attribute value is generated automatically  
 CONFIG The attribute value source is a configurable parameter  
 COPY The attribute value source is another SOP instance  
 FIXED The attribute value is hard-coded in the application  
 IMPLICIT The attribute value source is a user-implicit setting  
 MPPS The attribute value is the same as that use for Modality Performed Procedure Step  
 MWL The attribute value source is a Modality Worklist  
 USER The attribute value source is explicit user input

**4.2.2.3.1.3.1. Dataset Specific Conformance for Basic Film Session SOP Class N-CREATE-RQ**

Detail regarding the Dataset Specific response behavior will be reported in this section

**Table 66: Basic Film Session Presentation Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Copies	2000,0010	IS	1	ALWAYS	USER	1-100
Print Priority	2000,0020	CS	MED	ALWAYS	AUTO	
Medium Type	2000,0030	CS	BLUE FILM	ALWAYS	USER	PAPER, CLEAR FILM, BLUE FILM
Film Destination	2000,0040	CS	-	ALWAYS	AUTO	Default value from Printer ex: PROCESSOR

The possible Status Responses are shown in below table.

**Table 67: Status Response for Basic Film Session N-CREATE-RQ**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film session successfully created.	The print job continues and completes. Status of the job is marked as 'Completed' in the Job viewer.
Failure	xxxx	(any failure)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.

Service Status	Error Code	Further Meaning	Behavior
Warning	B600	Memory allocation not supported.	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	0107	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	0116	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	B601	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B602	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B603	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B604	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B605	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B606	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B608	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B609	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B60A	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	xxxx	(any other warning)	Print job is terminated, the warning is logged, and the association is released.

Most of the warnings are treated as errors as the MR Print AE has no capability to recover from them producing a proper print.

**4.2.2.3.1.3.2. Dataset Specific Conformance for Basic Film Session SOP Class N-DELETE-RQ**

Detail regarding the Dataset Specific response behavior will be reported in this section.

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

**Table 68: Status Response for N-DELETE-RQ**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful operation.	The print job continues.
Failed	xxxx	(any failure)	The print job is marked as failed; the reason is reported and logged. Eventually the association is released.
Warning	xxxx	(any warning)	The print job continues, and the warning is logged.

**4.2.2.3.1.4. SOP Specific Conformance for Presentation LUT SOP Class**

**4.2.2.3.1.4.1. Dataset Specific Conformance for Presentation LUT SOP Class N-CREATE-RQ**

**Table 69: Presentation LUT Module.**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Presentation LUT Shape	2050,0020	CS	IDENTITY	ALWAYS	AUTO	

**4.2.2.3.1.5. SOP Specific Conformance for Basic Film Box SOP Class of the Basic Grayscale Print Management Meta SOP Class**

This section and sub-section include the manufacturer SOP and Dataset specific information as well the status codes and their corresponding behavior.

**4.2.2.3.1.5.1. Dataset Specific Conformance for Basic Film Box SOP Class N-CREATE-RQ**

Detail regarding the Dataset Specific response behavior will be reported in this section.

**Table 70: Basic Film Box Presentation Module.**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Display Format	2010,0010	ST	STANDARD\1,1	ALWAYS	AUTO	-
Film Orientation	2010,0040	CS	PORTRAIT, LANDSCAPE	ALWAYS	USER	-
Film Size ID	2010,0050	CS	10INX12IN, 10INX14IN, 11INX14IN, 14INX14IN, 14INX17IN, 24CMX24CM, 24CMX30CM, 8INX10IN, A3, A4	ALWAYS	USER	-

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Magnification Type	2010,0060	CS	REPLICATE, BILINEAR, CUBIC, NONE	OPTIONAL	AUTO	-
Max Density	2010,0130	US	300	OPTIONAL	AUTO	-
Trim	2010,0140	CS	NO, YES	ALWAYS	IMPLICIT/CON FIG	-
Configuration Information	2010,0150	ST	LUT=0,9	OPTIONAL	AUTO	-
Illumination	2010,015E	US		OPTIONAL	AUTO	-
Reflected Ambient Light	2010,0160	US		OPTIONAL	AUTO	-
Referenced Film Session Sequence	2010,0500	SQ		ALWAYS	AUTO	-
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-
Referenced Presentation LUT Sequence	2050,0500	SQ		ALWAYS	AUTO	-
> Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	-
> Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

**Table 71: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film session successfully created.	The print job continues and completes. Status of the job is marked as 'Completed' in the Job viewer.
Failure	xxxx	(any failure)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
Warning	B600	Memory allocation not supported.	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	0107	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.

Service Status	Error Code	Further Meaning	Behavior
	0116	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	B601	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B602	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B603	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B604	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B605	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B606	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B608	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B609	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B60A	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	xxxx	(any other warning)	Print job is terminated, the warning is logged, and the association is released.

Most of the warnings are treated as errors as the MR Print AE has no capability to recover from them producing a proper print.

**4.2.2.3.1.5.2. Dataset Specific Conformance for Printer SOP Class N-GET-RQ**

Detail regarding the Dataset Specific response behavior will be reported in this section. This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

**Table 72: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful command	The print job continues.
Failure	xxxx	(any failure)	The print job fails, the error is logged and the association is released.
Warning	0001	Requested optional attributes are not supported	The print job continues and the warning is logged.

Service Status	Error Code	Further Meaning	Behavior
	xxxx	(any warning)	Print job is terminated, the warning is logged, and the association is released.

**4.2.2.3.1.6. SOP Specific Conformance for Basic Film Box SOP Class of the Basic Grayscale Print Management Meta SOP Class**

**4.2.2.3.1.6.1. Dataset Specific Conformance for Basic Film Box SOP Class N-ACTION-RQ**

Detail regarding the Dataset Specific response behavior will be reported in this section. This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

**Table 73: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film Box successfully created.	The print job continues and completes. Status is marked as 'Completed' in the Job viewer.
Failure	xxxx	(any failure)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
Warning	B605	Requested Min Density or Max Density outside of printer's operating range. The printer will use its respective minimum or maximum density value instead.	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	0107	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	0116	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	B600	(not defined)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B601	(not defined)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B602	(not defined)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B603	(not defined)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.

Service Status	Error Code	Further Meaning	Behavior
	B604	(not defined)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B606	(not defined)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B608	(not defined)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B609	(not defined)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	xxxx	(any other warning)	Print job is terminated, the warning is logged, and the association is released.

Most of the warnings are treated as errors as the MR Print AE has no capability to recover from them producing a proper print.

#### 4.2.2.3.1.7. SOP Specific Conformance for Basic Grayscale Image Box SOP Class of the Basic Grayscale Print Management Meta SOP Class

This section and sub-section include the manufacturer SOP and Dataset specific information as well the status codes and their corresponding behavior.

##### 4.2.2.3.1.7.1. Dataset Specific Conformance for Basic Grayscale Image Box SOP Class N-SET-RQ

Detail regarding the Dataset Specific response behavior of Basic Grayscale Image Box SOP Class N-SET-RQ is reported in this section.

Table 74: Image Box Pixel Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Box Position	2020,0010	US	1	ALWAYS	AUTO	-
Polarity	2020,0020	CS	NORMAL	ALWAYS	AUTO	-
Basic Grayscale Image Sequence	2020,0110	SQ		ALWAYS	AUTO	-
>Samples per Pixel	0028,0002	US		ALWAYS	AUTO	-
>Photometric Interpretation	0028,0004	CS	MONOCHROME2	ALWAYS	AUTO	-
>Rows	0028,0010	US		ALWAYS	IMPLICIT	-
>Columns	0028,0011	US		ALWAYS	IMPLICIT	-

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
>Bits Allocated	0028,0100	US	16	ALWAYS	AUTO	-
>Bits Stored	0028,0101	US	12	ALWAYS	IMPLICIT	-
>High Bit	0028,0102	US	11	ALWAYS	AUTO	-
>Pixel Representation	0028,0103	US		ALWAYS	AUTO	-
>Pixel Data	7FE0,0010	OW /OB		ALWAYS	AUTO	-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

**Table 75: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful command	The print job continues and completes. Status is marked as 'Completed' in the Job viewer.
Failure	xxxx	(any failure)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
Warning	B604	Image size is larger than image box size, the image has been demagnified.	The print job continues, and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	B609	Image size is larger than the image box size. The image has been cropped to fit.	The print job is terminated, and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B60A	Image size or combined print image size is larger than the image box size. Image or combined print image has been decimated to fit.	The print job is terminated, and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	0107	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	0116		The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	B600		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B601		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B602		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.

Service Status	Error Code	Further Meaning	Behavior
	B603		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B605		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B606		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B608		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	xxxx	(any other warning)	Print job is terminated, the warning is logged, and the association is released.

#### 4.2.2.3.1.8. SOP Specific Conformance for Basic Film Session SOP Class of the Basic Color Print Management Meta SOP Class

##### 4.2.2.3.1.8.1. Dataset Specific Conformance for Basic Film Session SOP Class N-CREATE-RQ

Detail regarding the Dataset Specific response behavior will be reported in this section.

Table 76: Basic Film Session Presentation Module

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Number of Copies	2000,0010	IS	1	ALWAYS	USER	1-100
Print Priority	2000,0020	CS	MED	ALWAYS	AUTO	-
Medium Type	2000,0030	CS	BLUE FILM	ALWAYS	USER	PAPER, CLEAR FILM, BLUE FILM
Film Destination	2000,0040	CS	-	ALWAYS	AUTO	Default value from Printer Ex: PROCESSOR

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 77: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film session successfully created.	The print job continues and completes. Status is marked as 'Completed' in the Job viewer.
Failure	xxxx	(any failure)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.

Service Status	Error Code	Further Meaning	Behavior
Warning	B600	Memory allocation not supported.	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	0107	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	0116	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	B601	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B602	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B603	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B604	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B605	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B606	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B608	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B609	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B60A	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	xxxx	(any other warning)	Print job is terminated, the warning is logged, and the association is released.

Most of the warnings are treated as errors as the MR Print AE has no capability to recover from them producing a proper print.

**4.2.2.3.1.8.2. Dataset Specific Conformance for Basic Film Session SOP Class N-DELETE-RQ**

Detail regarding the Dataset Specific response behavior will be reported in this section. This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

**Table 78: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful command	The print job continues.
Failure	xxxx	(any failure)	The print job fails, the error is logged and the association is released.
Warning	xxxx	(any warning)	The print job fails, the warning is logged and the association is released.

**4.2.2.3.1.9. SOP Specific Conformance for Presentation LUT SOP Class**

**4.2.2.3.1.9.1. Dataset Specific Conformance for Presentation LUT SOP Class N-CREATE-RQ**

**Table 79: Presentation LUT Presentation module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Presentation LUT Shape	2050,0020	CS	IDENTITY	ALWAYS	AUTO	-

**4.2.2.3.1.10. SOP Specific Conformance for Basic Film Box SOP Class of the Basic Color Print Management Meta SOP Class**

This section and sub-section include the manufacturer SOP and Dataset specific information as well the status codes and their corresponding behavior.

**4.2.2.3.1.10.1. Dataset Specific Conformance for Basic Film Box SOP Class N-CREATE-RQ**

Detail regarding the Dataset Specific response behavior will be reported in this section.

**Table 80: Basic Film Box Presentation Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Display Format	2010,0010	ST	STANDARD\1,1	ALWAYS	AUTO	-
Film Orientation	2010,0040	CS	PORTRAIT, LANDSCAPE	ALWAYS	USER	-
Film Size ID	2010,0050	CS	10INX12IN, 10INX14IN, 11INX14IN, 14INX14IN, 14INX17IN, 24CMX24CM, 24CMX30CM,	ALWAYS	USER	-

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
			8INX10IN, A3, A4			
Magnification Type	2010,0060	CS	REPLICATE, BILINEAR, CUBIC, NONE	OPTIONAL	AUTO	Value from the printer template configuration
Max Density	2010,0130	US	300	OPTIONAL	AUTO	-
Trim	2010,0140	CS	NO, YES	ALWAYS	IMPLICIT/CONFIG	-
Configuration Information	2010,0150	ST	LUT=0,9	OPTIONAL	AUTO	-
Illumination	2010,015E	US		OPTIONAL	AUTO	-
Reflected Ambient Light	2010,0160	US		OPTIONAL	AUTO	-
Referenced Film Session Sequence	2010,0500	SQ		ALWAYS	AUTO	-
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-
Referenced Presentation LUT Sequence	2050,0500	SQ		ALWAYS	AUTO	-
>Referenced SOP Class UID	0008,1150	UI		ALWAYS	AUTO	-
>Referenced SOP Instance UID	0008,1155	UI		ALWAYS	AUTO	-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

Table 81: Status Response

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film session successfully created.	The print job continues and completes. Status is marked as 'Completed' in the Job viewer.
Failure	xxxx	(any failure)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
Warning	B600	Memory allocation not supported.	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.

Service Status	Error Code	Further Meaning	Behavior
	0107	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	0116	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	B601	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B602	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B603	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B604	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B605	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B606	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B608	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B609	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B60A	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	xxxx	(any other warning)	Print job is terminated, the warning is logged, and the association is released.

Most of the warnings are treated as errors as the MR Print AE has no capability to recover from them producing a proper print.

**4.2.2.3.1.10.2. Dataset Specific Conformance for Printer SOP Class N-GET-RQ**

Detail regarding the Dataset Specific response behavior will be reported in this section. This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

**Table 82: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful command	The print job continues and completes. Status is marked as 'Completed' in the Job viewer.

Service Status	Error Code	Further Meaning	Behavior
Failure	xxxx	(any failure)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
Warning	0001	Requested optional attributes are not supported	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	xxxx	(any warning)	Print job is terminated, the warning is logged, and the association is released.

**4.2.2.3.1.11. SOP Specific Conformance for Basic Film Box SOP Class of the Basic Color Print Management Meta SOP Class**

This section and sub-section include the manufacturer SOP and Dataset specific information as well the status codes and their corresponding behavior.

**4.2.2.3.1.11.1. Dataset Specific Conformance for Basic Film Box SOP Class N-ACTION-RQ**

Detail regarding the Dataset Specific response behavior will be reported in this section. This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

**Table 83: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Film Box successfully created.	The print job continues and completes. Status is marked as 'Completed' in the Job viewer.
Failure	xxxx	(any failure)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
Warning	B605	Requested Min Density or Max Density outside of printer's operating range. The printer will use its respective minimum or maximum density value instead.	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	0107	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	0116	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	B600	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.

Service Status	Error Code	Further Meaning	Behavior
	B601	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B602	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B603	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B604	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B606	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B608	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B609	(not defined)	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	xxxx	(any other warning)	Print job is terminated, the warning is logged, and the association is released.

**4.2.2.3.1.12. SOP Specific Conformance for Basic Color Image Box SOP Class of the Basic Color Print Management Meta SOP Class**

This section and sub-section include the manufacturer SOP and Dataset specific information as well the status codes and their corresponding behavior.

**4.2.2.3.1.12.1. Dataset Specific Conformance for Basic Color Image Box SOP Class N-SET-RQ**

Detail regarding the Dataset Specific response behavior will be reported in this section.

**Table 84: Image Box Pixel Presentation Module**

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
Image Box Position	2020,0010	US		ALWAYS	AUTO	-
Polarity	2020,0020	CS	NORMAL	ALWAYS	AUTO	-
Basic Grayscale Image Sequence	2020,0110	SQ		ALWAYS	AUTO	-
>Samples per Pixel	0028,0002	US	3	ALWAYS	AUTO	-

Attribute Name	Tag	VR	Value	Presence of Value	Source	Comment
>Photometric Interpretation	0028,0004	CS	RGB	ALWAYS	IMPLICIT	-
>Rows	0028,0010	US		ALWAYS	IMPLICIT	-
>Columns	0028,0011	US		ALWAYS	IMPLICIT	-
>Bits Allocated	0028,0100	US	8	ALWAYS	AUTO	-
>Bits Stored	0028,0101	US	8	ALWAYS	IMPLICIT	-
>High Bit	0028,0102	US	7	ALWAYS	AUTO	-
>Pixel Representation	0028,0103	US	0	ALWAYS	AUTO	-
>Pixel Data	7FE0,0010	OW/O B		ALWAYS	AUTO	-

This part of the section includes the dataset specific behavior, i.e. error codes, error and exception handling, time-outs, etc.

**Table 85: Status Response**

Service Status	Error Code	Further Meaning	Behavior
Success	0000	Successful command	The print job continues and completes. Status is marked as 'Completed' in the Job viewer.
Failure	xxxx	(any failure)	Print job fails, the error is logged, and the association is released. Status is marked as 'Permanently Failed' in the Job viewer with detail.
Warning	B604	Image size is larger than image box size, the image has been demagnified.	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	B609	Image size is larger than the image box size. The image has been cropped to fit.	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B60A	Image size or combined print image size is larger than the image box size. Image or combined print image has been decimated to fit.	The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	0107	(not defined)	The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	0116		The print job continues and the warning is logged. Status is marked as 'Completed' in the Job viewer.
	B600		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.

Service Status	Error Code	Further Meaning	Behavior
	B601		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B602		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B603		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B605		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B606		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	B608		The print job is terminated and the warning is logged. Status is marked as 'Permanently Failed' in the Job viewer with detail.
	xxxx	(any other warning)	Print job is terminated, the warning is logged, and the association is released.

Most of the warnings are treated as errors as the MR Print AE has no capability to recover from them producing a proper print.

**4.2.2.4. Association Acceptance Policy**

The MR System Print AE does not accept any Associations.

**4.3. Network Interfaces**

**4.3.1. Physical Network Interfaces**

The MR System supports DICOM TCP/IP Network Communication as defined in PS 3.8 of the standard. No OSI stack communications are provided with this implementation. TCP/IP is the only protocol stack supported.

The MR System supports Ethernet v2.0 and IEEE 802.3, 10/100/1000 Base-T.

The TCP/IP Stack as supported by the underlying Microsoft Windows Operating System.

**4.3.2. Additional Protocols**

Not applicable. MR System does not support additional protocols.

**4.3.3. IPv4 and IPv6 Support**

MR supports both IPv4 and IPv6.

## 4.4. Configuration

The configuration of the various DICOM services on the MR system are determined at the time of installation. This can also be changed. This chapter describes all the relevant parameters.

### 4.4.1. AE Title/Presentation Address Mapping

The DICOM operation of the MR system is configured with the Service Application tool. This tool can be started after logging in to the operating system. It is password protected and intended to be used by Philips Customer Support Engineers only.

#### 4.4.1.1. Local Network settings

The local network settings of the MR system can be made in two ways.

- Automatically via DHCP (hospital provided).
- By assigning a dedicated IP address, subnet mask, gateway and DNS server manually.

This is determined during the installation of the MR System. It is strongly advised to use only a manually assigned IP address.

The MR System host name is configured via the Computer Name in the MS operating system.

#### 4.4.1.2. Local AE Titles and listen port

The local AE title mapping and configuration is as specified in below table.

**Table 86: AE Title configuration table**

Application Entity	Default AE Title	Default TCP/IP Port
Network AE	NODENAME	104*
Print AE	NODENAME	104*

\* The default TCP/IP listen port number for Network AE and Print AE is 104. If needed this listen port number can be changed.

#### 4.4.1.3. Remote AE Title/Presentation Address Mapping

This section describes the configuration of remote DICOM nodes on the MR system.

NOTE: For MOVE to a third node this node must be known at the MR system (that act as SCU) and also at the station that will start the STORE operation, as this information will be used by the MR system in the MOVE command to initiate the STORE action.

##### Remote Association Acceptors (SCP) Configuration:

All remote DICOM nodes that are able to accept an association from the MR System must be configured on the MR System with the following information:

- IP Address or Host name
- listening port number.
- AE Title.

##### Remote Association Initiators (SCU) Configuration:

All remote DICOM nodes that are able to initiate an association with the MR System (that act as SCP) must be configured on the MR System with the following information: • IP Address or Host name

- listening port number.
- AE Title.

### 4.4.2. Configurable parameters

This section describes all the parameters that can be configured on the MR system via the service application tool. These parameters are organized in the following groups:

- Parameters of the local MR AE.
- Parameters for the remote DICOM nodes.
- General Print Parameters.
- Printer Specific Print Parameters.

**Table 87: Configuration Parameters Table**

Parameter	Configurable	Default Value
<b>Local node Parameters</b>		
AE title	Yes	MySCU
Port Number	Yes	104
Maximum PDU Length (for incoming association) in Bytes	Yes	32768
Network Timeout (seconds)	No	30 sec
Artim Timeout	Yes	30 sec
Support SOP classes	No	(refer Table1 for supported SOP class)
Supported Transfer Syntaxes	No	ELE ILE EBE JPEG Lossless Non-Hierarchical FOP (Process 14) In order in which these are listed above determines the prevalence.
Institution name	Yes	Must be shorter than 64 characters
Automatic association timeout	No	10 sec
Automatic association timeout SCP	No	QR=5sec / RIS=60 sec / other=3600 sec
<b>Remote node Parameters</b>		
Size constraint in maximum object size	No	-
Maximum data PDU Length (for associations initiated on the MR) in Bytes	Yes	32768
Network reply timeout (SCU)	Yes	3600 sec (set to 60 sec for MR Images SOP export)
Artim timeout	Yes	60 sec

Parameter	Configurable	Default Value
Supported SOP classes.	Yes	Depends on used template; SOP classes can be configured as per Table1 for sending and receiving.
Supported Transfer Syntaxes	Yes	ELE EBE ILE JPEG Lossless Non-Hierarchical FOP (Process 14) In order in which these are listed above determines the prevalence.
Storage Commit Mode	Yes	Asynchronous or Synchronous
Is Archive	Yes	If set to Yes, then the network node is an archive.
Send Storage Commit Request	Yes	Only when 'IsArchive' is Yes.
Pure DICOM (Do not send private attributes: only standard attributes)	Yes	No (= send all attributes)
Write SQ Explicit Length	Yes	No
Verify Objects	Yes	NONE
Combine MR Rescaling for pixel calibration	Yes	Checkbox not checked
No LUT-2-RGB conversion	Yes	Checkbox is checked
ADC correction	Yes	Checkbox not checked
Splitting Series on export	Yes	Echo/Dynamic/Diffusion Image Type / Scanning Sequence
<b>General DICOM Print Parameters</b>		
The DICOM printers that may be selected by the operator	Yes	Per template
<b>Printer Specific Print Parameters (Paper)</b>		
Name	Yes	New Printer
Printer Type	Yes	3M-HQ969-DICOM
Host Name or IP Address	Yes	-
AE Tittle	Yes	AE_Print
Port Number	Yes	3950
Media Names	Yes	(Depends on used template)
Type of Film	Yes	(Depends on used template)

The MR System can print to only one DICOM printer at a time.

Some remarks to configurable Parameters for Remote Systems:

- The Basic Worklist Management services may be configured for one or more RIS stations.
- Multiple MPPS nodes can be configured but MPPS message will only be sent to one node.
- PACS node will be configured with IsArchive set to true.
- With the MR System it is possible to 'auto-push' the MR images to a selected remote application.  
Whether or not to auto-push a scan is defined in the scan protocol.

## 5. Media Interchange

### 5.1. Implementation model

The implementation model identifies the DICOM Application Entities for Media in specific implementation and relates the Application Entities to Real-World Activities.

#### 5.1.1. Application Data Flow Diagram

Figure as below shows the Media Interchange Application Data Flow diagram presenting all of the Application Entities present in an implementation and graphically depicting the relationship of the AE's, use of DICOM to Real-World Activities.

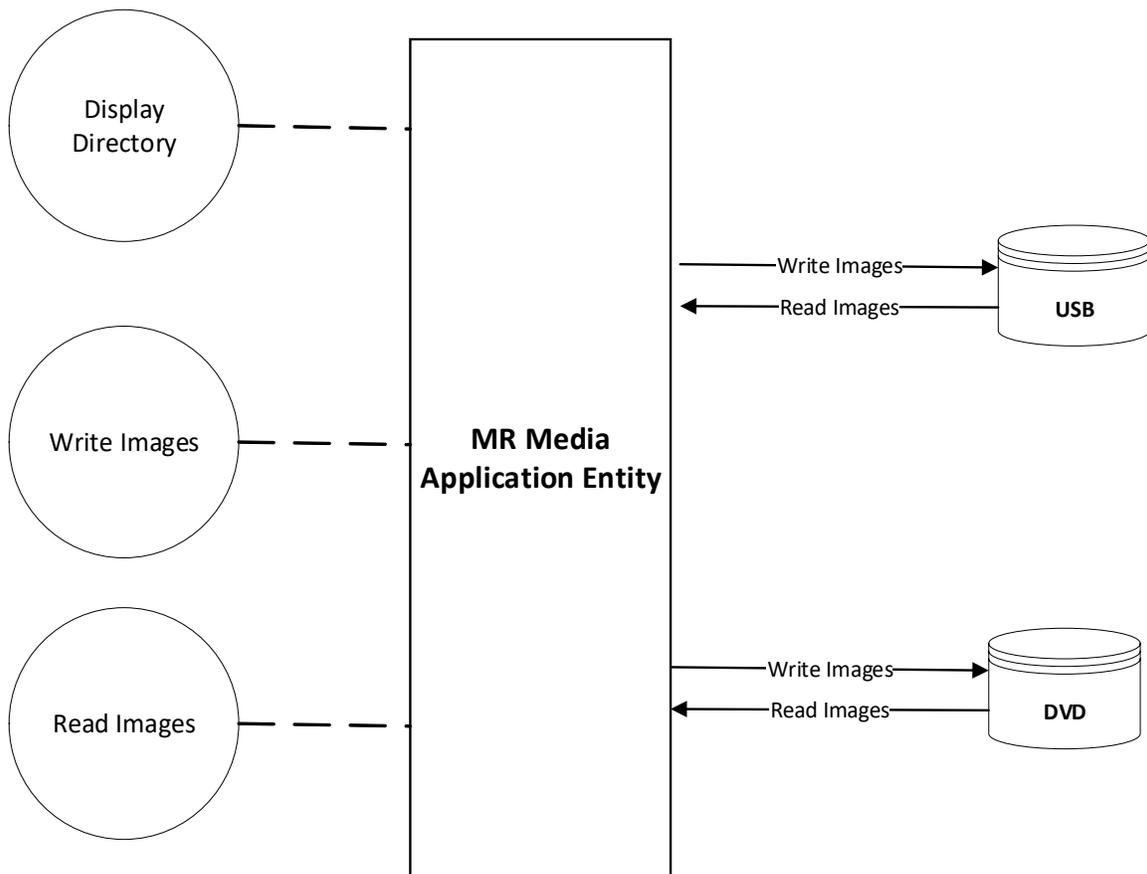


Figure 18: Media Interchange Application Data Flow Diagram

The supported DICOM Media Services are specified in below table.

Table 88: Media Services

Media Storage Application Profile	File-set Creator (FSC)	File-set Updater (FSU)	File-set Reader (FSR)
<b>USB</b>			
General Purpose USB Media Interchange	Yes	Yes	Yes

Media Storage Application Profile	File-set Creator (FSC)	File-set Updater (FSU)	File-set Reader (FSR)
<b>DVD</b>			
General Purpose DVD Media Interchange	Yes	No	Yes
CT/MR Studies on DVD Media	Yes	No	Yes

**Table 89: Photometric interpretations supported by the MR AE**

Photometric Interpretation	Import	Export	Viewing
RGB (only SC)	YES	YES	YES
MONOCHROME2	YES	YES	YES

**Table 90: Transfer Syntaxes of Media supported by the MR AE**

Abstract Syntax Name / UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
Any of the standard image storage and ELE	ELE	1.2.840.10008.1.2.1	SCU	None

The MR system supports the Media transfer syntax listed in above table. The supported transfer syntax is ELE.

### 5.1.2. Functional Definitions of AE's

The Media AE is the one and only Media Application Entity within the MR System. It includes the following service class.

For DVD+RW the Media AE can perform in one or more of the following 2 roles:

- RWA Display Directory (as FSR);
- RWA Read Image (as FSR);
- RWA Write Image (as FSC).

For USB the Media AE can perform in one or more of the following 3 roles:

- RWA Display Directory (as FSR);
- RWA Read Image (as FSR);
- RWA Write Image (as FSC and FSU).

Using initialized media, Write Images can be initiated by selecting the requested images and clicking the media copy button.

### 5.1.3. Sequencing of Real World Activities

Whenever media has to be written the Media AE first tries to read the DICOMDIR. Then the Media AE will write the images of the selected Examinations and the updated DICOMDIR to the DICOM media.

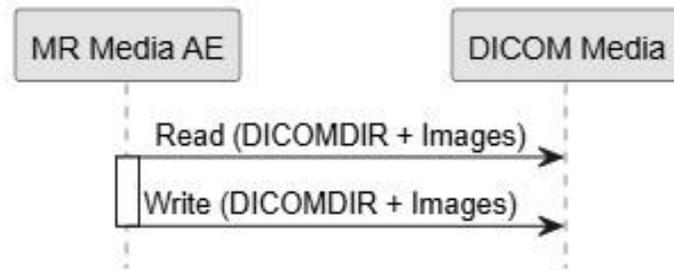


Figure 19: Sequencing of RWA Read and Write Image

## 5.2. AE Specifications

This section in the DICOM Conformance Statement specifies a set of Media Application Entities.

### 5.2.1. MR Media AE - Specification

The Media AE provides standard conformance to the DICOM Media Storage Service and File Format ([DICOM] PS 3.10),

Media Storage Application Profiles STD-GEN-DVD and STD-CTMR-DVD ([DICOM] PS 3.11), and Media Storage Application Profiles STD-GEN-USB ([DICOM] PS 3.11) for reading and writing.

For one or more Application Profiles, the following table shows the Real-World Activities and the roles of each of these Real-World Activities.

Notes:

- Read File-set = Display Directory, Read Image
- Create File-set = Write Image (using ELE only)
- Update File-set = Write Image (using ELE only)
- Write Image to DVD is DVD+RW only

Table 91: AE MR Media AE related Application Profiles, RWA activities and roles

Supported Application Profile	Identifier	Real-World Activities	Roles
General Purpose USB Media Interchange	STD-GEN-USB	Create File-set	FSC
		Read File-set	FSR
		Update File-set	FSU
CT/MR Studies on DVD Media	STD-CTMR-DVD	Create File-set	FSC
		Read File-set	FSR
General Purpose DVD Interchange	STD-GEN-DVD	Create File-set	FSC
		Read File-set	FSR

#### 5.2.1.1. File Meta Information for the MR Media AE

The Implementation Class UID and the Implementation Version Name in the File Meta Header are as specified for networking.

The Media AE has no specific File Meta Information.

The following values are assigned to the File Meta Information attributes (see also PS 3.10) that pertain to the Implementation Class and Version.

**Table 92: File Meta Information for the MR Media AE**

Implementation Class UID	1.3.46.670589.54.2.1.0.0
Implementation Version Name	MR_1.0.0

**5.2.1.2. Real-World Activities**

The AE specification contains a description of the Real-World Activities, which invoke the particular AE.

**5.2.1.2.1. RWA - Read File-set**

The Media AE supports the FSR (File Set Reader) role to interchange stored data on DICOM media. (Display Directory and Read Image).

**Display Directory:**

When a database open action is initiated on the media then the Media AE acts as an FSR using the interchange option to read the DICOMDIR of the medium.

The MR System will act as a FSR when reading the directory (DICOMDIR) of the medium. This allows the System Integrator to see the results in an overview of the patients, studies, series presentation states and images.

The MR system will not access DICOM media when either:

- Patient ID is absent; or
- Study Instance UID has no value; or
- Series Instance UID has no value.

**Read Images**

The MR System Media AE will act as a FSR when reading all images of the selected Examinations from DICOM media. Only images made on a Philips MR System will be imported again; these imported images are to be used for reference only, it is not intended to export them again. Images without the Philips private attributes are not imported.

**5.2.1.2.1.1. Media Storage Application Profile**

This chapter refers to the related Application Profiles in Table in [section 5.2.1.](#)

**5.2.1.2.1.1.1. Options**

**Display Directory**

The mandatory DICOMDIR keys are required for the correct display of directory information. The display is structured according the DICOM Composite Information Model: Patient, Study, Series, and Image.

**Read Image**

The mandatory attributes of the DICOM images are required for the successfully storage of the images in the MR System internal image database. For conformance see section 8..

#### 5.2.1.2.2. RWA - Create File-set

This Media Application Entity has a File-set Creator functionality which is described here.

##### **Write Images**

The Media AE acts as an FSC when writing DICOM objects onto DICOM media. The Media AE can also store private attributes. The DICOMDIR file will be extended when new images are written. In case some attributes are not present in the images but are specified Mandatory in the DICOMDIR definition in DICOM Media, a generated dummy value will be filled in.

#### 5.2.1.2.2.1. Media Storage Application Profile

This chapter refers to the related Application Profiles in Table in [section 5.2.1.](#)

##### 5.2.1.2.2.1.1. Options

Implementation remarks and restriction:

- When writing the DICOMDIR records the following key values are generated if no value of the corresponding attribute is supplied:
  - Patient ID;
  - Study ID;
  - Study Instance UID;
  - Series Number;
  - Series Instance UID;
  - Image Number;
  - SOP Instance UID.
- The mechanism of generating a value for Patient ID creates each time a new value based on Patient's Name for each new study written to DICOM media, even if this study belongs to a patient recorded earlier.
- The default value for the Pixel Intensity Relationship (0028,1040) is set to DISP.
- A number of attributes (e.g., Window Width and Window Centre) can be formatted as floating point numbers.

#### 5.2.1.2.3. RWA - Update File-set

This Media Application Entity supports the File-set Updater functionality (FSU) for USB only.

The Media AE supports the FSU role to interchange stored data on DICOM media (Write Image).

The mandatory DICOMDIR keys are required for the correct display of directory information. The display is structured according to the DICOM Composite Information Model: Patient, Study, Series and Image.

When the medium contains a DICOM file-set then the Media AE acts as an FSU. Thus, it can merge new objects into the existing file-set or can remove objects from that file-set.

##### 5.2.1.2.3.1. Media Storage Application Profile

The Media AE will act as a FSC or FSU when writing all images of the selected Examinations onto the DICOM media.

The MR System Media AE will act as a FSC when writing all images of the selected Examinations to DICOM media. All Images made on an MR System can be exported. This results in writing the patients, studies, series and images on the MR System to the DICOM medium.

#### 5.2.1.2.3.1.1. Options

The mandatory DICOM attributes are verified before accepting imported SOP instances.

The DICOMDIR file will be extended when new images are written. In case some attributes are not present in the images but are specified Mandatory in the DICOMDIR definition in DICOM Media, a generated dummy value will be filled in.

Implementation remarks and restriction:

- When writing the DICOMDIR records the following key values are generated if no value of the corresponding attribute is supplied:
  - Patient ID;
  - Study ID;
  - Study Instance UID;
  - Series Number;
  - Series Instance UID;
  - Image Number;
  - SOP Instance UID.
- The mechanism of generating a value for Patient ID creates each time a new value based on Patient's Name for each new study written to DICOM media, even if this study belongs to a patient recorded earlier.

### 5.3. Augmented and Private Application Profiles

Not applicable. Augmented and Private Application profiles are not implemented by MR System.

### 5.4. Media Configuration

Not Applicable. Media Configurations are not implemented by MR System.

## 6. Support of Character Sets

Any support for character sets in Network and Media services is described here.

**Table 93: Supported DICOM Character Sets**

Character Set Description	Defined Term	ESC Sequence	ISO Registration Number	Code Element	Character Set
GB18030	GB18030	-	-	-	-
Latin alphabet No. 1	ISO 2022 IR 100	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/01	ISO-IR 100	G1	Supplementary set of ISO 8859
Latin alphabet No. 2	ISO 2022 IR 101	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/02	ISO-IR 101	G1	Supplementary set of ISO 8859
Latin alphabet No. 3	ISO 2022 IR 109	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/03	ISO-IR 109	G1	Supplementary set of ISO 8859
Latin alphabet No. 4	ISO 2022 IR 110	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/04	ISO-IR 110	G1	Supplementary set of ISO 8859
Greek	ISO 2022 IR 126	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/06	ISO-IR 126	G1	Supplementary set of ISO 8859
Arabic	ISO 2022 IR 127	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/07	ISO-IR 127	G1	Supplementary set of ISO 8859
Japanese	ISO 2022 IR 13	ESC 02/08 04/10	ISO-IR 14	G0	JIS X 0201: Romaji
		ESC 02/09 04/09	ISO-IR 13	G1	JIS X 0201: Katakana
Hebrew	ISO 2022 IR 138	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/08	ISO-IR 138	G1	Supplementary set of ISO 8859
Cyrillic	ISO 2022 IR 144	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/12	ISO-IR 144	G1	Supplementary set of ISO 8859
Latin alphabet No. 5	ISO 2022 IR 148	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 04/13	ISO-IR 148	G1	Supplementary set of ISO 8859

Character Set Description	Defined Term	ESC Sequence	ISO Registration Number	Code Element	Character Set
Thai	ISO 2022 IR 166	ESC 02/08 04/02	ISO-IR 6	G0	ISO 646
		ESC 02/13 05/04	ISO-IR 166	G1	TIS 620-2533 (1990)
Default repertoire	ISO IR 6	-	ISO-IR 6	G0	ISO 646
Latin alphabet No. 1	ISO_IR 100	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 100	G1	Supplementary set of ISO 8859
Latin alphabet No. 2	ISO_IR 101	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 101	G1	Supplementary set of ISO 8859
Latin alphabet No. 3	ISO_IR 109	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 109	G1	Supplementary set of ISO 8859
Latin alphabet No. 4	ISO_IR 110	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 110	G1	Supplementary set of ISO 8859
Greek	ISO_IR 126	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 126	G1	Supplementary set of ISO 8859
Arabic	ISO_IR 127	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 127	G1	Supplementary set of ISO 8859
Japanese	ISO_IR 13	-	ISO-IR 14	G0	JIS X 0201: Romaji
		-	ISO-IR 13	G1	JIS X 0201: Katakana
	ISO 2022 IR 87	ESC 02/04 04/02	ISO-IR 87	G0	JIS X 0208: Kanji
	ISO_IR 159 (does not exist, keep for legacy)	-	ISO-IR 159	G0	JIS X 0212: Kanji
Hebrew	ISO_IR 138	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 138	G1	Supplementary set of ISO 8859
Cyrillic	ISO_IR 144	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 144	G1	Supplementary set of ISO 8859

Character Set Description	Defined Term	ESC Sequence	ISO Registration Number	Code Element	Character Set
Latin alphabet No. 5	ISO_IR 148	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 148	G1	Supplementary set of ISO 8859
Thai	ISO_IR 166	-	ISO-IR 6	G0	ISO 646
		-	ISO-IR 166	G1	TIS 620-2533 (1990)
Unicode in UTF-8	ISO_IR 192	-	-	-	-
Korean	ISO 2022 IR 149	ESC 02/04 02/09 04/03	ISO-IR 149	G1	KS X 1001: Hangul and Hanja

- The default character set for the MR System is ISO\_IR 100. If nothing is defined the MR system uses ISO-IR 6, as per DICOM Standard.
- When an unsupported character is received it shall be tried and decoded according to the default repertoire. Otherwise, unsupported characters shall be displayed as "?".
- The MR System supports Japanese character sets only for use in the Patient’s Name attribute (0010,0010).
- Internally the MR System only uses Unicode characters. This implies that text will be displayed as Unicode too.
- If RIS worklist contains a Specific Character Set attribute that is not empty and not supported according to Table 93 then the MR System will send a C-CANCEL request to the RIS and a “RIS ERROR” message will be displayed; the MR System will reject the RIS import.

## 7. Security

### 7.1. Security Profiles

If configured MR System supports the following security measures:

- Secure transport using TLS
- De-identification of data for export.
- Time Synchronization Profile.

#### 7.1.1. Security Use Profiles

Not applicable. Security use Profiles are not implemented by MR System.

#### 7.1.2. Security Transport Connection Profiles

Secure communication is a “mode of operation” of the MR System supported by the implementation of the DICOM TLS 1.2 Secure Transport Connection Profile. This functionality will be used by the nodes that can authenticate each other before they exchange DICOM information. For secure communication the TLS protocol v1.2 is used which provides message authentication, integrity, confidentiality, and replay protection. Confidentiality is optional and can be controlled by the encryption settings.

The MR System may communicate using the following Cipher Suites:

1. TLS\_RSA\_WITH\_NULL\_SHA (Node authentication without encryption)
2. TLS\_RSA\_WITH\_3DES\_SHA (Node authentication with encryption)
3. TLS\_ECDHE\_RSA\_WITH\_AES\_256\_GCM\_SHA384
4. TLS\_ECDHE\_RSA\_WITH\_AES\_128\_GCM\_SHA256
5. TLS\_DHE\_RSA\_WITH\_AES\_128\_GCM\_SHA256
6. TLS\_ECDHE\_ECDSA\_WITH\_AES\_256\_CBC\_SHA384
7. TLS\_ECDHE\_RSA\_WITH\_AES\_256\_CBC\_SHA384
8. TLS\_ECDHE\_RSA\_WITH\_AES\_128\_CBC\_SHA256
9. TLS\_ECDHE\_ECDSA\_WITH\_AES\_256\_CBC\_SHA
10. TLS\_ECDHE\_ECDSA\_WITH\_AES\_128\_CBC\_SHA
11. TLS\_ECDHE\_RSA\_WITH\_AES\_256\_CBC\_SHA
12. TLS\_ECDHE\_RSA\_WITH\_AES\_128\_CBC\_SHA
13. TLS\_RSA\_WITH\_AES\_128\_GCM\_SHA256
14. TLS\_RSA\_WITH\_AES\_256\_CBC\_SHA256
15. TLS\_RSA\_WITH\_AES\_128\_CBC\_SHA256
16. TLS\_RSA\_WITH\_AES\_256\_CBC\_SHA
17. TLS\_RSA\_WITH\_AES\_128\_CBC\_SHA
18. TLS\_RSA\_WITH\_3DES\_EDE\_CBC\_SHA
19. TLS\_DHE\_RSA\_WITH\_AES\_256\_CBC\_SHA
20. TLS\_DHE\_RSA\_WITH\_AES\_128\_CBC\_SHA
21. TLS\_DHE\_DSS\_WITH\_3DES\_EDE\_CBC\_SHA
22. TLS\_RSA\_WITH\_RC4\_128\_SHA
23. TLS\_RSA\_WITH\_RC4\_128\_MD5

The MR System supports X.509 certificates. The following TLS Certification checks will be done (TLS Handshake). The machine (either server or client) that will send its certificate will:

1. Choose the certificate according to Common Name (CN) value in the Subject-field. This name is case-sensitive. All present certificates should have unique CN names.
2. The server verifies
  - that the client certificate is a X.509 certificate which is not tampered with
  - that the client certificate is in the list of trusted certificates
  - that the client certificate is not expired (present time is between "Valid From" and "Valid To" fields of the X.509 certificate).
  - that the client certificate has the correct purpose (at least the Client Authentication purpose)
3. The client verifies
  - that the server certificate is a X.509 certificate which is not tampered with
  - that the server certificate is in the list of trusted certificates
  - that the server certificate is not expired (present time is between "Valid From" and "Valid To" fields of the X.509 certificate)
  - that the server certificate has the correct purpose (at least Server Authentication purpose)

No verification is done on:

- revocation of certificates
- limiting the connection to a limited set of IP-addresses.

Node authentication with or without encryption is only possible when both nodes have:

- an access to their own private keys
- an access to a copy of the certificate of the other node containing its public key

The MR System can only read certificates from the certificate stores of the HKEY\_LOCAL\_MACHINE registry key. It is the responsibility of the Hospital to setup and maintain the certificate stores. This includes the removal of revoked certificates and certificate updates prior to their expiration. Since neither X.500 directories, Lightweight Directory Access Protocol (LDAP) nor Certificate Revocation Lists (CRLs) are supported, the whole certificate chain needs to be replaced after a security breach.

Figure below presents the message flow of TLS handshake supported by the MR System.

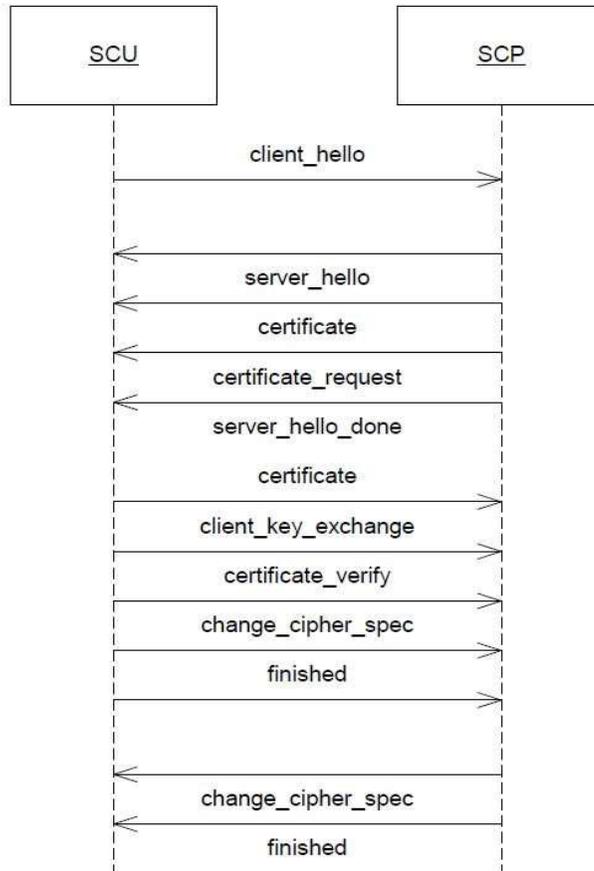


Figure 20: Message flow of TLS handshake

### 7.1.3. Digital Signature Profiles

Not applicable. Digital Signature are not implemented by MR System.

### 7.1.4. Media Storage Security Profiles

Not applicable. Media Storage Security Profiles are not implemented by MR System.

### 7.1.5. Attribute Confidentiality Profiles

This functionality is targeted toward creating a special purpose, de-identified version of an already-existing Data Set. The de-identified SOP Instances are useful, for example, in creating teaching or research files, where the identity of the patient should be protected. The MR System does not create instances of the Encrypted Attributes Data Set; therefore, reconstruction of the original Data Set will not be possible.

Below table presents all attributes that can be de-identified by the MR System. Each Attribute to be protected has its value replaced by a different “replacement value” which does not allow identification of the patient. Integrity of dummy values for references (such as SOP Instance UID, etc.) if multiple SOP instances are protected is ensured within the scope of one job.

The MR System does not ensure that identifying information that is burned into the image pixel data is “blackened” (removed).

Below table specifies the attributes that are modified when de-identification is performed (Suppression).

The following action codes are used in Table:

- D - replace with a non-zero length value that may be a dummy value and consistent with the VR
- Z - replace with a zero length value, or a non-zero length value that may be a dummy value and consistent with the VR
- X - remove
- U - replace with a non-zero length UID that is internally consistent within a set of Instances

Note: Private sequence attributes are retained as is.

**Table 94: Basic Application Level Confidentiality Profile Attributes**

Attribute Name	Tag	Standard Basic Prof.	De-Identification support
Accession Number	(0008,0050)	Z	Z
Acquisition Context Sequence	(0040,0555)	X/Z	Z
Acquisition Date	(0008,0022)	X/Z	X
Acquisition DateTime	(0008,002A)	X/Z/D	X
Acquisition Device Processing Description	(0018,1400)	X/D	D
Acquisition Time	(0008,0032)	X/Z	X
Additional Patient History	(0010,21B0)	X	X
Allergies	(0010,2110)	X	X
Concatenation UID	(0020,9161)	U	U
Consulting Physician's Name	(0008,009C)	Z	Z
Content Creator's Name	(0070,0084)	Z/D	D
Content Date	(0008,0023)	Z/D	D
Content Sequence	(0040,A730)	D	D
Content Time	(0008,0033)	Z/D	D
Contrast Bolus Agent	(0018,0010)	Z/D	D
Current Patient Location	(0038,0300)	X	X
Date of Secondary Capture	(0018,1012)	X	X
Detector ID	(0018,700A)	X/D	D
Device Serial Number	(0018,1000)	X/Z/D	X
Device UID	(0018,1002)	U	U
Digital Signature UID	(0400,0100)	U	U
Dimension Organization UID	(0020,9164)	U	U

Attribute Name	Tag	Standard Basic Prof.	De-Identification support
Dose Reference UID	(300A,0013)	U	U
End Acquisition DateTime	(0018,9517)	X/D	D
Ethnic Group	(0010,2160)	X	X
Failed SOP Instance UID List	(0008,0058)	U	U
Fiducial UID	(0070,031A)	U	U
Filler Order Number / Imaging Service Request	(0040,2017)	Z	D
First Treatment Date	(3008,0054)	X/D	D
Frame of Reference UID	(0020,0052)	U	U
Graphic Annotation Sequence	(0070,0001)	D	Z
Imaging Service Request Comments	(0040,2400)	X	X
Instance Creation Date	(0008,0012)	X/D	D
Instance Creation Time	(0008,0013)	X/Z/D	D
Instance Creator UID	(0008,0014)	U	U
Instance Origin Status	(0400,0600)	X	X
Institution Address	(0008,0081)	X	X
Institution Code Sequence	(0008,0082)	X/Z/D	Z
Institution Name	(0008,0080)	X/Z/D	X
Institutional Department Name	(0008,1040)	X	X
Irradiation Event UID	(0008,3010)	U	U
Media Storage SOP Instance UID	(0002,0003)	U	U
Medical Alerts	(0010,2000)	X	X
Most Recent Treatment Date	(3008,0056)	X/D	D
Names of Intended Recipients of Results	(0040,1010)	X	X
Observation Subject UID (Trial)	(0040,A402)	U	U
Observation UID	(0040,A171)	U	U
Operators' Identification Sequence	(0008,1072)	X/D	D
Operators' Name	(0008,1070)	X/Z/D	X
Other Patient IDs	(0010,1000)	X	X
Palette Color Lookup Table UID	(0028,1199)	U	U

Attribute Name	Tag	Standard Basic Prof.	De-Identification support
Patient Comments	(0010,4000)	X	X
Patient ID	(0010,0020)	Z/D	D
Patient Sex Neutered	(0010,2203)	X/Z	Z
Patient's Age	(0010,1010)	X	X
Patient's Birth Date	(0010,0030)	Z	Z
Patient's Birth Time	(0010,0032)	X	X
Patient's Institution Residence	(0038,0400)	X	X
Patient's Name	(0010,0010)	Z	Z
Patient's Sex	(0010,0040)	Z	Z
Patient's Size	(0010,1020)	X	X
Patient's Weight	(0010,1030)	X	X
Performed Location	(0040,0243)	X	X
Performed Procedure Step Description	(0040,0254)	X	X
Performed Procedure Step End Date	(0040,0250)	X	X
Performed Procedure Step End Time	(0040,0251)	X	X
Performed Procedure Step ID	(0040,0253)	X	X
Performed Procedure Step Start Date	(0040,0244)	X	X
Performed Procedure Step Start Time	(0040,0245)	X	X
Performed Station AE Title	(0040,0241)	X	X
Performed Station Name	(0040,0242)	X	X
Performing Physician's Name	(0008,1050)	X	X
Person Identification Code Sequence	(0040,1101)	D	D
Person Name	(0040,A123)	D	D
Physician(s) of Record	(0008,1048)	X	X
Placer Order Number / Imaging Service Request	(0040,2016)	Z	Z
Pregnancy Status	(0010,21C0)	X	X
Presentation Display Collection UID	(0070,1101)	U	U
Presentation Sequence Collection UID	(0070,1102)	U	U
Referenced Dose Reference UID	(300A,0083)	U	U

Attribute Name	Tag	Standard Basic Prof.	De-Identification support
Referenced Frame of Reference UID	(3006,0024)	U	U
Referenced General Purpose Scheduled Procedure Step Transaction UID	(0040,4023)	U	U
Referenced Image Sequence	(0008,1140)	X/Z/U	Z
Referenced Observation UID (Trial)	(0040,A172)	U	U
Referenced Performed Procedure Step Sequence	(0008,1111)	X/Z/D	X
Referenced SOP Instance UID in File	(0004,1511)	U	U
Referenced Study Sequence	(0008,1110)	X/Z	X
Referring Physician's Name	(0008,0090)	Z	Z
Related Frame of Reference UID	(3006,00C2)	U	U
Request Attributes Sequence (including all sequence attributes)	(0040,0275)	X	X
Requested Procedure Comments	(0040,1400)	X	X
Requested Procedure Description	(0032,1060)	X/Z	X
Requested Procedure ID	(0040,1001)	X	X
Requesting Physician	(0032,1032)	X	X
Requesting Service	(0032,1033)	X	X
Reviewer Name	(300E,0008)	X/Z	Z
RT Plan Date	(300A,0006)	X/D	D
RT Plan Label	(300A,0002)	D	D
RT Plan Time	(300A,0007)	X/D	D
Series Date	(0008,0021)	X/D	X
Series Description	(0008,103E)	X	X
Series Instance UID	(0020,000E)	U	U
Series Time	(0008,0031)	X/D	X
SOP Instance UID	(0008,0018)	U	U
Source Image Sequence	(0008,2112)	X/Z/U	U
Source Serial Number	(3008,0105)	X/Z	Z
Start Acquisition DateTime	(0018,9516)	X/D	D
Station Name	(0008,1010)	X/Z/D	X

Attribute Name	Tag	Standard Basic Prof.	De-Identification support
Storage Media File-set UID	(0088,0140)	U	U
Study Comments	(0032,4000)	X	X
Study Date	(0008,0020)	Z	Z
Study Description	(0008,1030)	X	X
Study ID	(0020,0010)	Z	Z
Study Instance UID	(0020,000D)	U	U
Study Time	(0008,0030)	Z	Z
Synchronization Frame of Reference UID	(0020,0200)	U	U
Target UID	(0018,2042)	U	U
Template Extension Creator UID	(0040,DB0D)	U	U
Template Extension Organization UID	(0040,DB0C)	U	U
Time of Secondary Capture	(0018,1014)	X	X
Timezone Offset From UTC	(0008,0201)	X	X
Tracking UID	(0062,0021)	U	U
Transaction UID	(0008,1195)	U	U
Treatment Date	(3008,0250)	X/D	D
Treatment Time	(3008,0251)	X/D	D
UID	(0040,A124)	U	U
Verifying Observer Identification Code Sequence	(0040,A088)	Z	Z
Verifying Observer Name	(0040,A075)	D	D
Verifying Observer Sequence	(0040,A073)	D	D
Verifying Organization	(0040,A027)	D	D

### 7.1.6. Network Address Management Profiles

Not applicable. Network Address Management Profiles are not implemented by MR System.

### 7.1.7. Time Synchronization Profiles

MR System conforms to the Basic Time Synchronization Profile as NTP client.

### 7.1.8. Application Configuration Management Profiles

Not applicable. Application Configuration management Profiles are not implemented by MR System.

### 7.1.9. Audit Trail Profiles

#### 7.1.9.1. Generation of Audit Records

The MR System can create audit messages according to the IHE Basic Security Integration Profile [IHE] to audit activities, to detect non-compliant behavior in the enterprise, and to facilitate detection of improper creation, access, modification and deletion of Protected Health Information (PHI). These messages may contain information that identifies the patient. The following messages will be created and sent to a central Audit Record Repository according to the Syslog protocol [SYSLOG]:

The MR subsystem supports Audit events mentioned in below table.

**Table 95: List of supported events**

Audit Event Trigger	Description	Message DICOM PS 3.15 A.5.3
Actor-start-stop	When application has started or is closed.	Application Activity
Audit-log-used	When audit logs are accessed.	Audit log used
Begin-storing-instances	Begin storing SOP Instances for a study to an external repository.	Begin Transferring DICOM Instances
Instances-Stored	Storage of SOP instances to a remote repository has been completed.	DICOM Instances Transferred
Node-Authentication-failure	A secure node authentication failure has occurred during TLS negotiation, e.g., invalid certificate.	Security Alert
Patient-record	Patient is created/Updated/Merged	Patient record
PHI-export	Any export of PHI to media.	Export
PHI-import	Any import of PHI from media.	Import
Query Information	A query has been initiated from patient directory to a remote node.	Query
Security Alert	When software, security or networking configuration of the system is changed via the field service functionality.	Security Alert
Instances-deleted	SOP Instances are deleted from a specific study. One event covers all instances deleted for the particular study.	DICOM Instances Accessed” or “DICOM Study Deleted
Study-used	SOP Instances from a specific study are created or accessed. One event covers all instances used for the particular study.	DICOM Instances Accessed

If the central Audit Record Repository is not available, the audit trail record will be stored by the MR System in a local buffer. Once the central Audit Record Repository is available again, the content of that buffer will be transferred to the central Audit Record Repository.

The time that is part of the audit message will be the local time of the MR System. This time will be synchronized with a Time Server. The Time Server and central Audit Record Repository are elements of the Hospital infrastructure.

## 7.2. Association Level Security

The MR System accepts associations only from known applications or an application whose “calling AE Title” is defined in its configuration file. The MR System will reject association requests from unknown applications, i.e. applications that offer an unknown “calling AE title”. An application entity (AE) is known if – and only if – it is defined during configuration of the MR System, which is done via the configuration application.

## 7.3. Application Level Security

The MR System allows the use of either DIMSE secure or non-secure communication, the secure communication is based on the Transport Layer Security (TLS) protocol [TLS]. If configured, the MR System supports security measures for:

1. secure authentication of a node
2. integrity and confidentiality of transmitted data
3. replay protection
4. generation of audit trail records
5. Access control and user authentication.

## 8. Annexes of application “MR System”

### 8.1. Information Object Definitions (IODs) Content

#### 8.1.1. Created SOP Instance

This section describes all the SOP Instances natively created by MR System.

In the "Source" column, the following Values can be used:

- **FIXED:** The Value is pre-defined and cannot be modified.
- **GENERATED:** The Value is generated by the system.
- **CONFIGURATION:** The Value is copied from the system configuration.
- **MWL:** The Value is copied from a Modality Worklist entry.
- **QUERY:** The Value is determined by performing a query of any of the supported Query/Retrieve Services.
- **USER:** The Value is entered by the user.
- **SCANNED:** The Value is read from a barcode scanner or similar device.
- **EMPTY:** The Attribute is sent with a zero-length Value.
- **SRC\_INSTANCE:** The Value is copied from previously created/received SOP Instances.

The "Presence" columns reflect the usage of the Module, Functional Group Macro, Attributes, or Value in the MR System Implementation and is not necessarily the same as defined in the DICOM Standard. For the "Presence" column the following Values can be used:

- **ALWAYS:** the module, functional group macro, Attributes or Value is always present.
- **CONDITIONAL:** the presence of the module, functional group macro, Attributes or Value is dependent on a condition. The condition must be listed in the "Conditions" column.
- **SRC\_COPY:** The presence of the Attributes and Values depends on the availability of these in the source instances, which are used for copying this information.
- **EMPTY:** The Attribute is present but without a Value (zero length).

**8.1.1.1. List of created SOP Classes**

**Table 96: List of created SOP Classes**

SOP Class Name	SOP Class UID
CT Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.2
Enhanced MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.1
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1
MR Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.4
MR Spectroscopy Storage SOP Class	1.2.840.10008.5.1.4.1.1.4.2
Secondary Capture Image Storage SOP Class	1.2.840.10008.5.1.4.1.1.7
Raw Data Storage SOP Class	1.2.840.10008.5.1.4.1.1.66
RT Structure Set SOP Class	1.2.840.10008.5.1.4.1.1.481.3
Media Storage Directory SOP Class	1.2.840.10008.1.3.10
Philips Private MR Spectrum Storage	1.3.46.670589.11.0.0.12.1
Philips Private MR Series Data Storage	1.3.46.670589.11.0.0.12.2
Philips Private MR Examcard Storage	1.3.46.670589.11.0.0.12.4

**8.1.1.2. Information shared across multiple IODs**

**8.1.1.2.1. Common Modules**

All SOP Instances generated by the system use the common modules listed in this section or subset of them, as defined in the IOD specific subsections below.

**Table 97: Patient Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Name	(0010,0010)	MWL USER	ALWAYS	ALWAYS			-
Patient ID	(0010,0020)	MWL USER	ALWAYS	ALWAYS			-
Patient's Birth Date	(0010,0030)	MWL USER	ALWAYS	ALWAYS			-
Patient's Birth Time	(0010,0032)	MWL USER	CONDITIONAL	ALWAYS			-
Patient's Sex	(0010,0040)	MWL USER	CONDITIONAL	ALWAYS			-
Other Patient IDs	(0010,1000)	MWL	CONDITIONAL	ALWAYS			Only present when present in patient demographics received from RIS
Ethnic Group	(0010,2160)	MWL USER	CONDITIONAL	ALWAYS			Only present when present in patient demographics received from RIS
Patient Comments	(0010,4000)	MWL	CONDITIONAL	ALWAYS			Only present when present in patient demographics received from RIS

**Table 98: General Study Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Study Date	(0008,0020)	GENERATED	ALWAYS	ALWAYS			-
Study Time	(0008,0030)	MWL USER	CONDITIONAL	ALWAYS			-
Accession Number	(0008,0050)	GENERATED MWL USER	ALWAYS	ALWAYS			-
Referring Physician's Name	(0008,0090)	MWL USER	ALWAYS	CONDITIONAL			-
Study Description	(0008,1030)	MWL USER	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Procedure Code Sequence	(0008,1032)	MWL USER	CONDITIONAL	ALWAYS			-
>Code Value	(0008,0100)	MWL USER	ALWAYS	ALWAYS			-
>Coding Scheme Designator	(0008,0102)	MWL USER	ALWAYS	ALWAYS			-
>Coding Scheme Version	(0008,0103)	MWL USER	CONDITIONAL	ALWAYS			-
>Code Meaning	(0008,0104)	MWL USER	ALWAYS	ALWAYS			-
>Mapping Resource	(0008,0105)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Version	(0008,0106)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Local Version	(0008,0107)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Extension Flag	(0008,010B)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Extension Creator UID	(0008,010D)	MWL	CONDITIONAL	ALWAYS			-
>Context Identifier	(0008,010F)	MWL	CONDITIONAL	ALWAYS			-
Physician(s) of Record	(0008,1048)	MWL USER	CONDITIONAL	ALWAYS			-
Referenced Study Sequence	(0008,1110)	GENERATED MWL	CONDITIONAL	ALWAYS			As received from RIS.
>Referenced SOP Class UID	(0008,1150)	GENERATED MWL	ALWAYS	ALWAYS			-
>Referenced SOP Instance UID	(0008,1155)	GENERATED MWL	ALWAYS	ALWAYS			-
Study Instance UID	(0020,000D)	GENERATED MWL	ALWAYS	ALWAYS			-
Study ID	(0020,0010)	GENERATED	ALWAYS	ALWAYS			-
Requesting Service	(0032,1033)	MWL USER	CONDITIONAL	ALWAYS			-

**Table 99: Patient Study Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient's Age	(0010,1010)	MWL USER	CONDITIONAL	ALWAYS			-
Patient's Size	(0010,1020)	MWL	CONDITIONAL	ALWAYS			-
Patient's Weight	(0010,1030)	MWL USER	ALWAYS	ALWAYS			-
Medical Alerts	(0010,2000)	MWL USER	CONDITIONAL	ALWAYS			-
Allergies	(0010,2110)	MWL USER	CONDITIONAL	ALWAYS			-
Occupation	(0010,2180)	MWL	CONDITIONAL	ALWAYS			Only present when present in patient demographics received from RIS
Additional Patient History	(0010,21B0)	MWL	CONDITIONAL	ALWAYS			-
Pregnancy Status	(0010,21C0)	MWL USER	CONDITIONAL	ALWAYS			-

**8.1.1.2.2. Common Functional Group Macros**

Not applicable. Supported functional groups are specified individually for each IOD.

**8.1.1.2.3. Common Private Modules**

All SOP Instances generated by the system use the common private modules listed in this section or subset of them, as defined in the IOD specific subsections below.

**Table 100: Private Module DD 001**

Table lists private Module DD 001 and its attributes

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2001 Philips Imaging DD 001	(2001,00xx)	LO	1	NO	GENERATED	ALWAYS	ALWAYS	Philips Imaging DD 001	MR Image IOD Enhanced MR Image IOD MR Spectroscopy IOD Raw Data IOD SC Image IOD GSPS IOD	-
Mr Image Chemical Shift	(2001,xx01)	FL	1	NO	USER	CONDITIONAL	ALWAYS			Only applicable for spectro 2dsi.
Mr Image Chemical Shift Number	(2001,xx02)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			Only applicable for spectro 2dsi.
Mr Image Diffusion B Factor	(2001,xx03)	FL	1	NO	USER	CONDITIONAL	ALWAYS			Only applicable for spectro 2dsi.
Mr Image Diffusion Direction	(2001,xx04)	CS	1	NO	USER	CONDITIONAL	CONDITIONAL			Possible values: P (Preparation Direction), M (Measurement Direction), S (Selection Direction), O (Oblique Direction), I (Isotropic), Only

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
										applicable for diffusion scans.
Mr Image Enhanced	(2001,xx06)	CS	1	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Mr Image Type Edes	(2001,xx07)	CS	1	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Mr Image Phase Number	(2001,xx08)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			When cardiac synchronization used.
Mr Image Prepulse Delay	(2001,xx09)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Image Plane Number	(2001,xx0A)	IS	1	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Image Plane Orientation	(2001,xx0B)	CS	1	NO	MWL USER	CONDITIONAL	ALWAYS			-
Mr Series Arrhythmia Rejection	(2001,xx0C)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mr Series Cardiac Cycled	(2001,xx0E)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mr Series Cardiac Gate Width	(2001,xx0F)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mr Series Cardiac Sync	(2001,xx10)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Mr Series Diffusion Echo Time	(2001,xx11)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			Only applicable for diffusion scans.
Mr Series Dynamic Series	(2001,xx12)	CS	1	NO	USER	ALWAYS	CONDITIONAL			-
Mr Series Epi Factor	(2001,xx13)	SL	1	NO	GENERATED USER	ALWAYS	ALWAYS			-
Mr Series Nr Of Echoes	(2001,xx14)	SL	1	NO	USER	ALWAYS	CONDITIONAL			-
Mr Series Nr Of Locations	(2001,xx15)	SS	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
Mr Series Nr Of Phase Contrast Dirctns	(2001,xx16)	SS	1	NO	USER	ALWAYS	CONDITIONAL			-
Mr Series Nr Of Phases	(2001,xx17)	SL	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
Mr Series Nr Of Slices	(2001,xx18)	SL	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
Mr Series Partial Matrix Scanned	(2001,xx19)	CS	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
Mr Series Pc Velocity	(2001,xx1A)	FL	3	NO	GENERATED USER	ALWAYS	ALWAYS			-
Mr Series Prepulse Delay	(2001,xx1B)	FL	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
Mr Series Prepulse Type	(2001,xx1C)	CS	1	NO	USER	ALWAYS	CONDITIONAL			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Mr Series Reconstruction Number	(2001,xx1D)	IS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Mr Series Reformat Accuracy	(2001,xx1E)	CS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Mr Series Respiration Sync	(2001,xx1F)	CS	1	NO	USER	ALWAYS	CONDITIONAL			-
Mr Series Scanning Technique	(2001,xx20)	LO	1	NO	GENERATED	ALWAYS	ALWAYS			-
Mr Series Sel Part Inversion Recovery	(2001,xx21)	CS	1	NO	USER	ALWAYS	CONDITIONAL			-
Mr Series Water Fat Shift	(2001,xx22)	FL	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
Mr Series Flip Angle	(2001,xx23)	DS	1	NO	GENERATED USER	ALWAYS	ALWAYS			-
Mr Series Is Interactive	(2001,xx24)	CS	1	NO	USER	ALWAYS	CONDITIONAL			-
Mr Series Echo Time Display	(2001,xx25)	SH	1	NO	USER	ALWAYS	CONDITIONAL			-
Presentation State Subtraction Active	(2001,xx26)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Graphic Annotation Id	(2001,xx48)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Sequence	(2001,xx5F)	SQ	1-n	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Private Creator Group 2001 Philips Imaging DD 001	(2001,00xx)	LO	1	NO	GENERATED	ALWAYS	ALWAYS	Philips Imaging DD 001		-
>Stack Number Of Slices	(2001,xx2D)	SS	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Stack Radial Angle	(2001,xx32)	FL	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Stack Radial Axis	(2001,xx33)	CS	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Stack Slice Number	(2001,xx35)	SS	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Stack Type	(2001,xx36)	CS	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
Image Presentation State Uid	(2001,xx52)	UI	1	NO	GENERATED	CONDITIONAL	CONDITIONAL			-
Graphic Line Color	(2001,xx55)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Graphic Type	(2001,xx56)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Xray Contrast Transfer Taste	(2001,xx58)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mr Series Nr Of Stacks	(2001,xx60)	SL	1	NO	USER	ALWAYS	CONDITIONAL			-
Series Transmitted	(2001,xx61)	CS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Series Committed	(2001,xx62)	CS	1	NO	GENERATED	ALWAYS	ALWAYS			-
Examination Source	(2001,xx63)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Linear Presentation Gl Trfo Shape Sub	(2001,xx67)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Text Font	(2001,xx6D)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Gl Trafo Type	(2001,xx77)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Type	(2001,xx6E)	SH	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Mr Series Acquisition Number	(2001,xx7B)	IS	1	NO	GENERATED	ALWAYS	ALWAYS			-
Mr Series Nr Of Dynamic Scans	(2001,xx81)	IS	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
Mr Series Echo Train Length	(2001,xx82)	IS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Mr Series Imaging Frequency	(2001,xx83)	DS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Mr Series Inversion Time	(2001,xx84)	DS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Mr Series Magnetic Field Strength	(2001,xx85)	DS	1	NO	CONFIGURATION	ALWAYS	ALWAYS			-
Mr Series Nr Of Phase Encoding Steps	(2001,xx86)	IS	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
Mr Series Nucleus	(2001,xx87)	SH	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
Mr Series Number Of Averages	(2001,xx88)	DS	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
Mr Series Percent Phase Field Of View	(2001,xx89)	DS	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
Mr Series Percent Sampling	(2001,xx8A)	DS	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Mr Series Transmitting Coil	(2001,xx8B)	SH	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
Text Style	(2001,xx93)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Pixel Processing Kernel Size	(2001,xx9F)	US	2	NO	GENERATED	CONDITIONAL	ALWAYS			-
Text Color Foreground	(2001,xxA3)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Text Color Shadow	(2001,xxA5)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Derivation Description	(2001,xxCC)	ST	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Is Raw Image	(2001,xxA1)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mr Image Prospective Motion Correction	(2001,xxF1)	FL	6	NO	GENERATED	CONDITIONAL	ALWAYS			Only applicable if retrospective correction is done on the data.
Mr Image Retrospective Motion Correction	(2001,xxF2)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			Only applicable if retrospective correction is done on the data.
Exam Card Name	(2001,xxC8)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Nested Object Type Name	(2001,xxC1)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

**Table 101: Private Module DD 002**

Table lists private Module DD 002 and its attributes

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2001 Philips Imaging DD 002	(2001,00xx)	LO	1	NO	GENERATED USER	ALWAYS	CONDITIONAL	Philips Imaging DD 002	MR Image IOD Enhanced MR Image IOD MR Spectroscopy IOD Raw Data IOD SC Image IOD GSPS IOD	-
Suitable For	(2001,xx6B)	LO	0-n	NO	GENERATED USER	CONDITIONAL	CONDITIONAL			-
Displayed Area Bottom Right Hand Corner Fraction	(2001,xx72)	FL	2	NO	GENERATED	CONDITIONAL	ALWAYS			-
Displayed Area Top Left Hand Corner Fraction	(2001,xx73)	FL	2	NO	GENERATED	CONDITIONAL	ALWAYS			-
CDWI selected algorithm	(2001,xx89)	LO	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-
CDWI selected B values	(2001,xx8A)	FL	1-n	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Voi Guid	(2001,xxAC)	CS	1	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Sps Guid	(2001,xxAD)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Remote AE Title	(2001,xxAE)	LO	1	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Bulk Reference tag collection	(2001,xxB1)	LT	1	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Workflow Study Status	(2001,xxB8)	ST	1	NO	GENERATED USER	ALWAYS	CONDITIONAL			-

**Table 102: Private Module DD 097**

Table lists private Module DD 097 and its attributes

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2001 Philips Imaging DD 097	(2001,00xx)	LO	1	NO	GENERATED	ALWAYS	ALWAYS	Philips Imaging DD 097	MR Image IOD Enhanced MR Image IOD MR Spectroscopy IOD Raw Data IOD SC Image IOD GSPS IOD	-
Sps UID	(2001,xxAD)	UI	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

**Table 103: Private Module MR DD 001**

Table lists private Module MR DD 001 and its attributes

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2005 MR DD 001	(2005,00xx)	LO	1	NO	GENERATED	ALWAYS	ALWAYS	Philips MR Imaging DD 001	MR Image IOD Enhanced MR Image IOD MR Spectroscopy IOD Raw Data IOD SC Image IOD	-
Image Angulation Ap	(2005,xx00)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Image Angulation Fh	(2005,xx01)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Image Angulation RI	(2005,xx02)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Image Display Orientation	(2005,xx04)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Image Offcentre Ap	(2005,xx08)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Image Offcentre Fh	(2005,xx09)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Image Offcentre RI	(2005,xx0A)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Max Fp	(2005,xx0B)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Min Fp	(2005,xx0C)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Scale Intercept	(2005,xx0D)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Scale Slope	(2005,xx0E)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Window Center Original	(2005,xx0F)	DS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Window Width Original	(2005,xx10)	DS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Image Type Mr	(2005,xx11)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Cardiac Gating	(2005,xx12)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Development Mode	(2005,xx13)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Diffusion	(2005,xx14)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Fat Saturation	(2005,xx15)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Flow Compensation	(2005,xx16)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Fourier Interpolation	(2005,xx17)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Hardcopy Protocol	(2005,xx18)	LO	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Inverse Reconstructed	(2005,xx19)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Label Syntax	(2005,xx1A)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mp	(2005,xx1B)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mtc	(2005,xx1C)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Measurement Scan Resolution	(2005,xx1D)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mip Protocol	(2005,xx1E)	SH	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mpr Protocol	(2005,xx1F)	SH	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Chemical Shifts	(2005,xx20)	SL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Mixes	(2005,xx21)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No References	(2005,xx22)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
No Slabs	(2005,xx23)	SS	1	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
No Volumes	(2005,xx25)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Osp	(2005,xx26)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Package Mode	(2005,xx27)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Partial Fourier Frequency	(2005,xx28)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Partial Fourier Phase	(2005,xx29)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Patient Reference Id	(2005,xx2A)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Percent Scan Complete	(2005,xx2B)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Phase Encoded Recording	(2005,xx2C)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Planscan No Images	(2005,xx2D)	IS	1	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Ppg Ppu Gating	(2005,xx2E)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Presaturation	(2005,xx2F)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Repetition Times	(2005,xx30)	FL	1-n	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Respiratory Gating	(2005,xx31)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sample Representation	(2005,xx32)	CS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Scan Duration	(2005,xx33)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sk	(2005,xx34)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Data Type	(2005,xx35)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Is Cardiac	(2005,xx36)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Is Spectro	(2005,xx37)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sp	(2005,xx38)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Ss	(2005,xx39)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sub Anatomy	(2005,xx3A)	SH	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Trss	(2005,xx3B)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Tone	(2005,xx3C)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Rr Interval Ranges	(2005,xx3D)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Rr Intervals Distribution	(2005,xx3E)	SL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Plsc Survey Acquisition No	(2005,xx3F)	SL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Plsc Survey Chemical Shift No	(2005,xx40)	SL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Plsc Survey Dynamic Scan No	(2005,xx41)	SL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Plsc Survey Echo No	(2005,xx42)	SL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Plsc Survey Image Type	(2005,xx43)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Plsc Survey Phase No	(2005,xx44)	SL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Plsc Survey Reconstruction No	(2005,xx45)	SL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Plsc Survey Scanning Sequence	(2005,xx46)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Plsc Survey Slice No	(2005,xx47)	SL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Reference Acquisition No	(2005,xx48)	IS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Reference Chemical Shift No	(2005,xx49)	IS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Reference Dynamic Scan No	(2005,xx4A)	IS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Reference Echo No	(2005,xx4B)	IS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Reference Entity	(2005,xx4C)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Reference Image Type	(2005,xx4D)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Slab Fov Rl	(2005,xx4E)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Slab Offcentre Ap	(2005,xx4F)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Slab Offcentre Fh	(2005,xx50)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Slab Offcentre Rl	(2005,xx51)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Slab Type	(2005,xx52)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Slab View Axis	(2005,xx53)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Study Sequence No	(2005,xx60)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Image Prepulse Type	(2005,xx61)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Fmri Status Indication	(2005,xx63)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Reference Phase No	(2005,xx64)	IS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Reference Reconstruction No	(2005,xx65)	IS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Reference Scanning Sequence	(2005,xx66)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Reference Slice No	(2005,xx67)	IS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Reference Type	(2005,xx68)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Slab Angulation Ap	(2005,xx69)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Slab Angulation Fh	(2005,xx6A)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Slab Angulation Rl	(2005,xx6B)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Slab Fov Ap	(2005,xx6C)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Slab Fov Fh	(2005,xx6D)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Scanning Sequence	(2005,xx6E)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mr Acquisition Type	(2005,xx6F)	CS	1	NO	GENERATED	ALWAYS	ALWAYS			-
Hardcopy Protocol Ev	(2005,xx70)	LO	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Stack Angulation Ap	(2005,xx71)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Angulation Fh	(2005,xx72)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Angulation Rl	(2005,xx73)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Fov Ap	(2005,xx74)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Fov Fh	(2005,xx75)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Fov Rl	(2005,xx76)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Offcentre Ap	(2005,xx78)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Offcentre Fh	(2005,xx79)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Stack Offcentre RI	(2005,xx7A)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Preparation Direction	(2005,xx7B)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Slice Distance	(2005,xx7E)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Planscan	(2005,xx80)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack View Axis	(2005,xx81)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Slab	(2005,xx83)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Reference	(2005,xx84)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Volume	(2005,xx85)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
>Private Creator Group 2005 MR DD 001	(2005,00xx)	LO	1	NO	GENERATED	ALWAYS	ALWAYS	Philips MR Imaging DD 001		-
>Volume Angulation Ap	(2005,xx54)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
>Volume Angulation Fh	(2005,xx55)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
>Volume Angulation RI	(2005,xx56)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
>Volume Fov Ap	(2005,xx57)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
>Volume Fov Fh	(2005,xx58)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
>Volume Fov RI	(2005,xx59)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
>Volume Offcentre Ap	(2005,xx5A)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Volume Offcentre Fh	(2005,xx5B)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
>Volume Offcentre RI	(2005,xx5C)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
>Volume Type	(2005,xx5D)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
>Volume View Axis	(2005,xx5E)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
>Study Origin	(2005,xx5F)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Geoms	(2005,xx86)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Geom Slices	(2005,xx87)	SL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Angulation Ap	(2005,xx88)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Angulation Fh	(2005,xx89)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Angulation RI	(2005,xx8A)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Fov Ap	(2005,xx8B)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Fov Fh	(2005,xx8C)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Fov RI	(2005,xx8D)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Offcentre Ap	(2005,xx8E)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Offcentre Fh	(2005,xx8F)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Offcentre RI	(2005,xx90)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Preparation Direction	(2005,xx91)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Radial Angle	(2005,xx92)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Radial Axis	(2005,xx93)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Slice Distance	(2005,xx94)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Geom Slice No	(2005,xx95)	SL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Type	(2005,xx96)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom View Axis	(2005,xx97)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Colour	(2005,xx98)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Appl Type	(2005,xx99)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Id	(2005,xx9A)	SL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Appl Name	(2005,xx9B)	SH	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Label Name	(2005,xx9C)	SH	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geom Line Style	(2005,xx9D)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Geom	(2005,xx9E)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectr Sel Excitation	(2005,xx9F)	CS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Dyn Scan Begin Time	(2005,xxA0)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Syncra Scan Type	(2005,xxA1)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Is Coca	(2005,xxA2)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Coil Id	(2005,xxA3)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Cbb1 Coil	(2005,xxA4)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Cbb2 Coil	(2005,xxA5)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Channel Combi	(2005,xxA6)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Coil Conn	(2005,xxA7)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Priv Inversion Time	(2005,xxA8)	DS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geometry Correction	(2005,xxA9)	CS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Diffusion Direction Rl	(2005,xxB0)	FL	1	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Diffusion Direction Ap	(2005,xxB1)	FL	1	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Diffusion Direction Fh	(2005,xxB2)	FL	1	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Series Scan Sequence	(2005,xxC0)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

**Table 104: Private Module MR DD 002**

Table lists private Module MR DD 002 and its attributes

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2005 MR DD002	(2005,00xx)	LO	1	NO	GENERATED	ALWAYS	ALWAYS	Philips MR Imaging DD 002	MR Image IOD Enhanced MR Image IOD MR Spectroscopy IOD Raw Data IOD SC Image IOD	-
User Name	(2005,xx15)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Password	(2005,xx16)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Server Name	(2005,xx17)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Db Name	(2005,xx18)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Root Name	(2005,xx19)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
App Name	(2005,xx20)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Root Id	(2005,xx2D)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Blob Obj Array	(2005,xx32)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Transaction Uid	(2005,xx34)	LT	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Parent Id	(2005,xx35)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Parent Type	(2005,xx36)	PN	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Blob Name	(2005,xx37)	PN	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Application Name	(2005,xx38)	PN	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Type Name	(2005,xx39)	PN	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Version Str	(2005,xx40)	PN	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Comment Str	(2005,xx41)	PN	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Blob In File	(2005,xx42)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Actual Blob Size	(2005,xx43)	SL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Actual Blob Data	(2005,xx44)	OW	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Blob Filename	(2005,xx45)	PN	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Blob Offset	(2005,xx46)	SL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Is Child	(2005,xx47)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Request Excerpts	(2005,xx99)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

**Table 105: Private Module MR DD 003**

Table lists private Module MR DD 003 and its attributes

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2005 MR DD003	(2005,00xx)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS	Philips MR Imaging DD 003	MR Image IOD Enhanced MR Image IOD MR Spectroscopy IOD Raw Data IOD SC Image IOD	-
No Sop Common	(2005,xx00)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Film Consums	(2005,xx01)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Codes	(2005,xx13)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Images Per Series Ref	(2005,xx34)	SL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Nr Of Software Ver	(2005,xx45)	SS	1	NO	CONFIGURATION	CONDITIONAL	ALWAYS			-
Nr Of Operator Name	(2005,xx49)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Nr Of Diagnostic Descrip	(2005,xx51)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Nr Of Contrast Allergies	(2005,xx52)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Nr Of Medical Alerts	(2005,xx53)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Nr Sc Software Versions	(2005,xx56)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Nr Running Attributes	(2005,xx57)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Data Ieee	(2005,xx70)	OW	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Default Image Uid	(2005,xx81)	UI	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Running Attributes	(2005,xx82)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-

**Table 106: Private Module MR DD 004**

Table lists private Module MR DD 004 and its attributes

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2005 MR DD004	(2005,00xx)	LO	1	NO	GENERATED	ALWAYS	ALWAYS	Philips MR Imaging DD 004	MR Image IOD Enhanced MR Image IOD MR Spectroscopy IOD Raw Data IOD SC Image IOD	-
Spectrum Extra No	(2005,xx00)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum Kx Coordinate	(2005,xx01)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum Ky Coordinate	(2005,xx02)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Spectrum Location No	(2005,xx03)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum Mix No	(2005,xx04)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum X Coordinate	(2005,xx05)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum Y Coordinate	(2005,xx06)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Dc Level	(2005,xx07)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Noise Level	(2005,xx08)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum Begin Time	(2005,xx09)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum Echo Time	(2005,xx10)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum Inversion Time	(2005,xx12)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum No	(2005,xx13)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum No Averages	(2005,xx14)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum No Samples	(2005,xx15)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum Scan Seq No	(2005,xx16)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Peaks	(2005,xx17)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum Peak	(2005,xx18)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Peak Intensity	(2005,xx19)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Peak Label	(2005,xx20)	LO	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Peak Phase	(2005,xx21)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Peak Position	(2005,xx22)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Peak Type	(2005,xx23)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Peak Width	(2005,xx24)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
B0 Correction	(2005,xx25)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
B0 Echo Top Position	(2005,xx26)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Complex Component	(2005,xx27)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Data Origin	(2005,xx28)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Echo Top Position	(2005,xx29)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
In Plane Transforms	(2005,xx30)	CS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Spectra Acquired	(2005,xx31)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Phase Enc Echo Top Positions	(2005,xx33)	FL	3	NO	GENERATED	CONDITIONAL	ALWAYS			-
Physical Quantity Chem Shift	(2005,xx34)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Physical Quantity Spatial	(2005,xx35)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Reference Frequency	(2005,xx36)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sample Offset	(2005,xx37)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sample Pitch	(2005,xx38)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Search Interval For Peaks	(2005,xx39)	SS	2	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Signal Domain Chem Shift	(2005,xx40)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Signal Domain Spatial	(2005,xx41)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Signal Type	(2005,xx42)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Additional Rotations	(2005,xx43)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Display Ranges	(2005,xx44)	SS	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Echo Acquisition	(2005,xx45)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Frequency Unit	(2005,xx46)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Gamma	(2005,xx47)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Hidden Line Removal	(2005,xx48)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Horizontal Shift	(2005,xx49)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Horizontal Window	(2005,xx50)	FL	2	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro No Display Ranges	(2005,xx51)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro No Echo Pulses	(2005,xx52)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Spectro Processing History	(2005,xx53)	LO	1-n	NO	GENERATED	CONDITIONAL	CONDITIONAL			-
Spectro Scan Type	(2005,xx54)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Si Cs Interval	(2005,xx55)	FL	1-n	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Si Mode	(2005,xx56)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Spectral Bw	(2005,xx57)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Title Line	(2005,xx58)	LO	1	NO	USER	CONDITIONAL	CONDITIONAL			-
Spectro Turbo Echo Spacing	(2005,xx59)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Vertical Shift	(2005,xx60)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Vertical Window	(2005,xx61)	FL	2	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum Offset	(2005,xx62)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum Pitch	(2005,xx63)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Volume Selection	(2005,xx64)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Mixes Spectro	(2005,xx70)	SS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Series Sp Mix	(2005,xx71)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sp Mix T Resolution	(2005,xx72)	SS	1-2	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sp Mix Kx Resolution	(2005,xx73)	SS	1-2	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sp Mix Ky Resolution	(2005,xx74)	SS	1-2	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sp Mix F Resolution	(2005,xx75)	SS	1-2	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sp Mix X Resolution	(2005,xx76)	SS	1-2	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sp Mix Y Resolution	(2005,xx77)	SS	1-2	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Sp Mix No Spectra Intended	(2005,xx78)	SS	1-2	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sp Mix No Averages	(2005,xx79)	SS	1-2	NO	GENERATED	CONDITIONAL	ALWAYS			-
Scanogram No Images	(2005,xx81)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Geolink Id	(2005,xx92)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Station No	(2005,xx93)	IS	1	NO	CONFIGURATION	CONDITIONAL	ALWAYS			-
View Procedure String	(2005,xx95)	ST	1	NO	GENERATED	CONDITIONAL	CONDITIONAL			-
Flow Images Present	(2005,xx96)	CS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Anatomic Reg Code Value	(2005,xx97)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mobiview Enabled	(2005,xx98)	CS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Iview Bold Enabled	(2005,xx99)	CS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-

**Table 107: Private Module MR DD 005**

Table lists private Module MR DD 005 and its attributes

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2005 MR DD005	(2005,00xx)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS	Philips MR Imaging DD 005	MR Image IOD Enhanced MR Image IOD	-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
									MR Spectroscopy IOD Raw Data IOD SC Image IOD	
Volumeview Enabled	(2005,xx00)	CS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
No Refd Study Sequence	(2005,xx01)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sps Code	(2005,xx02)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Sps Codes	(2005,xx03)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Nr Of Exam Specific Char Set	(2005,xx04)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Nr Of Ps Specific Char Set	(2005,xx05)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Nr Of Bs Specific Char Set	(2005,xx06)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Nr Of Img Specific Char Set	(2005,xx07)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Rescale Intercept Original	(2005,xx09)	DS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Rescale Slope Original	(2005,xx0A)	DS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Rescale Type Original	(2005,xx0B)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Private Shared Sq	(2005,xx0E)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Perframe Sq	(2005,xx0F)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mfconv Treat Spectro Mix No	(2005,xx10)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mf Priv Ref Sop Inst Uid	(2005,xx11)	UI	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Diff B Value No	(2005,xx12)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Diff Grad Orient No	(2005,xx13)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Diff B Values	(2005,xx14)	SL	1	NO	GENERATED	ALWAYS	ALWAYS			-
No Diff Grad Orients	(2005,xx15)	SL	1	NO	GENERATED	ALWAYS	ALWAYS			-
Plan Mode	(2005,xx16)	CS	1	NO	GENERATED	ALWAYS	ALWAYS			-
Priv Operating Mode Type	(2005,xx18)	CS	3	NO	GENERATED	ALWAYS	CONDITIONAL			-
Priv Operating Mode	(2005,xx19)	CS	3	NO	GENERATED	ALWAYS	CONDITIONAL			-
Fat Saturation Technique	(2005,xx1A)	CS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Version No Deleted Images	(2005,xx1B)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Version No Deleted Spectra	(2005,xx1C)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Version No Deleted Blobsets	(2005,xx1D)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Lut1 Offset	(2005,xx1E)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Lut1 Range	(2005,xx1F)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Lut1 Begin Color	(2005,xx20)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Lut1 End Color	(2005,xx21)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Lut2 Offset	(2005,xx22)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Lut2 Range	(2005,xx23)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Lut2 Begin Color	(2005,xx24)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Lut2 End Color	(2005,xx25)	UL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Viewing Hardcopy Only	(2005,xx26)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Label Types	(2005,xx28)	SL	1	NO	GENERATED	ALWAYS	ALWAYS			-
Label Type	(2005,xx29)	CS	1	NO	GENERATED	CONDITIONAL	CONDITIONAL			-
Exam Print Status	(2005,xx2A)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Exam Export Status	(2005,xx2B)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Exam Storcommit Status	(2005,xx2C)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Exam Mediawrite Status	(2005,xx2D)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Dbdt	(2005,xx2E)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Proton Sar	(2005,xx2F)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Non Proton Sar	(2005,xx30)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Local Sar	(2005,xx31)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Safety Override Mode	(2005,xx32)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectro Examcard	(2005,xx35)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Ref Series Inst Uid	(2005,xx36)	UI	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Color Lut Type	(2005,xx37)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			
Data Dict Contents Version	(2005,xx3A)	LT	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Is Coil Survey	(2005,xx3B)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Table Pos Long	(2005,xx3C)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Table Pos Lat	(2005,xx3D)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Stack Posterior Coil Pos	(2005,xx3E)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Aimd Limits Applied	(2005,xx3F)	CS	1	NO	USER	CONDITIONAL	ALWAYS			-
Aimd Head Sar Limit	(2005,xx40)	FL	1	NO	USER	CONDITIONAL	ALWAYS			-
Aimd Wholebody Sar Lim	(2005,xx41)	FL	1	NO	USER	CONDITIONAL	ALWAYS			-
Aimd B1 Rms Limit	(2005,xx42)	FL	1	NO	USER	CONDITIONAL	ALWAYS			-
Aimd Dbdt Limit	(2005,xx43)	FL	1	NO	USER	CONDITIONAL	ALWAYS			-
Tfe Factor	(2005,xx44)	IS	1	NO	USER	CONDITIONAL	ALWAYS			-
Attenuation Correction	(2005,xx45)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Fwhm Shim	(2005,xx46)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Power Optimization	(2005,xx47)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Coil Q	(2005,xx48)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Receiver Gain	(2005,xx49)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Data Window Duration	(2005,xx4A)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mixing Time	(2005,xx4B)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
First Echo Time	(2005,xx4C)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Is B0 Series	(2005,xx4D)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Is B1 Series	(2005,xx4E)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Volume Select	(2005,xx4F)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Patient Other Ids	(2005,xx50)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Priv Series Number	(2005,xx51)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Priv Seriesinstanceuid	(2005,xx52)	UI	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Splitseries Jobparams	(2005,xx53)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Pref Dimension Split	(2005,xx54)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Img Velocity Enc Direction	(2005,xx55)	FD	3	NO	GENERATED USER	CONDITIONAL	ALWAYS			-
Contrast No Injections	(2005,xx56)	SS	1	NO	USER	CONDITIONAL	ALWAYS			-
Contrast Agent Code	(2005,xx57)	LT	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Contrast Admroute Code	(2005,xx58)	LT	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Contrast Volume	(2005,xx59)	DS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Contrast Ingr Concentr	(2005,xx5A)	DS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Contrast Dyn Number	(2005,xx5B)	IS	1	NO	USER	CONDITIONAL	ALWAYS			-
Series Contrast	(2005,xx5C)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Contrast Id	(2005,xx5D)	IS	1	NO	USER	CONDITIONAL	ALWAYS			-
Series Date Private	(2005,xx5E)	DA	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Time Private	(2005,xx5F)	TM	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Luttorgb Jobparams	(2005,xx60)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mpps Repository Id	(2005,xx61)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Ps Org Voi Lut	(2005,xx90)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Ps Org Modality Lut	(2005,xx91)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sed Value	(2005,xx92)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

**Table 108: Private Module MR DD 006**

Table lists private Module MR DD 006 and its attributes

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2005 MR DD006	(2005,00xx)	LO	1	NO	GENERATED	ALWAYS	ALWAYS	Philips MR Imaging DD 006	MR Image IOD Enhanced MR Image IOD MR Spectroscopy IOD Raw Data IOD SC Image IOD GSPS IOD	-
Sp Mix Selected Suppression	(2005,xx51)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Sp Mix Intended Purpose	(2005,xx52)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mre Frequency	(2005,xx53)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mre Amplitude	(2005,xx54)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mre Meg Frequency	(2005,xx55)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mre Meg Pairs	(2005,xx56)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mre Meg Direction	(2005,xx57)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mre Meg Amplitude	(2005,xx58)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mre No Of Phase Delays	(2005,xx59)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			This parameter should be used as Integer although VR is specified and stored as Float
Mre No Of Motion Cycles	(2005,xx60)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mre Motion Meg Phase Delay	(2005,xx61)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mre Inversion Alg Ver	(2005,xx62)	LT	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sagittal Sliceorder	(2005,xx63)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Coronal Sliceorder	(2005,xx64)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Transversal Sliceorder	(2005,xx65)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Orientation	(2005,xx66)	CS	1-n	NO	GENERATED	ALWAYS	CONDITIONAL			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Stack Reverse	(2005,xx67)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mre Phase Delay No	(2005,xx68)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Of Inversion Delays	(2005,xx71)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Inversion Delay Time	(2005,xx72)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Inversion Delay Number	(2005,xx73)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Max Dbdt	(2005,xx74)	DS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Max Sar	(2005,xx75)	DS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sar Type	(2005,xx76)	LT	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Metal Implant Status	(2005,xx78)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Orientation Mirror Flip	(2005,xx79)	CS	3	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mr Cat	(2005,xx80)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Sar Operation Mode	(2005,xx81)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spatial Gradient	(2005,xx82)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Additional Constraints	(2005,xx83)	LT	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Max Gradient Slewrate	(2005,xx85)	DS	1	NO	GENERATED	ALWAYS	CONDITIONAL			-
Spatial Gradient Preference	(2005,xx86)	LT	1	NO	USER	ALWAYS	CONDITIONAL			-
Max B1Rms	(2005,xx87)	DS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Rt Generated Eries	(2005,xx88)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rt Blob Data	(2005,xx89)	OB	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Private Study Anatomy	(2005,xx90)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Contrast Start Time List	(2005,xx91)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Contrast Information	(2005,xx92)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			Sequence elements are in the real DCS mentioned several lines below
Contrast Bolus Injection Date	(2005,xx93)	DA	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Dynamic Number	(2005,xx94)	SL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Diffusion 2Kdti	(2005,xx95)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Diffusion Order	(2005,xx96)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Is J Editing	(2005,xx97)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Spectrum Editing Type	(2005,xx98)	SS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
No Diff Order	(2005,xx99)	SL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

**Table 109: Private Module MR DD 007**

Table lists private Module MR DD 007 and its attributes

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2005 MR DD007	(2005,00xx)	LO	1	NO	FIXED	ALWAYS	ALWAYS	Philips MR Imaging DD 007	MR Image IOD Enhanced MR Image IOD MR Spectroscopy IOD Raw Data IOD SC Image IOD	-
Senc Enable	(2005,xx00)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Senc Low Tuning Freq	(2005,xx01)	SL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Senc High Tuning Freq	(2005,xx02)	SL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Senc Modulation Freq	(2005,xx03)	SL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
RT Algorithm Targets	(2005,xx04)	ST	1	NO	GENERATED	ALWAYS	CONDITIONAL			-

**Table 110: Private Module MR DD 008**

Table lists private Module MR DD 008 and its attributes

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2005 MR DD008	(2005,00xx)	LO	1	NO	GENERATED	ALWAYS	ALWAYS	Philips MR Imaging DD 008	MR Image IOD Enhanced MR Image IOD	-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
									MR Spectroscopy IOD Raw Data IOD SC Image IOD GSPS IOD	
Autovoice Settings	(2005,xx01)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Autovoice Enabled	(2005,xx02)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Autovoice Language	(2005,xx03)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
User Comments	(2005,xx04)	LT	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Has Contrast	(2005,xx05)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Geo Name	(2005,xx06)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Study Is Breath Hold	(2005,xx07)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Study Has Contrast	(2005,xx08)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Is Recon Pixel Series	(2005,xx09)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Parallel Reconstruction Technique	(2005,xx10)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			Indicates Parallel reconstruction technique
T2 Preparation Time	(2005,xx12)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			T2 preparation time for 3D Syntac scans
3D Syntac Enable	(2005,xx13)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			Indicates if 3D Syntac scan was performed

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
RF Polarization Choice	(2005,xx14)	LO	1	NO	GENERATED	ALWAYS	CONDITIONAL			Applied values: (CircularPolarized , MultiChannel2)
Acq Voxel Size	(2005,xx15)	FD	3	NO	GENERATED	CONDITIONAL	ALWAYS			-
Respiratory Phase Number	(2005,xx16)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			Respiratory phase number of an image
Number of Respiratory Phases	(2005,xx17)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			Number of respiratory phases in a series
Is Respiratory waveform series	(2005,xx18)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			Indicates If series is Respiratory waveform series
Is AIF Slice	(2005,xx19)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			Indicates if image is AIF (Arterial Input function) slice
Is Respiratory Phase series	(2005,xx20)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			To identify if series is Respiratory Phase series (To identify series with Single Respiratory Phase, others can still be identified by other means)

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Piim Series Aif	(2005,xx21)	SQ	1	NO	GENERATED	CONDITIONAL	ALWAYS			Series level Sequence tag containing AIF Slice Geometry planning Info
No of AIFs	(2005,xx22)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			Series level tag containing No of Aifs in Series
Saturation Time	(2005,xx23)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			Saturation Time for Slice
Acquisition Time Delay	(2005,xx24)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			Time to center of K Space
Resp Peak Factor	(2005,xx25)	FL	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

**Table 111: Private Module Philips DINxGen DD 001**

Table lists private Module Philips DINxGen DD 001 and its attributes

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2029 DINxGen DD 001	(2029,00xx)	LO	1	NO	FIXED	ALWAYS	ALWAYS	Philips DINxGen DD 001		MR Image IOD Enhanced MR Image IOD
Study Creation Time	(2029,xx01)	DT	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Study Level Modification Flag	(2029,xx02)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Study Suspended Time	(2029,xx03)	DT	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Merged Accession Number	(2029,xx04)	ST	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Work ItemId	(2029,xx05)	ST	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Study Contrast State	(2029,xx07)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Merged Study Description	(2029,xx09)	LT	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Auto Voice Information	(2029,xx11)	LT	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Study Operator Notes	(2029,xx12)	LT	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

**8.1.1.2.4. Common Coded Values**

Not applicable. Supported Coded Values are specified individually for each IOD.

**8.1.1.3. CT Image IOD**

**Table 112: CT Image IOD**

Table defines the structure of CT Image IOD

IE	Module Name	Presence of Module	Condition	Reference
Patient	Patient	ALWAYS		Patient Module
Study	General Study	ALWAYS		General Study Module
	Patient Study	CONDITIONAL		Patient Study Module
Series	General Series	ALWAYS		General Series Module
Frame of Reference	Frame of Reference	ALWAYS		Frame of Reference Module
Equipment	General Equipment	ALWAYS		General Equipment Module

IE	Module Name	Presence of Module	Condition	Reference
Acquisition	General Acquisition	ALWAYS		General Acquisition Module
Image	General Image	ALWAYS		General Image Module
	Image Plane	ALWAYS		Image Plane Module
	Image Pixel	ALWAYS		Image Pixel Module
	CT Image	ALWAYS		CT Image Module
	VOI LUT	ALWAYS		VOI LUT Module
	SOP Common	ALWAYS		SOP Common Module
	Extended and Private	Extended	ALWAYS	
Private Module Philips Imaging DD 001		CONDITIONAL		Private Module Philips Imaging DD 001 Module
Private Module Philips MR Imaging DD 006		CONDITIONAL		Private Module Philips MR Imaging DD 006 Module

**8.1.1.3.1. CT Image IOD Specific Modules**

**Table 113: General Series Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	CT		-
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			-
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			-
Laterality	(0020,0060)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL			-
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS			Copy from MRCAT mDixon source scan.
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS			Copy from MRCAT mDixon source scan.

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Performing Physician's Name	(0008,1050)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Protocol Name	(0018,1030)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Series Description	(0008,103E)	GENERATED	CONDITIONAL	ALWAYS			-
Operators' Name	(0008,1070)	GENERATED USER	CONDITIONAL	ALWAYS			-
Body Part Examined	(0018,0015)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Patient Position	(0018,5100)	SRC_INSTANCE	ALWAYS	ALWAYS			-

**Table 114: Frame of Reference Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Position Reference Indicator	(0020,1040)	FIXED	ALWAYS	EMPTY			-

**Table 115: General Equipment Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	SRC_INSTANCE	ALWAYS	ALWAYS	Philips		-
Institution Name	(0008,0080)	CONFIGURATION	CONDITIONAL	ALWAYS			Configured on the system.
Institution Address	(0008,0081)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Station Name	(0008,1010)	CONFIGURATION	CONDITIONAL	ALWAYS			Same as the Host Name.
Institutional Department Name	(0008,1040)	CONFIGURATION	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS			-
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS			System serial number.
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS			Inline to system software version

**Table 116: General Acquisition Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Number	(0020,0012)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Scan Number on UI.
Acquisition Date	(0008,0022)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Same as Content Date.
Acquisition Time	(0008,0032)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Same as Content Time.

**Table 117: General Image Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	CONDITIONAL			-
Content Date	(0008,0023)	GENERATED	CONDITIONAL	ALWAYS			-
Content Time	(0008,0033)	GENERATED	CONDITIONAL	ALWAYS			-
Image Type	(0008,0008)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 118: Image Plane Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Spacing	(0028,0030)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Image Orientation (Patient)	(0020,0037)	SRC_INSTANCE	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Position (Patient)	(0020,0032)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Slice Thickness	(0018,0050)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-

**Table 119: Image Pixel Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Samples per Pixel	(0028,0002)	FIXED	ALWAYS	ALWAYS	1		-
Photometric Interpretation	(0028,0004)	FIXED	ALWAYS	ALWAYS	MONOCHROME2		-
Rows	(0028,0010)	GENERATED	ALWAYS	ALWAYS			-
Columns	(0028,0011)	GENERATED	ALWAYS	ALWAYS			-
Bits Allocated	(0028,0100)	FIXED	ALWAYS	ALWAYS	16		-
Bits Stored	(0028,0101)	FIXED	ALWAYS	ALWAYS	12		-
High Bit	(0028,0102)	FIXED	ALWAYS	ALWAYS	11		-
Pixel Representation	(0028,0103)	FIXED	ALWAYS	ALWAYS	0		-
Pixel Data	(7FE0,0010)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 120: CT Image Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS	DERIVED\PRIMARY\REFORMATTED\REFORMATTED\DERIVED		-
Samples per Pixel	(0028,0002)	SRC_INSTANCE	ALWAYS	ALWAYS	1		-
Photometric Interpretation	(0028,0004)	SRC_INSTANCE	ALWAYS	ALWAYS	MONOCHROME2		-
Bits Allocated	(0028,0100)	SRC_INSTANCE	ALWAYS	ALWAYS	16		-
Bits Stored	(0028,0101)	SRC_INSTANCE	ALWAYS	ALWAYS	12		-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
High Bit	(0028,0102)	SRC_INSTANCE	ALWAYS	ALWAYS	11		-
Rescale Intercept	(0028,1052)	FIXED	ALWAYS	ALWAYS	-1000		-
Rescale Slope	(0028,1053)	FIXED	ALWAYS	ALWAYS	1		-
Rescale Type	(0028,1054)	FIXED	CONDITIONAL	ALWAYS	HU		-
KVP	(0018,0060)	FIXED	ALWAYS	CONDITIONAL	0		Derived from MR image so no KVP
Acquisition Number	(0020,0012)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-

**Table 121: VOI LUT Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Window Center	(0028,1050)	GENERATED	CONDITIONAL	ALWAYS			-
Window Width	(0028,1051)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 122: SOP Common Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	FIXED	ALWAYS	ALWAYS	1.2.840.10008.5.1.4.1.1.2		-
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS			-
Specific Character Set	(0008,0005)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Instance Creation Date	(0008,0012)	GENERATED	CONDITIONAL	ALWAYS			-
Instance Creation Time	(0008,0013)	GENERATED	CONDITIONAL	ALWAYS			-
Instance Number	(0020,0013)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Origin Status	(0400,0600)	GENERATED	CONDITIONAL	ALWAYS			

**Table 123: Extended Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Requesting Physician	(0032,1032)	MWL	ALWAYS	CONDITIONAL			-
Requested Procedure Description	(0032,1060)	MWL	ALWAYS	CONDITIONAL			-
Requested Contrast Agent	(0032,1070)	MWL	ALWAYS	CONDITIONAL			-
Study Completion Date	(0032,1050)	MWL	CONDITIONAL	ALWAYS			-
Special Needs	(0038,0050)	MWL	ALWAYS	CONDITIONAL			-
Requested Procedure ID	(0040,1001)	MWL	ALWAYS	CONDITIONAL			-
Reason for the Requested Procedure	(0040,1002)	MWL	ALWAYS	CONDITIONAL			-
Requested Procedure Priority	(0040,1003)	MWL	ALWAYS	CONDITIONAL			-
Patient Transport Arrangements	(0040,1004)	MWL	ALWAYS	CONDITIONAL			-
Requested Procedure Location	(0040,1005)	MWL	ALWAYS	CONDITIONAL			-
Issue Date of Imaging Service Request	(0040,2004)	MWL	CONDITIONAL	ALWAYS			-
Issue Time of Imaging Service Request	(0040,2005)	MWL	CONDITIONAL	ALWAYS			-
Requested Procedure Comments	(0040,1400)	MWL	ALWAYS	CONDITIONAL			-
Reason for the Imaging Service Request	(0040,2001)	MWL	ALWAYS	CONDITIONAL			-
Order Enterer's Location	(0040,2009)	MWL	ALWAYS	CONDITIONAL			-
Order Callback Phone Number	(0040,2010)	MWL	ALWAYS	CONDITIONAL			-
Imaging Service Request Comments	(0040,2400)	MWL	ALWAYS	CONDITIONAL			-

**8.1.1.3.2. CT Image IOD Functional Group Macros**

Not applicable. No functional groups are implemented for this IOD.

**8.1.1.3.3. CT Image Private Modules**

**Table 124: Private Module DD 001 for CT Image IOD**

Table lists private Module DD 001 and Attributes for CT Image IOD

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2001 Philips Imaging DD 001	(2001,00xx)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS	Philips Imaging DD 001		-
Image Plane Number	(2001,xx0A)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Mr Series Nr Of Slices	(2001,xx18)	SL	1	NO	GENERATED	CONDITIONAL	ALWAYS	00000078H / 120		-
Mr Series Reconstruction Number	(2001,xx1D)	IS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Examination Source	(2001,xx63)	CS	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Exam Card Name	(2001,xxC8)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
Series Derivation Description	(2001,xxCC)	ST	1	NO	GENERATED	CONDITIONAL	EMPTY			-

**Table 125: Private Module MR DD 006 for CT Image IOD**

Table lists private Module DD 006 and Attributes for CT Image IOD

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2005 MR DD006	(2005,00xx)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS	Philips MR Imaging DD 006		-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
RT Generated Series	(2005,xx88)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-
RT Blob Data	(2005,xx89)	OB	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

**8.1.1.3.4. CT Image IOD Coded Values**

Not applicable. No Coded Values are implemented for this IOD.

**8.1.1.4. MR Image IOD**

**Table 126: MR Image IOD**

Table defines the structure of MR Image IOD

IE	Module Name	Presence of Module	Condition	Reference
Patient	Patient	ALWAYS		Patient Module
Study	General Study	ALWAYS		General Study Module
	Patient Study	CONDITIONAL		Patient Study Module
Series	General Series	ALWAYS		General Series Module
Frame of Reference	Frame of Reference	ALWAYS		Frame of Reference Module
Equipment	General Equipment	ALWAYS		General Equipment Module
Acquisition	General Acquisition	ALWAYS		General Acquisition Module
Image	General Image	ALWAYS		General Image Module
	General Reference	CONDITIONAL		General Reference Module
	Image Plane	ALWAYS		Image Plane Module
	Image Pixel	ALWAYS		Image Pixel Module
	Contrast/Bolus	CONDITIONAL	Required if contrast media was used in this image	Contrast/Bolus Module

IE	Module Name	Presence of Module	Condition	Reference
	MR Image	ALWAYS		MR Image Module
	Overlay Plane	CONDITIONAL		Overlay Plane Module
	VOI LUT	CONDITIONAL		VOI LUT Module
	SOP Common	ALWAYS		SOP Common Module
Extended and Private	Extended	ALWAYS		Extended Module
	Private Module Philips Imaging DD 001	ALWAYS		Private Module Philips Imaging DD 001 Module
	Private Module Philips Imaging DD 002	ALWAYS		Private Module Philips Imaging DD 002 Module
	Private Module Philips Imaging DD 097	ALWAYS		Private Module Philips Imaging DD 097 Module
	Private Module Philips MR Imaging DD 001	ALWAYS		Private Module Philips MR Imaging DD 001 Module
	Private Module Philips MR Imaging DD 002	ALWAYS		Private Module Philips MR Imaging DD 002 Module
	Private Module Philips MR Imaging DD 003	ALWAYS		Private Module Philips MR Imaging DD 003 Module
	Private Module Philips MR Imaging DD 004	ALWAYS		Private Module Philips MR Imaging DD 004 Module
	Private Module MR Imaging DD 005	ALWAYS		Private Module MR Imaging DD 005 Module
	Private Module MR Imaging DD 006	ALWAYS		Private Module MR Imaging DD 006 Module
	Private Module MR Imaging DD 007	ALWAYS		Private Module MR Imaging DD 007 Module

IE	Module Name	Presence of Module	Condition	Reference
	Private Module MR Imaging DD 008	ALWAYS		Private Module MR Imaging DD 008 Module
	Private Module Philips DINxGen DD 001	ALWAYS		Private Module Philips DINxGen DD 001 Module

**8.1.1.4.1. MR Image IOD Specific Modules**

**Table 127: General Series Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS			-
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS			-
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	MR		-
Series Description	(0008,103E)	GENERATED USER	CONDITIONAL	ALWAYS			-
Performing Physician's Name	(0008,1050)	GENERATED	CONDITIONAL	ALWAYS			-
Operators' Name	(0008,1070)	GENERATED USER	CONDITIONAL	ALWAYS			-
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced SOP Class UID	(0008,1150)	MWL USER	ALWAYS	ALWAYS			-
>Referenced SOP Instance UID	(0008,1155)	MWL USER	ALWAYS	ALWAYS			-
Body Part Examined	(0018,0015)	GENERATED	CONDITIONAL	ALWAYS			If ExamCard scan.
Protocol Name	(0018,1030)	USER	ALWAYS	ALWAYS			Scan name
Patient Position	(0018,5100)	GENERATED	ALWAYS	ALWAYS			-
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			Generated by MR System.

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			Created dynamically at export. Contains the combination of the acquisition number and the private reconstruction number.
Laterality	(0020,0060)	USER	CONDITIONAL	CONDITIONAL			-
Performed Procedure Step Start Date	(0040,0244)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step Start Time	(0040,0245)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step End Date	(0040,0250)	MWL USER	CONDITIONAL	CONDITIONAL			-
Performed Procedure Step End Time	(0040,0251)	MWL USER	CONDITIONAL	CONDITIONAL			-
Performed Procedure Step ID	(0040,0253)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step Description	(0040,0254)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Protocol Code Sequence	(0040,0260)	GENERATED	CONDITIONAL	ALWAYS			-
>Code Value	(0008,0100)	MWL USER	ALWAYS	ALWAYS			-
>Coding Scheme Designator	(0008,0102)	MWL USER	ALWAYS	ALWAYS			-
>Coding Scheme Version	(0008,0103)	MWL USER	CONDITIONAL	ALWAYS			-
>Code Meaning	(0008,0104)	MWL USER	ALWAYS	ALWAYS			-
>Mapping Resource	(0008,0105)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Version	(0008,0106)	MWL	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Context Group Local Version	(0008,0107)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Extension Flag	(0008,010B)	MWL	ALWAYS	ALWAYS			-
>Context Group Extension Creator UID	(0008,010D)	MWL	CONDITIONAL	ALWAYS			-
>Context Identifier	(0008,010F)	MWL	CONDITIONAL	ALWAYS			-
Request Attributes Sequence	(0040,0275)	MWL	CONDITIONAL	ALWAYS			-
>Requested Procedure Description	(0032,1060)	MWL	CONDITIONAL	ALWAYS			-
>Scheduled Procedure Step Description	(0040,0007)	MWL	ALWAYS	CONDITIONAL			-
>Scheduled Protocol Code Sequence	(0040,0008)	MWL USER	CONDITIONAL	ALWAYS			-
>>Code Value	(0008,0100)	MWL	ALWAYS	ALWAYS			-
>>Coding Scheme Designator	(0008,0102)	MWL	ALWAYS	ALWAYS			-
>>Coding Scheme Version	(0008,0103)	MWL	ALWAYS	ALWAYS			-
>>Code Meaning	(0008,0104)	MWL	ALWAYS	ALWAYS			-
>>Mapping Resource	(0008,0105)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Version	(0008,0106)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Local Version	(0008,0107)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Extension Flag	(0008,010B)	MWL	ALWAYS	ALWAYS			-
>>Context Group Extension Creator UID	(0008,010D)	MWL	CONDITIONAL	ALWAYS			-
>>Context Identifier	(0008,010F)	MWL	CONDITIONAL	ALWAYS			-
>Scheduled Procedure Step ID	(0040,0009)	MWL	ALWAYS	CONDITIONAL			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Requested Procedure ID	(0040,1001)	MWL	ALWAYS	ALWAYS			-
Comments on the Performed Procedure Step	(0040,0280)	SRC_INSTANCE	CONDITIONAL	ALWAYS			maximum of 64 characters

**Table 128: Frame of Reference Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	GENERATED	ALWAYS	ALWAYS			-
Position Reference Indicator	(0020,1040)	FIXED	ALWAYS	EMPTY			-

**Table 129: General Equipment Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	FIXED	ALWAYS	ALWAYS	Philips		
Institution Name	(0008,0080)	CONFIGURATION	CONDITIONAL	ALWAYS			Configured on the system.
Institution Address	(0008,0081)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Station Name	(0008,1010)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Institutional Department Name	(0008,1040)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS			-
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS			System serial number.
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS			The release text of the original image.

**Table 130: General Acquisition Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Number	(0020,0012)	GENERATED	ALWAYS	ALWAYS			Scan Number on UI.
Acquisition Date	(0008,0022)	GENERATED SRC_INSTANCE	ALWAYS	ALWAYS			Same as Content Date.
Acquisition Time	(0008,0032)	GENERATED SRC_INSTANCE	ALWAYS	ALWAYS			Same as Content Time.
Acquisition DateTime	(0008,002A)	GENERATED	CONDITIONAL	ALWAYS			-
Acquisition Duration	(0018,9073)	GENERATED	ALWAYS	ALWAYS			-

**Table 131: General Image Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			-
Patient Orientation	(0020,0020)	GENERATED	CONDITIONAL	CONDITIONAL			-
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			-
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			-
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS			-
Image Comments	(0020,4000)	GENERATED	CONDITIONAL	ALWAYS			-
Lossy Image Compression	(0028,2110)	FIXED	CONDITIONAL	ALWAYS	00		-
Presentation LUT Shape	(2050,0020)	FIXED	CONDITIONAL	ALWAYS	IDENTITY		-
Real World Value Mapping Sequence	(0040,9096)	GENERATED	CONDITIONAL	ALWAYS			-
>Real World Value First Value Mapped	(0040,9216)	GENERATED	CONDITIONAL	ALWAYS			-
>Real World Value Last Value Mapped	(0040,9211)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Real World Value Intercept	(0040,9224)	GENERATED	CONDITIONAL	ALWAYS			-
>Real World Value Slope	(0040,9225)	GENERATED	CONDITIONAL	ALWAYS			-
>LUT Explanation	(0028,3003)	GENERATED	CONDITIONAL	ALWAYS			-
>LUT Label	(0040,9210)	GENERATED	ALWAYS	ALWAYS			-
>Measurement Units Code Sequence	(0040,08EA)	GENERATED	ALWAYS	ALWAYS			-
>>Code Value	(0008,0100)	GENERATED	CONDITIONAL	ALWAYS			-
>>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	ALWAYS			-
>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			-
>>Context UID	(0008,0117)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 132: General Reference Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Image Sequence	(0008,1140)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-

**Table 133: Image Plane Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Spacing	(0028,0030)	GENERATED	ALWAYS	ALWAYS			-
Image Orientation (Patient)	(0020,0037)	GENERATED	ALWAYS	ALWAYS			-
Image Position (Patient)	(0020,0032)	GENERATED	ALWAYS	ALWAYS			-
Slice Thickness	(0018,0050)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Spacing Between Slices	(0018,0088)	GENERATED USER	ALWAYS	ALWAYS			Spacing Between Slices
Slice Location	(0020,1041)	GENERATED	ALWAYS	ALWAYS			Value is the distance for the plane to a fixed point. Taking direction into account.

**Table 134: Image Pixel Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS			-
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS			-
Rows	(0028,0010)	GENERATED	ALWAYS	ALWAYS			Applied values: min: 64 - max: 2048
Columns	(0028,0011)	GENERATED	ALWAYS	ALWAYS			Applied values: min: 64 - max: 2048
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS			-
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS			-
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS			-
Pixel Representation	(0028,0103)	GENERATED	ALWAYS	ALWAYS			Applied value: 0
Planar Configuration	(0028,0006)	GENERATED	CONDITIONAL	ALWAYS			-
Pixel Aspect Ratio	(0028,0034)	GENERATED	CONDITIONAL	ALWAYS			-
Pixel Data	(7FE0,0010)	GENERATED	ALWAYS	ALWAYS			-

**Table 135: Contrast/Bolus Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Contrast/Bolus Agent	(0018,0010)	GENERATED USER	CONDITIONAL	ALWAYS			Will have value only if contrast is applied for scans Present if contrast bolus is present in the image, values: Gadolinium, Iodamide meglumine, Iodipamide, Iodixanol, Iodized oil, Iodoaliphonic acid, Iodophthalein, Iodopyracet, Iohexol, Ionic iodinated contrast agent, Iopamidol, Iopanoic acid, Iophendylate, Iophenoxic acid, Iothalamate, Ioversol, Ioxaglate, Ipodate, Mangafodipir trisodium, Meglumine diatrizoate, Meglumine iodipamide, Metrizamide, Metrizoate, Non radiopaque medium, Non-ionic iodinated contrast agent, Oxygen, Propylidone, Radiopaque medium, Sodium acetriozate, Sodium diatrizoate, Sodium diprotrizoate, Sodium iodipamide, Sodium iodomethamate, Sodium tyropanate, Water not present when no contrast agent is present in the image.
Contrast/Bolus Route	(0018,1040)	GENERATED	CONDITIONAL	ALWAYS			Applied Values: Intravenous route, Intra-arterial route, Intramuscular route, Subcutaneous route, Intracutaneous route, Intraperitoneal route, Intramedullary route, Intrathecal route, Intra-articular route, Intraepithelial route, Topical route, Oral route, Transluminal route, Intraluminal

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
							route, Extraluminal route, By inhalation, Per rectum, Vaginal route
Contrast/Bolus Volume	(0018,1041)	GENERATED	CONDITIONAL	ALWAYS			-
Contrast/Bolus Start Time	(0018,1042)	GENERATED	CONDITIONAL	ALWAYS			-
Contrast/Bolus Total Dose	(0018,1044)	GENERATED	CONDITIONAL	ALWAYS			-
Contrast/Bolus Ingredient	(0018,1048)	GENERATED	CONDITIONAL	ALWAYS			Applied Values: AIR, BARIUM, CARBON DIOXIDE, GADOLINIUM, IODINE, IRON, OXYGEN, WATER, XENON.
Contrast/Bolus Ingredient Concentration	(0018,1049)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 136: MR Image Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS			Applied values: ({ORIGINAL, DERIVED}, PRIMARY, {METABOLITE_MAP, REALTIME, VELOCITY, KTRANS, KEP, M_FFE, BO, BO_MAP, VE, VP, APTW_SE, M, M_SE, R, I, P, CR, T0, T1, T2, RHO, SPECTRO, CO, DERIVED, ADC, RCBV, RCBF, MTT, TTP, FA, EADC, DELAY, MAXRELENH, RELENH, MAXENH, WASHIN, WASHOUT, BREVENH, AREACURV, ANATOMIC, T_TEST, STD_DEVIATION, PERFUSION, T2_STAR, R2,

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
							R2_STAR, W, IP, OP, F, KTRANS, KEP, SPARE1, SPARE2, AD, RD, RA, SW_M, SW_P, FF, STIFF, WAVE, APT, SUM, SENC_STRAIN, SENC_ANATOMY, CDWI, RELCBV, RELCBF, D, D_STAR, PF, GOODNESS, F FIT, K, REFVOXELS, RCBVCORR, RCBVUNCORR, K2, K1, FIBER, FAD, FMRI, AUC}, {ADC, B0, DELAYED_IMAGE, DELAYED_RECON, DIFFUSION, DIFFUSION_ANISO, ENHANCEMENT, FLOW_ENCODED, FLUID_ATTENUATED, FOV_FUSION, INVERSE_RECON, M, MAXIMUM, MIXED, MTT, NONE, PERFUSION, PROTON_DENSITY, RCBF, RCBV, RESAMPLED, SPECTRO, STIR, SUBTRACTION, T1, T2, T2_STAR, TAGGING, TOF, TTP, UNKNOWN, R2, R2_STAR, W, F, IP, OP, KTRANS, KEP, VE, VP, STIFF, WAVE, APTW, SUM, SENC_STRAIN, SENC_ANATOMY, R, I, P, CR, TO, RHO, SPECTRO, DERIVED, RCBV, RCBF, MTT, TTP, FA, EADC, DELAY, MAXRELENH, RELENH, MAXENH, WASHIN, WASHOUT, BREVENH, AREACURV, ANATOMIC, T_TEST, STD_DEVIATION, PERFUSION, F, SPARE1, SPARE2, AD, RD, RA, SW_M, SW_P, FF, APT, CDWI, RELCBV, RELCBF, D, D_STAR, PF, GOODNESS, F FIT, K, REFVOXELS,

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
							RCBVCORR, RCBVUNCORR, K2, K1, METABOLITE MAP, FIBER, FAD, FMRI, AUC}, {FFE, MRE, NONE, NSPECIFIED,SE})
Samples per Pixel	(0028,0002)	FIXED	ALWAYS	ALWAYS	1		-
Photometric Interpretation	(0028,0004)	FIXED	ALWAYS	ALWAYS	MONOCHROME2		-
Bits Allocated	(0028,0100)	FIXED	ALWAYS	ALWAYS	16		-
Bits Stored	(0028,0101)	FIXED	ALWAYS	ALWAYS	12		-
High Bit	(0028,0102)	FIXED	ALWAYS	ALWAYS	11		-
Scanning Sequence	(0018,0020)	GENERATED	ALWAYS	ALWAYS			-
Sequence Variant	(0018,0021)	GENERATED	ALWAYS	ALWAYS			-
Scan Options	(0018,0022)	GENERATED	ALWAYS	CONDITIONAL			-
MR Acquisition Type	(0018,0023)	GENERATED	ALWAYS	ALWAYS			-
Repetition Time	(0018,0080)	GENERATED USER	CONDITIONAL	ALWAYS			-
Echo Time	(0018,0081)	GENERATED USER	ALWAYS	ALWAYS			-
Echo Train Length	(0018,0091)	GENERATED USER	ALWAYS	CONDITIONAL			-
Inversion Time	(0018,0082)	GENERATED USER	CONDITIONAL	ALWAYS			-
Trigger Time	(0018,1060)	USER	CONDITIONAL	ALWAYS			Will only have a value if Dynamic Series (2001,1012) Equals 1
Sequence Name	(0018,0024)	GENERATED	CONDITIONAL	ALWAYS			-
Angio Flag	(0018,0025)	GENERATED	CONDITIONAL	ALWAYS			-
Number of Averages	(0018,0083)	GENERATED USER	ALWAYS	ALWAYS			-
Imaging Frequency	(0018,0084)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Imaged Nucleus	(0018,0085)	GENERATED	ALWAYS	ALWAYS			-
Echo Number(s)	(0018,0086)	GENERATED	ALWAYS	CONDITIONAL			-
Magnetic Field Strength	(0018,0087)	CONFIGURATION	ALWAYS	CONDITIONAL			-
Number of Phase Encoding Steps	(0018,0089)	GENERATED USER	ALWAYS	CONDITIONAL			-
Percent Sampling	(0018,0093)	GENERATED USER	ALWAYS	CONDITIONAL			-
Percent Phase Field of View	(0018,0094)	GENERATED USER	ALWAYS	CONDITIONAL			-
Pixel Bandwidth	(0018,0095)	GENERATED	ALWAYS	ALWAYS			-
Nominal Interval	(0018,1062)	GENERATED	CONDITIONAL	ALWAYS			-
Beat Rejection Flag	(0018,1080)	GENERATED	CONDITIONAL	ALWAYS			-
Low R-R Value	(0018,1081)	GENERATED	CONDITIONAL	ALWAYS			-
High R-R Value	(0018,1082)	GENERATED	CONDITIONAL	ALWAYS			-
Intervals Acquired	(0018,1083)	GENERATED	CONDITIONAL	ALWAYS			-
Intervals Rejected	(0018,1084)	GENERATED	CONDITIONAL	ALWAYS			-
PVC Rejection	(0018,1085)	GENERATED	CONDITIONAL	ALWAYS			-
Skip Beats	(0018,1086)	GENERATED	CONDITIONAL	ALWAYS			-
Heart Rate	(0018,1088)	GENERATED USER	CONDITIONAL	ALWAYS			-
Cardiac Number of Images	(0018,1090)	GENERATED	CONDITIONAL	ALWAYS			-
Trigger Window	(0018,1094)	GENERATED	CONDITIONAL	ALWAYS			-
Reconstruction Diameter	(0018,1100)	CONFIGURATION	ALWAYS	CONDITIONAL			Value is a copy of the largest value of the Field of View

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Receive Coil Name	(0018,1250)	GENERATED USER	ALWAYS	ALWAYS			-
Transmit Coil Name	(0018,1251)	GENERATED USER	CONDITIONAL	ALWAYS			-
Acquisition Matrix	(0018,1310)	GENERATED	ALWAYS	CONDITIONAL			-
In-plane Phase Encoding Direction	(0018,1312)	GENERATED	ALWAYS	CONDITIONAL			-
Flip Angle	(0018,1314)	GENERATED USER	ALWAYS	CONDITIONAL			-
SAR	(0018,1316)	GENERATED USER	ALWAYS	CONDITIONAL			-
Variable Flip Angle Flag	(0018,1315)	GENERATED	CONDITIONAL	ALWAYS			-
dB/dt	(0018,1318)	GENERATED	CONDITIONAL	ALWAYS			-
Temporal Position Identifier	(0020,0100)	GENERATED	ALWAYS	CONDITIONAL			-
Number of Temporal Positions	(0020,0105)	GENERATED USER	ALWAYS	CONDITIONAL			-
Temporal Resolution	(0020,0110)	GENERATED	CONDITIONAL	ALWAYS			-
B1rms	(0018,1320)	GENERATED	ALWAYS	ALWAYS			-

**Table 137: Overlay Plane Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Overlay Rows	(60xx,0010)	GENERATED	ALWAYS	ALWAYS			-
Overlay Columns	(60xx,0011)	GENERATED	ALWAYS	ALWAYS			-
Overlay Type	(60xx,0040)	GENERATED	ALWAYS	ALWAYS			-
Overlay Origin	(60xx,0050)	GENERATED	ALWAYS	ALWAYS			-
Overlay Bits Allocated	(60xx,0100)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Overlay Bit Position	(60xx,0102)	GENERATED	ALWAYS	ALWAYS			-
Overlay Data	(60xx,3000)	GENERATED	ALWAYS	ALWAYS			-
Overlay Description	(60xx,0022)	GENERATED	CONDITIONAL	ALWAYS			-
Overlay Subtype	(60xx,0045)	GENERATED	CONDITIONAL	ALWAYS			-
Overlay Label	(60xx,1500)	FIXED	ALWAYS	EMPTY			-
ROI Area	(60xx,1301)	GENERATED	CONDITIONAL	ALWAYS			-
ROI Mean	(60xx,1302)	GENERATED	CONDITIONAL	ALWAYS			-
ROI Standard Deviation	(60xx,1303)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 138: VOI LUT Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Window Center	(0028,1050)	GENERATED	ALWAYS	ALWAYS			-
Window Width	(0028,1051)	GENERATED	ALWAYS	ALWAYS			-

**Table 139: SOP Common Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	FIXED	ALWAYS	ALWAYS	1.2.840.10008.5.1.4.1.1.4		-
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS			-
Specific Character Set	(0008,0005)	GENERATED	ALWAYS	ALWAYS			Default: ISO_IR 100, GB18030, ISO 2022 IR 100, ISO 2022 IR 101, ISO 2022 IR 109, ISO 2022 IR 110, ISO 2022 IR 126, ISO 2022 IR 127, ISO 2022 IR 13, ISO 2022 IR 138, ISO 2022 IR 144, ISO 2022 IR 148, ISO 2022 IR

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
							149, ISO 2022 IR 166, ISO 2022 IR 6, ISO_IR 100, ISO_IR 101, ISO_IR 109, ISO_IR 110, ISO_IR 126, ISO_IR 127, ISO_IR 13, ISO 2022 IR 87, ISO_IR 138, ISO_IR 144, ISO_IR 148, ISO_IR 166, ISO_IR 192
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS			-
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS			-
Instance Creator UID	(0008,0014)	GENERATED	ALWAYS	ALWAYS			-
Timezone Offset From UTC	(0008,0201)	GENERATED	ALWAYS	ALWAYS			-
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			-
Instance Origin Status	(0400,0600)	GENERATED	ALWAYS	ALWAYS			-

**Table 140: Extended Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Derivation Image Sequence	(0008,9124)	GENERATED	CONDITIONAL	ALWAYS			-
>Source Image Sequence	(0008,2112)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
>Derivation Code Sequence	(0008,9215)	GENERATED	ALWAYS	ALWAYS			-
>>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			From CID 7203
>>Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			From CID 7203
>>Coding Scheme Version	(0008,0103)	GENERATED	CONDITIONAL	ALWAYS			From CID 7203

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			From CID 7203
Secondary Capture Device ID	(0018,1010)	GENERATED	ALWAYS	CONDITIONAL			-
Secondary Capture Device Manufacturer	(0018,1016)	GENERATED	ALWAYS	CONDITIONAL			-
Secondary Capture Device Manufacturer's Model Name	(0018,1018)	GENERATED	ALWAYS	CONDITIONAL			-
Secondary Capture Device Software Versions	(0018,1019)	GENERATED	ALWAYS	CONDITIONAL			-
Video Image Format Acquired	(0018,1022)	GENERATED	ALWAYS	CONDITIONAL			-
Digital Image Format Acquired	(0018,1023)	GENERATED	ALWAYS	CONDITIONAL			-
Nominal Percentage of Respiratory Phase	(0020,9245)	GENERATED	ALWAYS	CONDITIONAL			-
Starting Respiratory Amplitude	(0020,9246)	GENERATED	CONDITIONAL	ALWAYS			-
Starting Respiratory Phase	(0020,9247)	GENERATED	CONDITIONAL	ALWAYS			-
Ending Respiratory Amplitude	(0020,9248)	GENERATED	CONDITIONAL	ALWAYS			-
Ending Respiratory Phase	(0020,9249)	GENERATED	CONDITIONAL	ALWAYS			-
Respiratory Trigger Type	(0020,9250)	GENERATED	CONDITIONAL	ALWAYS			-
Diffusion b-value	(0018,9087)	GENERATED	CONDITIONAL	ALWAYS			-
Diffusion Gradient Orientation	(0018,9089)	GENERATED	CONDITIONAL	ALWAYS			-
Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS			When a value is present, then this value shall be used in the scaling calculation

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
							for the correct Window setting.
Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS			When a value is present, then this value shall be used in the scaling calculation for the correct Window setting.
Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS	10 <sup>-6</sup> mm <sup>2</sup> /s		normalized, US, cm/s, mrad, ms, mm <sup>2</sup> /s, s,%,/s, S/m, kPa, mmol, ppm, Hz, um <sup>2</sup> /sec, 10 <sup>-3</sup> mm <sup>2</sup> /s,10 <sup>-6</sup> mm <sup>2</sup> /
Requesting Physician	(0032,1032)	MWL	ALWAYS	CONDITIONAL			-
Requesting Service	(0032,1033)	MWL	CONDITIONAL	ALWAYS			-
Requested Procedure Description	(0032,1060)	MWL	ALWAYS	CONDITIONAL			-
Requested Contrast Agent	(0032,1070)	MWL	ALWAYS	CONDITIONAL			-
Study Comments	(0032,4000)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Maximally 32 characters copied from (0040,0280) Comments on the Performed Procedure Steps.

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Special Needs	(0038,0050)	MWL	CONDITIONAL	ALWAYS			Only present when patient demographics received from RIS.
Scheduled Performing Physician's Name	(0040,0006)	MWL	CONDITIONAL	ALWAYS			-
Performed Station AE Title	(0040,0241)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Performed Station Name	(0040,0242)	CONFIGURATION	ALWAYS	CONDITIONAL			-
Performed Location	(0040,0243)	CONFIGURATION	ALWAYS	CONDITIONAL			-
Performed Procedure Step End Date	(0040,0250)	GENERATED	CONDITIONAL	CONDITIONAL			-
Performed Procedure Step End Time	(0040,0251)	GENERATED	CONDITIONAL	CONDITIONAL			-
Performed Procedure Step Status	(0040,0252)	GENERATED	CONDITIONAL	ALWAYS			if MPPS applied
Film Consumption Sequence	(0040,0321)	GENERATED	CONDITIONAL	ALWAYS			-
Requested Procedure ID	(0040,1001)	MWL	CONDITIONAL	ALWAYS			-
Reason for the Requested Procedure	(0040,1002)	MWL	CONDITIONAL	ALWAYS			-
Requested Procedure Priority	(0040,1003)	MWL	CONDITIONAL	ALWAYS			-
Patient Transport Arrangements	(0040,1004)	MWL	CONDITIONAL	ALWAYS			-
Requested Procedure Location	(0040,1005)	MWL	CONDITIONAL	ALWAYS			-
Requested Procedure Comments	(0040,1400)	MWL	CONDITIONAL	ALWAYS			-
Reason for the Imaging Service Request	(0040,2001)	MWL	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Issue Date of Imaging Service Request	(0040,2004)	MWL	CONDITIONAL	ALWAYS			-
Issue Time of Imaging Service Request	(0040,2005)	MWL	CONDITIONAL	ALWAYS			-
Order Enterer's Location	(0040,2009)	MWL	CONDITIONAL	ALWAYS			-
Order Callback Phone Number	(0040,2010)	MWL	CONDITIONAL	ALWAYS			-
Imaging Service Request Comments	(0040,2400)	MWL	CONDITIONAL	ALWAYS			-
Real World Value Mapping Sequence	(0040,9096)	GENERATED	CONDITIONAL	ALWAYS			-
>Real World Value Intercept	(0040,9224)	GENERATED	CONDITIONAL	ALWAYS			-
>Real World Value Slope	(0040,9225)	GENERATED	CONDITIONAL	ALWAYS			-
Creator-Version UID	(0008,9123)	GENERATED	CONDITIONAL	ALWAYS			-
Scan Options	(0018,0022)	GENERATED	CONDITIONAL	ALWAYS			-
Number of Phase Encoding Steps	(0018,0089)	GENERATED	CONDITIONAL	ALWAYS			-
Velocity Encoding Direction	(0018,9090)	GENERATED	CONDITIONAL	ALWAYS			-
Velocity Encoding Minimum Value	(0018,9091)	GENERATED	CONDITIONAL	ALWAYS			-
Respiratory Interval Time	(0020,9254)	GENERATED	CONDITIONAL	ALWAYS			-
DateTime	(0040,A120)	GENERATED	CONDITIONAL	ALWAYS			-

**8.1.1.4.2. MR Image IOD Functional Group Macros**

Not applicable. No functional groups are implemented for this IOD.

**8.1.1.4.3. MR Image Private Modules**

MR Image Private modules are specified in the Common Private modules section as the private creators are shared across multiple IODs.

**8.1.1.4.4. MR Image IOD Coded Values**

Not applicable. No Coded Values are implemented for this IOD.

**8.1.1.5. Enhanced MR Image IOD**

**Table 141: Enhanced MR Image IOD**

Table defines the structure of Enhanced MR Image IOD

IE	Module Name	Presence of Module	Condition	Reference
Patient	Patient	ALWAYS		Patient Module
Study	General Study	ALWAYS		General Study Module
	Patient Study	CONDITIONAL		Patient Study Module
Series	General Series	ALWAYS		General Series Module
	MR Series	ALWAYS		MR Series Module
Frame of Reference	Frame of Reference	ALWAYS		Frame of Reference Module
	Synchronization	CONDITIONAL	Required if time synchronization was applied.	Synchronization Module
Equipment	General Equipment	ALWAYS		General Equipment Module
	Enhanced General Equipment	ALWAYS		Enhanced General Equipment Module
Image	Image Pixel	ALWAYS		Image Pixel Module
	Enhanced Contrast/Bolus	CONDITIONAL	Required if contrast media were applied.	Enhanced Contrast/Bolus Module
	Multi-frame Functional Groups	ALWAYS		Multi-frame Functional Groups Module

IE	Module Name	Presence of Module	Condition	Reference
	Multi-frame Dimension	ALWAYS		Multi-frame Dimension Module
	Cardiac Synchronization	CONDITIONAL	Required if cardiac synchronization was applied.	Cardiac Synchronization Module
	Respiratory Synchronization	CONDITIONAL	Required if respiratory synchronization was applied.	Respiratory Synchronization Module
	Bulk Motion Synchronization	CONDITIONAL	Required if bulk motion synchronization was applied.	Bulk Motion Synchronization Module
	Supplemental Palette Color Lookup Table	CONDITIONAL	Required if Pixel Presentation (0008,9205) in the Enhanced MR Image Module (PS3.3:sect_C.8.13.1) equals COLOR or MIXED.	Supplemental Palette Color Lookup Table Module
	Acquisition Context	ALWAYS		Acquisition Context Module
	Enhanced MR Image	ALWAYS		Enhanced MR Image Module
	MR Pulse Sequence	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED. May be present otherwise.	MR Pulse Sequence Module
	SOP Common	ALWAYS		SOP Common Module
Extended and Private	Extended	ALWAYS		Extended Module
	Private Module Philips Imaging DD 001	ALWAYS		Private Module Philips Imaging DD 001 Module
	Private Module Philips Imaging DD 002	ALWAYS		Private Module Philips Imaging DD 002 Module
	Private Module Philips Imaging DD 097	ALWAYS		Private Module Philips Imaging DD 097 Module
	Private Module Philips MR Imaging DD 001	ALWAYS		Private Module Philips MR Imaging DD 001 Module

IE	Module Name	Presence of Module	Condition	Reference
	Private Module Philips MR Imaging DD 002	ALWAYS		Private Module Philips MR Imaging DD 002 Module
	Private Module Philips MR Imaging DD 003	ALWAYS		Private Module Philips MR Imaging DD 003 Module
	Private Module Philips MR Imaging DD 004	ALWAYS		Private Module Philips MR Imaging DD 004 Module
	Private Module MR Imaging DD 005	ALWAYS		Private Module MR Imaging DD 005 Module
	Private Module MR Imaging DD 006	ALWAYS		Private Module MR Imaging DD 006 Module
	Private Module MR Imaging DD 007	ALWAYS		Private Module MR Imaging DD 007 Module
	Private Module MR Imaging DD 008	ALWAYS		Private Module MR Imaging DD 008 Module
	Private Module Philips DINxGen DD 001	ALWAYS		Private Module Philips DINxGen DD 001 Module

**8.1.1.5.1. Enhanced MR Image IOD Specific Modules**

**Table 142: General Series Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS			-
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS			-
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	MR		-
Series Description	(0008,103E)	GENERATED USER	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Performing Physician's Name	(0008,1050)	MWL USER	CONDITIONAL	ALWAYS			-
Operators' Name	(0008,1070)	MWL USER	CONDITIONAL	ALWAYS			-
Referenced Performed Procedure Step Sequence	(0008,1111)	MWL USER	ALWAYS	ALWAYS			-
>Referenced SOP Class UID	(0008,1150)	MWL USER	ALWAYS	ALWAYS			-
>Referenced SOP Instance UID	(0008,1155)	MWL USER	ALWAYS	ALWAYS			-
Body Part Examined	(0018,0015)	GENERATED	CONDITIONAL	ALWAYS			-
Protocol Name	(0018,1030)	USER	ALWAYS	ALWAYS			Scan name.
Patient Position	(0018,5100)	GENERATED	ALWAYS	ALWAYS			-
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			Generated by MR system.
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			Created dynamically at export. Contains the concatenation of the acquisition number and the private reconstruction number.
Laterality	(0020,0060)	USER	CONDITIONAL	CONDITIONAL			-
Performed Procedure Step Start Date	(0040,0244)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step Start Time	(0040,0245)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step End Date	(0040,0250)	MWL USER	ALWAYS	CONDITIONAL			-
Performed Procedure Step End Time	(0040,0251)	MWL USER	ALWAYS	CONDITIONAL			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Performed Procedure Step ID	(0040,0253)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step Description	(0040,0254)	MWL USER	CONDITIONAL	ALWAYS			-
Performed Protocol Code Sequence	(0040,0260)	MWL USER	CONDITIONAL	ALWAYS			-
>Code Value	(0008,0100)	MWL USER	ALWAYS	ALWAYS			-
>Coding Scheme Designator	(0008,0102)	MWL USER	ALWAYS	ALWAYS			-
>Coding Scheme Version	(0008,0103)	MWL USER	CONDITIONAL	ALWAYS			-
>Code Meaning	(0008,0104)	MWL USER	ALWAYS	ALWAYS			-
>Mapping Resource	(0008,0105)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Version	(0008,0106)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Local Version	(0008,0107)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Extension Flag	(0008,010B)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Extension Creator UID	(0008,010D)	MWL	CONDITIONAL	ALWAYS			-
>Context Identifier	(0008,010F)	MWL	CONDITIONAL	ALWAYS			-
Request Attributes Sequence	(0040,0275)	MWL	CONDITIONAL	ALWAYS			Only present when patient demographics received from RIS
>Scheduled Procedure Step Description	(0040,0007)	MWL	ALWAYS	CONDITIONAL			-
>Scheduled Protocol Code Sequence	(0040,0008)	MWL USER	CONDITIONAL	ALWAYS			-
>>Code Value	(0008,0100)	MWL USER	ALWAYS	ALWAYS			-
>>Coding Scheme Designator	(0008,0102)	MWL USER	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Coding Scheme Version	(0008,0103)	MWL USER	CONDITIONAL	ALWAYS			-
>>Code Meaning	(0008,0104)	MWL USER	ALWAYS	ALWAYS			-
>>Mapping Resource	(0008,0105)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Version	(0008,0106)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Local Version	(0008,0107)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Extension Flag	(0008,010B)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Extension Creator UID	(0008,010D)	MWL	CONDITIONAL	ALWAYS			-
>>Context Identifier	(0008,010F)	MWL	CONDITIONAL	ALWAYS			-
>Scheduled Procedure Step ID	(0040,0009)	MWL	ALWAYS	ALWAYS			-
>Requested Procedure ID	(0040,1001)	MWL	ALWAYS	ALWAYS			-
Comments on the Performed Procedure Step	(0040,0280)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Only present when present in patient demographics received from RIS. Maximum of 64 characters.

**Table 143: MR Series Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	MR		-
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>Referenced SOP Instance UID	(0008,1155)	MWL USER	ALWAYS	ALWAYS			-

**Table 144: Frame of Reference Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	GENERATED	ALWAYS	ALWAYS			-
Position Reference Indicator	(0020,1040)	FIXED	ALWAYS	EMPTY			-

**Table 145: Synchronization Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Synchronization Frame of Reference UID	(0020,0200)	GENERATED	ALWAYS	ALWAYS			-
Synchronization Trigger	(0018,106A)	GENERATED	ALWAYS	ALWAYS			-
Acquisition Time Synchronized	(0018,1800)	GENERATED	ALWAYS	ALWAYS			-
Time Distribution Protocol	(0018,1802)	GENERATED	ALWAYS	ALWAYS			-

**Table 146: General Equipment Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	FIXED	ALWAYS	ALWAYS	Philips		-
Institution Name	(0008,0080)	CONFIGURATION	CONDITIONAL	ALWAYS			Configured in the system
Institution Address	(0008,0081)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Station Name	(0008,1010)	CONFIGURATION	CONDITIONAL	ALWAYS			Same as the Hostname
Institutional Department Name	(0008,1040)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS			-
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS			-
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS			-

**Table 147: Enhanced General Equipment Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	FIXED	ALWAYS	ALWAYS	Philips		-
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS			-
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS			System serial number
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS			The release text of the original Image.

**Table 148: Image Pixel Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Samples per Pixel	(0028,0002)	FIXED	ALWAYS	ALWAYS	1		-
Photometric Interpretation	(0028,0004)	FIXED	ALWAYS	ALWAYS	MONOCHROME2		-
Rows	(0028,0010)	GENERATED	ALWAYS	ALWAYS			-
Columns	(0028,0011)	GENERATED	ALWAYS	ALWAYS			-
Pixel Aspect Ratio	(0028,0034)	GENERATED	CONDITIONAL	ALWAYS	Value 1: 1		-
Bits Allocated	(0028,0100)	FIXED	ALWAYS	ALWAYS	16		-
Bits Stored	(0028,0101)	FIXED	ALWAYS	ALWAYS	12		-
High Bit	(0028,0102)	FIXED	ALWAYS	ALWAYS	11		-
Pixel Representation	(0028,0103)	GENERATED	ALWAYS	ALWAYS	0		-
Pixel Data	(7FE0,0010)	GENERATED	ALWAYS	ALWAYS			-

**Table 149: Enhanced Contrast/Bolus Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Contrast/Bolus Agent Sequence	(0018,0012)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Code Value	(0008,0100)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Code value from contrast agent applied.
>Coding Scheme Designator	(0008,0102)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Code Scheme Designator from contrast agent applied.
>Code Meaning	(0008,0104)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Default value: Contrast Agent.
>Context UID	(0008,0117)	FIXED	CONDITIONAL	ALWAYS	1.2.840.10008.6.1.10		
>Contrast/Bolus Agent Number	(0018,9337)	GENERATED	CONDITIONAL	ALWAYS			-
>Contrast/Bolus Administration Route Sequence	(0018,0014)	GENERATED	CONDITIONAL	ALWAYS			-
>>Code Value	(0008,0100)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Code value from contrast agent applied.
>>Coding Scheme Designator	(0008,0102)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Code Scheme Designator from contrast agent applied.
>>Code Meaning	(0008,0104)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Default value: Contrast Agent.
>>Context UID	(0008,0117)	FIXED	CONDITIONAL	ALWAYS	1.2.840.10008.6.1.10		-
>Contrast/Bolus Ingredient Code Sequence	(0018,9338)	GENERATED	CONDITIONAL	ALWAYS			-
>>Code Value	(0008,0100)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Code value from contrast agent applied.
>>Coding Scheme Designator	(0008,0102)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Code Scheme Designator from contrast agent applied.

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Code Meaning	(0008,0104)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Default value: Contrast Agent.
>>Context UID	(0008,0117)	FIXED	CONDITIONAL	ALWAYS	1.2.840.10008 .6.1.10		-
>Contrast/Bolus Volume	(0018,1041)	USER	CONDITIONAL	ALWAYS			-
>Contrast/Bolus Ingredient Concentration	(0018,1049)	USER	CONDITIONAL	ALWAYS			-

**Table 150: Multi-frame Functional Groups Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Shared Functional Groups Sequence	(5200,9229)	GENERATED	ALWAYS	ALWAYS			-
Per-frame Functional Groups Sequence	(5200,9230)	GENERATED	ALWAYS	ALWAYS			-
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			-
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			-
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			-
Number of Frames	(0028,0008)	GENERATED	ALWAYS	ALWAYS			-

**Table 151: Multi-frame Dimension Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Dimension Organization Sequence	(0020,9221)	GENERATED	ALWAYS	CONDITIONAL			-
>Dimension Organization UID	(0020,9164)	GENERATED	ALWAYS	ALWAYS			-
Dimension Index Sequence	(0020,9222)	GENERATED	ALWAYS	CONDITIONAL			-
>Dimension Index Pointer	(0020,9165)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Dimension Index Private Creator	(0020,9213)	GENERATED	CONDITIONAL	ALWAYS			-
>Functional Group Pointer	(0020,9167)	GENERATED	CONDITIONAL	ALWAYS			-
>Functional Group Private Creator	(0020,9238)	GENERATED	CONDITIONAL	ALWAYS			-
>Dimension Organization UID	(0020,9164)	GENERATED	ALWAYS	ALWAYS			-
>Dimension Description Label	(0020,9421)	GENERATED	CONDITIONAL	ALWAYS			Free text description that explains the meaning of the dimension.

**Table 152: Cardiac Synchronization Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Cardiac Synchronization Technique	(0018,9037)	GENERATED	CONDITIONAL	ALWAYS			-
Cardiac Signal Source	(0018,9085)	GENERATED	CONDITIONAL	ALWAYS			-
Cardiac R-R Interval Specified	(0018,9070)	GENERATED	CONDITIONAL	ALWAYS			-
Cardiac Beat Rejection Technique	(0018,9169)	GENERATED	CONDITIONAL	ALWAYS			-
Low R-R Value	(0018,1081)	GENERATED	CONDITIONAL	ALWAYS			-
High R-R Value	(0018,1082)	GENERATED	CONDITIONAL	ALWAYS			-
Intervals Acquired	(0018,1083)	GENERATED	CONDITIONAL	ALWAYS			-
Intervals Rejected	(0018,1084)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 153: Respiratory Synchronization Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Respiratory Motion Compensation Technique	(0018,9170)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Respiratory Signal Source	(0018,9171)	GENERATED	CONDITIONAL	ALWAYS			-
Respiratory Trigger Type	(0020,9250)	GENERATED	CONDITIONAL	ALWAYS			-
Respiratory Trigger Delay Threshold	(0020,9256)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 154: Bulk Motion Synchronization Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Bulk Motion Compensation Technique	(0018,9172)	GENERATED	CONDITIONAL	ALWAYS			Applied value: NONE

**Table 155: Supplemental Palette Color Lookup Table Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Red Palette Color Lookup Table Descriptor	(0028,1101)	GENERATED	ALWAYS	ALWAYS			-
Green Palette Color Lookup Table Descriptor	(0028,1102)	GENERATED	ALWAYS	ALWAYS			-
Blue Palette Color Lookup Table Descriptor	(0028,1103)	GENERATED	ALWAYS	ALWAYS			-
Red Palette Color Lookup Table Data	(0028,1201)	GENERATED	ALWAYS	ALWAYS			-
Green Palette Color Lookup Table Data	(0028,1202)	GENERATED	ALWAYS	ALWAYS			-
Blue Palette Color Lookup Table Data	(0028,1203)	GENERATED	ALWAYS	ALWAYS			-

**Table 156: Acquisition Context Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Context Sequence	(0040,0555)	GENERATED	ALWAYS	EMPTY			

**Table 157: Enhanced MR Image Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Spacing Between Slices	(0018,0088)	GENERATED	CONDITIONAL	ALWAYS			-
Acquisition Number	(0020,0012)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition DateTime	(0008,002A)	GENERATED	CONDITIONAL	ALWAYS			-
Acquisition Duration	(0018,9073)	GENERATED	CONDITIONAL	ALWAYS			-
Referenced Image Evidence Sequence	(0008,9092)	GENERATED	CONDITIONAL	ALWAYS			-
>Study Instance UID	(0020,000D)	GENERATED	ALWAYS	ALWAYS			-
>Referenced Series Sequence	(0008,1115)	GENERATED	ALWAYS	ALWAYS			-
>>Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Sequence	(0008,1199)	GENERATED	CONDITIONAL	ALWAYS			-
>>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
Source Image Evidence Sequence	(0008,9154)	GENERATED	CONDITIONAL	ALWAYS			-
>Study Instance UID	(0020,000D)	GENERATED	ALWAYS	ALWAYS			-
>Referenced Series Sequence	(0008,1115)	GENERATED	ALWAYS	ALWAYS			-
>>Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Sequence	(0008,1199)	GENERATED	CONDITIONAL	ALWAYS			-
>>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
Content Qualification	(0018,9004)	GENERATED	ALWAYS	ALWAYS			-
Resonant Nucleus	(0018,9100)	GENERATED	CONDITIONAL	ALWAYS			Applied values: 129XE, 13C, 19F, 1H, 23NA, 31P, 3HE, 7LI, 17O, OTHER

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
k-space Filtering	(0018,9064)	GENERATED	CONDITIONAL	ALWAYS			Applied values: COSINE, COSINE_SQUARED, FERMI, GAUSSIAN, HAMMING, HANNING, LORENTZIAN, LRNTZ_GSS_TRNSFM, NONE, RIESZ, TUKEY, USER_DEFINED
Magnetic Field Strength	(0018,0087)	GENERATED	CONDITIONAL	ALWAYS			-
Applicable Safety Standard Agency	(0018,9174)	GENERATED	CONDITIONAL	ALWAYS			-
Applicable Safety Standard Description	(0018,9175)	GENERATED	CONDITIONAL	ALWAYS			-
Image Comments	(0020,4000)	USER	CONDITIONAL	ALWAYS			-
B1rms	(0018,1320)	GENERATED	ALWAYS	ALWAYS			-
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS			Applied values: ({ORIGINAL, DERIVED}, PRIMARY, {METABOLITE_MAP, REALTIME, VELOCITY, KTRANS, KEP, M_FFE, BO, BO_MAP, VE, VP, APTW_SE, M, R, I, P, CR, T0, T1, T2, RHO, SPECTRO, DERIVED, ADC, RCBV, RCBF, MTT, TTP, FA, EADC, DELAY, MAXRELENH, RELENH, MAXENH, WASHIN, WASHOUT, BREVENH, AREACURV, ANATOMIC, T_TEST, STD_DEVIATION, PERFUSION, T2_STAR, R2, R2_STAR, W, IP, OP, F, SPARE1, SPARE2, AD, RD, RA, SW_M, SW_P, FF, STIFF, WAVE, APT, SUM, SENC_STRAIN, SENC_ANATOMY, CDWI, RELCBV,

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
							RELCBF, D, D_STAR, PF, GOODNESS, F FIT, K, REFVOXELS, RCBVCORR, RCBVUNCORR, K2, K1, FIBER, FAD, FMRI, AUC}, {ADC, B0, DELAYED_IMAGE, DELAYED_RECON, DIFFUSION, DIFFUSION_ANISO, ENHANCEMENT, FLOW_ENCODED, FLUID_ATTENUATED, FOV_FUSION, INVERSE_RECON, M, MAXIMUM, MIXED, MTT, NONE, PERFUSION, PROTON_DENSITY, RCBF, RCBV, RESAMPLED, SPECTRO, STIR, SUBTRACTION, T1, T2, T2_STAR, TAGGING, TOF, TTP, UNKNOWN, R2, R2_STAR, W, F, IP, OP, KTRANS, KEP, VE, VP, STIFF, WAVE, APTW, SUM, R, I, P, CR, T0, RHO, SPECTRO, DERIVED, RCBV, RCBF, TTP, FA, EADC, DELAY, MAXRELENH, RELENH, MAXENH, WASHIN, WASHOUT, BREVENH, AREACURV, ANATOMIC, T_TEST, STD_DEVIATION, PERFUSION, W, IP, OP, F, KTRANS, KEP, VE, VP, SPARE1, SPARE2, AD, RD, RA, SW_M, , SW_P, FF, STIFF, WAVE, APT, SUM, SENC_STRAIN, SENC_ANATOMY, CDWI, RELCBV, RELCBF, D, D_STAR, PF, GOODNESS , F FIT, K, REFVOXELS,

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
							RCBVCORR, RCBVUNCORR, K2, K1, METABOLITE MAP, FIBER, FAD, FMRI, AUC}, {FFE,MRE,NONE, UNSPECIFIED,SE})
Pixel Presentation	(0008,9205)	GENERATED	ALWAYS	ALWAYS			-
Volumetric Properties	(0008,9206)	GENERATED	ALWAYS	ALWAYS			-
Volume Based Calculation Technique	(0008,9207)	GENERATED	ALWAYS	ALWAYS			Applied values: MAX_IP, MPR, NONE
Complex Image Component	(0008,9208)	GENERATED	ALWAYS	ALWAYS			-
Acquisition Contrast	(0008,9209)	GENERATED	ALWAYS	ALWAYS			-
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS			-
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS			-
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS			-
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS			-
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS			-
Pixel Representation	(0028,0103)	GENERATED	ALWAYS	ALWAYS			-
Burned In Annotation	(0028,0301)	GENERATED	ALWAYS	ALWAYS	NO		-
Lossy Image Compression	(0028,2110)	GENERATED	ALWAYS	ALWAYS	0		-
Presentation LUT Shape	(2050,0020)	GENERATED	ALWAYS	ALWAYS			-

**Table 158: MR Pulse Sequence Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pulse Sequence Name	(0018,9005)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Acquisition Type	(0018,0023)	GENERATED	CONDITIONAL	ALWAYS			Applied values: 1D, 2D, 3D, UNKNOWN
Echo Pulse Sequence	(0018,9008)	GENERATED	CONDITIONAL	ALWAYS			-
Multiple Spin Echo	(0018,9011)	GENERATED	CONDITIONAL	ALWAYS			-
Multi-planar Excitation	(0018,9012)	GENERATED	CONDITIONAL	ALWAYS			-
Phase Contrast	(0018,9014)	GENERATED	CONDITIONAL	ALWAYS			-
Time of Flight Contrast	(0018,9015)	GENERATED	CONDITIONAL	ALWAYS			-
Steady State Pulse Sequence	(0018,9017)	GENERATED	CONDITIONAL	ALWAYS			-
Echo Planar Pulse Sequence	(0018,9018)	GENERATED	CONDITIONAL	ALWAYS			-
Saturation Recovery	(0018,9024)	GENERATED	CONDITIONAL	ALWAYS			-
Spectrally Selected Suppression	(0018,9025)	GENERATED	CONDITIONAL	ALWAYS			-
Oversampling Phase	(0018,9029)	GENERATED	CONDITIONAL	ALWAYS			-
Geometry of k-Space Traversal	(0018,9032)	GENERATED	CONDITIONAL	ALWAYS			-
Rectilinear Phase Encode Reordering	(0018,9034)	GENERATED	CONDITIONAL	ALWAYS			Applied values: CENTRIC, LINEAR, REVERSE_CENTRIC, REVERSE_LINEAR, SEGMENTED, UNKNOWN
Segmented k-Space Traversal	(0018,9033)	GENERATED	CONDITIONAL	ALWAYS			-
Coverage of k-Space	(0018,9094)	GENERATED	CONDITIONAL	ALWAYS			-
Number of k-Space Trajectories	(0018,9093)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 159: SOP Common Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Specific Character Set	(0008,0005)	GENERATED	ALWAYS	ALWAYS			Default: ISO_IR 100. GB18030, ISO 2022 IR 100, ISO 2022 IR 101, ISO 2022 IR 109, ISO 2022 IR 110, ISO 2022 IR 126, ISO 2022 IR 127, ISO 2022 IR 13, ISO 2022 IR 138, ISO 2022 IR 144, ISO 2022 IR 148, ISO 2022 IR 149, ISO 2022 IR 166, ISO 2022 IR 6, ISO_IR 100, ISO_IR 101, ISO_IR 109, ISO_IR 110, ISO_IR 126, ISO_IR 127, ISO_IR 13, ISO 2022 IR 87, ISO_IR 138, ISO_IR 144, ISO_IR 148, ISO_IR 166, ISO_IR 192
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS			-
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS			-
Instance Creator UID	(0008,0014)	GENERATED	ALWAYS	ALWAYS			-
SOP Class UID	(0008,0016)	FIXED	ALWAYS	ALWAYS	1.2.840.10008.5.1.4.1.1.4.1		-
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS			-
Timezone Offset From UTC	(0008,0201)	GENERATED	CONDITIONAL	ALWAYS			-
Content Qualification	(0018,9004)	GENERATED	ALWAYS	ALWAYS			-
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			-
Instance Origin Status	(0400,0600)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 160: Extended Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Creator-Version UID	(0008,9123)	GENERATED	ALWAYS	ALWAYS			-
Scan Options	(0018,0022)	GENERATED	ALWAYS	CONDITIONAL			-
Number of Phase Encoding Steps	(0018,0089)	GENERATED USER	ALWAYS	CONDITIONAL			-
Velocity Encoding Direction	(0018,9090)	GENERATED	ALWAYS	ALWAYS			-
Velocity Encoding Minimum Value	(0018,9091)	GENERATED	ALWAYS	ALWAYS			-
Respiratory Interval Time	(0020,9254)	GENERATED	ALWAYS	ALWAYS			-
Special Needs	(0038,0050)	MWL	CONDITIONAL	ALWAYS			Only present when patient demographics received from RIS.
Scheduled Performing Physician's Name	(0040,0006)	MWL	CONDITIONAL	ALWAYS			-
Performed Procedure Step Status	(0040,0252)	GENERATED	CONDITIONAL	ALWAYS			-
DateTime	(0040,A120)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Station Name	(0040,0242)	GENERATED	ALWAYS	CONDITIONAL			-
Performed Location	(0040,0243)	GENERATED	ALWAYS	CONDITIONAL			-
Performed Station AE Title	(0040,0241)	GENERATED	CONDITIONAL	ALWAYS			-
Inversion Time	(0018,0082)	GENERATED	CONDITIONAL	ALWAYS			-
Echo Train Length	(0018,0091)	GENERATED	CONDITIONAL	ALWAYS			-
Percent Sampling	(0018,0093)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Percent Phase Field of View	(0018,0094)	GENERATED	CONDITIONAL	ALWAYS			-
Pixel Bandwidth	(0018,0095)	GENERATED	CONDITIONAL	ALWAYS			-
Spoiling	(0018,9016)	GENERATED	CONDITIONAL	ALWAYS			-
Tag Angle First Axis	(0018,9019)	GENERATED	CONDITIONAL	ALWAYS			-
Magnetization Transfer	(0018,9020)	GENERATED	CONDITIONAL	ALWAYS			-
T2 Preparation	(0018,9021)	GENERATED	CONDITIONAL	ALWAYS			-
Blood Signal Nulling	(0018,9022)	GENERATED	CONDITIONAL	ALWAYS			-
Spectrally Selected Excitation	(0018,9026)	GENERATED	CONDITIONAL	ALWAYS			-
Spatial Pre-saturation	(0018,9027)	GENERATED	CONDITIONAL	ALWAYS			-
Tagging	(0018,9028)	GENERATED	CONDITIONAL	ALWAYS			-
Tag Spacing First Dimension	(0018,9030)	GENERATED	CONDITIONAL	ALWAYS			-
Tag Thickness	(0018,9035)	GENERATED	CONDITIONAL	ALWAYS			-
Transmit Coil Manufacturer Name	(0018,9050)	FIXED	CONDITIONAL	EMPTY			-
Transmit Coil Type	(0018,9051)	GENERATED	ALWAYS	ALWAYS			-
MR Acquisition Frequency Encoding Steps	(0018,9058)	GENERATED	ALWAYS	ALWAYS			-
Parallel Reduction Factor In-plane	(0018,9069)	GENERATED	CONDITIONAL	ALWAYS			-
Parallel Acquisition	(0018,9077)	GENERATED	CONDITIONAL	ALWAYS			-
Partial Fourier	(0018,9081)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Parallel Reduction Factor out-of-plane	(0018,9155)	GENERATED	ALWAYS	ALWAYS			-
Parallel Reduction Factor Second In-plane	(0018,9168)	GENERATED	ALWAYS	ALWAYS			-
Specific Absorption Rate Definition	(0018,9179)	GENERATED	ALWAYS	ALWAYS			-
Gradient Output Type	(0018,9180)	GENERATED	ALWAYS	ALWAYS			-
Specific Absorption Rate Value	(0018,9181)	GENERATED	ALWAYS	ALWAYS			-
Gradient Output	(0018,9182)	GENERATED	ALWAYS	ALWAYS			-
MR Acquisition Phase Encoding Steps in-plane	(0018,9231)	GENERATED	ALWAYS	ALWAYS			-
RF Echo Train Length	(0018,9240)	GENERATED	ALWAYS	ALWAYS			-
Gradient Echo Train Length	(0018,9241)	GENERATED	ALWAYS	ALWAYS			-
Frame Laterality	(0020,9072)	GENERATED	CONDITIONAL	ALWAYS			-
Nominal Respiratory Trigger Delay Time	(0020,9255)	GENERATED	CONDITIONAL	ALWAYS			-
Heart Rate	(0018,1088)	GENERATED USER	CONDITIONAL	ALWAYS			-
Trigger Window	(0018,1094)	GENERATED	CONDITIONAL	ALWAYS			-
Parallel Acquisition Technique	(0018,9078)	GENERATED	CONDITIONAL	ALWAYS			-
Velocity Encoding Acquisition Sequence	(0018,9092)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Velocity Encoding Direction	(0018,9090)	GENERATED	ALWAYS	ALWAYS			
Partial Fourier Direction	(0018,9036)	GENERATED	CONDITIONAL	ALWAYS			-
Contrast/Bolus Agent	(0018,0010)	GENERATED USER	CONDITIONAL	ALWAYS			-
Contrast/Bolus Route	(0018,1040)	GENERATED	CONDITIONAL	ALWAYS			-
Contrast/Bolus Volume	(0018,1041)	GENERATED	CONDITIONAL	ALWAYS			-
Contrast/Bolus Start Time	(0018,1042)	GENERATED	CONDITIONAL	ALWAYS			-
Contrast/Bolus Total Dose	(0018,1044)	GENERATED	CONDITIONAL	ALWAYS			-
Contrast/Bolus Ingredient	(0018,1048)	GENERATED	CONDITIONAL	ALWAYS			Applied Values: AIR, BARIUM, CARBON DIOXIDE, GADOLINIUM, IODINE, IRON, OXYGEN, WATER, XENON.
Contrast/Bolus Ingredient Concentration	(0018,1049)	GENERATED	CONDITIONAL	ALWAYS			-
Flow Compensation Direction	(0018,9183)	GENERATED	CONDITIONAL	ALWAYS			-

**8.1.1.5.2. Enhanced MR IOD Functional Group Macros**

**Table 161: Enhanced MR Image IOD Functional Group Macro**

Functional Group Macro Module	Presence of Module	Condition	Reference
Pixel Measures	ALWAYS		Pixel Measures Macro Attributes
Frame Content	ALWAYS		Frame Content Macro Attributes

Functional Group Macro Module	Presence of Module	Condition	Reference
Plane Position (Patient)	ALWAYS		Plane Position (Patient) Macro Attributes
Plane Orientation (Patient)	ALWAYS		Plane Orientation (Patient) Macro Attributes
Referenced Image	CONDITIONAL	Required if the image or frame has been planned on another image or frame	Referenced Image Macro Attributes
Derivation Image	CONDITIONAL	Required if the image or frame has been derived from another SOP Instance.	Derivation Image Macro Attributes
Cardiac Synchronization	CONDITIONAL	Required if Cardiac Synchronization Technique (0018,9037) equals other than NONE and if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	Cardiac Synchronization Macro Attributes
Frame Anatomy	ALWAYS		Frame Anatomy Macro Attributes
Pixel Value Transformation	CONDITIONAL	Required if Photometric Interpretation (0028,0004) is MONOCHROME2	Pixel Value Transformation Macro Attributes
Frame VOI LUT	CONDITIONAL	May be used only if Photometric Interpretation (0028,0004) is MONOCHROME2	Frame VOI LUT Macro Attributes
Real World Value Mapping	CONDITIONAL	May be used only if Photometric Interpretation (0028,0004) is MONOCHROME2	Real World Value Mapping Macro Attributes
Contrast/Bolus Usage	CONDITIONAL	Required if Contrast/Bolus Agent Sequence (0018,0012) is used	Contrast/Bolus Usage Macro Attributes
Respiratory Synchronization	CONDITIONAL	Required if Respiratory Motion Compensation Technique (0018,9170) equals other than NONE, REALTIME or BREATH_HOLD and if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	Respiratory Synchronization Macro Attributes
MR Image Frame Type	ALWAYS		MR Image Frame Type Macro Attributes
MR Timing and Related Parameters	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Timing and Related Parameters Macro Attributes

Functional Group Macro Module	Presence of Module	Condition	Reference
MR FOV/Geometry	CONDITIONAL	Required if Geometry of k-Space Traversal (0018,9032) equals RECTILINEAR and if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR FOV/Geometry Macro Attributes
MR Echo	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Echo Macro Attributes
MR Modifier	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Modifier Macro Attributes
MR Imaging Modifier	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Imaging Modifier Macro Attributes
MR Receive Coil	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Receive Coil Macro Attributes
MR Transmit Coil	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Transmit Coil Macro Attributes
MR Diffusion	CONDITIONAL	Required if Acquisition Contrast (0008,9209) in any MR Image Frame Type Functional Group in the SOP Instance equals DIFFUSION and Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Diffusion Macro Attributes
MR Averages	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Averages Macro Attributes
MR Spatial Saturation	CONDITIONAL	Required if Spatial Pre-saturation (0018,9027) equals SLAB for any frame in the SOP Instance and Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Spatial Saturation Macro Attributes
MR Metabolite Map	CONDITIONAL	Required if Image Type (0008,0008) Value 3 equals METABOLITE_MAP	MR Metabolite Map Macro Attributes

Functional Group Macro Module	Presence of Module	Condition	Reference
MR Velocity Encoding	CONDITIONAL	Required if Phase Contrast (0018,9014) equals YES and Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Velocity Encoding Macro Attributes

**Table 162: Pixel Measures Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Measures Sequence	(0028,9110)	GENERATED	ALWAYS	ALWAYS			-
>Pixel Spacing	(0028,0030)	GENERATED	CONDITIONAL	ALWAYS			-
>Slice Thickness	(0018,0050)	GENERATED	CONDITIONAL	ALWAYS			-
>Spacing Between Slices	(0018,0088)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 163: Frame Content Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Content Sequence	(0020,9111)	GENERATED	ALWAYS	ALWAYS			-
>Frame Reference DateTime	(0018,9151)	GENERATED	CONDITIONAL	ALWAYS			-
>Frame Acquisition DateTime	(0018,9074)	GENERATED	CONDITIONAL	ALWAYS			-
>Frame Acquisition Duration	(0018,9220)	GENERATED	CONDITIONAL	ALWAYS			-
>Dimension Index Values	(0020,9157)	GENERATED	CONDITIONAL	ALWAYS			-
>Temporal Position Index	(0020,9128)	GENERATED	CONDITIONAL	ALWAYS			-
>Stack ID	(0020,9056)	GENERATED	CONDITIONAL	ALWAYS			-
>In-Stack Position Number	(0020,9057)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 164: Plane Position (Patient) Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Plane Position Sequence	(0020,9113)	GENERATED	ALWAYS	ALWAYS			-
>Image Position (Patient)	(0020,0032)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 165: Plane Orientation (Patient) Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Plane Orientation Sequence	(0020,9116)	GENERATED	ALWAYS	ALWAYS			-
>Image Orientation (Patient)	(0020,0037)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 166: Referenced Image Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Image Sequence	(0008,1140)	GENERATED	CONDITIONAL	ALWAYS			if scan was planned on another scan
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
>Referenced Frame Number	(0008,1160)	GENERATED	CONDITIONAL	ALWAYS			-
>Purpose of Reference Code Sequence	(0040,A170)	GENERATED	ALWAYS	ALWAYS			-
>>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			-
>>Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			-
>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			-

**Table 167: Derivation Image Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Derivation Image Sequence	(0008,9124)	GENERATED	ALWAYS	CONDITIONAL			-
>Derivation Code Sequence	(0008,9215)	GENERATED	CONDITIONAL	ALWAYS			-
>>Code Value	(0008,0100)	GENERATED	CONDITIONAL	ALWAYS			From CID 7203

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	ALWAYS			From CID 7203
>>Coding Scheme Version	(0008,0103)	GENERATED	CONDITIONAL	ALWAYS			From CID 7203
>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			From CID 7203
>>Context UID	(0008,0117)	GENERATED	CONDITIONAL	ALWAYS			-
>Source Image Sequence	(0008,2112)	GENERATED	ALWAYS	CONDITIONAL			-
>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
>>Purpose of Reference Code Sequence	(0040,A170)	GENERATED	CONDITIONAL	ALWAYS			-
>>>Code Value	(0008,0100)	GENERATED	CONDITIONAL	ALWAYS			From CID 7202
>>>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	ALWAYS			From CID 7202
>>>Coding Scheme Version	(0008,0103)	GENERATED	CONDITIONAL	ALWAYS			From CID 7202
>>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			From CID 7202
>>>Context UID	(0008,0117)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 168: Cardiac Synchronization Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Cardiac Synchronization Sequence	(0018,9118)	GENERATED	CONDITIONAL	ALWAYS			-
>Nominal Cardiac Trigger Delay Time	(0020,9153)	GENERATED	ALWAYS	ALWAYS			-
>Intervals Acquired	(0018,1083)	GENERATED	CONDITIONAL	ALWAYS			-
>Intervals Rejected	(0018,1084)	GENERATED	CONDITIONAL	ALWAYS			-
>Heart Rate	(0018,1088)	GENERATED	CONDITIONAL	ALWAYS			-
>R-R Interval Time Nominal	(0020,9251)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Low R-R Value	(0018,1081)	GENERATED	CONDITIONAL	ALWAYS			-
>High R-R Value	(0018,1082)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 169: Frame Anatomy Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Anatomy Sequence	(0020,9071)	GENERATED	ALWAYS	ALWAYS			-
>Frame Laterality	(0020,9072)	GENERATED	ALWAYS	ALWAYS			value from examcard.
>Anatomic Region Sequence	(0008,2218)	GENERATED	ALWAYS	ALWAYS			-
>>Context UID	(0008,0117)	GENERATED	CONDITIONAL	ALWAYS			
>>Anatomic Region Modifier Sequence	(0008,2220)	GENERATED	CONDITIONAL	ALWAYS			-
>>>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			-
>>>Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			-
>>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			-
>>>Context UID	(0008,0117)	GENERATED	CONDITIONAL	ALWAYS			

**Table 170: Pixel Value Transformation Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Value Transformation Sequence	(0028,9145)	GENERATED	ALWAYS	ALWAYS			-
>Rescale Intercept	(0028,1052)	GENERATED	ALWAYS	ALWAYS			-
>Rescale Slope	(0028,1053)	GENERATED	ALWAYS	ALWAYS			-
>Rescale Type	(0028,1054)	GENERATED	ALWAYS	ALWAYS			no units, Normalized, US, cm/s, mrad, milliradian, ms, mm^2/s, s, %/s, S/m, kPa, millimol, parts per

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
							million, Hz, um <sup>2</sup> /s, mm <sup>2</sup> /s, 10 <sup>-6</sup> , mm <sup>2</sup> /s

**Table 171: Frame VOI LUT Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame VOI LUT Sequence	(0028,9132)	GENERATED	ALWAYS	ALWAYS			-
>Window Center	(0028,1050)	GENERATED	ALWAYS	ALWAYS			-
>Window Width	(0028,1051)	GENERATED	ALWAYS	ALWAYS			-

**Table 172: Real World Value Mapping Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Real World Value Mapping Sequence	(0040,9096)	GENERATED	CONDITIONAL	ALWAYS			-
>Real World Value First Value Mapped	(0040,9216)	GENERATED	ALWAYS	ALWAYS			-
>Real World Value Last Value Mapped	(0040,9211)	GENERATED	ALWAYS	ALWAYS			-
>Real World Value Intercept	(0040,9224)	GENERATED	CONDITIONAL	ALWAYS			-
>Real World Value Slope	(0040,9225)	GENERATED	CONDITIONAL	ALWAYS			-
>LUT Explanation	(0028,3003)	GENERATED	ALWAYS	ALWAYS			-
>LUT Label	(0040,9210)	GENERATED	ALWAYS	ALWAYS			-
>Measurement Units Code Sequence	(0040,08EA)	GENERATED	ALWAYS	ALWAYS			-
>>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			-
>>Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			-
>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			-

**Table 173: Contrast/Bolus Usage Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Contrast/Bolus Usage Sequence	(0018,9341)	GENERATED	CONDITIONAL	ALWAYS			Required if the Enhanced Contrast/Bolus Module is present YES, if the selected agent had begun by the time frame acquired else NO.
>Contrast/Bolus Agent Number	(0018,9337)	GENERATED	CONDITIONAL	ALWAYS			-
>Contrast/Bolus Agent Administered	(0018,9342)	GENERATED	CONDITIONAL	ALWAYS			-
>Contrast/Bolus Agent Detected	(0018,9343)	GENERATED	CONDITIONAL	ALWAYS			-
>Contrast/Bolus Agent Phase	(0018,9344)	GENERATED	CONDITIONAL	CONDITIONAL			IMMEDIATE if Contrast/Bolus Route (0018,1040) is Intravenous Route.

**Table 174: Respiratory Synchronization Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Respiratory Synchronization Sequence	(0020,9253)	GENERATED	CONDITIONAL	ALWAYS			-
>Respiratory Interval Time	(0020,9254)	GENERATED	ALWAYS	ALWAYS			-
>Nominal Percentage of Respiratory Phase	(0020,9245)	GENERATED	CONDITIONAL	ALWAYS			-
>Nominal Respiratory Trigger Delay Time	(0020,9255)	GENERATED	ALWAYS	ALWAYS			-
>Actual Respiratory Trigger Delay Time	(0020,9257)	GENERATED	CONDITIONAL	ALWAYS			-
>Starting Respiratory Amplitude	(0020,9246)	GENERATED	CONDITIONAL	ALWAYS			-
>Starting Respiratory Phase	(0020,9247)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Ending Respiratory Amplitude	(0020,9248)	GENERATED	CONDITIONAL	ALWAYS			-
>Ending Respiratory Phase	(0020,9249)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 175: MR Image Frame Type Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Image Frame Type Sequence	(0018,9226)	GENERATED	ALWAYS	ALWAYS			-
>Frame Type	(0008,9007)	GENERATED	ALWAYS	ALWAYS			-
>Pixel Presentation	(0008,9205)	GENERATED	ALWAYS	ALWAYS			-
>Volumetric Properties	(0008,9206)	GENERATED	ALWAYS	ALWAYS			-
>Volume Based Calculation Technique	(0008,9207)	GENERATED	ALWAYS	ALWAYS			Applied values: MAX_IP, MPR, NONE
>Complex Image Component	(0008,9208)	GENERATED	ALWAYS	ALWAYS			-
>Acquisition Contrast	(0008,9209)	GENERATED	ALWAYS	ALWAYS			-

**Table 176: MR Timing and Related Parameters Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Timing and Related Parameters Sequence	(0018,9112)	GENERATED	ALWAYS	ALWAYS			-
>Repetition Time	(0018,0080)	GENERATED	CONDITIONAL	ALWAYS			-
>Flip Angle	(0018,1314)	GENERATED	CONDITIONAL	ALWAYS			-
>Echo Train Length	(0018,0091)	GENERATED	CONDITIONAL	ALWAYS			-
>RF Echo Train Length	(0018,9240)	GENERATED	CONDITIONAL	ALWAYS			-
>Gradient Echo Train Length	(0018,9241)	GENERATED	CONDITIONAL	ALWAYS			-
>Specific Absorption Rate Sequence	(0018,9239)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Specific Absorption Rate Definition	(0018,9179)	GENERATED	ALWAYS	ALWAYS			-
>>Specific Absorption Rate Value	(0018,9181)	GENERATED	ALWAYS	ALWAYS			-
>Gradient Output Type	(0018,9180)	GENERATED	CONDITIONAL	ALWAYS			-
>Gradient Output	(0018,9182)	GENERATED	CONDITIONAL	ALWAYS			-
>Operating Mode Sequence	(0018,9176)	GENERATED	CONDITIONAL	ALWAYS			-
>>Operating Mode Type	(0018,9177)	GENERATED	ALWAYS	ALWAYS			-
>>Operating Mode	(0018,9178)	GENERATED	ALWAYS	ALWAYS			-

**Table 177: MR FOV/Geometry Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR FOV/Geometry Sequence	(0018,9125)	GENERATED	ALWAYS	ALWAYS			-
>In-plane Phase Encoding Direction	(0018,1312)	GENERATED	CONDITIONAL	ALWAYS			-
>MR Acquisition Frequency Encoding Steps	(0018,9058)	GENERATED	CONDITIONAL	ALWAYS			-
>MR Acquisition Phase Encoding Steps in-plane	(0018,9231)	GENERATED	CONDITIONAL	ALWAYS			-
>MR Acquisition Phase Encoding Steps out-of-plane	(0018,9232)	GENERATED	CONDITIONAL	ALWAYS			-
>Percent Sampling	(0018,0093)	GENERATED	CONDITIONAL	ALWAYS			-
>Percent Phase Field of View	(0018,0094)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 178: MR Echo Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Echo Sequence	(0018,9114)	GENERATED	ALWAYS	ALWAYS			-
>Effective Echo Time	(0018,9082)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 179: MR Modifier Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Modifier Sequence	(0018,9115)	GENERATED	ALWAYS	ALWAYS			-
>Inversion Recovery	(0018,9009)	GENERATED	CONDITIONAL	ALWAYS			-
>Inversion Times	(0018,9079)	GENERATED	CONDITIONAL	ALWAYS			-
>Flow Compensation	(0018,9010)	GENERATED	CONDITIONAL	ALWAYS			-
>Flow Compensation Direction	(0018,9183)	GENERATED	CONDITIONAL	ALWAYS			-
>T2 Preparation	(0018,9021)	GENERATED	CONDITIONAL	ALWAYS			-
>Spectrally Selected Excitation	(0018,9026)	GENERATED	CONDITIONAL	ALWAYS			-
>Spatial Pre-saturation	(0018,9027)	GENERATED	CONDITIONAL	ALWAYS			-
>Partial Fourier	(0018,9081)	GENERATED	CONDITIONAL	ALWAYS			-
>Parallel Acquisition	(0018,9077)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 180: MR Imaging Modifier Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Imaging Modifier Sequence	(0018,9006)	GENERATED	CONDITIONAL	ALWAYS			-
>Magnetization Transfer	(0018,9020)	GENERATED	CONDITIONAL	ALWAYS			-
>Blood Signal Nulling	(0018,9022)	GENERATED	CONDITIONAL	ALWAYS			-
>Tagging	(0018,9028)	GENERATED	CONDITIONAL	ALWAYS			-
>Tag Spacing First Dimension	(0018,9030)	GENERATED	CONDITIONAL	ALWAYS			-
>Tag Spacing Second Dimension	(0018,9218)	GENERATED	CONDITIONAL	ALWAYS			-
>Tag Angle First Axis	(0018,9019)	GENERATED	CONDITIONAL	ALWAYS			-
>Tag Angle Second Axis	(0018,9219)	GENERATED	CONDITIONAL	ALWAYS			-
>Tag Thickness	(0018,9035)	GENERATED	CONDITIONAL	ALWAYS			Applied value: 0.0

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Transmitter Frequency	(0018,9098)	GENERATED	CONDITIONAL	ALWAYS			-
>Pixel Bandwidth	(0018,0095)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 181: MR Receive Coil Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Receive Coil Sequence	(0018,9042)	GENERATED	ALWAYS	ALWAYS			-
>Receive Coil Name	(0018,1250)	GENERATED	CONDITIONAL	ALWAYS			-
>Receive Coil Manufacturer Name	(0018,9041)	GENERATED	CONDITIONAL	EMPTY			-
>Receive Coil Type	(0018,9043)	GENERATED	CONDITIONAL	ALWAYS			-
>Quadrature Receive Coil	(0018,9044)	GENERATED	CONDITIONAL	ALWAYS			-
>Multi-Coil Definition Sequence	(0018,9045)	GENERATED	CONDITIONAL	ALWAYS			-
>>Multi-Coil Element Name	(0018,9047)	GENERATED	ALWAYS	ALWAYS			-
>>Multi-Coil Element Used	(0018,9048)	GENERATED	ALWAYS	ALWAYS			-

**Table 182: MR Transmit Coil Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Transmit Coil Sequence	(0018,9049)	GENERATED	ALWAYS	ALWAYS			-
>Transmit Coil Name	(0018,1251)	GENERATED	ALWAYS	ALWAYS			-
>Transmit Coil Manufacturer Name	(0018,9050)	FIXED	ALWAYS	EMPTY			-
>Transmit Coil Type	(0018,9051)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 183: MR Diffusion Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Diffusion Sequence	(0018,9117)	GENERATED	CONDITIONAL	ALWAYS			-
>Diffusion b-value	(0018,9087)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Diffusion Directionality	(0018,9075)	GENERATED	CONDITIONAL	ALWAYS			-
>Diffusion Gradient Direction Sequence	(0018,9076)	GENERATED	CONDITIONAL	ALWAYS			-
>>Diffusion Gradient Orientation	(0018,9089)	GENERATED	CONDITIONAL	ALWAYS			-
>Diffusion Anisotropy Type	(0018,9147)	GENERATED	CONDITIONAL	ALWAYS			Applied value: FRACTIONAL

**Table 184: MR Averages Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Averages Sequence	(0018,9119)	GENERATED	ALWAYS	ALWAYS			-
>Number of Averages	(0018,0083)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 185: MR Spatial Saturation Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Spatial Saturation Sequence	(0018,9107)	GENERATED	CONDITIONAL	ALWAYS			if slab information is present
>Slab Thickness	(0018,9104)	GENERATED	ALWAYS	ALWAYS			-
>Slab Orientation	(0018,9105)	GENERATED	ALWAYS	ALWAYS			-
>Mid Slab Position	(0018,9106)	GENERATED	ALWAYS	ALWAYS			-

**Table 186: MR Metabolite Map Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Metabolite Map Sequence	(0018,9152)	GENERATED	CONDITIONAL	ALWAYS			-
>Metabolite Map Description	(0018,9080)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 187: MR Velocity Encoding Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Velocity Encoding Sequence	(0018,9197)	GENERATED	CONDITIONAL	ALWAYS			-
>Velocity Encoding Direction	(0018,9090)	GENERATED	CONDITIONAL	ALWAYS			-
>Velocity Encoding Minimum Value	(0018,9091)	GENERATED	CONDITIONAL	ALWAYS			Applied value: 0.0
>Velocity Encoding Maximum Value	(0018,9217)	GENERATED	CONDITIONAL	ALWAYS			-

**8.1.1.5.3. Enhanced MR IOD Private Modules**

Enhanced MR Private modules are specified in the Common Private modules section as the private creators are shared across multiple IODs.

**8.1.1.5.4. Enhanced MR IOD Coded Values**

Not applicable. No Coded Values are implemented for this IOD.

**8.1.1.6. MR Spectroscopy IOD**

**Table 188: MR Spectroscopy IOD**

Table defines the structure of MR Spectroscopy IOD

IE	Module Name	Presence of Module	Condition	Reference
Patient	Patient	ALWAYS		Patient Module
Study	General Study	ALWAYS		General Study Module
	Patient Study	CONDITIONAL		Patient Study Module
Series	General Series	ALWAYS		General Series Module
	MR Series	ALWAYS		MR Series Module
Frame of Reference	Frame of Reference	ALWAYS		Frame of Reference Module

IE	Module Name	Presence of Module	Condition	Reference
	Synchronization	CONDITIONAL	Required if time synchronization was applied.	Synchronization Module
Equipment	General Equipment	ALWAYS		General Equipment Module
	Enhanced General Equipment	ALWAYS		Enhanced General Equipment Module
MR Spectroscopy	Multi-frame Functional Groups	ALWAYS		Multi-frame Functional Groups Module
	Multi-frame Dimension	ALWAYS		Multi-frame Dimension Module
	Cardiac Synchronization	CONDITIONAL	Required if cardiac synchronization was applied.	Cardiac Synchronization Module
	Respiratory Synchronization	CONDITIONAL	Required if respiratory synchronization was applied.	Respiratory Synchronization Module
	Bulk Motion Synchronization	CONDITIONAL	Required if bulk motion synchronization was applied.	Bulk Motion Synchronization Module
	Acquisition Context	ALWAYS		Acquisition Context Module
	MR Spectroscopy	ALWAYS		MR Spectroscopy Module
	MR Spectroscopy Pulse Sequence	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL. May be present otherwise.	MR Spectroscopy Pulse Sequence Module
	MR Spectroscopy Data	ALWAYS		MR Spectroscopy Data Module
	SOP Common	ALWAYS		SOP Common Module
Extended and Private	Extended	ALWAYS		Extended Module
	Private Module Philips Imaging DD 001	ALWAYS		Private Module Philips Imaging DD 001 Module
	Private Module Philips Imaging DD 002	ALWAYS		Private Module Philips Imaging DD 002 Module

IE	Module Name	Presence of Module	Condition	Reference
	Private Module Philips Imaging DD 097	ALWAYS		Private Module Philips Imaging DD 097 Module
	Private Module Philips MR Imaging DD 001	ALWAYS		Private Module Philips MR Imaging DD 001 Module
	Private Module Philips MR Imaging DD 002	ALWAYS		Private Module Philips MR Imaging DD 002 Module
	Private Module Philips MR Imaging DD 003	ALWAYS		Private Module Philips MR Imaging DD 003 Module
	Private Module Philips MR Imaging DD 004	ALWAYS		Private Module Philips MR Imaging DD 004 Module
	Private Module Philips MR Imaging DD 005	ALWAYS		Private Module Philips MR Imaging DD 005 Module
	Private Module MR Imaging DD 006	ALWAYS		Private Module MR Imaging DD 006 Module
	Private Module MR Imaging DD 007	CONDITIONAL		Private Module MR Imaging DD 007 Module
	Private Module MR Imaging DD 008	CONDITIONAL		Private Module MR Imaging DD 008 Module
	Private Module Philips DINxGen DD 001	CONDITIONAL		Private Module Philips DINxGen DD 001 Module

**8.1.1.6.1. MR Spectroscopy IOD Specific Modules**

**Table 189: General Series Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	MR		-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			Generated by MR system.
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			Created dynamically at export. Contains the concatenation of the acquisition number and the private reconstruction number.
Laterality	(0020,0060)	USER	CONDITIONAL	CONDITIONAL			-
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS			-
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS			-
Performing Physician's Name	(0008,1050)	MWL USER	CONDITIONAL	ALWAYS			-
Protocol Name	(0018,1030)	USER	ALWAYS	ALWAYS			Scan name.
Series Description	(0008,103E)	GENERATED USER	CONDITIONAL	ALWAYS			-
Operators' Name	(0008,1070)	USER	CONDITIONAL	ALWAYS			-
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
Body Part Examined	(0018,0015)	GENERATED	CONDITIONAL	ALWAYS			-
Patient Position	(0018,5100)	GENERATED	ALWAYS	ALWAYS			-
Request Attributes Sequence	(0040,0275)	MWL	CONDITIONAL	ALWAYS			Only present when patient demographics received from RIS.

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Requested Procedure ID	(0040,1001)	MWL	ALWAYS	ALWAYS			-
>Requested Procedure Description	(0032,1060)	MWL	CONDITIONAL	ALWAYS			-
>Scheduled Procedure Step ID	(0040,0009)	MWL	CONDITIONAL	ALWAYS			-
>Scheduled Procedure Step Description	(0040,0007)	MWL	ALWAYS	CONDITIONAL			-
>Scheduled Protocol Code Sequence	(0040,0008)	MWL USER	CONDITIONAL	ALWAYS			-
>>Code Value	(0008,0100)	MWL USER	ALWAYS	ALWAYS			-
>>Coding Scheme Designator	(0008,0102)	MWL USER	ALWAYS	ALWAYS			-
>>Coding Scheme Version	(0008,0103)	MWL USER	CONDITIONAL	ALWAYS			-
>>Code Meaning	(0008,0104)	MWL USER	ALWAYS	ALWAYS			-
>>Context Identifier	(0008,010F)	MWL	CONDITIONAL	ALWAYS			-
>>Mapping Resource	(0008,0105)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Version	(0008,0106)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Extension Flag	(0008,010B)	MWL	ALWAYS	ALWAYS			-
>>Context Group Local Version	(0008,0107)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Extension Creator UID	(0008,010D)	MWL	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Performed Procedure Step ID	(0040,0253)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step Start Date	(0040,0244)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step Start Time	(0040,0245)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step End Date	(0040,0250)	GENERATED MWL	ALWAYS	CONDITIONAL			-
Performed Procedure Step End Time	(0040,0251)	GENERATED MWL	ALWAYS	CONDITIONAL			-
Performed Procedure Step Description	(0040,0254)	MWL USER	ALWAYS	CONDITIONAL			-
Performed Protocol Code Sequence	(0040,0260)	GENERATED MWL	CONDITIONAL	ALWAYS			Only present when patient demographics received from RIS.
>Code Value	(0008,0100)	MWL USER	ALWAYS	ALWAYS			-
>Coding Scheme Designator	(0008,0102)	MWL USER	ALWAYS	ALWAYS			-
>Coding Scheme Version	(0008,0103)	MWL USER	CONDITIONAL	ALWAYS			-
>Code Meaning	(0008,0104)	MWL USER	ALWAYS	ALWAYS			-
>Context Identifier	(0008,010F)	MWL	CONDITIONAL	ALWAYS			-
>Mapping Resource	(0008,0105)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Version	(0008,0106)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Extension Flag	(0008,010B)	MWL	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Context Group Local Version	(0008,0107)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Extension Creator UID	(0008,010D)	MWL	CONDITIONAL	ALWAYS			-
Comments on the Performed Procedure Step	(0040,0280)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Only present when patient demographics received from RIS. Maximum of 64 characters.

**Table 190: MR Series Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	MR		-
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	ALWAYS	ALWAYS			-
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>Referenced SOP Instance UID	(0008,1155)	MPPS	ALWAYS	ALWAYS			MPPS as source, not expected to be present

**Table 191: Frame of Reference Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	GENERATED	ALWAYS	ALWAYS			-
Position Reference Indicator	(0020,1040)	FIXED	ALWAYS	EMPTY			-

**Table 192: Synchronization Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Synchronization Frame of Reference UID	(0020,0200)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Synchronization Trigger	(0018,106A)	GENERATED	ALWAYS	ALWAYS			-
Trigger Source or Type	(0018,1061)	GENERATED	CONDITIONAL	ALWAYS			-
Synchronization Channel	(0018,106C)	GENERATED	CONDITIONAL	ALWAYS			-
Acquisition Time Synchronized	(0018,1800)	GENERATED	ALWAYS	ALWAYS			-
Time Source	(0018,1801)	GENERATED	CONDITIONAL	ALWAYS			-
Time Distribution Protocol	(0018,1802)	GENERATED	ALWAYS	ALWAYS			-
NTP Source Address	(0018,1803)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 193: General Equipment Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	FIXED	ALWAYS	ALWAYS	Philips		-
Institution Name	(0008,0080)	CONFIGURATION	CONDITIONAL	ALWAYS			Configured on the system.
Institution Address	(0008,0081)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Station Name	(0008,1010)	CONFIGURATION	CONDITIONAL	ALWAYS			Same as the Host Name.
Institutional Department Name	(0008,1040)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS			-
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS			-
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS			-

**Table 194: Enhanced General Equipment Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	FIXED	ALWAYS	ALWAYS	Philips		-
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS			-
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS			System serial number.

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS			The release text of the original Image.

**Table 195: Acquisition Context Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Context Sequence	(0040,0555)	FIXED	ALWAYS	EMPTY			-

**Table 196: Multi-frame Functional Groups Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Shared Functional Groups Sequence	(5200,9229)	GENERATED	ALWAYS	ALWAYS			-
Per-frame Functional Groups Sequence	(5200,9230)	GENERATED	ALWAYS	ALWAYS			-
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			-
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			-
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			-
Number of Frames	(0028,0008)	GENERATED	ALWAYS	ALWAYS			-

**Table 197: Multi-frame Dimension Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Dimension Organization Sequence	(0020,9221)	GENERATED	ALWAYS	ALWAYS			-
>Dimension Organization UID	(0020,9164)	GENERATED	ALWAYS	ALWAYS			-
Dimension Index Sequence	(0020,9222)	GENERATED	ALWAYS	CONDITIONAL			-
>Dimension Index Pointer	(0020,9165)	GENERATED	ALWAYS	ALWAYS			-
>Dimension Index Private Creator	(0020,9213)	GENERATED	CONDITIONAL	ALWAYS			-
>Functional Group Pointer	(0020,9167)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Functional Group Private Creator	(0020,9238)	GENERATED	CONDITIONAL	ALWAYS			-
>Dimension Organization UID	(0020,9164)	GENERATED	ALWAYS	ALWAYS			-
>Dimension Description Label	(0020,9421)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 198: Cardiac Synchronization Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Cardiac Synchronization Technique	(0018,9037)	GENERATED	CONDITIONAL	ALWAYS			-
Cardiac Signal Source	(0018,9085)	GENERATED	CONDITIONAL	ALWAYS			-
Cardiac R-R Interval Specified	(0018,9070)	GENERATED	CONDITIONAL	ALWAYS			-
Cardiac Beat Rejection Technique	(0018,9169)	GENERATED	CONDITIONAL	ALWAYS			-
Low R-R Value	(0018,1081)	GENERATED	CONDITIONAL	ALWAYS			-
High R-R Value	(0018,1082)	GENERATED	CONDITIONAL	ALWAYS			-
Intervals Acquired	(0018,1083)	GENERATED	CONDITIONAL	ALWAYS			-
Intervals Rejected	(0018,1084)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 199: Respiratory Synchronization Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Respiratory Motion Compensation Technique	(0018,9170)	GENERATED	CONDITIONAL	ALWAYS			-
Respiratory Signal Source	(0018,9171)	GENERATED	CONDITIONAL	ALWAYS			-
Respiratory Trigger Delay Threshold	(0020,9256)	GENERATED	CONDITIONAL	ALWAYS			-
Respiratory Trigger Type	(0020,9250)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 200: Bulk Motion Synchronization Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Bulk Motion Compensation Technique	(0018,9172)	GENERATED	CONDITIONAL	ALWAYS			Applied value: NONE

**Table 201: MR Spectroscopy Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Number	(0020,0012)	GENERATED	CONDITIONAL	ALWAYS			-
Acquisition DateTime	(0008,002A)	GENERATED	CONDITIONAL	ALWAYS			-
Acquisition Duration	(0018,9073)	GENERATED	CONDITIONAL	ALWAYS			-
Referenced Image Evidence Sequence	(0008,9092)	GENERATED	ALWAYS	ALWAYS			-
>Study Instance UID	(0020,000D)	GENERATED	ALWAYS	ALWAYS			-
>Referenced Series Sequence	(0008,1115)	GENERATED	ALWAYS	ALWAYS			-
>>Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Sequence	(0008,1199)	GENERATED	ALWAYS	ALWAYS			-
>>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
Source Image Evidence Sequence	(0008,9154)	GENERATED	CONDITIONAL	ALWAYS			-
>Study Instance UID	(0020,000D)	GENERATED	ALWAYS	ALWAYS			-
>Referenced Series Sequence	(0008,1115)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Sequence	(0008,1199)	GENERATED	ALWAYS	ALWAYS			-
Content Qualification	(0018,9004)	GENERATED	ALWAYS	ALWAYS			-
Resonant Nucleus	(0018,9100)	GENERATED	CONDITIONAL	ALWAYS			Applied values: 129XE, 13C, 19F, 1H, 23NA, 31P, 3HE, 7LI, 17O, OTHER
k-space Filtering	(0018,9064)	GENERATED	CONDITIONAL	ALWAYS			-
Magnetic Field Strength	(0018,0087)	GENERATED	CONDITIONAL	ALWAYS			-
Applicable Safety Standard Agency	(0018,9174)	GENERATED	ALWAYS	ALWAYS			-
Image Comments	(0020,4000)	GENERATED	CONDITIONAL	ALWAYS			-
B1rms	(0018,1320)	GENERATED	CONDITIONAL	ALWAYS			-
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS			-
Volumetric Properties	(0008,9206)	GENERATED	ALWAYS	ALWAYS			-
Volume Based Calculation Technique	(0008,9207)	GENERATED	ALWAYS	ALWAYS			-
Complex Image Component	(0008,9208)	GENERATED	ALWAYS	ALWAYS			-
Acquisition Contrast	(0008,9209)	GENERATED	ALWAYS	ALWAYS			Applied values: MIXED, PROTON_DENSITY, SPECTROSCOPY, T1, T2, UNKNOWN
Transmitter Frequency	(0018,9098)	GENERATED	CONDITIONAL	ALWAYS			-
Spectral Width	(0018,9052)	GENERATED	CONDITIONAL	ALWAYS			-
Chemical Shift Reference	(0018,9053)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Volume Localization Technique	(0018,9054)	GENERATED	CONDITIONAL	ALWAYS			-
Volume Localization Sequence	(0018,9126)	GENERATED	CONDITIONAL	ALWAYS			-
>Slab Thickness	(0018,9104)	GENERATED	ALWAYS	ALWAYS			-
>Slab Orientation	(0018,9105)	GENERATED	ALWAYS	ALWAYS			-
>Mid Slab Position	(0018,9106)	GENERATED	CONDITIONAL	ALWAYS			-
De-coupling	(0018,9059)	GENERATED	CONDITIONAL	ALWAYS			Enumerated Values: YES, NO
De-coupled Nucleus	(0018,9060)	GENERATED	CONDITIONAL	ALWAYS			-
De-coupling Frequency	(0018,9061)	GENERATED	CONDITIONAL	ALWAYS			-
De-coupling Method	(0018,9062)	GENERATED	CONDITIONAL	ALWAYS			Defined Terms: MLEV, WALTZ, NARROWBAND. Required if De-coupling (0018,9059) equals YES.
De-coupling Chemical Shift Reference	(0018,9063)	GENERATED	CONDITIONAL	ALWAYS			-
Time Domain Filtering	(0018,9065)	GENERATED	CONDITIONAL	ALWAYS			-
Number of Zero Fills	(0018,9066)	GENERATED	CONDITIONAL	ALWAYS			-
Baseline Correction	(0018,9067)	GENERATED	CONDITIONAL	ALWAYS			-
Frequency Correction	(0018,9101)	GENERATED	CONDITIONAL	ALWAYS			-
First Order Phase Correction	(0018,9198)	GENERATED	CONDITIONAL	ALWAYS			-
Water Referenced Phase Correction	(0018,9199)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 202: MR Spectroscopy Pulse Sequence Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pulse Sequence Name	(0018,9005)	GENERATED	CONDITIONAL	ALWAYS			-
MR Spectroscopy Acquisition Type	(0018,9200)	GENERATED	CONDITIONAL	ALWAYS			-
Echo Pulse Sequence	(0018,9008)	GENERATED	CONDITIONAL	ALWAYS			-
Multiple Spin Echo	(0018,9011)	GENERATED	CONDITIONAL	ALWAYS			-
Multi-planar Excitation	(0018,9012)	GENERATED	CONDITIONAL	ALWAYS			-
Steady State Pulse Sequence	(0018,9017)	GENERATED	CONDITIONAL	ALWAYS			-
Echo Planar Pulse Sequence	(0018,9018)	GENERATED	CONDITIONAL	ALWAYS			-
Spectrally Selected Suppression	(0018,9025)	GENERATED	CONDITIONAL	ALWAYS			-
Geometry of k-Space Traversal	(0018,9032)	GENERATED	CONDITIONAL	ALWAYS			-
Rectilinear Phase Encode Reordering	(0018,9034)	GENERATED	CONDITIONAL	ALWAYS			-
Segmented k-Space Traversal	(0018,9033)	GENERATED	CONDITIONAL	ALWAYS			-
Coverage of k-Space	(0018,9094)	GENERATED	CONDITIONAL	ALWAYS			-
Number of k-Space Trajectories	(0018,9093)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 203: MR Spectroscopy Data Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rows	(0028,0010)	GENERATED	ALWAYS	ALWAYS			-
Columns	(0028,0011)	GENERATED	ALWAYS	ALWAYS			-
Data Point Rows	(0028,9001)	GENERATED	ALWAYS	ALWAYS			-
Data Point Columns	(0028,9002)	GENERATED	ALWAYS	ALWAYS			-
Data Representation	(0028,9108)	GENERATED	ALWAYS	ALWAYS			-
Signal Domain Columns	(0028,9003)	GENERATED	ALWAYS	ALWAYS			-
First Order Phase Correction Angle	(5600,0010)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Spectroscopy Data	(5600,0020)	GENERATED	ALWAYS	ALWAYS			-

**Table 204: SOP Common Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	FIXED	ALWAYS	ALWAYS	1.2.840.10008.5.1.4.1.1.4.2		-
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS			-
Specific Character Set	(0008,0005)	GENERATED	ALWAYS	ALWAYS			Default: ISO_IR 100, GB18030, ISO 2022 IR 100, ISO 2022 IR 101, ISO 2022 IR 109, ISO 2022 IR 110, ISO 2022 IR 126, ISO 2022 IR 127, ISO 2022 IR 13, ISO 2022 IR 138, ISO 2022 IR 144, ISO 2022 IR 148, ISO 2022 IR 149, ISO 2022 IR 166, ISO 2022 IR 6, ISO_IR 100, ISO_IR 101, ISO_IR 109, ISO_IR 110, ISO_IR 126, ISO_IR 127, ISO_IR 13, ISO 2022 IR 87, ISO_IR 138, ISO_IR 144, ISO_IR 148, ISO_IR 166, ISO_IR 192
Instance Creation Date	(0008,0012)	GENERATED	CONDITIONAL	ALWAYS			-
Instance Creation Time	(0008,0013)	GENERATED	CONDITIONAL	ALWAYS			-
Instance Creator UID	(0008,0014)	GENERATED	CONDITIONAL	ALWAYS			-
Timezone Offset From UTC	(0008,0201)	GENERATED	ALWAYS	ALWAYS			-
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			-
Content Qualification	(0018,9004)	GENERATED	ALWAYS	CONDITIONAL			-
Instance Origin Status	(0400,0600)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 205: Extended Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Derivation Image Sequence	(0008,9124)	GENERATED	CONDITIONAL	ALWAYS			-
>Source Image Sequence	(0008,2112)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
>Derivation Code Sequence	(0008,9215)	GENERATED	ALWAYS	ALWAYS			-
>>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			from CID 7203
>>Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			from CID 7203
>>Coding Scheme Version	(0008,0103)	GENERATED	CONDITIONAL	ALWAYS			from CID 7203
>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			from CID 7203
Creator-Version UID	(0008,9123)	GENERATED	ALWAYS	ALWAYS			-
Pixel Presentation	(0008,9205)	GENERATED	ALWAYS	ALWAYS			-
Scan Options	(0018,0022)	GENERATED	ALWAYS	CONDITIONAL			-
Slice Thickness	(0018,0050)	GENERATED	CONDITIONAL	ALWAYS			-
Inversion Time	(0018,0082)	GENERATED USER	CONDITIONAL	ALWAYS			-
Number of Phase Encoding Steps	(0018,0089)	GENERATED USER	ALWAYS	CONDITIONAL			-
Echo Train Length	(0018,0091)	GENERATED	CONDITIONAL	ALWAYS			-
Percent Sampling	(0018,0093)	GENERATED	CONDITIONAL	ALWAYS			-
Percent Phase Field of View	(0018,0094)	GENERATED	CONDITIONAL	ALWAYS			-
Pixel Bandwidth	(0018,0095)	GENERATED	ALWAYS	ALWAYS			-
Receive Coil Name	(0018,1250)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Phase Contrast	(0018,9014)	GENERATED	ALWAYS	ALWAYS			-
Time of Flight Contrast	(0018,9015)	GENERATED	ALWAYS	ALWAYS			-
Spoiling	(0018,9016)	GENERATED	ALWAYS	ALWAYS			-
Tag Angle First Axis	(0018,9019)	GENERATED	CONDITIONAL	ALWAYS			-
T2 Preparation	(0018,9021)	GENERATED	CONDITIONAL	ALWAYS			-
Blood Signal Nulling	(0018,9022)	GENERATED	ALWAYS	ALWAYS			-
Saturation Recovery	(0018,9024)	GENERATED	ALWAYS	ALWAYS			-
Spectrally Selected Excitation	(0018,9026)	GENERATED	CONDITIONAL	ALWAYS			-
Spatial Pre-saturation	(0018,9027)	GENERATED	CONDITIONAL	ALWAYS			-
Tag Spacing First Dimension	(0018,9030)	GENERATED	CONDITIONAL	ALWAYS			-
Partial Fourier Direction	(0018,9036)	GENERATED	ALWAYS	ALWAYS			-
Receive Coil Type	(0018,9043)	GENERATED	CONDITIONAL	ALWAYS			-
Quadrature Receive Coil	(0018,9044)	GENERATED	CONDITIONAL	ALWAYS			-
Transmit Coil Manufacturer Name	(0018,9050)	FIXED	CONDITIONAL	EMPTY			-
Transmit Coil Type	(0018,9051)	GENERATED	CONDITIONAL	ALWAYS			-
MR Acquisition Frequency Encoding Steps	(0018,9058)	GENERATED	CONDITIONAL	ALWAYS			-
Parallel Reduction Factor In-plane	(0018,9069)	GENERATED	CONDITIONAL	ALWAYS			-
Parallel Acquisition	(0018,9077)	GENERATED	CONDITIONAL	ALWAYS			-
Partial Fourier	(0018,9081)	GENERATED	CONDITIONAL	ALWAYS			-
Velocity Encoding Direction	(0018,9090)	GENERATED	CONDITIONAL	ALWAYS			-
Velocity Encoding Minimum Value	(0018,9091)	GENERATED	CONDITIONAL	ALWAYS			Applied value: 0.0

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Spectroscopy Acquisition Phase Rows	(0018,9095)	GENERATED	CONDITIONAL	ALWAYS			-
Spectroscopy Acquisition Data Columns	(0018,9127)	GENERATED	CONDITIONAL	ALWAYS			-
Parallel Reduction Factor out-of-plane	(0018,9155)	GENERATED	CONDITIONAL	ALWAYS			-
Spectroscopy Acquisition Out-of-plane Phase Steps	(0018,9159)	GENERATED	CONDITIONAL	ALWAYS			-
Parallel Reduction Factor Second In-plane	(0018,9168)	GENERATED	CONDITIONAL	ALWAYS			-
Specific Absorption Rate Definition	(0018,9179)	GENERATED	CONDITIONAL	ALWAYS			-
Gradient Output Type	(0018,9180)	GENERATED	CONDITIONAL	ALWAYS			-
Specific Absorption Rate Value	(0018,9181)	GENERATED	ALWAYS	ALWAYS			-
Gradient Output	(0018,9182)	GENERATED	CONDITIONAL	ALWAYS			-
MR Acquisition Phase Encoding Steps in-plane	(0018,9231)	GENERATED	CONDITIONAL	ALWAYS			-
Spectroscopy Acquisition Phase Columns	(0018,9234)	GENERATED	CONDITIONAL	ALWAYS			-
RF Echo Train Length	(0018,9240)	GENERATED	CONDITIONAL	ALWAYS			-
Gradient Echo Train Length	(0018,9241)	GENERATED	CONDITIONAL	ALWAYS			-
Frame Laterality	(0020,9072)	GENERATED	CONDITIONAL	ALWAYS			value from examcard.
Respiratory Interval Time	(0020,9254)	GENERATED	CONDITIONAL	ALWAYS			-
Nominal Respiratory Trigger Delay Time	(0020,9255)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Special Needs	(0038,0050)	MWL	CONDITIONAL	ALWAYS			Only present when patient demographics received from RIS.
Scheduled Performing Physician's Name	(0040,0006)	GENERATED MWL	CONDITIONAL	ALWAYS			-
Performed Station AE Title	(0040,0241)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Station Name	(0040,0242)	GENERATED	ALWAYS	CONDITIONAL			-
Performed Location	(0040,0243)	GENERATED	ALWAYS	CONDITIONAL			-
Performed Procedure Step Status	(0040,0252)	GENERATED	ALWAYS	ALWAYS			-
DateTime	(0040,A120)	GENERATED	CONDITIONAL	ALWAYS			-
Presentation LUT Shape	(2050,0020)	GENERATED	CONDITIONAL	ALWAYS			-

**8.1.1.6.2. MR Spectroscopy Functional Group Macros**

**Table 206: Enhanced MR Image IOD Functional Group Macro**

Functional Group Macro Module	Presence of Module	Condition	Reference
Pixel Measures	ALWAYS		Pixel Measures Macro Attributes
Frame Content	ALWAYS		Frame Content Macro Attributes
Plane Position (Patient)	ALWAYS		Plane Position (Patient) Macro Attributes
Plane Orientation (Patient)	ALWAYS		Plane Orientation (Patient) Macro Attributes
Referenced Image	CONDITIONAL	Required if the image or frame has been planned on another image or frame	Referenced Image Macro Attributes
Cardiac Synchronization	CONDITIONAL	Required if Cardiac Synchronization Technique (0018,9037) equals other than NONE and if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	Cardiac Synchronization Macro Attributes

Functional Group Macro Module	Presence of Module	Condition	Reference
Frame Anatomy	ALWAYS		Frame Anatomy Macro Attributes
Respiratory Synchronization	CONDITIONAL	Required if Respiratory Motion Compensation Technique (0018,9170) equals other than NONE, REALTIME or BREATH_HOLD and if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	Respiratory Synchronization Macro Attributes
MR Spectroscopy Frame Type	ALWAYS		MR Spectroscopy Frame Type Macro Attributes
MR Timing and Related Parameters	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED.	MR Timing and Related Parameters Macro Attributes
MR Spectroscopy FOV/Geometry	CONDITIONAL	Required if Geometry of k-Space Traversal (0018,9032) equals RECTILINEAR and if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Spectroscopy FOV/Geometry Macro Attributes
MR Echo	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Echo Macro Attributes
MR Modifier	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Modifier Macro Attributes
MR Receive Coil	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Receive Coil Macro Attributes
MR Transmit Coil	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Transmit Coil Macro Attributes
MR Diffusion	CONDITIONAL	Required if Acquisition Contrast (0008,9209) in any MR Image Frame Type Functional Group in the SOP Instance equals DIFFUSION and Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Diffusion Macro Attributes
MR Averages	CONDITIONAL	Required if Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Averages Macro Attributes

Functional Group Macro Module	Presence of Module	Condition	Reference
MR Spatial Saturation	CONDITIONAL	Required if Spatial Pre-saturation (0018,9027) equals SLAB for any frame in the SOP Instance and Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Spatial Saturation Macro Attributes
MR Velocity Encoding	CONDITIONAL	Required if Phase Contrast (0018,9014) equals YES and Image Type (0008,0008) Value 1 is ORIGINAL or MIXED	MR Velocity Encoding Macro Attributes

**Table 207: Pixel Measures Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Measures Sequence	(0028,9110)	GENERATED	ALWAYS	ALWAYS			-
> Pixel Spacing	(0028,0030)	GENERATED	CONDITIONAL	ALWAYS			-
> Slice Thickness	(0018,0050)	GENERATED	CONDITIONAL	ALWAYS			-
> Spacing Between Slices	(0018,0088)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 208: Frame Content Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Content Sequence	(0020,9111)	GENERATED	ALWAYS	ALWAYS			-
>Frame Reference DateTime	(0018,9151)	GENERATED	CONDITIONAL	ALWAYS			-
>Frame Acquisition DateTime	(0018,9074)	GENERATED	CONDITIONAL	ALWAYS			-
>Frame Acquisition Duration	(0018,9220)	GENERATED	CONDITIONAL	ALWAYS			-
>Dimension Index Values	(0020,9157)	GENERATED	CONDITIONAL	ALWAYS			-
>Temporal Position Index	(0020,9128)	GENERATED	CONDITIONAL	ALWAYS			-
>Stack ID	(0020,9056)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>In-Stack Position Number	(0020,9057)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 209: Plane Position (Patient) Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Plane Position Sequence	(0020,9113)	GENERATED	ALWAYS	ALWAYS			-
>Image Position (Patient)	(0020,0032)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 210: Plane Orientation (Patient) Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Plane Orientation Sequence	(0020,9116)	GENERATED	ALWAYS	ALWAYS			-
>Image Orientation (Patient)	(0020,0037)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 211: Referenced Image Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Image Sequence	(0008,1140)	GENERATED	CONDITIONAL	ALWAYS			if scan was planned on another scan
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
>Referenced Frame Number	(0008,1160)	GENERATED	CONDITIONAL	ALWAYS			-
>Purpose of Reference Code Sequence	(0040,A170)	GENERATED	ALWAYS	ALWAYS			-
>>Code Value	(0008,0100)	GENERATED	ALWAYS	ALWAYS			-
>>Coding Scheme Designator	(0008,0102)	GENERATED	ALWAYS	ALWAYS			-
>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			-

**Table 212: Cardiac Synchronization Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Cardiac Synchronization Sequence	(0018,9118)	GENERATED	CONDITIONAL	ALWAYS			-
>Nominal Cardiac Trigger Delay Time	(0020,9153)	GENERATED	ALWAYS	ALWAYS			-
>R-R Interval Time Nominal	(0020,9251)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 213: Frame Anatomy Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame Anatomy Sequence	(0020,9071)	GENERATED	CONDITIONAL	ALWAYS			-
>Frame Laterality	(0020,9072)	GENERATED	ALWAYS	ALWAYS			value from examcard.
>Anatomic Region Sequence	(0008,2218)	GENERATED	ALWAYS	ALWAYS			-
>>Context UID	(0008,0117)	GENERATED	CONDITIONAL	ALWAYS			

**Table 214: Respiratory Synchronization Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Respiratory Synchronization Sequence	(0020,9253)	GENERATED	CONDITIONAL	ALWAYS			-
>Respiratory Interval Time	(0020,9254)	GENERATED	ALWAYS	ALWAYS			-
>Nominal Respiratory Trigger Delay Time	(0020,9255)	GENERATED	ALWAYS	ALWAYS			-
>Nominal Percentage of Respiratory Phase	(0020,9245)	GENERATED	ALWAYS	ALWAYS			-
>Starting Respiratory Amplitude	(0020,9246)	GENERATED	ALWAYS	ALWAYS			-
>Starting Respiratory Phase	(0020,9247)	GENERATED	ALWAYS	ALWAYS			-
>Ending Respiratory Amplitude	(0020,9248)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Ending Respiratory Phase	(0020,9249)	GENERATED	ALWAYS	ALWAYS			-

**Table 215: MR Spectroscopy Frame Type Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Image Frame Type Sequence	(0018,9226)	GENERATED	ALWAYS	ALWAYS			-
>Frame Type	(0008,9007)	GENERATED	ALWAYS	ALWAYS			-
>Volumetric Properties	(0008,9206)	GENERATED	ALWAYS	ALWAYS			-
>Volume Based Calculation Technique	(0008,9207)	GENERATED	ALWAYS	ALWAYS			-
>Complex Image Component	(0008,9208)	GENERATED	ALWAYS	ALWAYS			-
>Acquisition Contrast	(0008,9209)	GENERATED	ALWAYS	ALWAYS			-

**Table 216: MR Timing and Related Parameters Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Timing and Related Parameters Sequence	(0018,9112)	GENERATED	ALWAYS	ALWAYS			-
>Repetition Time	(0018,0080)	GENERATED	CONDITIONAL	ALWAYS			-
>Flip Angle	(0018,1314)	GENERATED	CONDITIONAL	ALWAYS			-
>Echo Train Length	(0018,0091)	GENERATED	CONDITIONAL	ALWAYS			-
>RF Echo Train Length	(0018,9240)	GENERATED	CONDITIONAL	ALWAYS			-
>Gradient Echo Train Length	(0018,9241)	GENERATED	CONDITIONAL	ALWAYS			-
>Specific Absorption Rate Sequence	(0018,9239)	GENERATED	CONDITIONAL	ALWAYS			-
>>Specific Absorption Rate Definition	(0018,9179)	GENERATED	ALWAYS	ALWAYS			-
>>Specific Absorption Rate Value	(0018,9181)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Gradient Output Type	(0018,9180)	GENERATED	CONDITIONAL	ALWAYS			-
>Gradient Output	(0018,9182)	GENERATED	CONDITIONAL	ALWAYS			-
>Operating Mode Sequence	(0018,9176)	GENERATED	CONDITIONAL	ALWAYS			-
>>Operating Mode Type	(0018,9177)	GENERATED	ALWAYS	ALWAYS			-
>>Operating Mode	(0018,9178)	GENERATED	ALWAYS	ALWAYS			-

**Table 217: MR Spectroscopy FOV/Geometry Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR FOV/Geometry Sequence	(0018,9125)	GENERATED	ALWAYS	ALWAYS			-
>In-plane Phase Encoding Direction	(0018,1312)	GENERATED	CONDITIONAL	ALWAYS			-
>MR Acquisition Frequency Encoding Steps	(0018,9058)	GENERATED	CONDITIONAL	ALWAYS			-
>MR Acquisition Phase Encoding Steps in-plane	(0018,9231)	GENERATED	CONDITIONAL	ALWAYS			-
>MR Acquisition Phase Encoding Steps out-of-plane	(0018,9232)	GENERATED	CONDITIONAL	ALWAYS			-
>Percent Sampling	(0018,0093)	GENERATED	CONDITIONAL	ALWAYS			-
>Percent Phase Field of View	(0018,0094)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 218: MR Echo Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Echo Sequence	(0018,9114)	GENERATED	ALWAYS	ALWAYS			-
>Effective Echo Time	(0018,9082)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 219: MR Modifier Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Modifier Sequence	(0018,9115)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Inversion Recovery	(0018,9009)	GENERATED	CONDITIONAL	ALWAYS			-
>Inversion Times	(0018,9079)	GENERATED	CONDITIONAL	ALWAYS			-
>Flow Compensation	(0018,9010)	GENERATED	CONDITIONAL	ALWAYS			-
>Flow Compensation Direction	(0018,9183)	GENERATED	CONDITIONAL	ALWAYS			-
>T2 Preparation	(0018,9021)	GENERATED	CONDITIONAL	ALWAYS			-
>Spectrally Selected Excitation	(0018,9026)	GENERATED	CONDITIONAL	ALWAYS			-
>Spatial Pre-saturation	(0018,9027)	GENERATED	CONDITIONAL	ALWAYS			-
>Partial Fourier	(0018,9081)	GENERATED	CONDITIONAL	ALWAYS			-
>Parallel Acquisition	(0018,9077)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 220: MR Receive Coil Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Receive Coil Sequence	(0018,9042)	GENERATED	ALWAYS	ALWAYS			-
>Receive Coil Name	(0018,1250)	GENERATED	CONDITIONAL	ALWAYS			-
>Receive Coil Manufacturer Name	(0018,9041)	GENERATED	ALWAYS	EMPTY			-
>Receive Coil Type	(0018,9043)	GENERATED	CONDITIONAL	ALWAYS			-
>Quadrature Receive Coil	(0018,9044)	GENERATED	CONDITIONAL	ALWAYS			-
>Multi-Coil Definition Sequence	(0018,9045)	GENERATED	CONDITIONAL	ALWAYS			-
>>Multi-Coil Element Name	(0018,9047)	GENERATED	ALWAYS	ALWAYS			-
>>Multi-Coil Element Used	(0018,9048)	GENERATED	ALWAYS	ALWAYS			-

**Table 221: MR Transmit Coil Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Transmit Coil Sequence	(0018,9049)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Transmit Coil Name	(0018,1251)	GENERATED	ALWAYS	ALWAYS			-
>Transmit Coil Manufacturer Name	(0018,9050)	FIXED	ALWAYS	EMPTY			-
>Transmit Coil Type	(0018,9051)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 222: MR Diffusion Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Diffusion Sequence	(0018,9117)	GENERATED	CONDITIONAL	ALWAYS			-
>Diffusion b-value	(0018,9087)	GENERATED	CONDITIONAL	ALWAYS			-
>Diffusion Directionality	(0018,9075)	GENERATED	CONDITIONAL	ALWAYS			-
>Diffusion Gradient Direction Sequence	(0018,9076)	GENERATED	CONDITIONAL	ALWAYS			-
>>Diffusion Gradient Orientation	(0018,9089)	GENERATED	CONDITIONAL	ALWAYS			-
>Diffusion Anisotropy Type	(0018,9147)	GENERATED	CONDITIONAL	ALWAYS			Applied value: FRACTIONAL

**Table 223: MR Averages Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Averages Sequence	(0018,9119)	GENERATED	ALWAYS	ALWAYS			-
>Number of Averages	(0018,0083)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 224: MR Spatial Saturation Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Spatial Saturation Sequence	(0018,9107)	GENERATED	CONDITIONAL	ALWAYS			if slab information is present
>Slab Thickness	(0018,9104)	GENERATED	ALWAYS	ALWAYS			-
>Slab Orientation	(0018,9105)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Mid Slab Position	(0018,9106)	GENERATED	ALWAYS	ALWAYS			-

**Table 225: MR Velocity Encoding Macro Attributes**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Velocity Encoding Sequence	(0018,9197)	GENERATED	CONDITIONAL	ALWAYS			-
>Velocity Encoding Direction	(0018,9090)	GENERATED	CONDITIONAL	ALWAYS			-
>Velocity Encoding Minimum Value	(0018,9091)	GENERATED	CONDITIONAL	ALWAYS			Applied value: 0.0
>Velocity Encoding Maximum Value	(0018,9217)	GENERATED	CONDITIONAL	ALWAYS			-

**8.1.1.6.3. MR Spectroscopy IOD Private Modules**

MR Spectroscopy private modules are specified in the Common Private modules section as the private creators are shared across multiple IODs.

**8.1.1.6.4. MR Spectroscopy IOD Coded Values**

Not applicable. No Coded Values are implemented for this IOD.

**8.1.1.7. Secondary Capture Image IOD**

**Table 226: Secondary Capture Image IOD**

Table defines the structure of Secondary Capture Image IOD

IE	Module Name	Presence of Module	Condition	Reference
Patient	Patient	ALWAYS		Patient Module
Study	General Study	ALWAYS		General Study Module
	Patient Study	CONDITIONAL		Patient Study Module
Series	General Series	ALWAYS		General Series Module

IE	Module Name	Presence of Module	Condition	Reference
Equipment	General Equipment	ALWAYS		General Equipment Module
	SC Equipment	ALWAYS		SC Equipment Module
Acquisition	General Acquisition	ALWAYS		General Acquisition Module
Image	General Image	ALWAYS		General Image Module
	General Reference	CONDITIONAL		General Reference Module
	Image Pixel	ALWAYS		Image Pixel Module
	SC Image	ALWAYS		SC Image Module
	Modality LUT	CONDITIONAL		Modality LUT Module
	VOI LUT	CONDITIONAL		VOI LUT Module
	SOP Common	ALWAYS		SOP Common Module
Extended And Private	Extended	ALWAYS		Extended Module
	Private Module Philips Imaging DD 001	ALWAYS		Private Module Philips Imaging DD 001 Module
	Private Module Philips Imaging DD 002	ALWAYS		Private Module Philips Imaging DD 002 Module
	Private Module Philips Imaging DD 097	ALWAYS		Private Module Philips Imaging DD 097 Module
	Private Module Philips MR Imaging DD 001	ALWAYS		Private Module Philips MR Imaging DD 001 Module
	Private Module Philips MR Imaging DD 002	ALWAYS		Private Module Philips MR Imaging DD 002 Module
	Private Module Philips MR Imaging DD 003	ALWAYS		Private Module Philips MR Imaging DD 003 Module
	Private Module Philips MR Imaging DD 004	ALWAYS		Private Module Philips MR Imaging DD 004 Module

IE	Module Name	Presence of Module	Condition	Reference
	Private Module Philips MR Imaging DD 005	ALWAYS		Private Module Philips MR Imaging DD 005 Module
	Private Module Philips MR Imaging DD 006	ALWAYS		Private Module Philips MR Imaging DD 006 Module
	Private Module Philips MR Imaging DD 007	ALWAYS		Private Module Philips MR Imaging DD 007 Module
	Private Module Philips MR Imaging DD 008	ALWAYS		Private Module Philips MR Imaging DD 008 Module
	Private Module Philips DINxGen DD 001	ALWAYS		Private Module Philips DINxGen DD 001 Module

**8.1.1.7.1. Secondary Capture Image IOD Specific Modules**

**Table 227: General Series Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS			-
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS			-
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	MR		-
Series Description	(0008,103E)	GENERATED USER	CONDITIONAL	ALWAYS			-
Performing Physician's Name	(0008,1050)	GENERATED	CONDITIONAL	ALWAYS			-
Operators' Name	(0008,1070)	MWL USER	CONDITIONAL	ALWAYS			-
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
Body Part Examined	(0018,0015)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Protocol Name	(0018,1030)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Patient Position	(0018,5100)	GENERATED	CONDITIONAL	ALWAYS			-
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			-
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			-
Laterality	(0020,0060)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL			-
Smallest Pixel Value in Series	(0028,0108)	GENERATED	CONDITIONAL	ALWAYS			-
Largest Pixel Value in Series	(0028,0109)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step Start Date	(0040,0244)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Performed Procedure Step Start Time	(0040,0245)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Performed Procedure Step End Date	(0040,0250)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Performed Procedure Step End Time	(0040,0251)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Performed Procedure Step ID	(0040,0253)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Performed Procedure Step Description	(0040,0254)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
Performed Protocol Code Sequence	(0040,0260)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Code Value	(0008,0100)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Coding Scheme Designator	(0008,0102)	SRC_INSTANCE	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Coding Scheme Version	(0008,0103)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Code Meaning	(0008,0104)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Mapping Resource	(0008,0105)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Context Group Version	(0008,0106)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Context Group Local Version	(0008,0107)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Context Group Extension Flag	(0008,010B)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Context Group Extension Creator UID	(0008,010D)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Context Identifier	(0008,010F)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Request Attributes Sequence	(0040,0275)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Requested Procedure Description	(0032,1060)	MWL	CONDITIONAL	ALWAYS			-
>Scheduled Procedure Step Description	(0040,0007)	CONFIGURATION	ALWAYS	CONDITIONAL			-
>Scheduled Protocol Code Sequence	(0040,0008)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>>Code Value	(0008,0100)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>>Coding Scheme Designator	(0008,0102)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>>Coding Scheme Version	(0008,0103)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>>Code Meaning	(0008,0104)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>>Mapping Resource	(0008,0105)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>>Context Group Version	(0008,0106)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>>Context Group Local Version	(0008,0107)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Context Group Extension Flag	(0008,010B)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>>Context Group Extension Creator UID	(0008,010D)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>>Context Identifier	(0008,010F)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Scheduled Procedure Step ID	(0040,0009)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Requested Procedure ID	(0040,1001)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Comments on the Performed Procedure Step	(0040,0280)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Maximum of 64 characters

**Table 228: General Equipment Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	FIXED	ALWAYS	ALWAYS	Philips		
Institution Name	(0008,0080)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Institution Address	(0008,0081)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Station Name	(0008,1010)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Institutional Department Name	(0008,1040)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS			-
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS			-
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS			-

**Table 229: SC Equipment Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Conversion Type	(0008,0064)	GENERATED	ALWAYS	ALWAYS			Applied Values: SYN, WSD
Modality	(0008,0060)	GENERATED	ALWAYS	ALWAYS			Applied value: MR
Secondary Capture Device Manufacturer	(0018,1016)	GENERATED	CONDITIONAL	ALWAYS			-
Secondary Capture Device Manufacturer's Model Name	(0018,1018)	GENERATED	CONDITIONAL	ALWAYS			-
Secondary Capture Device Software Versions	(0018,1019)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 230: General Acquisition Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Number	(0020,0012)	GENERATED	CONDITIONAL	ALWAYS			-
Acquisition Date	(0008,0022)	GENERATED	CONDITIONAL	ALWAYS			-
Acquisition Time	(0008,0032)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 231: General Image Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			-
Patient Orientation	(0020,0020)	GENERATED	CONDITIONAL	EMPTY			-
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			-
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			-
Image Type	(0008,0008)	GENERATED	ALWAYS	ALWAYS			DERIVED\SECONDARY

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Burned In Annotation	(0028,0301)	GENERATED	CONDITIONAL	ALWAYS			-
Real World Value Mapping Sequence	(0040,9096)	GENERATED	CONDITIONAL	ALWAYS			-
>LUT Explanation	(0028,3003)	USER	ALWAYS	ALWAYS			-
>Measurement Units Code Sequence	(0040,08EA)	GENERATED	ALWAYS	ALWAYS			-
>>Code Value	(0008,0100)	GENERATED	CONDITIONAL	ALWAYS			-
>>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	ALWAYS			-
>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			-
>>Context UID	(0008,0117)	GENERATED	CONDITIONAL	ALWAYS			-
>LUT Label	(0040,9210)	GENERATED	ALWAYS	ALWAYS			-
>Real World Value Last Value Mapped	(0040,9211)	GENERATED	CONDITIONAL	ALWAYS			-
>Real World Value First Value Mapped	(0040,9216)	GENERATED	CONDITIONAL	ALWAYS			-
>Real World Value Intercept	(0040,9224)	GENERATED	CONDITIONAL	ALWAYS			-
>Real World Value Slope	(0040,9225)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 232: General Reference Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Image Sequence	(0008,1140)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
Derivation Description	(0008,2111)	USER	CONDITIONAL	ALWAYS			-
Source Image Sequence	(0008,2112)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
>Spatial Locations Preserved	(0028,135A)	GENERATED	CONDITIONAL	ALWAYS			-
>Purpose of Reference Code Sequence	(0040,A170)	GENERATED	CONDITIONAL	ALWAYS			-
>>Code Value	(0008,0100)	GENERATED	CONDITIONAL	ALWAYS			-
>>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	ALWAYS			-
>>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			-
Derivation Code Sequence	(0008,9215)	GENERATED	CONDITIONAL	ALWAYS			-
>Code Value	(0008,0100)	GENERATED	CONDITIONAL	ALWAYS			-
>Coding Scheme Designator	(0008,0102)	GENERATED	CONDITIONAL	ALWAYS			-
>Code Meaning	(0008,0104)	GENERATED	ALWAYS	ALWAYS			-

**Table 233: Image Pixel Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Samples per Pixel	(0028,0002)	GENERATED	ALWAYS	ALWAYS			Applied value: 1, 3
Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	ALWAYS			Applied values: MONOCHROME2, RGB

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rows	(0028,0010)	GENERATED	ALWAYS	ALWAYS			-
Columns	(0028,0011)	GENERATED	ALWAYS	ALWAYS			-
Bits Allocated	(0028,0100)	GENERATED	ALWAYS	ALWAYS			-
Bits Stored	(0028,0101)	GENERATED	ALWAYS	ALWAYS			-
High Bit	(0028,0102)	GENERATED	ALWAYS	ALWAYS			-
Pixel Representation	(0028,0103)	GENERATED	CONDITIONAL	ALWAYS			-
Planar Configuration	(0028,0006)	GENERATED	CONDITIONAL	ALWAYS			-
Pixel Aspect Ratio	(0028,0034)	GENERATED	CONDITIONAL	ALWAYS			Applied value: (1,1)
Pixel Data	(7FE0,0010)	GENERATED	ALWAYS	ALWAYS			-

**Table 234: SC Image Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Date of Secondary Capture	(0018,1012)	GENERATED	CONDITIONAL	ALWAYS			-
Time of Secondary Capture	(0018,1014)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 235: Modality LUT Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rescale Intercept	(0028,1052)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Rescale Slope	(0028,1053)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Rescale Type	(0028,1054)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Applied value: normalized

**Table 236: VOI LUT Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Window Center	(0028,1050)	GENERATED	CONDITIONAL	ALWAYS			-
Window Width	(0028,1051)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 237: SOP Common Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	GENERATED	ALWAYS	ALWAYS			-
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS			-
Specific Character Set	(0008,0005)	GENERATED	ALWAYS	ALWAYS			Default: ISO_IR 100, GB18030, ISO 2022 IR 100, ISO 2022 IR 101, ISO 2022 IR 109, ISO 2022 IR 110, ISO 2022 IR 126, ISO 2022 IR 127, ISO 2022 IR 13, ISO 2022 IR 138, ISO 2022 IR 144, ISO 2022 IR 148, ISO 2022 IR 149, ISO 2022 IR 166, ISO 2022 IR 6, ISO_IR 100, ISO_IR 101, ISO_IR 109, ISO_IR 110, ISO_IR 126, ISO_IR 127, ISO_IR 13, ISO 2022 IR 87, ISO_IR 138, ISO_IR 144, ISO_IR 148, ISO_IR 166, ISO
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS			-
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS			-
Instance Creator UID	(0008,0014)	GENERATED	CONDITIONAL	ALWAYS			-
Timezone Offset From UTC	(0008,0201)	GENERATED	CONDITIONAL	ALWAYS			-
Instance Number	(0020,0013)	GENERATED	CONDITIONAL	ALWAYS			-
Instance Origin Status	(0400,0600)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 238: Extended Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Scanning Sequence	(0018,0020)	GENERATED	CONDITIONAL	ALWAYS			-
Sequence Variant	(0018,0021)	GENERATED	CONDITIONAL	ALWAYS			-
Scan Options	(0018,0022)	GENERATED	CONDITIONAL	ALWAYS			-
MR Acquisition Type	(0018,0023)	GENERATED	CONDITIONAL	ALWAYS			-
Slice Thickness	(0018,0050)	GENERATED	CONDITIONAL	ALWAYS			-
Repetition Time	(0018,0080)	GENERATED USER	CONDITIONAL	ALWAYS			-
Echo Time	(0018,0081)	GENERATED USER	CONDITIONAL	ALWAYS			-
Inversion Time	(0018,0082)	GENERATED	CONDITIONAL	ALWAYS			-
Number of Averages	(0018,0083)	GENERATED USER	CONDITIONAL	ALWAYS			-
Imaging Frequency	(0018,0084)	GENERATED	CONDITIONAL	ALWAYS			-
Imaged Nucleus	(0018,0085)	GENERATED	CONDITIONAL	ALWAYS			-
Echo Number(s)	(0018,0086)	GENERATED	CONDITIONAL	ALWAYS			-
Magnetic Field Strength	(0018,0087)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Spacing Between Slices	(0018,0088)	GENERATED USER	CONDITIONAL	ALWAYS			-
Number of Phase Encoding Steps	(0018,0089)	GENERATED USER	CONDITIONAL	ALWAYS			-
Echo Train Length	(0018,0091)	GENERATED USER	CONDITIONAL	ALWAYS			-
Percent Sampling	(0018,0093)	GENERATED USER	CONDITIONAL	ALWAYS			-
Percent Phase Field of View	(0018,0094)	GENERATED USER	CONDITIONAL	ALWAYS			-
Pixel Bandwidth	(0018,0095)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Reconstruction Diameter	(0018,1100)	CONFIGURATION	CONDITIONAL	ALWAYS			Value is a copy of the largest value of the Field of View
Trigger Time	(0018,1060)	GENERATED	CONDITIONAL	ALWAYS			-
Heart Rate	(0018,1088)	GENERATED	CONDITIONAL	ALWAYS			-
Receive Coil Name	(0018,1250)	GENERATED USER	CONDITIONAL	ALWAYS			-
Transmit Coil Name	(0018,1251)	GENERATED USER	CONDITIONAL	ALWAYS			-
Acquisition Matrix	(0018,1310)	GENERATED	CONDITIONAL	ALWAYS			-
In-plane Phase Encoding Direction	(0018,1312)	GENERATED	CONDITIONAL	ALWAYS			-
Flip Angle	(0018,1314)	GENERATED USER	CONDITIONAL	ALWAYS			-
SAR	(0018,1316)	GENERATED USER	CONDITIONAL	ALWAYS			-
dB/dt	(0018,1318)	GENERATED	CONDITIONAL	ALWAYS			-
B1rms	(0018,1320)	GENERATED	CONDITIONAL	ALWAYS			-
Diffusion b-value	(0018,9087)	GENERATED	CONDITIONAL	ALWAYS			-
Diffusion Gradient Orientation	(0018,9089)	GENERATED	CONDITIONAL	ALWAYS			-
Resonant Nucleus	(0018,9100)	GENERATED	CONDITIONAL	ALWAYS			-
Image Position (Patient)	(0020,0032)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Image Orientation (Patient)	(0020,0037)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Frame of Reference UID	(0020,0052)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Temporal Position Identifier	(0020,0100)	GENERATED	CONDITIONAL	ALWAYS			-
Number of Temporal Positions	(0020,0105)	GENERATED USER	CONDITIONAL	ALWAYS			-
Position Reference Indicator	(0020,1040)	GENERATED	ALWAYS	CONDITIONAL			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Slice Location	(0020,1041)	GENERATED	CONDITIONAL	ALWAYS			-
Nominal Percentage of Respiratory Phase	(0020,9245)	GENERATED	CONDITIONAL	ALWAYS			-
Starting Respiratory Amplitude	(0020,9246)	GENERATED	CONDITIONAL	ALWAYS			-
Starting Respiratory Phase	(0020,9247)	GENERATED	CONDITIONAL	ALWAYS			-
Ending Respiratory Amplitude	(0020,9248)	GENERATED	CONDITIONAL	ALWAYS			-
Ending Respiratory Phase	(0020,9249)	GENERATED	CONDITIONAL	ALWAYS			-
Respiratory Trigger Type	(0020,9250)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step Status	(0040,0252)	GENERATED	ALWAYS	ALWAYS			-
DateTime	(0040,A120)	GENERATED	CONDITIONAL	ALWAYS			-
Special Needs	(0038,0050)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Scheduled Performing Physician's Name	(0040,0006)	MWL	CONDITIONAL	ALWAYS			-
Performed Station AE Title	(0040,0241)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Station Name	(0040,0242)	CONFIGURATION	ALWAYS	CONDITIONAL			-
Performed Location	(0040,0243)	CONFIGURATION	ALWAYS	CONDITIONAL			-
Performed Procedure Step Status	(0040,0252)	GENERATED	CONDITIONAL	ALWAYS			-
Comments on the Performed Procedure Step	(0040,0280)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Film Consumption Sequence	(0040,0321)	GENERATED	CONDITIONAL	ALWAYS			-
Units	(0054,1001)	GENERATED	CONDITIONAL	ALWAYS			-

**8.1.1.7.2. Secondary Capture Image IOD Functional Group Macros**

Not applicable. No functional groups are implemented for this IOD.

**8.1.1.7.3. Secondary Capture Image Private Modules**

Secondary Capture private modules are specified in the Common Private modules section as the private creators are shared across multiple IODs.

**8.1.1.7.4. Secondary Capture Image IOD Coded Values**

Not applicable. No Coded Values are implemented for this IOD.

**8.1.1.8. Grayscale Softcopy Presentation State IOD**

**Table 239: Grayscale Softcopy Presentation State IOD**

Table defines the structure of Grayscale Softcopy Presentation State IOD

IE	Module Name	Presence of Module	Condition	Reference
Patient	Patient	ALWAYS		Patient Module
Study	General Study	ALWAYS		General Study Module
	Patient Study	CONDITIONAL		Patient Study Module
Series	General Series	ALWAYS		General Series Module
	Presentation Series	ALWAYS		Presentation Series Module
Equipment	General Equipment	ALWAYS		General Equipment Module
Presentation State	Presentation State Identification	ALWAYS		Presentation State Identification Module
	Presentation State Relationship	ALWAYS		Presentation State Relationship Module
	Display Shutter	CONDITIONAL	Required if a Display Shutter is to be applied to referenced image(s) and the Bitmap Display	Display Shutter Module

IE	Module Name	Presence of Module	Condition	Reference
			Shutter Module (PS3.3:sect_C.7.6.15) is not present	
	Overlay Plane	CONDITIONAL	Required if Overlay is to be applied to referenced image(s) or the Bitmap Display Shutter Module (PS3.3:sect_C.7.6.15) is present.	Overlay Plane Module
	Overlay Activation	CONDITIONAL	Required if referenced image contains overlay data that is to be displayed or Presentation State Instance contains Overlay data other than Bitmap Shutter	Overlay Activation Module
	Displayed Area	ALWAYS		Displayed Area Module
	Graphic Annotation	CONDITIONAL	Required if Graphic Annotations are to be applied to referenced image(s)	Graphic Annotation Module
	Spatial Transformation	CONDITIONAL	Required if rotation or flipping are to be applied to referenced image(s)	Spatial Transformation Module
	Graphic Layer	CONDITIONAL	Required if Graphic Annotations or Overlays or Curves are to be applied to referenced image(s)	Graphic Layer Module
	Modality LUT	CONDITIONAL	Required if a Modality LUT is to be applied to referenced image(s)	Modality LUT Module
	Softcopy VOI LUT	CONDITIONAL	Required if a VOI LUT is to be applied to referenced image(s)	Softcopy VOI LUT Module
	Softcopy Presentation LUT	ALWAYS		Softcopy Presentation LUT Module
	SOP Common	ALWAYS		SOP Common Module
Extended and Private	Extended	ALWAYS		Extended Module
	Private Module Philips Imaging DD 001	ALWAYS		Private Module Philips Imaging DD 001 Module

IE	Module Name	Presence of Module	Condition	Reference
	Private Module Philips Imaging DD 002	ALWAYS		Private Module Philips Imaging DD 002 Module
	Private Module Philips Imaging DD 097	ALWAYS		Private Module Philips Imaging DD 097 Module
	Private Module Philips MR Imaging DD 006	ALWAYS		Private Module Philips MR Imaging DD 006 Module
	Private Module MR Imaging DD 008	ALWAYS		Private Module MR Imaging DD 008 Module
	Private Module Philips DINxGen DD 001	CONDITIONAL		Private Module Philips DINxGen DD 001 Module

**8.1.1.8.1. Grayscale Softcopy Presentation State IOD Specific Modules**

**Table 240: General Series Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Date	(0008,0021)	GENERATED	CONDITIONAL	ALWAYS			-
Series Time	(0008,0031)	GENERATED	CONDITIONAL	ALWAYS			-
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	MR		-
Series Description	(0008,103E)	GENERATED USER	CONDITIONAL	ALWAYS			-
Performing Physician's Name	(0008,1050)	USER	CONDITIONAL	ALWAYS			-
Operators' Name	(0008,1070)	GENERATED	CONDITIONAL	ALWAYS			-
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	ALWAYS	ALWAYS			-
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
Body Part Examined	(0018,0015)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Protocol Name	(0018,1030)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Patient Position	(0018,5100)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			-
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			-
Laterality	(0020,0060)	SRC_INSTANCE	CONDITIONAL	CONDITIONAL			-
Performed Procedure Step Start Date	(0040,0244)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Performed Procedure Step Start Time	(0040,0245)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Performed Procedure Step End Date	(0040,0250)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step End Time	(0040,0251)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step ID	(0040,0253)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Performed Procedure Step Description	(0040,0254)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Protocol Code Sequence	(0040,0260)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Code Value	(0008,0100)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Coding Scheme Designator	(0008,0102)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Coding Scheme Version	(0008,0103)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Code Meaning	(0008,0104)	SRC_INSTANCE	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Context Group Local Version	(0008,0107)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Context Group Extension Flag	(0008,010B)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Context Group Extension Creator UID	(0008,010D)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Context Identifier	(0008,010F)	GENERATED	CONDITIONAL	ALWAYS			-
Request Attributes Sequence	(0040,0275)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Requested Procedure Description	(0032,1060)	MWL	CONDITIONAL	ALWAYS			-
>Scheduled Procedure Step Description	(0040,0007)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Scheduled Protocol Code Sequence	(0040,0008)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>>Code Value	(0008,0100)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>>Coding Scheme Designator	(0008,0102)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>>Coding Scheme Version	(0008,0103)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>>Code Meaning	(0008,0104)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>>Context Group Local Version	(0008,0107)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>>Context Group Extension Flag	(0008,010B)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>>Context Group Extension Creator UID	(0008,010D)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>>Context Identifier	(0008,010F)	GENERATED	CONDITIONAL	ALWAYS			-
>Scheduled Procedure Step ID	(0040,0009)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
>Requested Procedure ID	(0040,1001)	SRC_INSTANCE	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Comments on the Performed Procedure Step	(0040,0280)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Maximum of 64 characters, Comments added on MR

**Table 241: Presentation Series Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	PR		Applied Value: PR

**Table 242: General Equipment Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	GENERATED	ALWAYS	ALWAYS	Philips		-
Institution Name	(0008,0080)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Institution Address	(0008,0081)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Station Name	(0008,1010)	CONFIGURATION	CONDITIONAL	ALWAYS			Same as the host Name.
Institutional Department Name	(0008,1040)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS			-
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS			-
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS			Inline to system software version

**Table 243: Presentation State Identification Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Content Label	(0070,0080)	GENERATED	ALWAYS	ALWAYS			applied values: AS LAST SEEN, NEW AT IMPORT
Content Description	(0070,0081)	GENERATED	ALWAYS	CONDITIONAL			-
Presentation Creation Date	(0070,0082)	GENERATED	ALWAYS	ALWAYS			-
Presentation Creation Time	(0070,0083)	GENERATED	ALWAYS	ALWAYS			-
Content Creator's Name	(0070,0084)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 244: Presentation State Relationship Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Referenced Series Sequence	(0008,1115)	GENERATED	ALWAYS	ALWAYS			-
>Referenced Image Sequence	(0008,1140)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
>Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			-

**Table 245: Display Shutter Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Shutter Presentation Value	(0018,1622)	GENERATED	CONDITIONAL	ALWAYS			Applied value: 0

**Table 246: Overlay Plane Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Overlay Rows	(60xx,0010)	GENERATED	ALWAYS	ALWAYS			-
Overlay Columns	(60xx,0011)	GENERATED	ALWAYS	ALWAYS			-
Overlay Description	(60xx,0022)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Overlay Type	(60xx,0040)	GENERATED	ALWAYS	ALWAYS			-
Overlay Subtype	(60xx,0045)	GENERATED	CONDITIONAL	ALWAYS			-
Overlay Origin	(60xx,0050)	GENERATED	ALWAYS	ALWAYS			-
Overlay Bits Allocated	(60xx,0100)	GENERATED	ALWAYS	ALWAYS			-
Overlay Bit Position	(60xx,0102)	GENERATED	ALWAYS	ALWAYS			-
ROI Area	(60xx,1301)	GENERATED	CONDITIONAL	ALWAYS			-
ROI Mean	(60xx,1302)	GENERATED	CONDITIONAL	ALWAYS			-
ROI Standard Deviation	(60xx,1303)	GENERATED	CONDITIONAL	ALWAYS			-
Overlay Label	(60xx,1500)	GENERATED	ALWAYS	EMPTY			-
Overlay Data	(60xx,3000)	GENERATED	ALWAYS	ALWAYS			-

**Table 247: Overlay Activation Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Overlay Activation Layer	(60xx,1001)	GENERATED	CONDITIONAL	ALWAYS			applied value: 1

**Table 248: Displayed Area Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Displayed Area Selection Sequence	(0070,005A)	GENERATED	ALWAYS	ALWAYS			-
>Referenced Image Sequence	(0008,1140)	GENERATED	CONDITIONAL	ALWAYS			-
>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
>Displayed Area Top Left Hand Corner	(0070,0052)	GENERATED	ALWAYS	ALWAYS			-
>Displayed Area Bottom Right Hand Corner	(0070,0053)	GENERATED	ALWAYS	ALWAYS			-
>Presentation Size Mode	(0070,0100)	GENERATED	ALWAYS	ALWAYS			Applied values: MAGNIFY, SCALE TO FIT
>Presentation Pixel Spacing	(0070,0101)	GENERATED	CONDITIONAL	ALWAYS			Applied values: (0.0, 0.0)
>Presentation Pixel Aspect Ratio	(0070,0102)	GENERATED	CONDITIONAL	ALWAYS			-
>Presentation Pixel Magnification Ratio	(0070,0103)	GENERATED	CONDITIONAL	ALWAYS			Applied value: 1.0
>Displayed Area Zoom Interpolation Meth	(2001,xx3F)	GENERATED	CONDITIONAL	ALWAYS			From Private group Philips Imaging DD 001

**Table 249: Graphic Annotation Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Graphic Annotation Sequence	(0070,0001)	GENERATED	ALWAYS	ALWAYS			-
>Referenced Image Sequence	(0008,1140)	GENERATED	CONDITIONAL	ALWAYS			-
>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
>Graphic Layer	(0070,0002)	GENERATED	ALWAYS	ALWAYS			-
>Text Object Sequence	(0070,0008)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Bounding Box Annotation Units	(0070,0003)	USER	CONDITIONAL	ALWAYS			-
>>Anchor Point Annotation Units	(0070,0004)	GENERATED	ALWAYS	ALWAYS			-
>>Unformatted Text Value	(0070,0006)	GENERATED	ALWAYS	ALWAYS			-
>>Bounding Box Top Left Hand Corner	(0070,0010)	USER	CONDITIONAL	ALWAYS			-
>>Bounding Box Bottom Right Hand Corner	(0070,0011)	USER	CONDITIONAL	ALWAYS			-
>>Bounding Box Text Horizontal Justification	(0070,0012)	USER	CONDITIONAL	ALWAYS			-
>>Anchor Point	(0070,0014)	GENERATED	ALWAYS	ALWAYS			-
>>Anchor Point Visibility	(0070,0015)	GENERATED	ALWAYS	ALWAYS			-
>Graphic Object Sequence	(0070,0009)	GENERATED	CONDITIONAL	ALWAYS			-
>>Graphic Annotation Units	(0070,0005)	GENERATED	ALWAYS	ALWAYS			-
>>Graphic Dimensions	(0070,0020)	GENERATED	ALWAYS	ALWAYS			-
>>Number of Graphic Points	(0070,0021)	GENERATED	ALWAYS	ALWAYS			-
>>Graphic Data	(0070,0022)	GENERATED	ALWAYS	ALWAYS			-
>>Graphic Type	(0070,0023)	GENERATED	ALWAYS	ALWAYS			-
>>Graphic Filled	(0070,0024)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 250: Spatial Transformation Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Image Horizontal Flip	(0070,0041)	GENERATED	ALWAYS	ALWAYS			-
Image Rotation	(0070,0042)	GENERATED	ALWAYS	ALWAYS			-

**Table 251: Graphic Layer Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Graphic Layer Sequence	(0070,0060)	GENERATED	ALWAYS	ALWAYS			-
>Graphic Layer	(0070,0002)	GENERATED	ALWAYS	ALWAYS			-
>Graphic Layer Order	(0070,0062)	GENERATED	ALWAYS	ALWAYS			-

**Table 252: Modality LUT Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Rescale Intercept	(0028,1052)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Rescale Slope	(0028,1053)	SRC_INSTANCE	ALWAYS	ALWAYS			-
Rescale Type	(0028,1054)	SRC_INSTANCE	ALWAYS	ALWAYS			-

**Table 253: Softcopy VOI LUT Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Softcopy VOI LUT Sequence	(0028,3110)	GENERATED	ALWAYS	ALWAYS			-
>Referenced Image Sequence	(0008,1140)	GENERATED	CONDITIONAL	ALWAYS			-
>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced Frame Number	(0008,1160)	GENERATED	CONDITIONAL	ALWAYS			-
>Window Center	(0028,1050)	GENERATED	ALWAYS	ALWAYS			-
>Window Width	(0028,1051)	GENERATED	ALWAYS	ALWAYS			-
>VOI LUT Function	(0028,1056)	GENERATED	ALWAYS	ALWAYS			-

**Table 254: Softcopy Presentation LUT Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Presentation LUT Sequence	(2050,0010)	GENERATED	CONDITIONAL	ALWAYS			Present if Presentation LUT Shape not present
>LUT Descriptor	(0028,3002)	GENERATED	ALWAYS	ALWAYS			-
>LUT Data	(0028,3006)	GENERATED	ALWAYS	ALWAYS			-
Presentation LUT Shape	(2050,0020)	GENERATED	ALWAYS	ALWAYS			-

**Table 255: SOP Common Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Specific Character Set	(0008,0005)	GENERATED	ALWAYS	ALWAYS			Default: ISO_IR 100, GB18030, ISO 2022 IR 100, ISO 2022 IR 101, ISO 2022 IR 109, ISO 2022 IR 110, ISO 2022 IR 126, ISO 2022 IR 127, ISO 2022 IR 13, ISO 2022 IR 138, ISO 2022 IR 144, ISO 2022 IR 148, ISO 2022 IR 149, ISO 2022 IR 166, ISO 2022 IR 6, ISO_IR 100, ISO_IR 101, ISO_IR 109, ISO_IR 110, ISO_IR 126, ISO_IR 127, ISO_IR 13, ISO 2022 IR 87, ISO_IR 138, ISO_IR 144, ISO_IR 148, ISO_IR 166, ISO_IR 192
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS			-
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS			-
Instance Creator UID	(0008,0014)	GENERATED	CONDITIONAL	ALWAYS			-
SOP Class UID	(0008,0016)	GENERATED	ALWAYS	ALWAYS	1.2.840.10008.5.1 .4.1.1.11.1		-
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Timezone Offset From UTC	(0008,0201)	GENERATED	CONDITIONAL	ALWAYS			-
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			-
Instance Origin Status	(0400,0600)	GENERATED	ALWAYS	ALWAYS			-

**Table 256: Extended Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Requesting Physician	(0032,1032)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Requesting Service	(0032,1033)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Requested Procedure Description	(0032,1060)	GENERATED	CONDITIONAL	ALWAYS			-
Study Comments	(0032,4000)	GENERATED USER	CONDITIONAL	ALWAYS			Comments added on MR
Special Needs	(0038,0050)	SRC_INSTANCE	CONDITIONAL	ALWAYS			-
Scheduled Performing Physician's Name	(0040,0006)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step End Time	(0040,0251)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step Status	(0040,0252)	GENERATED	ALWAYS	ALWAYS			-
Requested Procedure ID	(0040,1001)	GENERATED	CONDITIONAL	ALWAYS			-
Requested Procedure Comments	(0040,1400)	MWL USER	CONDITIONAL	ALWAYS			-
Imaging Service Request Comments	(0040,2400)	MWL USER	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Performed Station Name	(0040,0242)	MWL USER	ALWAYS	CONDITIONAL			-
Performed Location	(0040,0243)	MWL USER	ALWAYS	CONDITIONAL			-
Performed Station AE Title	(0040,0241)	MWL USER	CONDITIONAL	ALWAYS			-

**8.1.1.8.2. Grayscale Softcopy Presentation State IOD Functional Group Macros**

Not applicable. No functional groups are implemented for this IOD.

**8.1.1.8.3. Grayscale Softcopy Presentation State Private Modules**

Grayscale Softcopy Presentation State private modules are specified in the Common Private modules section as the private creators are shared across multiple IODs.

**8.1.1.8.4. Grayscale Softcopy Presentation State IOD Coded Values**

Not applicable. No Coded Values are implemented for this IOD.

**8.1.1.9. Raw Data IOD**

**Table 257: Raw Data IOD**

Table defines the structure of Raw Data IOD

IE	Module Name	Presence of Module	Condition	Reference
Patient	Patient	ALWAYS		Patient Module
Study	General Study	ALWAYS		General Study Module
	Patient Study	CONDITIONAL		Patient Study Module
Series	General Series	ALWAYS		General Series Module
Frame of Reference	Frame of Reference	CONDITIONAL		Frame of Reference Module

IE	Module Name	Presence of Module	Condition	Reference
	Synchronization	CONDITIONAL	Required if time synchronization was applied.	Synchronization Module
Equipment	General Equipment	ALWAYS		General Equipment Module
Raw Data	Acquisition Context	ALWAYS		Acquisition Context Module
	Raw Data	ALWAYS		Raw Data Module
	SOP Common	ALWAYS		SOP Common Module
Extended And Private	Extended	ALWAYS		Extended Module
	Private Module Philips Imaging DD 001	ALWAYS		Private Module Philips Imaging DD 001 Module
	Private Module Philips Imaging DD 002	ALWAYS		Private Module Philips Imaging DD 002 Module
	Private Module Philips Imaging DD 097	ALWAYS		Private Module Philips Imaging DD 097 Module
	Private Module Philips MR Imaging DD 001	ALWAYS		Private Module Philips MR Imaging DD 001 Module
	Private Module Philips MR Imaging DD 002	ALWAYS		Private Module Philips MR Imaging DD 002 Module
	Private Module Philips MR Imaging DD 003	ALWAYS		Private Module Philips MR Imaging DD 003 Module
	Private Module Philips MR Imaging DD 004	ALWAYS		Private Module Philips MR Imaging DD 004 Module
	Private Module MR Imaging DD 005	ALWAYS		Private Module MR Imaging DD 005 Module
	Private Module Philips MR Imaging DD 006	ALWAYS		Private Module Philips MR Imaging DD 006 Module

IE	Module Name	Presence of Module	Condition	Reference
	Private Module MR Imaging DD 007	ALWAYS		Private Module MR Imaging DD 007 Module
	Private Module Philips MR Imaging DD 008	ALWAYS		Private Module Philips MR Imaging DD 008 Module
	Private Module Philips DINxGen DD 001	CONDITIONAL		Private Module Philips DINxGen DD 001 Module

**8.1.1.9.1. Raw Data IOD Specific Modules**

**Table 258: General Series Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Date	(0008,0021)	GENERATED	ALWAYS	ALWAYS			-
Series Time	(0008,0031)	GENERATED	ALWAYS	ALWAYS			-
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	MR		-
Series Description	(0008,103E)	GENERATED USER	CONDITIONAL	ALWAYS			-
Performing Physician's Name	(0008,1050)	GENERATED	CONDITIONAL	ALWAYS			-
Operators' Name	(0008,1070)	USER MWL	CONDITIONAL	ALWAYS			-
Referenced Performed Procedure Step Sequence	(0008,1111)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced SOP Class UID	(0008,1150)	MWL USER	ALWAYS	ALWAYS			-
>Referenced SOP Instance UID	(0008,1155)	MWL USER	ALWAYS	ALWAYS			-
Body Part Examined	(0018,0015)	GENERATED	CONDITIONAL	ALWAYS			If ExamCard scan
Protocol Name	(0018,1030)	USER	ALWAYS	ALWAYS			Scan name

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Patient Position	(0018,5100)	GENERATED	CONDITIONAL	ALWAYS			-
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			Generated by MR system
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			Created dynamically at export. Contains the concatenation of the acquisition number and the private reconstruction number.
Laterality	(0020,0060)	USER	CONDITIONAL	CONDITIONAL			-
Performed Procedure Step Start Date	(0040,0244)	GENERATED	ALWAYS	ALWAYS			-
Performed Procedure Step Start Time	(0040,0245)	GENERATED	ALWAYS	ALWAYS			-
Performed Procedure Step ID	(0040,0253)	GENERATED	ALWAYS	ALWAYS			-
Performed Procedure Step Description	(0040,0254)	MWL USER	ALWAYS	CONDITIONAL			-
Performed Protocol Code Sequence	(0040,0260)	MWL USER	CONDITIONAL	ALWAYS			When retrieved from RIS, otherwise empty
>Code Value	(0008,0100)	MWL USER	ALWAYS	ALWAYS			-
>Coding Scheme Designator	(0008,0102)	MWL USER	ALWAYS	ALWAYS			-
>Coding Scheme Version	(0008,0103)	MWL USER	CONDITIONAL	ALWAYS			-
>Code Meaning	(0008,0104)	MWL USER	ALWAYS	ALWAYS			-
>Mapping Resource	(0008,0105)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Version	(0008,0106)	MWL	CONDITIONAL	ALWAYS			-
>Context Group Local Version	(0008,0107)	MWL	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Context Group Extension Flag	(0008,010B)	MWL	ALWAYS	ALWAYS			-
>Context Group Extension Creator UID	(0008,010D)	MWL	CONDITIONAL	ALWAYS			-
>Context Identifier	(0008,010F)	MWL	CONDITIONAL	ALWAYS			-
Request Attributes Sequence	(0040,0275)	MWL	CONDITIONAL	ALWAYS			-
>Requested Procedure Description	(0032,1060)	MWL	CONDITIONAL	ALWAYS			-
>Scheduled Procedure Step Description	(0040,0007)	MWL	ALWAYS	CONDITIONAL			-
>Scheduled Protocol Code Sequence	(0040,0008)	MWL USER	CONDITIONAL	ALWAYS			-
>>Code Value	(0008,0100)	MWL USER	ALWAYS	ALWAYS			-
>>Coding Scheme Designator	(0008,0102)	MWL USER	ALWAYS	ALWAYS			-
>>Coding Scheme Version	(0008,0103)	USER	CONDITIONAL	ALWAYS			-
>>Code Meaning	(0008,0104)	MWL USER	ALWAYS	ALWAYS			-
>>Mapping Resource	(0008,0105)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Version	(0008,0106)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Local Version	(0008,0107)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Extension Flag	(0008,010B)	MWL	CONDITIONAL	ALWAYS			-
>>Context Group Extension Creator UID	(0008,010D)	MWL	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>>Context Identifier	(0008,010F)	MWL	CONDITIONAL	ALWAYS			-
>Scheduled Procedure Step ID	(0040,0009)	MWL	CONDITIONAL	ALWAYS			-
>Requested Procedure ID	(0040,1001)	MWL	ALWAYS	ALWAYS			-
Comments on the Performed Procedure Step	(0040,0280)	SRC_INSTANCE	CONDITIONAL	ALWAYS			Only present when patient demographics received from RIS. Maximum of 64 characters

**Table 259: Frame of Reference Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	GENERATED	ALWAYS	ALWAYS			-
Position Reference Indicator	(0020,1040)	GENERATED	ALWAYS	EMPTY			-

**Table 260: Synchronization Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Synchronization Frame of Reference UID	(0020,0200)	GENERATED	ALWAYS	ALWAYS			-
Synchronization Trigger	(0018,106A)	GENERATED	ALWAYS	ALWAYS			-
Acquisition Time Synchronized	(0018,1800)	GENERATED	ALWAYS	ALWAYS			-
Time Distribution Protocol	(0018,1802)	GENERATED	ALWAYS	ALWAYS			-

**Table 261: General Equipment Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	GENERATED	ALWAYS	ALWAYS	Philips		-
Institution Name	(0008,0080)	CONFIGURATION	CONDITIONAL	ALWAYS			Configured on the system.
Institution Address	(0008,0081)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Station Name	(0008,1010)	CONFIGURATION	CONDITIONAL	ALWAYS			Same as the Host Name.
Institutional Department Name	(0008,1040)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS			-
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS			System serial number.
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS			Inline to system software version

**Table 262: Acquisition Context Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Acquisition Context Sequence	(0040,0555)	GENERATED	ALWAYS	EMPTY			-

**Table 263: Raw Data Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Instance Number	(0020,0013)	GENERATED	ALWAYS	CONDITIONAL			-
Content Date	(0008,0023)	GENERATED	ALWAYS	ALWAYS			-
Content Time	(0008,0033)	GENERATED	ALWAYS	ALWAYS			-
Acquisition DateTime	(0008,002A)	GENERATED	CONDITIONAL	ALWAYS			-
Creator-Version UID	(0008,9123)	GENERATED	ALWAYS	ALWAYS			-

**Table 264: SOP Common Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
SOP Class UID	(0008,0016)	GENERATED	ALWAYS	ALWAYS			Applied value: 1.2.840.10008.5.1.4.1.1.66
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS			-
Specific Character Set	(0008,0005)	GENERATED	ALWAYS	ALWAYS			Default: ISO_IR 100, GB18030, ISO 2022 IR 100, ISO 2022 IR 101, ISO 2022 IR 109, ISO 2022 IR 110, ISO 2022 IR 126, ISO 2022 IR 127, ISO 2022 IR 13, ISO 2022 IR 138, ISO 2022 IR 144, ISO 2022 IR 148, ISO 2022 IR 149, ISO 2022 IR 166, ISO 2022 IR 6, ISO_IR 100, ISO_IR 101, ISO_IR 109, ISO_IR 110, ISO_IR 126, ISO_IR 127, ISO_IR 13, ISO 2022 IR 87, ISO_IR 138, ISO_IR 144, ISO_IR 148, ISO_IR 166, ISO_IR 192
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS			-
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS			-
Instance Creator UID	(0008,0014)	GENERATED	ALWAYS	ALWAYS			-
Timezone Offset From UTC	(0008,0201)	GENERATED	CONDITIONAL	ALWAYS			-
Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			-
Instance Origin Status	(0400,0600)	GENERATED	ALWAYS	ALWAYS			-

**Table 265: Extended Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Pixel Presentation	(0008,9205)	GENERATED	ALWAYS	ALWAYS			-
Referenced Image Sequence	(0008,1140)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
Pixel Presentation	(0008,9205)	GENERATED	ALWAYS	ALWAYS			-
Volumetric Properties	(0008,9206)	GENERATED	ALWAYS	ALWAYS			-
Volume Based Calculation Technique	(0008,9207)	GENERATED	ALWAYS	ALWAYS			-
Pixel Bandwidth	(0018,0095)	GENERATED	ALWAYS	ALWAYS			-
Pulse Sequence Name	(0018,9005)	GENERATED	ALWAYS	ALWAYS			-
Echo Pulse Sequence	(0018,9008)	GENERATED	ALWAYS	ALWAYS			-
Multiple Spin Echo	(0018,9011)	GENERATED	ALWAYS	ALWAYS			-
Multi-planar Excitation	(0018,9012)	GENERATED	ALWAYS	ALWAYS			-
Phase Contrast	(0018,9014)	GENERATED	ALWAYS	ALWAYS			-
Time of Flight Contrast	(0018,9015)	GENERATED	ALWAYS	ALWAYS			-
Spoiling	(0018,9016)	GENERATED	ALWAYS	ALWAYS			-
Steady State Pulse Sequence	(0018,9017)	GENERATED	ALWAYS	ALWAYS			-
Echo Planar Pulse Sequence	(0018,9018)	GENERATED	ALWAYS	ALWAYS			-
Magnetization Transfer	(0018,9020)	GENERATED	CONDITIONAL	ALWAYS			-
T2 Preparation	(0018,9021)	GENERATED	ALWAYS	ALWAYS			-
Blood Signal Nulling	(0018,9022)	GENERATED	ALWAYS	ALWAYS			-
Saturation Recovery	(0018,9024)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Spectrally Selected Suppression	(0018,9025)	GENERATED	ALWAYS	ALWAYS			-
Spatial Pre-saturation	(0018,9027)	GENERATED	ALWAYS	ALWAYS			-
Tagging	(0018,9028)	GENERATED	CONDITIONAL	ALWAYS			-
Oversampling Phase	(0018,9029)	GENERATED	CONDITIONAL	ALWAYS			-
Geometry of k-Space Traversal	(0018,9032)	GENERATED	ALWAYS	ALWAYS			-
Segmented k-Space Traversal	(0018,9033)	GENERATED	ALWAYS	ALWAYS			-
Rectilinear Phase Encode Reordering	(0018,9034)	GENERATED	ALWAYS	ALWAYS			-
Tag Thickness	(0018,9035)	GENERATED	CONDITIONAL	ALWAYS			-
Partial Fourier Direction	(0018,9036)	GENERATED	ALWAYS	ALWAYS			-
Cardiac Synchronization Technique	(0018,9037)	GENERATED	ALWAYS	ALWAYS			-
Transmit Coil Type	(0018,9051)	GENERATED	ALWAYS	ALWAYS			-
Chemical Shift Reference	(0018,9053)	GENERATED	ALWAYS	ALWAYS			-
Volume Localization Technique	(0018,9054)	GENERATED	CONDITIONAL	ALWAYS			-
MR Acquisition Frequency Encoding Steps	(0018,9058)	GENERATED	ALWAYS	ALWAYS			-
De-coupling	(0018,9059)	GENERATED	CONDITIONAL	ALWAYS			-
De-coupled Nucleus	(0018,9060)	GENERATED	ALWAYS	CONDITIONAL			-
De-coupling Frequency	(0018,9061)	GENERATED	CONDITIONAL	ALWAYS			-
De-coupling Chemical Shift Reference	(0018,9063)	GENERATED	CONDITIONAL	ALWAYS			-
Time Domain Filtering	(0018,9065)	GENERATED	CONDITIONAL	ALWAYS			-
Number of Zero Fills	(0018,9066)	GENERATED	CONDITIONAL	ALWAYS			-
Velocity Encoding Direction	(0018,9090)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Velocity Encoding Minimum Value	(0018,9091)	GENERATED	ALWAYS	ALWAYS			-
Number of k-Space Trajectories	(0018,9093)	GENERATED	ALWAYS	ALWAYS			-
Spectroscopy Acquisition Phase Rows	(0018,9095)	GENERATED	CONDITIONAL	ALWAYS			-
Frequency Correction	(0018,9101)	GENERATED	ALWAYS	ALWAYS			-
Spectroscopy Acquisition Data Columns	(0018,9127)	GENERATED	CONDITIONAL	ALWAYS			-
Parallel Reduction Factor out-of-plane	(0018,9155)	GENERATED	ALWAYS	ALWAYS			-
Spectroscopy Acquisition Out-of-plane Phase Steps	(0018,9159)	GENERATED	CONDITIONAL	ALWAYS			-
Parallel Reduction Factor Second In-plane	(0018,9168)	GENERATED	ALWAYS	ALWAYS			-
Respiratory Motion Compensation Technique	(0018,9170)	GENERATED	ALWAYS	ALWAYS			-
Respiratory Signal Source	(0018,9171)	GENERATED	CONDITIONAL	ALWAYS			-
Bulk Motion Compensation Technique	(0018,9172)	GENERATED	ALWAYS	ALWAYS			-
Applicable Safety Standard Agency	(0018,9174)	GENERATED	ALWAYS	ALWAYS			-
Specific Absorption Rate Definition	(0018,9179)	GENERATED	ALWAYS	ALWAYS			-
Gradient Output Type	(0018,9180)	GENERATED	ALWAYS	ALWAYS			-
Specific Absorption Rate Value	(0018,9181)	GENERATED	ALWAYS	ALWAYS			-
Gradient Output	(0018,9182)	GENERATED	ALWAYS	ALWAYS			-
Water Referenced Phase Correction	(0018,9199)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
MR Spectroscopy Acquisition Type	(0018,9200)	GENERATED	CONDITIONAL	ALWAYS			-
MR Acquisition Phase Encoding Steps in-plane	(0018,9231)	GENERATED	ALWAYS	ALWAYS			-
Spectroscopy Acquisition Phase Columns	(0018,9234)	GENERATED	CONDITIONAL	ALWAYS			-
RF Echo Train Length	(0018,9240)	GENERATED	ALWAYS	ALWAYS			-
Gradient Echo Train Length	(0018,9241)	GENERATED	ALWAYS	ALWAYS			-
Frame Laterality	(0020,9072)	GENERATED	ALWAYS	ALWAYS			-
Respiratory Trigger Type	(0020,9250)	GENERATED	CONDITIONAL	ALWAYS			-
Respiratory Interval Time	(0020,9254)	GENERATED	ALWAYS	ALWAYS			-
Nominal Respiratory Trigger Delay Time	(0020,9255)	GENERATED	ALWAYS	ALWAYS			-
Number of Frames	(0028,0008)	GENERATED	ALWAYS	ALWAYS			-
LUT Explanation	(0028,3003)	GENERATED	CONDITIONAL	ALWAYS			Philips Real World Value Mapping
Data Point Rows	(0028,9001)	GENERATED	ALWAYS	ALWAYS			-
Data Point Columns	(0028,9002)	GENERATED	ALWAYS	ALWAYS			-
Signal Domain Columns	(0028,9003)	GENERATED	CONDITIONAL	ALWAYS			-
Data Representation	(0028,9108)	GENERATED	CONDITIONAL	ALWAYS			-
Requesting Physician	(0032,1032)	GENERATED	CONDITIONAL	ALWAYS			-
Requesting Service	(0032,1033)	GENERATED	CONDITIONAL	ALWAYS			-
Requested Procedure Description	(0032,1060)	GENERATED	CONDITIONAL	ALWAYS			-
Study Comments	(0032,4000)	GENERATED	CONDITIONAL	ALWAYS			Comments added on MR

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Special Needs	(0038,0050)	GENERATED	CONDITIONAL	ALWAYS			-
Scheduled Performing Physician's Name	(0040,0006)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Station AE Title	(0040,0241)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Procedure Step End Date	(0040,0250)	GENERATED	ALWAYS	CONDITIONAL			-
Performed Procedure Step End Time	(0040,0251)	GENERATED	ALWAYS	CONDITIONAL			-
Performed Procedure Step Status	(0040,0252)	GENERATED	ALWAYS	ALWAYS			-
Film Consumption Sequence	(0040,0321)	GENERATED	CONDITIONAL	EMPTY			-
Requested Procedure ID	(0040,1001)	GENERATED	CONDITIONAL	ALWAYS			-
Requested Procedure Comments	(0040,1400)	GENERATED	CONDITIONAL	ALWAYS			-
Imaging Service Request Comments	(0040,2400)	GENERATED	CONDITIONAL	ALWAYS			-
LUT Label	(0040,9210)	GENERATED	CONDITIONAL	ALWAYS			-
Scan Options	(0018,0022)	GENERATED	CONDITIONAL	ALWAYS			-
Inversion Time	(0018,0082)	GENERATED	CONDITIONAL	ALWAYS			-
Number of Phase Encoding Steps	(0018,0089)	GENERATED	CONDITIONAL	ALWAYS			-
Echo Train Length	(0018,0091)	GENERATED	CONDITIONAL	ALWAYS			-
Percent Sampling	(0018,0093)	GENERATED	CONDITIONAL	ALWAYS			-
Percent Phase Field of View	(0018,0094)	GENERATED	CONDITIONAL	ALWAYS			-
B1rms	(0018,1320)	GENERATED	CONDITIONAL	ALWAYS			-
Tag Angle First Axis	(0018,9019)	GENERATED	CONDITIONAL	ALWAYS			-
Spectrally Selected Excitation	(0018,9026)	GENERATED	CONDITIONAL	ALWAYS			-
Tag Spacing First Dimension	(0018,9030)	GENERATED	CONDITIONAL	ALWAYS			-
Transmit Coil Manufacturer Name	(0018,9050)	FIXED	CONDITIONAL	EMPTY			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Parallel Reduction Factor In-plane	(0018,9069)	GENERATED	CONDITIONAL	ALWAYS			-
Parallel Acquisition	(0018,9077)	GENERATED	CONDITIONAL	ALWAYS			-
Partial Fourier	(0018,9081)	GENERATED	CONDITIONAL	ALWAYS			-
Respiratory Trigger Delay Threshold	(0020,9256)	GENERATED	CONDITIONAL	ALWAYS			-
Rows	(0028,0010)	GENERATED	CONDITIONAL	ALWAYS			-
Columns	(0028,0011)	GENERATED	CONDITIONAL	ALWAYS			-
Performed Station Name	(0040,0242)	CONFIGURATION	ALWAYS	CONDITIONAL			-
Performed Location	(0040,0243)	CONFIGURATION	ALWAYS	CONDITIONAL			-
Presentation LUT Shape	(2050,0020)	FIXED	CONDITIONAL	ALWAYS	IDENTITY		Applied value: IDENTITY

**8.1.1.9.2. Raw Data IOD Functional Group Macros**

Not applicable. No functional groups are implemented for this IOD.

**8.1.1.9.3. Raw Data Private Modules**

Raw data private modules are specified in the Common Private modules section as the private creators are shared across multiple IODs.

**8.1.1.9.4. Raw Data IOD Coded Values**

Not applicable. No Coded Values are implemented for this IOD.

**8.1.1.10. RT Structure Set IOD**

**Table 266: RT Structure Set IOD**

Table defines the structure of RT Structure Set IOD

IE	Module Name	Presence of Module	Condition	Reference
Patient	Patient	ALWAYS		Patient Module
Study	General Study	ALWAYS		General Study Module
	Patient Study	CONDITIONAL		Patient Study Module
Series	RT Series	ALWAYS		RT Series Module
Equipment	General Equipment	ALWAYS		General Equipment Module
Frame of Reference	Frame of Reference	CONDITIONAL		Frame of Reference Module
Structure Set	Structure Set	ALWAYS		Structure Set Module
	ROI Contour	ALWAYS		ROI Contour Module
	RT ROI Observations	ALWAYS		RT ROI Observations Module
	SOP Common	ALWAYS		SOP Common Module
Extended and Private	Private Module Philips MR Imaging DD 006	CONDITIONAL		Private Module Philips MR Imaging DD 006 Module

**8.1.1.10.1. RT Structure Set IOD Specific Modules**

**Table 267: RT Series Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Series Date	(0008,0021)	GENERATED	CONDITIONAL	ALWAYS			-
Series Time	(0008,0031)	GENERATED	CONDITIONAL	ALWAYS			-
Modality	(0008,0060)	FIXED	ALWAYS	ALWAYS	RTSTRUCT		-
Series Description	(0008,103E)	GENERATED	CONDITIONAL	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Operators' Name	(0008,1070)	USER	CONDITIONAL	ALWAYS			-
Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			-
Series Number	(0020,0011)	GENERATED	ALWAYS	ALWAYS			-

**Table 268: General Equipment Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Manufacturer	(0008,0070)	SRC_INSTANCE	ALWAYS	ALWAYS	Philips		-
Institution Name	(0008,0080)	CONFIGURATION	CONDITIONAL	ALWAYS			Configured on the system.
Institution Address	(0008,0081)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Station Name	(0008,1010)	CONFIGURATION	CONDITIONAL	ALWAYS			Same as the Host Name.
Institutional Department Name	(0008,1040)	CONFIGURATION	CONDITIONAL	ALWAYS			-
Manufacturer's Model Name	(0008,1090)	GENERATED	ALWAYS	ALWAYS			-
Device Serial Number	(0018,1000)	GENERATED	ALWAYS	ALWAYS			System serial number.
Software Versions	(0018,1020)	GENERATED	ALWAYS	ALWAYS			Inline to system software version

**Table 269: Frame of Reference Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Frame of Reference UID	(0020,0052)	SRC_INSTANCE	ALWAYS	ALWAYS			-

**Table 270: Structure Set Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Structure Set Label	(3006,0002)	FIXED	ALWAYS	ALWAYS	MR-RT		-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Structure Set Name	(3006,0004)	FIXED	ALWAYS	ALWAYS	MR-RT		-
Structure Set Description	(3006,0006)	FIXED	ALWAYS	ALWAYS	MR-RT AutoContouring		-
Structure Set Date	(3006,0008)	GENERATED	ALWAYS	ALWAYS			-
Structure Set Time	(3006,0009)	GENERATED	ALWAYS	ALWAYS			-
Referenced Frame of Reference Sequence	(3006,0010)	GENERATED	ALWAYS	ALWAYS			-
>Frame of Reference UID	(0020,0052)	GENERATED	ALWAYS	ALWAYS			-
>RT Referenced Study Sequence	(3006,0012)	GENERATED MWL	ALWAYS	ALWAYS			-
>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			-
>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
>>RT Referenced Series Sequence	(3006,0014)	GENERATED	ALWAYS	ALWAYS			-
>>>Series Instance UID	(0020,000E)	GENERATED	ALWAYS	ALWAYS			-
>>>Contour Image Sequence	(3006,0016)	GENERATED	ALWAYS	ALWAYS			-
>>>>Referenced SOP Class UID	(0008,1150)	GENERATED	ALWAYS	ALWAYS			Applied value: 1.2.840.10008.5.1.4.1.1.2
>>>>Referenced SOP Instance UID	(0008,1155)	GENERATED	ALWAYS	ALWAYS			-
Structure Set ROI Sequence	(3006,0020)	GENERATED	ALWAYS	ALWAYS			-
>ROI Number	(3006,0022)	GENERATED	ALWAYS	ALWAYS			-
>Referenced Frame of Reference UID	(3006,0024)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>ROI Name	(3006,0026)	CONFIGURATION	ALWAYS	ALWAYS			-
>ROI Generation Algorithm	(3006,0036)	FIXED	ALWAYS	ALWAYS	AUTOMATIC		-

**Table 271: ROI Contour Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
ROI Contour Sequence	(3006,0039)	GENERATED	ALWAYS	ALWAYS			-
>Referenced ROI Number	(3006,0084)	GENERATED	ALWAYS	ALWAYS			-
>ROI Display Color	(3006,002A)	CONFIGURATION	ALWAYS	ALWAYS			-
>Contour Sequence	(3006,0040)	GENERATED	ALWAYS	CONDITIONAL			Sequence may be empty if ROI does not contain any contours
>>Contour Image Sequence	(3006,0016)	GENERATED	CONDITIONAL	ALWAYS			-
>>>Referenced SOP Class UID	(0008,1150)	GENERATED	CONDITIONAL	ALWAYS			Applied value:1.2.840.10008.5.1.4.1.1.2
>>>Referenced SOP Instance UID	(0008,1155)	GENERATED	CONDITIONAL	ALWAYS			-
>>Contour Geometric Type	(3006,0042)	GENERATED	CONDITIONAL	ALWAYS			-
>>Number of Contour Points	(3006,0046)	GENERATED	CONDITIONAL	ALWAYS			-
>>Contour Data	(3006,0050)	GENERATED	CONDITIONAL	ALWAYS			-

**Table 272: RT ROI Observation Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
RT ROI Observations Sequence	(3006,0080)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Observation Number	(3006,0082)	GENERATED	ALWAYS	ALWAYS			-
>Referenced ROI Number	(3006,0084)	GENERATED	ALWAYS	ALWAYS			-
>RT ROI Interpreted Type	(3006,00A4)	GENERATED	ALWAYS	ALWAYS			Value can be either EXTERNAL or ORGAN
>ROI Interpreter	(3006,00A6)	FIXED	ALWAYS	ALWAYS	AUTOMATIC		

**Table 273: SOP Common Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Specific Character Set	(0008,0005)	SRC_INSTANCE	ALWAYS	ALWAYS			Default: ISO_IR 100.
Instance Creation Date	(0008,0012)	GENERATED	ALWAYS	ALWAYS			-
Instance Creation Time	(0008,0013)	GENERATED	ALWAYS	ALWAYS			-
SOP Class UID	(0008,0016)	FIXED	ALWAYS	ALWAYS	1.2.840.10008.5.1.4.1.1.481.3		-
SOP Instance UID	(0008,0018)	GENERATED	ALWAYS	ALWAYS			-
Instance Origin Status	(0400,0600)	GENERATED	CONDITIONAL	ALWAYS			

**8.1.1.10.2. RT Structure Set IOD Functional Group Macros**

Not applicable. No functional groups are implemented for this IOD.

**8.1.1.10.3. RT Structure Set IOD Private Modules**

**Table 274: Private Module DD 006 for RT Structure Set IOD**

Table lists private Module DD 006 and Attributes for RT Structure Set IOD

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2005 MR DD006	(2005,00xx)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS	Philips MR Imaging DD 006		-
RT Generated Series	(2005,xx88)	LO	1	NO	GENERATED	CONDITIONAL	ALWAYS			-

**8.1.1.10.4. RT Structure Set IOD Coded Values**

Not applicable. No Coded Values are implemented for this IOD.

**8.1.1.11. Media Storage Directory IOD**

**Table 275: Media Storage Directory**

Table defines the structure of Media Storage Directory IOD

IE	Module Name	Presence of Module	Condition	Reference
	File-set Identification	ALWAYS		File-set Identification Module
	Directory Information	ALWAYS		Directory Information Module
Extended and Private	Private Module Philips Imaging DD 001	CONDITIONAL		Private Module Philips Imaging DD 001 Module
	Private Module Philips MR Imaging DD 001	CONDITIONAL		Private Module Philips MR Imaging DD 001 Module

**8.1.1.11.1. Media Storage Directory IOD Specific Modules**

**Table 276: File-set Identification Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
File-set ID	(0004,1130)	GENERATED	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Specific Character Set of File-set Descriptor File	(0004,1142)	GENERATED	CONDITIONAL	ALWAYS			Required to specify the expanded or replacement character set

**Table 277: File-set Identification Module**

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Offset of the First Directory Record of the Root Directory Entity	(0004,1200)	GENERATED	ALWAYS	ALWAYS			-
Offset of the Last Directory Record of the Root Directory Entity	(0004,1202)	GENERATED	ALWAYS	ALWAYS			-
File-set Consistency Flag	(0004,1212)	GENERATED	ALWAYS	ALWAYS			Default 0x0000=0
Directory Record Sequence	(0004,1220)	GENERATED	ALWAYS	CONDITIONAL			-
>Offset of the Next Directory Record	(0004,1400)	GENERATED	ALWAYS	ALWAYS			-
>Record In-use Flag	(0004,1410)	GENERATED	ALWAYS	ALWAYS			-
>Offset of Referenced Lower-Level Directory Entity	(0004,1420)	GENERATED	ALWAYS	ALWAYS			-
>Directory Record Type	(0004,1430)	GENERATED	CONDITIONAL	ALWAYS			-
>Private Record UID	(0004,1432)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced File ID	(0004,1500)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced SOP Class UID in File	(0004,1510)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced SOP Instance UID in File	(0004,1511)	GENERATED	CONDITIONAL	ALWAYS			-
>Referenced Transfer Syntax UID in File	(0004,1512)	GENERATED	CONDITIONAL	ALWAYS			-
>Specific Character Set	(0008,0005)	GENERATED	CONDITIONAL	ALWAYS			-
>Image Type	(0008,0008)	GENERATED	CONDITIONAL	ALWAYS			-
>SOP Instance UID	(0008,0018)	GENERATED	CONDITIONAL	ALWAYS			-
>Study Date	(0008,0020)	GENERATED	ALWAYS	ALWAYS			-
>Series Date	(0008,0021)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Study Time	(0008,0030)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Series Time	(0008,0031)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Accession Number	(0008,0050)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Modality	(0008,0060)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Study Description	(0008,1030)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Referenced Series Sequence	(0008,1115)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Patient's Name	(0010,0010)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Patient ID	(0010,0020)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Patient's Birth Date	(0010,0030)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Patient's Sex	(0010,0040)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Protocol Name	(0018,1030)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Study Instance UID	(0020,000D)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Series Instance UID	(0020,000E)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Study ID	(0020,0010)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Series Number	(0020,0011)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Instance Number	(0020,0013)	GENERATED	ALWAYS	ALWAYS			-
>Image Position (Patient)	(0020,0032)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Image Orientation (Patient)	(0020,0037)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Frame of Reference UID	(0020,0052)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Performed Procedure Step Start Date	(0040,0244)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Performed Procedure Step Description	(0040,0254)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Content Label	(0070,0080)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Content Description	(0070,0081)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Presentation Creation Date	(0070,0082)	SRC_INSTANCE	ALWAYS	ALWAYS			-
>Presentation Creation Time	(0070,0083)	SRC_INSTANCE	ALWAYS	ALWAYS			-

Attribute Name	Tag	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
>Content Creator's Name	(0070,0084)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Icon Image Sequence	(0088,0200)	GENERATED	CONDITIONAL	ALWAYS			-
>>Pixel Spacing	(0028,0030)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>>Samples per Pixel	(0028,0002)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>>Photometric Interpretation	(0028,0004)	GENERATED	ALWAYS	CONDITIONAL			-
>>Rows	(0028,0010)	GENERATED	ALWAYS	CONDITIONAL			-
>>Columns	(0028,0011)	GENERATED	ALWAYS	CONDITIONAL			-
>>Pixel Aspect Ratio	(0028,0034)	GENERATED	CONDITIONAL	ALWAYS			-
>>Bits Allocated	(0028,0100)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>>Bits Stored	(0028,0101)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>>High Bit	(0028,0102)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>>Pixel Representation	(0028,0103)	SRC_INSTANCE	ALWAYS	CONDITIONAL			-

**8.1.1.11.2. Media Storage Directory IOD Functional Group Macros**

Not applicable. No functional groups are implemented for this IOD.

**8.1.1.11.3. Media Storage Directory IOD Private Modules**

**Table 278: Private Module Philips Imaging DD 001 for Media Storage Directory IOD**

Table lists Private Module Philips Imaging DD 001 for Media Storage Directory IOD.

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2001	(2001,00xx)	LO	1	NO	GENERATED	ALWAYS	ALWAYS	Philips Imaging DD 001		-
Number of Echoes	(2001,xx14)	SL	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
Number of Phases MR	(2001,xx17)	SL	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Number of Slices MR	(2001,xx18)	SL	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
MR Series Reconstruction Number	(2001,xx1D)	IS	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
Scanning Technique	(2001,xx20)	LO	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
Echo Time Display	(2001,xx25)	SH	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
Stack Sequence	(2001,xx5F)	SQ	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Number of Stack Slices	(2001,xx2D)	SS	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Stack Radial Angle	(2001,xx32)	FL	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Stack Radial Axis	(2001,xx33)	CS	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Stack Slice Number	(2001,xx35)	SS	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
>Stack Type	(2001,xx36)	CS	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
Examination Source	(2001,xx63)	CS	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-

**Table 279: Private Module Philips MR Imaging DD 001 for Media Storage Directory IOD**

Table lists Private Module Philips MR Imaging DD 001 for Media Storage Directory IOD.

Attribute Name	Tag	VR	VM	Identifiable Information	Source	Presence of Attribute	Presence of Value	Value	Conditions	Comments
Private Creator Group 2005	(2005,00xx)	LO	1	NO	GENERATED	ALWAYS	ALWAYS	Philips MR Imaging DD 001		-
Number of Chemical Shift	(2005,xx20)	SL	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-
Syncra Scan Type	(2005,xxA1)	CS	1	NO	SRC_INSTANCE	ALWAYS	CONDITIONAL			-

**8.1.1.11.4. Media Storage Directory IOD Coded Values**

Not applicable. No Coded Values are implemented for this IOD.

### 8.1.2. Usage of Attributes from Received IOD

For import of MR Spectroscopy, MR image and Enhanced MR Image IODs these must be manufactured by Philips:

- (0008,0070) Manufacturer attribute value as “Philips”
- (0008,0060) Modality as “MR”

### 8.1.3. Attribute Mapping

The following table shows the relation between MWL, MPPS and image Storage attributes.

**Table 280: Attribute mapping during Modality Workflow**

Nr	Level	Attribute Name	MWL Find Tag	MPPS Create Tag	Related Store Tag	MPPS Set Tag
1	Patient	Patient’s Name	0010,0010	0010,0010	0010,0010	-
2		Patient ID	0010,0020	0010,0020	0010,0020	-
3		Patient's Birth Date	0010,0030	0010,0030	0010,0030	-
4		Patient's Sex	0010,0040	0010,0040	0010,0040	-
5	Study	Accession number	0008,0050	0008,0050	0008,0050	-
6		Patient’s Weight	0010,1030	-	0010,1030	-
7		Study Instance UID	0020,000D	0020,000D	0020,000D	-
8		Request Procedure Description	0032,1060	0032,1060	0032,1060	-
9		Scheduled Performing Physician’s Name	0040,0006	-	0040,0006	-
10		Request Procedure ID	0040,1001	0040,1001	0040,1001	-
11	Exam	Scheduled Procedure Step Start Date	0040,0002	0040,0244	0008,0020	-
12				0040,0250		-
13		Scheduled Procedure Step Description	0040,0007	0040,0007	0040,0007	-
-		Performed Protocol Code Sequence	0040,0008	0040,0260	0040,0260 0040,0008	0040,0260
14		>Code Value	0008,0100	0008,0100	0008,0100	0008,0100
15		>Code Scheme Designator	0008,0102	0008,0102	0008,0102	0008,0102
16		>Coding Scheme Version	0008,0103	0008,0103	0008,0103	0008,0103
17		>Code Meaning	0008,0104	0008,0104	0008,0104	0040,0004

Nr	Level	Attribute Name	MWL Find Tag	MPPS Create Tag	Related Store Tag	MPPS Set Tag
18		Scheduled Procedure Step ID	0040,0009	0040,0009	0040,0009	-
-		Scheduled Procedure Step Sequence	0040,0100	-	-	-
19		>Comments on the Scheduled Procedure Step	0040,0400	-	0032,4000	-
20		Comments on the Performed Procedure Step	-	-	0040,0280	-
21		Performed Procedure Step ID	-	0040,0253	0040,0253	-
22		Study ID	-	-	0020,0010	-
-	Series/ Image / Grayscale Softcopy	Performed Series Sequence	-	-	-	0040,0340
-		>Referenced Image Sequence	-	-	-	0008,1140
23		>>Referenced SOP Class UID	-	-	0008,0016	0008,1150
24		>>Referenced SOP Instance UID	-	-	0008,0018	0008,1155
-		>Referenced Stand Alone SOP Inst. Seq for the grayscale softcopy presentation state objects	-	-	-	0040,0220
25		>>Referenced SOP Class UID	-	-	0008,0016	0008,1150
26		>>Referenced SOP Instance UID	-	-	0008,0018	0008,1155
27		>Series Protocol Name	-	-	0018,1030	0018,1030
28		>Series Description	-	-	0008,103E	0008,103E
29		>Series Instance UID	-	-	0020,000E	0020,000E

### 8.1.4. Coerced/Modified fields

The Network AE will only import MR images and Presentation State objects that were created on an MR System. These imported images may be modified and are to be used for reference only; it is not the intention to export them again. Secondary capture images are always accepted.

### 8.2. Data Dictionary of Private Attributes

Not Applicable. Data Dictionary of Private attributes is not implemented by MR system.

### 8.3. Coded Terminology and Templates

Not Applicable. Coded Terminology and Templates are not implemented by MR system.

#### 8.3.1. Context Groups

Not Applicable. Context Groups are not implemented by MR system.

#### 8.3.2. Template Specifications

Not Applicable. Template Specifications are not implemented by MR system.

#### 8.3.3. Private code definitions

Not Applicable. Private Code Definitions are not supported by MR system.

### 8.4. Grayscale Image consistency

The display monitor of the MR system is calibrated according to the Grayscale Standard Display Function (GSDF).

As described in the object definitions the Presentation LUT shape (2050, 0020) is always IDENTITY. Consequently, receiving stations must be calibrated according the GSDF and use the standard DICOM P-LUT.

### 8.5. Standard Extended/Specialized/Private SOPs

The MR supports the following standard Specialized SOP classes.

**Table 281: List of Standard Specialized SOP Classes.**

SOP Class Name	SOP Class UID
Philips Private MR Spectrum Storage	1.3.46.670589.11.0.0.12.1
Philips Private MR Series Data Storage	1.3.46.670589.11.0.0.12.2
Philips Private MR Examcard Storage	1.3.46.670589.11.0.0.12.4

The following standard extensions are applied for the MR Image Storage SOP class. See also the overview of the applied MR Image IOD in Section 8.1.1.4.

**Table 282: Applied Standard Extensions**

IOD	Module	Note
MR Image	Patient Medical Module	-
MR Image	Study Classification Module	-
MR Image	Study Scheduling Module	-
MR Image	Requested Procedure Module	Additional attribute: Requested Contrast Agent
MR Image	Imaging Service Request Module	-

IOD	Module	Note
MR Image	Performed Procedure Step Information Module	-
MR Image	Billing and Material Management Code Module	-
MR Image	General Series Module	Additional attributes in Referenced Performed Procedure Step Sequence: >Specific Character Set >Instance Creation Date >Instance Creation Time >Instance Creator UID >Instance Number
MR Image	Modality LUT Module	Present if configured. Must be applied when viewing the image.
MR Image	Private Group	Private MR attributes.
All storage	General Study Module	Additional attribute: Scheduled Performing Physician's Name

### 8.6. Private Transfer Syntaxes

The MR System does not support any private transfer syntaxes.

*- This part of the page is left intentionally empty -*

**Issued by:**

Philips Medical Systems Nederland B.V.  
Veenpluis 6  
5684 PC Best  
The Netherlands

Internet: <https://www.philips.com/dicom>

Doc Id: 2043594

Date: 29-Aug-2025

