RamSoft
GLOBAL IMAGING DELIVERED

Toll Free: +1 888.343.9146
Fax: +1 416.674.7147

Software Version 6.0
DICOM Conformance Statement

Related Products:
PowerServer, Gateway, Gateway Router, PowerCache, RapidResults

RamSoft, Inc.
90 Adelaide St W, Suite #900
Toronto, ON M5H 3V9, Canada

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MANUFACTURER
RamSoft Incorporated
90 Adelaide St W, Suite #900
Toronto, ON M5H 3V9
CANADA

Toll Free: (888) 343-9146
Fax: (416) 674-7147
Web Site: http://www.ramsoft.com

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1 CONFORMANCE STATEMENT OVERVIEW

The DICOM 3.0 Conformance Statement for the software produced by RamSoft including PowerServer, Gateway, Gateway Router, PowerCache and RapidResults

PowerServer and Gateway are self-contained network computer systems used for capturing, storing, displaying, reporting, transmitting and archiving diagnostic medical images. The system conforms to the DICOM 3.0 standard to share medical data with other medical imaging devices.

Table 1-1

Network Services

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Transfer		
Computed Radiography Image Storage	Stored and Viewed	Yes
CT Image Storage	Stored and Viewed	Yes
Enhanced CT Image Storage	Stored and Viewed	Yes
PET Image Storage	Stored and Viewed	Yes
PET Curve Storage	Stored and Viewed	Yes
Enhanced PET Image Storage	Stored and Viewed	Yes
Digital X-Ray Image Storage for Presentation	Stored and Viewed	Yes
Digital X-Ray Image Storage for Processing	Stored Viewing is Configurable	Yes
Digital Mammography X-Ray Image Storage for Presentation	Stored and Viewed	Yes
Digital Mammography X-Ray Image Storage for Processing	Stored Viewing is Configurable	Yes
Breast Tomosynthesis Image Storage	Stored and Viewed	Yes
X-Ray Angiographic Image Storage	Stored and Viewed	Yes

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SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Enhanced XA Image Storage	Stored and Viewed	Yes
RETIRED X-Ray Angiographic Bi-Plane Image Storage	Stored and Viewed	Yes
X-Ray Fluoroscopy Image Storage	Stored and Viewed	Yes
Enhanced XRF Image Storage	Stored and Viewed	Yes
Digital Intra Oral X-ray Image Storage for Presentation	Stored and Viewed	Yes
Digital Intra Oral X-ray Image Storage for Processing	Stored Viewing is Configurable	Yes
RT Image Storage	Stored and Viewed	Yes
MR Image Storage	Stored and Viewed	Yes
Enhanced MR Image Storage	Stored and Viewed	Yes
MR Spectroscopy Image Storage	Stored only	Yes
Nuclear Medicine Image Storage	Stored and Viewed	Yes
RETIRED Nuclear Medicine Image Storage	Stored and Viewed	Yes
Ultrasound Image Storage	Stored and Viewed	Yes
Ultrasound Multi-frame Image Storage	Stored and Viewed	Yes
RETIRED Ultrasound Image Storage	Stored and Viewed	Yes
RETIRED Ultrasound Multi Frame Image Storage	Stored and Viewed	Yes
Secondary Capture Image Storage	Stored and Viewed	Yes
Multi Frame Single Bit Secondary Capture Image Storage	Stored and Viewed	Yes
Multi Frame Grayscale Byte Secondary Capture Image Storage	Stored and Viewed	Yes
Multi Frame Grayscale Word Secondary Capture Image Storage	Stored and Viewed	Yes
Multi Frame True Color Secondary Capture Image Storage	Stored and Viewed	Yes
Hardcopy Grayscale Image Storage	Stored and Viewed	Yes

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SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Hardcopy Color Image Storage	Stored and Viewed	Yes
Ophthalmic Photography 16 Bit Image Storage	Stored and Viewed	Yes
Ophthalmic Photography 8 Bit Image Storage	Stored and Viewed	Yes
RETIRED VL Image Storage	Stored and Viewed	Yes
VL Endoscopic Image Storage	Stored and Viewed	Yes
VL Microscopic Image Storage	Stored and Viewed	Yes
VL Photographic Image Storage	Stored and Viewed	Yes
VL Slide Coordinates Microscopic Image Storage	Stored and Viewed	Yes
RETIRED VL Multi Frame Image Storage	Stored and Viewed	Yes
Grayscale Softcopy Presentation State Storage	Stored and Viewed	Yes
Encapsulated PDF Storage	Stored and Viewed	Yes
Basic Text SR	Stored and Viewed	Yes
Enhanced SR	Stored and Viewed	Yes
Comprehensive SR	Stored and Viewed	Yes
Mammography CAD SR	Stored and Viewed	Yes
X-Ray Radiation Dose SR Storage	Stored only	Yes
Raw Data Storage	Stored only	Yes
Key Object Selection	Yes – Images only	Yes
Basic Voice Audio Waveform Storage	Stored and Listened	Yes
Storage Commitment Push Model	Yes	Yes
Fuji Computed Radiography Image Storage	Stored and Viewed	Yes
Query/Retrieve		

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SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Study Root Information Model - FIND	Yes – Only hierarchical queries.	Yes – Only hierarchical queries.
Study Root Information Model - MOVE	Yes – Only hierarchical queries.	Yes – Only hierarchical queries.
Study Root Information Model - GET	Yes – Only hierarchical queries.	Yes – Only hierarchical queries.
Patient Root Information Model - FIND	No	Yes – Only hierarchical queries.
Patient Root Information Model - MOVE	Yes – Only hierarchical queries.	Yes – Only hierarchical queries.
Patient Root Information Model - GET	Yes – Only hierarchical queries.	Yes – Only hierarchical queries.
Patient/Study Information Model - FIND	No	Yes – Only hierarchical queries.
Patient/Study Only Information Model - MOVE	Yes – Only hierarchical queries.	Yes – Only hierarchical queries.
Patient/Study Only Information Model - GET	Yes – Only hierarchical queries.	Yes – Only hierarchical queries.
Workflow Management		
Modality Performed Procedure Step SOP Class	Yes	Yes
Modality Worklist Information Model - FIND	Yes	Yes
Print Management		
Basic Grayscale Print Management Meta SOP Class	Yes	No
Basic Color Print Management Meta SOP Class	Yes	No
WADO		
WADO – URL – Retrieve Rendered Imaging Document	No	Yes

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Table 1-2

Media Services

Note: Type of media supported on a given workstation depends on the peripherals connected to that workstation. Conformance is based on software support for media only.

Media Storage Application Profile	Application Profile	Identifier	Write Files (FSC or FSU)	Read Files (FSR)
Compact Disk – Recordable				
General Purpose Interchange	General Purpose CD-R Interchange	STD-GEN-CD	Yes	Yes
Basic Cardiac	Basic Cardiac X-Ray Angiographic Studies on CD-R Media	STD-XABC-CD	No	Yes
1024 X-Ray Angiographic	1024 X-Ray Angiographic Studies on CD-R Media	STD-XA1K-CD	No	Yes
Ultrasound	Image Display for CD-R	STD-US-ID-MF-CDR	No	Yes
CT/MR	CT/MR Studies on CD-R	STD-CTMR-CD	No	Yes
DVD				
General Purpose Interchange	General Purpose Interchange on DVD-RAM Media	STD-GEN-DVD-RAM	Yes	Yes
General Purpose Interchange with JPEG	General Purpose DVD Interchange with JPEG	STD-GEN-DVD-JPEG	No	Yes
General Purpose Interchange with JPEG 2000	General Purpose DVD Interchange with JPEG 2000	STD-GEN-DVD-J2K	No	Yes
1024 X-Ray Angiographic	1024 X-Ray Angiographic Studies on DVD Media	STD-XA1K-DVD	No	Yes
Ultrasound	Image Display for DVD	STD-US-ID-MF-DVD	No	Yes
CT/MR	CT/MR Studies on DVD Media	STD-CTMR-DVD	No	Yes
DVD-RAM				
General Purpose Interchange	General Purpose Interchange on DVD-RAM Media	STD-GEN-DVD-RAM	No	Yes

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Ultrasound	Image Display	STD-US-ID-MF-DVD	No	Yes
CT/MR	CT/MR Studies on DVD-RAM Media	STD-CTMR-DVD-RAM	No	Yes
Blu-ray Disc				
General Purpose Interchange	General Purpose Interchange on BD Media	STD-GEN-BD	Yes	Yes
General Purpose Interchange with JPEG	General Purpose BD Interchange with JPEG	STD-GEN-BD-JPEG	No	Yes
General Purpose Interchange with JPEG 2000	General Purpose BD Interchange with JPEG 2000	STD-GEN-BD-J2K	No	Yes
USB				
General Purpose Interchange with JPEG	General Purpose USB Media Interchange with JPEG	STD-GEN-USB-JPEG	No	Yes
General Purpose Interchange with JPEG 2000	General Purpose USB Media Interchange with JPEG-2000	STD-GEN-USB-J2K	No	Yes
MultiMedia Card				
General Purpose Interchange with JPEG	General Purpose MultiMedia Card Interchange with JPEG	STD-GEN-MMC-JPEG	No	Yes
General Purpose Interchange with JPEG 2000	General Purpose MultiMedia Card Interchange with JPEG-2000	STD-GEN-MMC-J2K	No	Yes
CompactFlash				
General Purpose Interchange with JPEG	General Purpose CompactFlash Interchange with JPEG	STD-GEN-CF-JPEG	No	Yes
General Purpose Interchange with JPEG 2000	General Purpose CompactFlash Interchange with JPEG-2000	STD-GEN-CF-J2K	No	Yes
Digital Card				
General Purpose Interchange with JPEG	General Purpose Digital Card Interchange with JPEG	STD-GEN-SD-J2K	No	Yes

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General Purpose Interchange with JPEG 2000	General Purpose Digital Card Interchange with JPEG-2000	STD-GEN-SD-J2K	No	Yes

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3 INTRODUCTION

3.1 Revision History

Revision History is listed in Chapter 10 for standardization with other RamSoft Documents.

3.2 Audience

This document is written for those who need to understand how RamSoft products will integrate into their healthcare facility. This includes both those responsible for overall imaging network policy and architecture, as well as integrators who need to have a detailed understanding of the DICOM features of the product. This document contains some basic DICOM definitions so that any reader may understand how this product implements DICOM features. However, integrators are expected to fully understand all the DICOM terminology, how the tables in this document relate to the product's functionality, and how that functionality integrates with other devices that support compatible DICOM features

3.3 Remarks

The scope of this DICOM Conformance Statement is to facilitate integration between RamSoft products and other DICOM products. The Conformance Statement should be read and understood in conjunction with the DICOM Standard. DICOM by itself does not guarantee interoperability. The Conformance Statement does, however, facilitate a first-level comparison for interoperability between different applications supporting compatible DICOM functionality.
This Conformance Statement is not supposed to replace validation with other DICOM equipment to ensure proper exchange of intended information. In fact, the user should be aware of the following important issues:

— The comparison of different Conformance Statements is just the first step towards assessing interconnectivity and interoperability between the product and other DICOM conformant equipment.

— Test procedures should be defined and executed to validate the required level of interoperability with specific compatible DICOM equipment, as established by the healthcare facility.

RamSoft PowerServer has participated in an industry-wide testing program sponsored by Integrating the Healthcare Enterprise (IHE). The IHE Integration Statement for RamSoft PowerServer, together with the IHE Technical Framework, may facilitate the process of validation testing.

3.4 Terms and Definitions

This conformance Statement uses terms and definition from Chapter A.3.4 of Standard Digital Imaging and Communications in Medicine Part 2: Conformance.

3.5 Basics of DICOM Communication

This section describes terminology used in this Conformance Statement for the non-specialist. The key terms used in the Conformance Statement are highlighted in *italics* below. This section is not a substitute for training about DICOM, and it makes many simplifications about the meanings of DICOM terms.

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Two *Application Entities* (devices) that want to communicate with each other over a network using DICOM protocol must first agree on several things during an initial network "handshake". One of the two devices must initiate an *Association* (a connection to the other device), and ask if specific services, information, and encoding can be supported by the other device (*Negotiation*).

DICOM specifies a number of network services and types of information objects, each of which is called an *Abstract Syntax* for the Negotiation. DICOM also specifies a variety of methods for encoding data, denoted *Transfer Syntaxes*. The Negotiation allows the initiating Application Entity to propose combinations of Abstract Syntax and Transfer Syntax to be used on the Association; these combinations are called *Presentation Contexts.* The receiving Application Entity accepts the Presentation Contexts it supports.

For each Presentation Context, the Association Negotiation also allows the devices to agree on *Roles* – which one is the *Service Class User* (SCU - client) and which is the *Service Class Provider* (SCP - server). Normally the device initiating the connection is the SCU, i.e., the client system calls the server, but not always.

The Association Negotiation finally enables exchange of maximum network packet (*PDU*) size, security information, and network service options (called *Extended Negotiation* information).

The Application Entities, having negotiated the Association parameters, may now commence exchanging data. Common data exchanges include queries for worklists and lists of stored images, transfer of image objects and analyses (structured reports), and sending images to film printers. Each exchangeable unit of data is formatted by the sender in accordance with the appropriate *Information Object Definition*, and sent using the negotiated Transfer Syntax. There is a Default Transfer Syntax that all systems must accept, but it may not be the most efficient for some use cases. Each transfer is explicitly acknowledged by the receiver with a *Response Status* indicating success, failure, or that query or retrieve operations are still in process.

Two Application Entities may also communicate with each other by exchanging media (such as a CD-R). Since there is no Association Negotiation possible, they both use a *Media Application Profile* that specifies "pre-negotiated" exchange media format, Abstract Syntax, and Transfer Syntax.

3.6 Abbreviations

This conformance Statement uses abbreviations from Chapter A.3.6 of Standard Digital Imaging and Communications in Medicine Part 2: Conformance.

3.7 References

1. NEMA PS2 Digital Imaging and Communications in Medicine (DICOM) Standard, available free at http://medical.nema.org/

2. NEMA PS3 Digital Imaging and Communications in Medicine (DICOM) Standard, available free at http://medical.nema.org/

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4 NETWORKING

4.1 Implementation Model

4.1.1 Application Data Flow

RamSoft workstations and servers can send and receive DICOM data. DICOM parameters are configurable through the Station List. DICOM communications can be secured through TLS.

The RamSoft DICOM Service is typically installed to start up automatically. Once the computer is turned on and Windows is started, the RamSoft DICOM Service is ready for DICOM communication. The RamSoft PACS application is typically installed to start up once an authorized user logs into Windows. RamSoft client workstations connected directly to a RamSoft server do not require the RamSoft DICOM Service running and do not connect through DICOM to the RamSoft server.

A RamSoft workstation can query a DICOM Modality Work list server to obtain patient and study information.

A third party workstation can query a RamSoft server to obtain patient, study, series and image information.

A RamSoft workstation may contain an option to capture images through a video frame grabber, film digitizer, or document scanner. Alternately, images may be imported from various digital formats. Images are stored on the hard drive.

DICOM data can be pushed from the server to a DICOM AE by clicking on the Push button and selecting Station for Target. Once Target and Destination stations are selected and the priority level is set, then data is sent in the background. If any failures occur, the error is recorded in the Transmit List. RamSoft PACS will retry transmission until it completes.

DICOM data can also be set to be automatically routed from a RamSoft server.

DICOM data can be requested from a DICOM AE through Query/Retrieve Service, by selecting Open or Request after finding the desired patients or studies on a remote workstation/server. Studies previously sent to an archive, may be retrieved automatically when accessed or retrieved from the Patient Explorer by clicking on the “Open data from server” icon.

DICOM data may be recorded on floppy disks, CD-R, CD-RW, or DVD media.

RamSoft DICOM Server can create, send and receive images, presentation states and SR document objects. It contains bi-directional query capabilities. RamSoft users can query and request information from other PACS stations. Many RamSoft workstations and all RamSoft servers can process query requests. Scheduling information can be queried from a DICOM Modality Worklist. RamSoft DICOM Server can format images for printing on a wide variety of DICOM printing devices. RamSoft DICOM Server can create, read and update archival filesets on floppy disks, CD-Rs, CD-RWs, DVDs, and other media.

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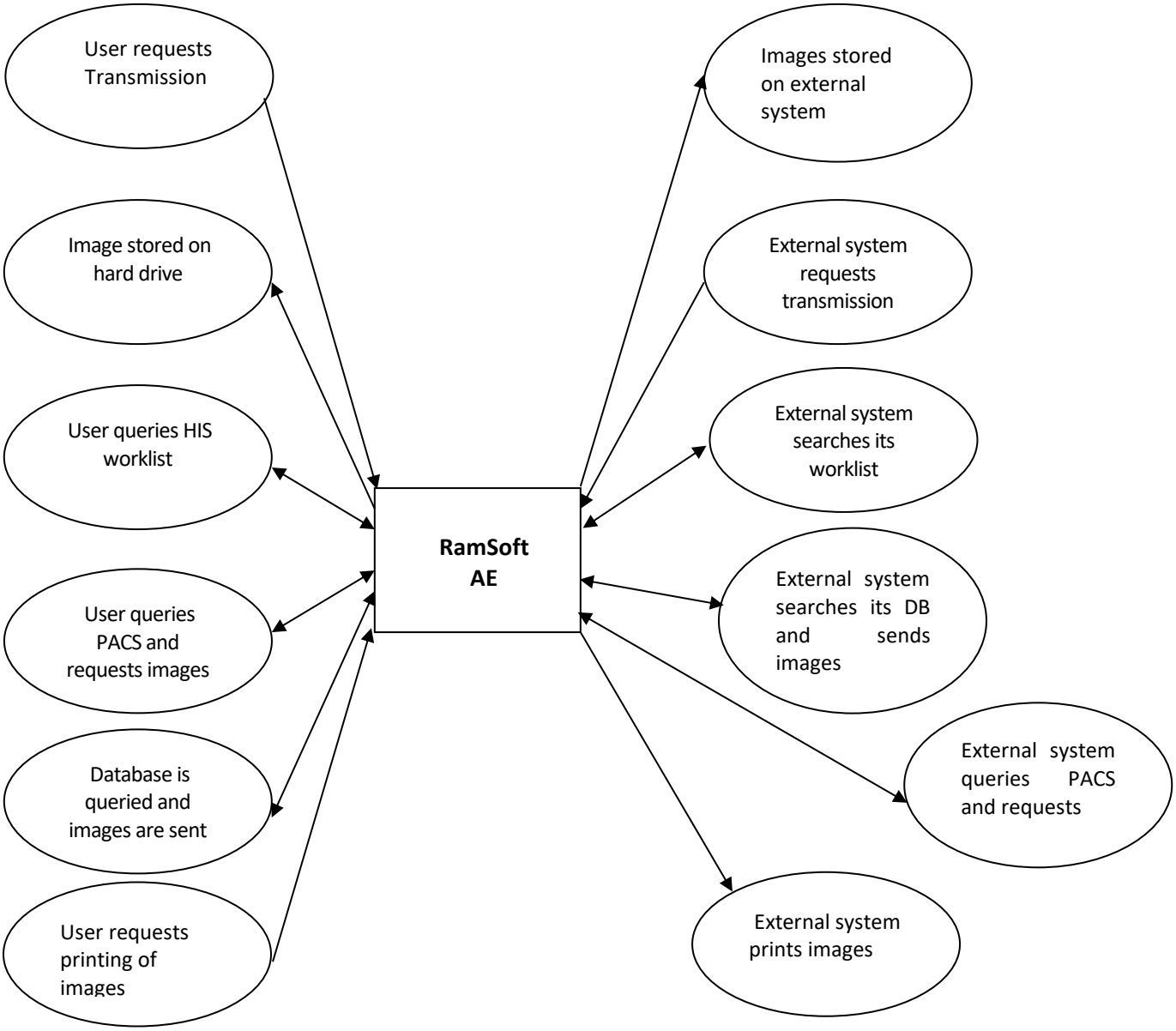
Figure 4.1.1

Implementation Model



DICOM 3.0 Interface

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RamSoft DICOM Server contains a single Application Entity that implements the Verification Service Class, Storage Service Class, Grayscale Softcopy Presentation State Storage SOP Class, Structured Reporting Storage SOP Class, Basic Worklist Management Service, the Query/Retrieve Service Class as (SCU, SCP), Modality Performed Procedure Step SOP Classes (SCU, SCP) and Storage Commitment Service Class (SCU,SCP). RamSoft PACS implements the Print Management Service Class as an SCU. RamSoft PACS implements the Media Storage Service Class as a File Set Creator (FSC), File Set Reader (FSR) and File Set Updater (FSU). Verification (SCU and SCP), Storage (SCU and SCP), Grayscale Softcopy Presentation State Storage (SCP), Structured Reporting Storage (SCP), Basic Worklist Management (SCU and SCP), Query (SCP)/Retrieve (SCU and SCP), Modality Performed Procedure Step (SCU and SCP) and Storage Commitment (SCU and SCP) are handled by the RamSoft DICOM Service. Other services are handled directly by the PowerServer application. All DICOM operations are performed by a single RamSoft PACS AE. The PACS AE can be modeled as the following AE Titles:

- ECHO-SCP, which responds to verification requests
- ECHO-SCU, which sends a verification request
- STORAGE-SCP, which receives incoming composite instances
- STORAGE-SCU, which sends outbound composite instances
- STORAGE-SCU-COMMITMENT, which manages verification of sending of composite instances
- STORAGE-SCP-COMMITMENT, which manages verification of receiving of composite instances
- FIND-SCP, which receives incoming queries for lists of studies
- FIND-SCU, which queries remote AEs for lists of studies
- GET-SCP and MOVE-SCP, which respond to requests for studies
- GET-SCU and MOVE-SCU, which retrieve selected studies
- MWL SCP, which receives incoming queries for worklists of patients
- MWL SCU, which queries remote AEs for lists worklists of patients
- STORAGE-SCU-MPPS, which manages sending of composite instances
- STORAGE-SCP-MPPS, which manages receiving of composite instances
- PRINT SCU, which prints requested instances to remote DICOM Printers

RamSoft DICOM AE support the Media Storage Application Profiles shown in the Table 1-2.

4.1.2 Functional Definitions of AE Titles

4.1.2.1 ECHO-SCP

ECHO-SCP waits in the background for connections, will accept associations with Presentation Contexts for SOP Class of the Verification Service Class, and will respond successfully to echo requests.

4.1.2.2 ECHO-SCU

ECHO-SCU is activated through the user interface when a user selects a remote AE to verify (from the Station List), then initiates a “Test Connection.”

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4.1.2.3 STORAGE-SCP

STORAGE-SCP waits in the background for connections, will accept associations with Presentation Contexts for SOP Classes of the Storage Service Class, and will store the received instances to the local database where they may subsequently be listed and viewed through the user interface.

4.1.2.4 STORAGE-SCU

STORAGE-SCU is activated through the user interface when a user selects instances from the local database, or the currently displayed instance, and requests that they be sent to a remote AE (selected from the Station List).

4.1.2.5 STORAGE-SCU-COMMITMENT

STORAGE-SCU-COMMITMENT is activated through the user interface as an option in the Station List. If enabled for the remote AE, at the end of DICOM Association for STORAGE-SCU, N-ACTION is issued, to confirm the end of image transmission.

4.1.2.6 STORAGE-SCP-COMMITMENT

STORAGE-SCP-COMMITMENT may be optionally used in conjunction with STORAGE-SCP. In addition to STORAGE-SCP, it receives N-ACTION to verify if all images were successfully stored. It sends N-EVENT-REPORT to STORAGE-SCU-COMMITMENT.

4.1.2.7 FIND-SCU

FIND-SCU is activated through the user interface when a user selects a remote AE to query (from the Station List), then initiates a query. Queries are performed from the study through the series and instance levels until all matching instances have been listed.

4.1.2.8 FIND-SCP

FIND-SCP waits in the background for connections, will accept associations with Presentation Contexts for SOP Classes of the FIND Service Classes, and will respond to query requests from FIND-SCU.

4.1.2.9 MOVE-SCU

For each remote AE, either MOVE-SCU or GET-SCU may be configured in the Station List. MOVE-SCU may be activated through the user interface when a user selects a study, series or instance for retrieval. A connection to the remote AE is established to initiate and monitor the retrieval and the STORAGE-SCP AE receives the retrieved instances.

4.1.2.10 GET-SCU

For each remote AE, either MOVE-SCU or GET-SCU may be configured in the Station List. The functional behavior of GET-SCU is identical to MOVE-SCU. The difference is that GET-SCU uses C-GET and images are received in the same DICOM association as the C-GET request. GET-SCU will work even if the SCU computer uses a dynamic IP address or hostname whereas MOVE-SCU will not. GET-SCU is also faster than MOVE-SCU, so it is recommended to use GET-SCU if supported by the remote AE.

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4.1.2.11 MOVE-SCP

MOVE-SCP receives requests from remote AEs to retrieve images. MOVE-SCP accepts an association from STORE-SCU to transfer the requested images.

4.1.2.12 GET-SCP

The functional behavior of GET-SCP is identical to MOVE-SCP. The difference that GET-SCP uses C-GET request And C-GET response to transfer the requested images using the same DICOM association as the C-GET request

4.1.2.13 MWL-SCU

MWL-SCU is activated through the user interface when a user selects Advanced Search ->Remote Worklist and remote station.

4.1.2.14 MWL-SCP

FIND-SCP waits in the background for connections, will accept associations with Presentation Contexts for SOP Classes of the MWL Service Classes, and will respond to query requests from MWL-SCU.

4.1.2.15 PRINT-SCU

PRINT-SCU is activated through the user interface when a user selects the currently displayed instances, and requests that they be sent to remote DICOM printer.

4.1.3 Sequencing of Real-World Activities

All SCP activities are performed asynchronously in the background and not dependent on any sequencing.
SCU activities may be initiated or scheduled from the user interface, but are also performed asynchronously in the background. Other SCU activities may be triggered using routing rules or prior prefetching rules that occur in the background.

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4.2 RamSoft PACS AE Specification

The DICOM standard application context name and Implementation Identification Information are following:

Table 4.2

DICOM Application Context Name, Implementation Class and Version

Application context name	1.2.840.10008.3.1.1.1
Implementation Class UID	1.2.124.113540.1.6.0
Implementation Version Name	RAMSOFT 6.0

4.2.1 ECHO-SCP

4.2.1.1 SOP CLASSES

ECHO-SCP provides Standard Conformance to the following SOP class:

Table 4.2.1.2

SOP Classes Supported by ECHO-SCP

SOP Class Name	SOP Class UID
Verification SOP Class	1.2.840.10008.1.1

4.2.1.2 Association Policies

4.2.1.2.1 General

ECHO-SCP accepts but never initiates associations.

Table 4.2.1.2.1

MAXIMUM PDU SIZE FOR ECHO-SCP

Maximum PDU size	Configurable Parameter limited to 128 KB

4.2.1.2.2 Number of Associations

ECHO-SCP will initiate at least one association with each destination for each task.
Each time the AE accepts an association, an available thread is assigned to complete the verification request. The maximum number of concurrent associations supported by RamSoft PACS is set by configuration. Once this number is reached, no more associations will be accepted until one of the threads become available.

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Table 4.2.1.2.2

NUMBER OF ASSOCIATIONS FOR ECHO-SCP

Maximum number of simultaneous associations	Configurable Parameter

4.2.1.2.3 Asynchronous Nature

RamSoft PACS AE's do not provide asynchronous behavior. All association requests must be completed and acknowledged before a new operation can be performed.

4.2.1.3 Association Initiation Policy

ECHO-SCP does not initiate associations.

4.2.1.4 Association Acceptance Policy

When ECHO-SCP accepts an association, it will respond to echo requests. If the Called AE Title does not match the pre-configured AE Title in Station List and the option “Allow receiving without verifying AE Title credentials” is unchecked (See Paragraph 4.4.2**Error! Reference source not found.**), the association will be rejected.

4.2.1.4.1 Activity – Receive Echo Request

4.2.1.4.1.1 Description and Sequencing of Activities

As requests are received, they are responded to immediately.

4.2.1.4.1.2 Accepted Presentation Contexts

Table 4.2.1.4.1.2

Acceptable Presentation Contexts for ECHO-SCP and Receive ECHO Request

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

4.2.1.4.1.2.1 Extended Negotiation

No extended negotiation is performed.

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4.2.1.4.1.3 SOP Specific Conformance

4.2.1.4.1.3.1 SOP Specific Conformance to Verification SOP Class

ECHO-SCP provides standard conformance to the Verification Service Class

4.2.1.4.1.3.2 Presentation Context Acceptance Criterion

ECHO-SCP will always accept any Presentation Context for the supported SOP Classes with the supported Transfer Syntaxes. More than one proposed Presentation Context will be accepted for the same Abstract Syntax if the Transfer Syntax is supported, whether or not it is the same as another Presentation Context

4.2.1.4.1.3.3 Transfer Syntax Selection Policies

ECHO-SCP will select the first Transfer Syntax proposed by the client that is supported by the SCP, per Presentation Context.

4.2.2 ECHO-SCU

4.2.2.1 SOP Classes

ECHO-SCU provides Standard Conformance to the following SOP Class:

Table 4.2.2.1

SOP CLASSES SUPPORTED BY ECHO-SCU

SOP Class Name	SOP Class UID
Verification SOP Class	1.2.840.10008.1.1

4.2.2.2 Association Policies

4.2.2.2.1 General

ECHO-SCU initiates but never accepts associations.

Table 4.2.2.2.1

MAXIMUM PDU SIZE FOR ECHO-SCU

Maximum PDU size	Configurable Parameter limited to 128 KB

4.2.2.2.2 Number of Associations

Table 4.2.2.2.2

NUMBER OF ASSOCIATIONS FOR ECHO-SCU

Maximum number of simultaneous associations	Unlimited

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4.2.2.2.3 Asynchronous Nature

RamSoft PACS AE's do not provide asynchronous behavior. All association requests must be completed and acknowledged before a new operation can be performed.

4.2.2.3 Association Initiation Policy

ECHO-SCU attempts to initiate a new association when the user clicks on Test Connection from the Station List.

4.2.2.3.1 Activity-Send Eco Request

4.2.2.3.1.1 Description and Sequencing of Activities

A single attempt will be made to verify DICOM connection to the remote AE.

4.2.2.3.1.2 Proposed Presentation Contexts

Table 4.2.2.3.1.2

PROPOSED PRESENTATION CONTEXTS FOR ECHO-SCU AND RECEIVE ECHO REQUEST

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Verification	1.2.840.10008.1.1	Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

4.2.2.3.1.2.1 Extended Negotiation

No extended negotiation is performed.

4.2.2.3.1.3 SOP Specific Conformance

4.2.2.3.1.3.1 SOP Specific Conformance to verification SOP Class

ECHO-SCU provides standard conformance to the Verification Service Class.

4.2.2.3.1.3.2 Presentation Context Acceptance Criterion

ECHO-SCU does not accept associations.

4.2.2.3.1.3.3 Transfer Syntax Selection Policies

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ECHO-SCU prefers Transfer Syntaxes in the order shown on the table 4.2.2.3.1.2 above.

4.2.2.4 Association Acceptance Policy

ECHO-SCU does not accept associations.

4.2.3 STORAGE-SCP

4.2.3.1 SOP Classes

STORAGE-SCP provides Standard Conformance to the following SOP classes:

Table 4.2.3.1

SOP CLASSES SUPPORTED BY STORAGE-SCP AND STORAGE-SCU

SOP Class Name	SOP Class UID	SCU	SCP
Digital X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes
Digital X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	Yes
Digital Mammography X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes
Digital Mammography X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes
Digital Intra Oral X-Ray Image Storage for Presentation	1.2.840.10008.5.1.4.1.1.1.3	Yes	Yes
Digital Intra Oral X-Ray Image Storage for Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	Yes
RETIRED Ultrasound Multi Frame Image Storage	1.2.840.10008.5.1.4.1.1.3	Yes	Yes
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	Yes
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes
MR Spectroscopy Image Storage	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes
RETIRED Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.5	Yes	Yes
RETIRED Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6	Yes	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
Multi Frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes

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SOP Class Name	SOP Class UID	SCU	SCP
Multi Frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	Yes
Multi Frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	Yes
Multi Frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Yes	Yes
Hardcopy Grayscale Image Storage	1.2.840.10008.5.1.1.29	Yes	Yes
Hardcopy Color Image Storage	1.2.840.10008.5.1.1.30	Yes	Yes
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	Yes	Yes
X-Ray Fluoroscopy Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	Yes	Yes
RETIRED X-Ray Angiographic Bi-Plane Image Storage	1.2.840.10008.5.1.4.1.1.12.3	Yes	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	Yes
RETIRED VL Image Storage	1.2.840.10008.5.1.4.1.1.77.1	Yes	Yes
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	Yes
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	Yes
VL Slide Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Yes	Yes
RETIRED VL Multi Frame Image Storage	1.2.840.10008.5.1.4.1.1.77.2	Yes	Yes
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Yes	Yes
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Yes	Yes
Ophthalmic Tomography Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.4	Yes	Yes
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	Yes	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	Yes
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes
Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes

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SOP Class Name	SOP Class UID	SCU	SCP
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50	Yes	Yes
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	Yes	Yes
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Yes	Yes
Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	Yes
Enhanced PET Image Storage	1.2.840.10008.5.1.4.1.1.130	Yes	Yes
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Yes	Yes
Fuji Computed Radiography Image Storage	1.2.392.200036.9125.1.1.2	Yes	Yes
Media Storage Directory Storage	1.2.840.10008.1.3.10	Yes	Yes

4.2.3.2 Association Policies

4.2.3.2.1 General

STORAGE-SCP accepts but never initiates associations.

Table 4.2.3.2.1

MAXIMUM PDU SIZE FOR STORAGE-SCP

Maximum PDU size	Configurable Parameter limited to 128 KB

4.2.3.2.2 Number of Associations

Each time the AE accepts an association, an available thread is assigned to complete the transfer of medical images. The maximum number of concurrent associations supported by RamSoft PACS is set by configuration. Once this number is reached, no more associations will be accepted until one of the threads become available.

Table 4.2.3.2.2

NUMBER OF ASSOCIATIONS FOR STOAGE-SCP

Maximum number of simultaneous associations	Configurable Parameter

4.2.3.2.3 Asynchronous Nature

PowerServer AE's do not provide asynchronous behavior. All association requests must be completed and acknowledged before a new operation can be performed.

4.2.3.3 Association Initiation Policy

STORAGE-SCP does not initiate associations.

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4.2.3.4 Association Acceptance Policy

An association will be accepted with an external SCU if the requesting SCU provides valid parameters. Valid parameters include a valid presentation context. The AE's title is verified with RamSoft PACS' Station List, unless promiscuous receiving is enabled.

4.2.3.4.1 Activity – Receive Storage Request

4.2.3.4.1.1 Description and Sequencing of Activities

As requests are received, they are responded to immediately.

4.2.3.4.1.2 Accepted Presentation Contexts

Table 4.2.3.4.1.2-1

PRESENTATION CONTEXTS FOR STORAGE-SCP AND STORAGE-SCU

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
See Table 4.2.3.1	**See Table 4.2.3.1**	Implicit VR Little Endian	1.2.840.10008.1.2	SCP, SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP, SCU	None
		Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCP, SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP, SCU	None
		JPEG Lossy Baseline 8-bit Image Compression	1.2.840.10008.1.2.4.50	SCP, SCU	None
		JPEG Lossy Extended 12-bit Image Compression	1.2.840.10008.1.2.4.51	SCP, SCU	None

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Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
		JPEG Lossless Non-hierarchical (Process 14)	1.2.840.10008.1.2.4.57	SCP, SCU	None
		JPEG Lossless, Non-hierarchical First-Order Prediction (Process 14)	1.2.840.10008.1.2.4.70	SCP, SCU	None
		JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80	SCP, SCU	None
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	SCP, SCU	None
		JPEG 2000	1.2.840.10008.1.2.4.91	SCP, SCU	None
		RLE Lossless Transfer Syntax	1.2.840.10008.1.2.5	SCP, SCU	None

Note: All Storage SOP classes in Table 4.2.3.1 support all of the above transfer syntaxes except for the SOP Classes listed in Table 4.2.3.4.1.2-2

Table 4.2.3.4.1.2-2

The list of SOP classes that support only the first three entries from Table: 4.2.3.4.1.2-1

SOP Class Name	SOP Class UID
Multiframe Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1
Basic Text SR	1.2.840.10008.5.1.4.1.1.88.11

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Enhanced SR	1.2.840.10008.5.1.4.1.1.88.22
Comprehensive SR	1.2.840.10008.5.1.4.1.1.88.33
Mammography CAD SR	1.2.840.10008.5.1.4.1.1.88.50
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67
Key Object Selection	1.2.840.10008.5.1.4.1.1.88.59
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1

4.2.3.4.1.2.1 Extended Negotiation

No extended negotiation is performed, though STORAGE-SCP:

- is a Level 2 Storage SCP (Full – does not discard any data elements)
- received data elements may be coerced through configurable parameters, Field Mapping and DICOM Scripting, all of which are configured on the Station List

4.2.3.4.1.3 SOP Specific Conformance

4.2.3.4.1.3.1 SOP Specific Conformance to STORAGE SOP Classes

STORAGE-SCP provides standard conformance to the Storage Service Classes

4.2.3.4.1.3.1.1 SOP Specific Conformance – Grayscale Softcopy Presentation State Storage

Presentation related attributes are derived from the displayed image and included in the IOD when image parameters are saved as selected by the user or when the displayed study is closed, if automatic saving of presentation states is enabled for the user. All Image Storage SOP Classes listed in Table 4.2.3.1 may be referenced by instances of the Grayscale Softcopy Presentation State Storage SOP Class.

4.2.3.4.1.3.1.2 SOP Specific Conformance – Structured Reporting Storage

No images or other composite object Storage SOP Classes may be referenced by newly created instances of Structured Reporting Storage SOP Class. Only Basic Text Structured Reporting Storage SOP Classes are created. A new SOP Instance UID is created for Structured Reporting Storage SOP Classes whenever any attribute of the SOP Class is modified.

Structured Reporting related attributes are rendered by the SCP as a PDF document using a configurable template. Image or other object storage SOP instances referenced by instances of the Structured Reporting SOP Class are ignored and not used to influence the display of the image or object. The SCP never renders content items with Rendering Intent Concept modifier set to “Presentation Optional".

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4.2.3.4.1.3.1.3 SOP Specific Conformance – Media Storage Directory Storage

RamSoft DICOM AE supports the Media Storage Application Profiles shown in the Table 1-2.
STORAGE-SCP provides standard conformance to the Interchange option of the Media Storage Service Class with Directory Information as a File-set Creator (FSC), File-set Updater (FSU). The directory information is present. No optional standard keys are included in directory records. All Storage SOP classes listed in
Table 4.2.3.1 can also functioning as Media Storage SOP classes.

4.2.3.4.1.3.2 Presentation Context Acceptance Criterion

STORAGE-SCP will always accept any Presentation Context for the supported SOP Classes with the supported Transfer Syntaxes. More than one proposed Presentation Context will be accepted for the same Abstract Syntax if the Transfer Syntax is supported, whether or not it is the same as another Presentation Context

4.2.3.4.1.3.3 Transfer Syntax Selection Policies

PowerServer transfer syntax selection policy can be configured in the Station List. The support for any of Uncompressed, Lossy Compressed and Lossless Compressed transfer syntaxes may be enabled or disabled. The preference of each type of compression may also be set in the Station List.

4.2.3.4.1.3.4 Response Status

STORAGE-SCP will behave as described in the Table 4.2.3.4.1.3.4 below when generating the C-STORE response command message.

Table 4.2.3.4.1.3.4

RESPONSE STATUS FOR STORAGE-SCP AND RECEIVE STORAGE REQUEST

Service Status	Further Meaning	Status Codes	Reason
Refused	Out of Resources	A700	Not enough disk space. Image will not be saved. Association will be aborted.
Error	SOP Class Not Supported	A800	Requested in Association SOP class is not supported. Association will be aborted.
	Cannot understand	C000	The Storage AE couldn't parse the data set into elements. Association will be aborted
Success	Success	0000	

4.2.4 STORAGE-SCU

4.2.4.1 SOP CLASSES

STORAGE-SCU provides Standard Conformance to the list of SOP Classes in Table 4.2.3.1

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4.2.4.2 Association Policies

4.2.4.2.1 General

STORAGE-SCU initiates but never accepts associations. Maximum PDU Size received as a SCP for STORAGE-SCU is identical to STORAGE-SCP and shown in Table 4.2.3.2.1

4.2.4.2.2 Number of Associations

Table 4.2.4.2.2

NUMBER OF ASSOCIATIONS FOR STORAGE-SCU

Maximum number of simultaneous associations	Configurable Parameter

4.2.4.2.3 Asynchronous Nature

PowerServer AE's do not provide asynchronous behavior. All association requests must be completed and acknowledged before a new operation can be performed.

4.2.4.3 Association Initiation Policy

STORAGE-SCU will initiate a new association whenever the user requests or sends a study. Multiple studies to a single destination may be transmitted in a single association. In Station List, a preference for compressed transfer syntaxes can be configured for each station. Default compression can be set through Settings/Server Settings/Compression. The order in which compressed transfer syntaxes are to be presented is also configured through Station List. Lossy compressed images will be sent as is, so long as the receiving station supports that transfer syntax. Otherwise, images will be decoded and encoded as necessary.

An association will be accepted with an external SCU if the requesting SCU provides valid parameters. Valid parameters include a valid presentation context. The AE's title is verified with RamSoft PACS' Station List unless promiscuous receiving is enabled

4.2.4.3.1 Activity – Send Storage Request

4.2.4.3.1.1 Description and Sequencing of Activities

The AE will initiate a new association whenever the user requests or sends a study. Multiple studies to a single destination may be transmitted in a single association. In Station List, a preference for compressed transfer syntaxes can be configured for each station. Default compression can be set through Settings/Server Settings/Compression. The order in which compressed transfer syntaxes are to be presented is also configured through Station List. Lossy compressed images will be sent as is, so long as the receiving station supports that transfer syntax. Otherwise, images will be decoded and encoded as necessary.

4.2.4.3.1.2 Proposed Presentation Contexts

Proposed Presentation Contexts are illustrated in Table 4.2.3.4.1.2-1 and Table 4.2.3.4.1.2-2

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4.2.4.3.1.2.1 Extended Negotiation

No extended negotiation is performed.

4.2.4.3.1.3 SOP Specific Conformance

4.2.4.3.1.3.1 SOP Specific Conformance to STORAGE SOP Classes

STORAGE-SCU provides standard conformance to the Storage Service Classes.

After a successful C-STORE response from the SCP, the AE will continue to send any unsent images or SR documents belonging to the same study. If a particular image cannot be sent in the current transfer syntax (due to limitations of some compressed transfer syntaxes), the association will be released and a new association will be created. If a particular image and the association have the same transfer syntax, then the image is sent keeping the original encapsulation format (compressed/uncompressed) even if the compression is disabled for association (as a user data configuration). If an unsuccessful C-STORE response is received from the SCP, the AE will record the failure and close the association. The study will remain in the Transmit List for retry at the next available time. Warnings in the C-STORE response from the SCP are ignored.

If PowerServer originally acquired or created the image, all mandatory modules of the image storage objects are provided. All type 1 and type 2 data types are provided. Optional data types may not be provided. If the image was originally acquired through a DICOM device, RamSoft PACS saves all tags received with the image. Thus, when these images are transmitted, all optional tags originally received by RamSoft PACS will also be transmitted. If the acquired image has no DICOM SOP class item, then RamSoft PACS stores the images as a Secondary Capture Image Storage object.

4.2.4.3.1.3.1.1 SOP Specific Conformance – Grayscale Softcopy Presentation State Storage

This AE provides standard conformance to Grayscale Softcopy Presentation State Storage. RamSoft PowerServer makes all mandatory presentation attributes available for application to the referenced images at the discretion of the user for all Image Storage SOP Classes listed in Table 4.2.3.1

4.2.4.3.1.3.1.2 SOP Specific Conformance – Structured Report Storage

This AE provides standard conformance to Structured Reporting Storage. RamSoft renders the structured report related attributes as a PDF document with a configurable template. No image or other composite object Storage SOP Classes will be displayed or otherwise rendered.

Text report body is stored on the first text node on the document tree. RamSoft PowerServer stores binary data on a private tag (3113, 1010). The binary document size and type are specified on private tags (3113, 1020) and (3111, 1010). When a structured report has an associated Microsoft Word document, file data and size of the template file are stored on private tags (3113, 1030) and (3113, 1040).

4.2.4.3.1.3.1.3 SOP Specific Conformance – Media Storage Directory Storage

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STORAGE-SCU provides standard conformance to the Interchange option of the Media Storage Service Class with Directory Information as a File-set Reader (FSR). No optional standard keys are included in directory records. All Storage SOP classes listed in Table 4.2.3.1 can also function as Media Storage SOP classes. RamSoft PACS conforms to the application profiles listed in Table 4.2.3.4.1.3.1.3

4.2.4.3.1.3.2 Presentation Context Acceptance Criterion

STORAGE-SCU does not accept associations.

4.2.4.3.1.3.3 Transfer Syntax Selection Policies

PowerServer transfer syntax selection policy can be configured in the Station List (Section 4.4.2**Error! Reference source not found.**). The support for any of Uncompressed, Lossy Compressed and Lossless Compressed transfer syntaxes may be enabled or disabled. The preference of each type of compression may also be set in the "Station List".

4.2.4.3.1.3.4 Response Status

STORAGE-SCU will behave as described in the Table below in response to the status returned in the C-STORE response command message.

Table 4.2.3.4.1.3.4

RESPONSE STATUS FOR STORAGE-SCU AND RECEIVE STORAGE REQUEST

Service Status	Further Meaning	Status Codes	Behavior
Refused	Out of Resources	A700	Abort Association
Error	SOP Class Not Supported	A800	Abort Association
	Data Set does not match SOP Class	A900	Abort Association
	Cannot understand	C000	Abort Association
Warning	Coercion of Data Elements	B000	Ignored
	Data Set does not match SOP Class	B007	Ignored
	Elements Discarded	B006	Ignored

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Service Status	Further Meaning	Status Codes	Behavior
Success	Success	0000	

4.2.4.4 Association Acceptance Policy

STORAGE-SCU does not accept associations.

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4.2.5 STORAGE-SCU-COMMITMENT

4.2.5.1 SOP Classes

STORAGE-SCU-COMMITMENT provides Standard Conformance to the following SOP Class:

Table 4.2.5.1

SOP CLASSES SUPPORTED BY STORAGE-SCU-COMMITMENT

SOP Class Name	SOP Class UID
Storage Commitment Push Model	1.2.840.10008.1.20.1

4.2.5.1.1 Proposed Presentation Contexts

Table 4.2.5.1.1

PRESENTATION CONTEXTS FOR STORAGE-SCU-COMMITMENT

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

4.2.5.2 Association Initiation Policy

4.2.5.2.1 Activity-Send Images

4.2.5.2.1.1 SOP Specific Conformance – Storage Commitment Push Model

STORAGE-SCU-COMMITMENT AE provides standard conformance to this SOP Class as an SCU. After transmission complete, N-ACTION is issued with list of objects that have been transmitted, when peer AE is configured to support Storage Commitment.

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If N-EVENT-REPORT response is received on the same association, processing is completed and Receiving of If N-EVENT-REPORT is committed. Otherwise, the STORAGE-SCU-COMMITMENT will wait until N-EVENT-REPORT request is received in another association.

4.2.6 STORAGE-SCP-COMMITMENT

4.2.6.1 SOP Classes

STORAGE-SCP-COMMITMENT provides Standard Conformance to the following SOP Class:

Table 4.2.6.1

SOP CLASSES SUPPORTED BY STORAGE-SCP-COMMITMENT

SOP Class Name	SOP Class UID
Storage Commitment Push Model	1.2.840.10008.1.20.1

4.2.6.1.1 Proposed Presentation Contexts

Table 4.2.6.1.1

PRESENTATION CONTEXTS FOR STORAGE-SCP-COMMITMENT

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

4.2.6.2 Association Initiation Policy

4.2.6.2.1 Activity-Receiving Images

4.2.6.2.1.1 SOP Specific Conformance – Storage Commitment Push Model

STORAGE-SCP-COMMITMENT AE provides standard conformance to this SOP Class as an SCP. After receiving N-ACTION request N-EVENT-REPORT response is sent to STORAGE-SCU-COMMITMENT. This response can sent in some association as association initiated be STORAGE-SCU-COMMITMENT or in another association. The setting "Send Event Report Message on the same Association" (Section 4.4.2 – Figure 4.4.2-5 Station List – Receive Service) manages this behavior.

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4.2.7 FIND-SCP

4.2.7.1 SOP Classes

FIND-SCP provides Standard Conformance to the following SOP Classes:

Table 4.2.7.1

SOP CLASSES SUPPORTED BY FIND-SCP AND FIND-SCU

SOP Class Name	SOP Class UID	SCU	SCP
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	No	Yes
Patient/Study Only Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1	No	Yes

4.2.7.2 Association Policies

4.2.7.2.1 General

FIND-SCP accepts but never initiates associations.

Table 4.2.7.2.1

MAXIMUM PDU SIZE RECEIVED AS A SCP FOR FIND-SCP

Maximum PDU size received	Configurable Parameter limited to 128 KB

4.2.7.2.2 Number of Associations

Each time the FIND-SCP accepts an association, an available thread is assigned to complete the find (query) request. The maximum number of concurrent associations supported by RamSoft PACS is set by configuration. Once this number is reached, no more associations will be accepted until one of the threads become available.

Table 4.2.7.2.2

NUMBER OF ASSOCIATIONS AS A SCP FOR FIND-SCP

Maximum number of simultaneous associations	Configurable Parameter

4.2.7.3 Association Initiation Policy

FIND-SCP does not initiate associations.

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4.2.7.4 Association Acceptance Policy

When FIND-SCP accepts an association, it will respond to query requests. If the Called AE Title does not match the pre-configured AE Title in Station List and option "Allow receiving without verifying AE Title credentials" (See Paragraph 4.4.2**Error! Reference source not found.**) is unchecked the association will be rejected.

4.2.7.4.1 Activity – Receive Query Request

4.2.7.4.1.1 Description and Sequencing of Activities

As requests are received, the Database is queried for result set.

4.2.7.4.1.2 Accepted Presentation Contexts

Table 4.2.7.4.1.2

ACCEPTABLE AND PROPOSED PRESENTATION CONTEXTS FOR FIND-SCP AND FIND-SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See Table **4.2.7.1**	See Table 4.2.7.1	Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCP,SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP,SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2	SCP,SCU	None

4.2.7.4.1.2.1 Extended Negotiation

No extended negotiation is performed. In particular, relational queries are not supported.

4.2.7.4.1.3 SOP Specific Conformance

4.2.7.4.1.3.1 SOP Specific Conformance to C-FIND SOP Classes

FIND-SCP provides standard conformance to the supported C-FIND SOP Classes. The maximum number of records to return is configurable and has default value to 100.

4.2.7.4.1.3.1.1 The types of Matching supported by the FIND-SCP and FIND-SCU

An "S" indicates the identifier attribute uses Single Value Matching, an "R" indicates Range Matching, an "*" indicates wildcard matching, a 'U' indicates Universal Matching, and an 'L' indicates that UID lists are sent. "NONE" indicates that no matching is supported, but that values for this Element are requested to be returned (i.e. universal matching),

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and "UNIQUE" indicates that this is the Unique Key for that query level, in which case Universal Matching or Single Value Matching is used depending on the query level.

4.2.7.4.1.3.1.2 Option for return requested attributes

Setting "Return C-FIND Request Attributes Only" (Section 4.4.2 – Error! Reference source not found. **Station List – Receive Service) gives the possibility to return only requested attributes ("Checkbox selected") or all attributes ("Checkbox unselected").** This setting is related to all classes shown in Table 4.2.7.1

4.2.7.4.1.3.1.3 Patient Root Query Information Model

The fixed set of attributes is returned in a C-FIND response as illustrated in Table 4.2.7.4.1.3.1.3

Table 4.2.7.4.1.3.1.3

PATIENT ROOT REQUEST IDENTIFIER FOR FIND-SCP

Name	Tag	Types of Matching	Returned Attribute
PATIENT Level			
Patient's ID	(0010,0020)	S,*,U	YES
Patient's Issuer	(0010,0021)	S,*,U	YES
Patient's Name	(0010,0010)	S,*,U	YES
Patient's Birth Date	(0010,0030)	S,*,U,R	YES
Patient's Sex	(0010,0040)	S,*,U	YES
Other Patient's ID's	(0010,1000)	NONE	YES
Patient's Address	(0010,1040)	NONE	YES
Country of Residence	(0010,2150)	NONE	YES
Patient's Telephone Numbers	(0010,2154)	NONE	YES
Patient's Insurance Plan Code Sequence	(0010,0050)	NONE	YES
>Code Value	(0008,0100)	NONE	YES
>Patient's Primary Language Code Sequence	(0010,0101)	NONE	YES
>> Code Value	(0008,0100)	NONE	YES
STUDY Level			

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Name	Tag	Types of Matching	Returned Attribute
Patient's ID	(0010,0020)	S,*,U	YES
Patient's Issuer	(0010,0021)	S,*,U	YES
Patient's Name	(0010,0010)	S,*,U	YES
Patient's Birth Date	(0010,0030)	S,*,U,R	YES
Patient's Sex	(0010,0040)	S,*,U	YES
Other Patient's ID's	(0010,1000)	NONE	YES
Patient's Address	(0010,1040)	NONE	YES
Country of Residence	(0010,2150)	NONE	YES
Patient's Telephone Numbers	(0010,2154)	NONE	YES
Patient's Insurance Plan Code Sequence	(0010,0050)	NONE	YES
>Code Value	(0008,0100)	NONE	YES
>Patient's Primary Language Code Sequence	(0010,0101)	NONE	YES
>> Code Value	(0008,0100)	NONE	YES
Modalities In Study	(0008,0061)	S,*,U,R	YES
Manufacturer	(0008,0070)	NONE	YES
Institution's Name	(0008,0080)	S,*,U	YES
Referring Physician's Name	(0008,0090)	NONE	YES
Manufacturer Model Name	(0008,1090)	NONE	YES
Software Versions	(0018,1020)	NONE	YES
Study ID	(0020,0010)	S,*,U,R	YES
Study Description	(0008,1030)	NONE	YES
Modalities In Study	(0008,0061)	S,*,U	YES
Time Zone Offset From UTC	(0008,0201)	NONE	YES
Study Date	(0008,0020)	S,*,U,R	YES
Study Time	(0008,0030)	S,*,U,R	YES

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Name	Tag	Types of Matching	Returned Attribute
Accession Number	(0008,0050)	S,*,U	YES
Number Of Study Related Series	(0020,1206)	NONE	YES
Number Of Study Related Instances	(0020,1208)	NONE	YES
RETIRED StudyStatusID	(0032,000A)	S,U	YES
RETIRED StudyPriorityID	(0032,000C)	NONE	YES
Requesting Physician	(0032,1032)	NONE	YES
RETIRED Study Comments	(0032,4000)	NONE	YES
Route of AdmissionID	(0038,0016)	NONE	YES
Current Patient Location	(0038,0300)	NONE	YES
RETIRED Interpretation Transcriber	(4008,010A)	NONE	YES (Transcriptionist)
StudyInstanceUID	(0020,000D)	UNIQUE	Study Instance UID
SERIES Level			
Patient's ID	(0010,0020)	NONE	YES
Patient's Issuer	(0010,0021)	NONE	YES
Patient's Name	(0010,0010)	NONE	YES
Patient's Birth Date	(0010,0030)	NONE	YES
Patient's Sex	(0010,0040)	NONE	YES
Other Patient's ID's	(0010,1000)	NONE	YES
Patient's Address	(0010,1040)	NONE	YES
Country of Residence	(0010,2150)	NONE	YES
Patient's Telephone Numbers	(0010,2154)	NONE	YES
Study ID	(0020,0010)	NONE	YES
RETIRED StudyStatusID	(0032,000A)	NONE	YES
RETIRED StudyPriorityID	(0032,000C)	NONE	YES
RETIRED Study Comments	(0032,4000)	NONE	YES
Route of AdmissionID	(0038,0016)	NONE	YES

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Name	Tag	Types of Matching	Returned Attribute
Current Patient Location	(0038,0300)	NONE	YES
RETIRED Interpretation Transcriber	(4008,010A)	NONE	YES (Transcriptionist)
Study Date	(0008,0020)	NONE	YES
Study Time	(0008,0030)	NONE	YES
Accession Number	(0008,0050)	NONE	YES
Number Of Series Related Instances	(0020,1209)	NONE	YES
StudyInstanceUID	(0020,000D)	UNIQUE	YES
SeriesInstanceUID	(0020,000E)	UNIQUE	YES
Body Part Examined	(0018,0015)	NONE	YES
Series Number	(0020,0011)	S,*,U	YES
Laterality	(0020,0060)	NONE	YES
Modality	(0008,0060)	NONE	YES
IMAGE Level			
Patient's ID	(0010,0020)	NONE	YES
Patient's Issuer	(0010,0021)	NONE	YES
Patient's Name	(0010,0010)	NONE	YES
Patient's Birth Date	(0010,0030)	NONE	YES
Patient's Sex	(0010,0040)	NONE	YES
Other Patient's ID's	(0010,1000)	NONE	YES
Patient's Address	(0010,1040)	NONE	YES
Country of Residence	(0010,2150)	NONE	YES
Patient's Telephone Numbers	(0010,2154)	NONE	YES
Study ID	(0020,0010)	NONE	YES
RETIRED StudyStatusID	(0032,000A)	NONE	YES
RETIRED StudyPriorityID	(0032,000C)	NONE	YES
RETIRED Study Comments	(0032,4000)	NONE	YES
Route of AdmissionID	(0038,0016)	NONE	YES

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Name	Tag	Types of Matching	Returned Attribute
Current Patient Location	(0038,0300)	NONE	YES
RETIRED Interpretation Transcriber	(4008,010A)	NONE	YES (Transcriptionist)
Study Date	(0008,0020)	NONE	YES
Study Time	(0008,0030)	NONE	YES
Accession Number	(0008,0050)	NONE	YES
Body Part Examined	(0018,0015)	NONE	YES
Series Number	(0020,0011)	NONE	YES
Laterality	(0020,0060)	NONE	YES
Modality	(0008,0060)	NONE	YES
SOPClassUID	(0008,0016)	NONE	YES
SOPInstance UID	(0008,0018)	UNIQUE	YES
Instance Number	(0020,0013)	S,*,U	YES
Concept Name Code Sequence	(0040, A043)	NONE	YES
>Code Value	(0008,0100)	NONE	YES
>Coding Scheme Designator	(0008,0102)	NONE	YES
>Code Meaning	(0008,0104)	NONE	YES
Common to all query levels			
Retrieve AETitle	(0008,0054)	NONE	YES

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4.2.7.4.1.3.1.4 Study Root Query Information Model

The attributes that are requested and additional attributes are returned in a C-FIND response as illustrated in Table 0

Table 0

STUDY ROOT REQUEST IDENTIFIER FOR FIND-SCP

Name	Tag	Types of Matching	Returned Attribute
STUDY Level			
Patient's ID	(0010,0020)	S,*,U	YES
Patient's Issuer	(0010,0021)	S,*,U	YES
Patient's Name	(0010,0010)	S,*,U	YES
Patient's Birth Date	(0010,0030)	S,*,U,R	YES
Patient's Sex	(0010,0040)	S,*,U	YES
Other Patient's ID's	(0010,1000)	NONE	YES
Patient's Address	(0010,1040)	NONE	YES
Country of Residence	(0010,2150)	NONE	YES
Patient's Telephone Numbers	(0010,2154)	NONE	YES
Patient's Insurance Plan Code Sequence	(0010,0050)	NONE	YES
>Code Value	(0008,0100)	NONE	YES
>Patient's Primary Language Code Sequence	(0010,0101)	NONE	YES
>> Code Value	(0008,0100)	NONE	YES
Modalities In Study	(0008,0061)	S,*,U	YES
Manufacturer	(0008,0070)	NONE	YES
Institution's Name	(0008,0080)	S,*,U	YES
Referring Physician's Name	(0008,0090)	NONE	YES
Manufacturer Model Name	(0008,1090)	NONE	YES
Software Versions	(0018,1020)	NONE	YES
Study ID	(0020,0010)	S,*,U	YES
Study Description	(0008,1030)	NONE	YES
Time Zone Offset From UTC	(0008,0201)	NONE	YES
Study Date	(0008,0020)	S,*,U,R	YES
Study Time	(0008,0030)	S,*,U,R	YES
Accession Number	(0008,0050)	S,*,U	YES

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Name	Tag	Types of Matching	Returned Attribute
Number Of Study Related Series	(0020,1206)	NONE	YES
Number Of Study Related Instances	(0020,1208)	NONE	YES
RETIRED StudyStatusID	(0032,000A)	S,U	YES
RETIRED StudyPriorityID	(0032,000C)	NONE	YES
Requesting Physician	(0032,1032)	NONE	YES
RETIRED Study Comments	(0032,4000)	NONE	YES
Route of AdmissionID	(0038,0016)	NONE	YES
Current Patient Location	(0038,0300)	NONE	YES
RETIRED Interpretation Transcriber	(4008,010A)	NONE	YES (Transcriptionist)
StudyInstanceUID	(0020,000D)	UNIQUE	Study Instance UID
SERIES Level			
Patient's ID	(0010,0020)	NONE	YES
Patient's Issuer	(0010,0021)	NONE	YES
Patient's Name	(0010,0010)	NONE	YES
Patient's Birth Date	(0010,0030)	NONE	YES
Patient's Sex	(0010,0040)	NONE	YES
Other Patient's ID's	(0010,1000)	NONE	YES
Patient's Address	(0010,1040)	NONE	YES
Country of Residence	(0010,2150)	NONE	YES
Patient's Telephone Numbers	(0010,2154)	NONE	YES
Study ID	(0020,0010)	NONE	YES
RETIRED StudyStatusID	(0032,000A)	NONE	YES
RETIRED StudyPriorityID	(0032,000C)	NONE	YES
RETIRED Study Comments	(0032,4000)	NONE	YES
Route of AdmissionID	(0038,0016)	NONE	YES
Current Patient Location	(0038,0300)	NONE	YES
RETIRED Interpretation Transcriber	(4008,010A)	NONE	YES (Transcriptionist)
Study Date	(0008,0020)	NONE	YES
Study Time	(0008,0030)	NONE	YES
Accession Number	(0008,0050)	NONE	YES
Number Of Series Related Instances	(0020,1209)	NONE	YES

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Name	Tag	Types of Matching	Returned Attribute
StudyInstanceUID	(0020,000D)	UNIQUE	YES
SeriesInstanceUID	(0020,000E)	UNIQUE	YES
Body Part Examined	(0018,0015)	NONE	YES
Series Number	(0020,0011)	S,*,U	YES
Laterality	(0020,0060)	NONE	YES
Modality	(0008,0060)	NONE	YES
IMAGE Level			
Patient's ID	(0010,0020)	NONE	YES
Patient's Issuer	(0010,0021)	NONE	YES
Patient's Name	(0010,0010)	NONE	YES
Patient's Birth Date	(0010,0030)	NONE	YES
Patient's Sex	(0010,0040)	NONE	YES
Other Patient's ID's	(0010,1000)	NONE	YES
Patient's Address	(0010,1040)	NONE	YES
Country of Residence	(0010,2150)	NONE	YES
Patient's Telephone Numbers	(0010,2154)	NONE	YES
Study ID	(0020,0010)	NONE	YES
RETIRED StudyStatusID	(0032,000A)	NONE	YES
RETIRED StudyPriorityID	(0032,000C)	NONE	YES
RETIRED Study Comments	(0032,4000)	NONE	YES
Route of AdmissionID	(0038,0016)	NONE	YES
Current Patient Location	(0038,0300)	NONE	YES
RETIRED Interpretation Transcriber	(4008,010A)	NONE	YES (Transcriptionist)
Study Date	(0008,0020)	NONE	YES
Study Time	(0008,0030)	NONE	YES
Accession Number	(0008,0050)	NONE	YES
Body Part Examined	(0018,0015)	NONE	YES
Series Number	(0020,0011)	NONE	YES
Laterality	(0020,0060)	NONE	YES
Modality	(0008,0060)	NONE	YES
SOPClassUID	(0008,0016)	NONE	YES
SOPInstance UID	(0008,0018)	UNIQUE	YES
Instance Number	(0020,0013)	S,*,U	YES
Concept Name Code Sequence	(0040, A043)	NONE	YES

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Name	Tag	Types of Matching	Returned Attribute
>Code Value	(0008,0100)	NONE	YES
>Coding Scheme Designator	(0008,0102)	NONE	YES
>Code Meaning	(0008,0104)	NONE	YES
Common to all query levels			
Retrieve AETitle	(0008,0054)	NONE	YES

4.2.7.4.1.3.1.5 Patient / Study Only Query Information Model

This Query information level is identical to Patient Root Query Information Level in RamSoft PowerServer Application.

4.2.7.4.1.3.2 Presentation Context Acceptance Criterion

FIND-SCP will accept the Presentation Contexts given in Table 4.2.7.4.1.2

4.2.7.4.1.3.3 Transfer Syntax Selection Policies

FIND-SCP will prefer explicit transfer syntaxes over implicit transfer syntaxes. Duplicate Presentation Contexts will not be accepted. If it is offered three identical Presentation Contexts, each of which offers any of the three acceptable Transfer Syntaxes, it will accept all Presentation Contexts, but with different Transfer Syntaxes in each. Other transfer syntax policies may be configured in the Station List.

4.2.7.4.1.3.4 Response Status

Table 4.2.7.4.1.3.1.4
RESPONSE STATUS FOR FIND-SCP AND RECEIVE QUERY REQUEST

Service Status	Further Meaning	Status Codes	Reason
Failure	Refused: Out of resources	A700	Not enough resources to complete query. Association will be dropped.
	Refused: SOP Class requested in Association is not supported.	A800	Requested SOP Class is not Supported
	Identifier does not match SOP Class	A900	Sent if an invalid query retrieve level is set
	Unable to process	C000	Sent if internal database query is Unsuccessful.

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Service Status	Further Meaning	Status Codes	Reason
Cancel	Matching terminated due to Cancel	FE00	Sent when a C-CANCEL Request is received
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required keys	FF00	Sent
	Matches are continuing - warning that one or more Optional Keys were not supported for existence for this identifier	FF01	Sent
Success	Matching is complete	0000	Sent

4.2.8 FIND-SCU

4.2.8.1 SOP Classes

FIND-SCU provides Standard Conformance to the SOP Classes shown in Table 4.2.7.1

4.2.8.2 Association Policies

4.2.8.2.1 General

FIND-SCU initiates but never accepts associations.

Table 4.2.8.2.1

MAXIMUM PDU SIZE FOR FIND-SCU

Maximum PDU size	Configurable Parameter limited to 128 KB

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4.2.8.2.2 Number of Associations

Table 4.2.8.2.2

MAXIMUM PDU SIZE FOR FIND-SCU

Maximum number of simultaneous associations	Configurable Parameter

4.2.8.2.3 Asynchronous Nature

FIND-SCU will only allow a single outstanding operation on an Association.

4.2.8.3 Association Acceptance Policy

FIND-SCU does not accept associations.

4.2.8.4 Association Initiation Policy

FIND-SCU attempts to initiate a new association when the user performs the query action from the user interface. (Advanced Search ->Remote Studies).

4.2.8.4.1 Activity – Query Remote AE

4.2.8.4.1.1 Description and Sequencing of Activities

The attempt will be made to query the remote AE.

4.2.8.4.1.2 Proposed Presentation Contexts

Proposed Presentation Contexts for FIND-SCU are identical to Accepted Presentation Contexts of FIND-SCP and illustrated in Table 4.2.7.4.1.2

4.2.8.4.1.2.1 Extended Negotiation

No extended negotiation is performed. In particular, relational queries are not supported

4.2.8.4.1.3 SOP Specific Conformance

4.2.8.4.1.3.1 SOP Specific Conformance to C-FIND SOP Class

FIND-SCU provides standard conformance to the supported C-FIND SOP Classes. Only Study Root Query Information Model is supported and is used at the STUDY level. The requested attributes are illustrated in Table 4.2.8.4.1.3.1

Table 4.2.8.4.1.3.1

STUDY ROOT REQUEST IDENTIFIER FOR FIND-SCU

Name	Tag	Types of Matching
STUDY Level		
Patient's ID	(0010,0020)	S,*,U

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Patient's Issuer	(0010,0021)	S,*,U
Patient's Name	(0010,0010)	S,*,U
Other Patient's ID's	(0010,1000)	S,*,U
Modalities In Study	(0008,0061)	S,*,U
Institution Name	(0008,0080)	U,*
Study Date	(0008,0020)	U,R
Study ID	(0020,0010)	S,*,U,R
Accession Number	(0008,0050)	U,*
RETIRED StudyStatusID	(0032,000A)	S,*,U
RETIRED StudyPriorityID	(0032,000C)	S,*,U

4.2.8.4.1.3.2 Presentation Context Acceptance Criterion

FIND-SCU will accept the Presentation Contexts given in Table 4.2.7.4.1.2

4.2.8.4.1.3.3 Transfer Syntax Selection Policies

FIND-SCU will prefer explicit transfer syntaxes over implicit transfer syntaxes.

4.2.8.4.1.3.4 Response Status

FIND-SCU will behave as described in Table 4.2.8.4.1.3.4 in response to the status returned in the C-FIND response command messages.

Table 4.2.8.4.1.3.4

RESPONSE STATUS FOR FIND-SCU AND QUERY REMOTE AE REQUEST

Service Status	Further Meaning	Status Codes	Reason
Failure	Refused: Out of resources	A700	Not enough resources to complete query. Association will be dropped.
	Refused: SOP Class requested in Association is not supported.	A800	Requested SOP Class is not Supported Association will be dropped.
	Identifier does not match SOP Class	A900	Received if an invalid query retrieve level is sent. Message shown to user And remains in communication log.
	Unable to process	C000	Association closed. Message shown to user

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Service Status	Further Meaning	Status Codes	Reason
			And remains in communication log.
Cancel	Matching terminated due to Cancel	FE00	Association closed. Message shown to user And remains in communication log
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported in the same manner as Required keys	FF00	Received. Query is continued
	Matches are continuing - warning that one or more Optional Keys were not supported for existence for this identifier	FF01	Received. Query is continued
Success	Matching is complete - No final Identifier is supplied	0000	Association closed

4.2.9 MOVE-SCP

4.2.9.1 SOP Classes

MOVE-SCP provides Standard Conformance to the following SOP Classes:

Table 4.2.9.1

SOP CLASSES SUPPORTED BY MOVE-SCP AND MOVE-SCU

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SOP Class Name	SOP Class UID	SCU	SCP
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	No	Yes
Patient/Study Only Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2	No	Yes

4.2.9.2 Association Policies

4.2.9.2.1 General

MOVE-SCP accepts but never initiates associations.

Table 4.2.9.2.1

MAXIMUM PDU SIZE FOR MOVE-SCP

Maximum PDU size received	Configurable Parameter limited to 128 KB

4.2.9.2.2 Number of Associations

Each time the MOVE-SCP accepts an association, an available thread is assigned to complete the find (query) request. The maximum number of concurrent associations supported by PowerServer is set by configuration. Once this number is reached, no more associations will be accepted until one of the threads become available.

Table 4.2.9.2.2

NUMBER OF ASSOCIATIONS AS A SCP FOR MOVE-SCP

Maximum number of simultaneous associations	Configurable Parameter

4.2.9.2.3 Asynchronous Nature

MOVE-SCP will only allow a single outstanding operation on an Association.

4.2.9.3 Association Initiation Policy

MOVE-SCP initiates an association with the AE specified as the Move Destination in the MOVE request, in order to store the requested instances. The remote AE Title must be configured in Station List.

4.2.9.4 Association Acceptance Policy

When MOVE-SCP accepts an association, it will respond to move requests. The association will be rejected if the Calling AE Title is not configured in the Station List.

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4.2.9.4.1 Activity – Receive Move Request

4.2.9.4.1.1 Description and Sequencing of Activities

As requests are received, a STORAGE-SCU operation is initiated to send the requested instances to the specified remote AE.

4.2.9.4.1.2 Acceptable Presentation Contexts

PRESENTATION CONTEXTS FOR MOVE-SCP AND MOVE-SCU

Table 4.2.9.4.1.2

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See Table 4.2.9.1	See Table 4.2.9.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP, SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP, SCU	None
		Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCP, SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP, SCU	None
		JPEG Lossy Baseline 8-bit Image Compression	1.2.840.10008.1.2.4.50	SCP, SCU	None
		JPEG Lossy Extended 12-bit Image Compression	1.2.840.10008.1.2.4.51	SCP, SCU	None
		JPEG Lossless Non-hierarchical (Process 14)	1.2.840.10008.1.2.4.57	SCP, SCU	None

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Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
		JPEG Lossless, Non-hierarchical First-Order Prediction (Process 14)	1.2.840.10008.1.2.4.70	SCP, SCU	None
		JPEG 2000 Lossless Only	1.2.840.10008.1.2.4.90	SCP, SCU	None
		JPEG 2000	1.2.840.10008.1.2.4.91	SCP, SCU	None
		RLE Lossless Transfer Syntax	1.2.840.10008.1.2.5	SCP, SCU	None

4.2.9.4.1.2.1 Extended Negotiation

No extended negotiation is performed. In particular, relational retrievals are not supported.

4.2.9.4.1.3 SOP Specific Conformance

4.2.9.4.1.3.1 SOP Specific Conformance to C-MOVE SOP Classes

MOVE-SCP provides standard conformance to the supported C-MOVE SOP Classes. The Patient Root, Study Root, Patient / Study Root only information models are supported. The move operation is performed to the destination AE Title specified in the C-Move request.

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Table 4.2.9.4.1.3.1-1
PATIENT ROOT AND PATIENT / STUDY ONLY
REQUESTS IDENTIFIER FOR MOVE-SCP

Name	Tag	Unique, Matching or Return Key
PATIENT Level		
Patient's ID	(0010,0020)	U
STUDY Level		
Study Instance UID	(0020,000D)	U
SERIES Level		
Study Instance UID	(0020,000D)	U
Series Instance UID	(0020,000E)	U
IMAGE Level		
Study Instance UID	(0020,000D)	U
Series Instance UID	(0020,000E)	U
SOP Instance UID	(0008,0018)	U

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Table 4.2.9.4.1.3.1-2

STUDY ROOT REQUEST IDENTIFIER FOR MOVE-SCP

Name	Tag	Unique, Matching or Return Key
STUDY Level		
Study Instance UID	(0020,000D)	U
SERIES Level		
Study Instance UID	(0020,000D)	U
Series Instance UID	(0020,000E)	U
IMAGE Level		
Study Instance UID	(0020,000D)	U
Series Instance UID	(0020,000E)	U
SOP Instance UID	(0008,0018)	U

4.2.9.4.1.3.2 Presentation Context Acceptance Criterion

MOVE-SCP will accept the Presentation Contexts given in Table 4.2.9.4.1.2

4.2.9.4.1.3.3 Transfer Syntax Selection Policies

PowerServer transfer syntax selection policy can be configured in the Station List. The support for any of Uncompressed, Lossy Compressed and Lossless Compressed transfer syntaxes may be enabled or disabled. The preference of each type of compression may also be set in the Station List.

4.2.9.4.1.3.4 Response Status

Table 4.2.9.4.1.3.4

RESPONSE STATUS FOR MOVE-SCP AND SEND TO REMOTE QUERY REQUEST

Service Status	Further Meaning	Status Codes	Behavior
Failure	Refused: Out of Resources – Unable to calculate Number of matches	A701	Unable to calculate number of matches. Association aborted
Failure	Refused: Out of resources	A702	The selected retrieve objects are not online, and cannot be retrieved at this time.

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Service Status	Further Meaning	Status Codes	Behavior
	Unable to perform sub-operations		Association aborted
	Refused: SOP Class requested in Association is not supported.	A800	Requested SOP Class is not Supported Association aborted.
	Refused: Move Destination is unknown Association is not supported.	A801	Move Destination is unknown. Association aborted.
	Identifier does not match SOP Class	A900	Sent if an invalid query retrieve level is set
	Unable to process	C000	Sent if internal database query is Unsuccessful.
Cancel	Matching terminated due to Cancel	FE00	Sent when a C-CANCEL Request is received
Warning	Sub-operations Complete – One or more Failures or Warnings	B000	Sent to initiated AE Title
Pending	Sub-operations are continuing	FF00	Sent for every C-STORE operation completed by STORAGE-SCU.
Success	Sub-operations Complete - No Failures	0000	Sent to initiated AE Title

4.2.9.4.1.3.5 Sub-operation behavior

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The C-MOVE operation is dependent on completion of C-STORE sub-operations that are occurring on a separate association, which defines transfer syntax selection policies for C-STORE operation. MOVE-SCP initiates a C-STORE sub-operation for each request. The responses from the MOVE-SCP are dependent on the success or failure of the C-STORE sub-operations, not on any explicit action by MOVE-SCP. The remote AE accepts the C-STORE sub-operations, that beyond of the control of MOVE-SCU. If the association on which the C-MOVE was issued is aborted for any reason, the C-STORE sub-operations will continue. If the C-MOVE operation is canceled by the remote AE, MOVE-SCP will also attempt to cancel the corresponding C-STORE sub-operation.

4.2.10 MOVE-SCU

4.2.10.1 SOP Classes

MOVE-SCU provides Standard Conformance to the SOP Classes shown in Table 4.2.9.1

4.2.10.2 Association Policies

4.2.10.2.1 General

MOVE-SCU initiates but never accepts associations.

Table 4.2.10.2.1

MAXIMUM PDU SIZE RECEIVED AS A SCP FOR MOVE-SCU

Maximum PDU size received	Configurable Parameter limited to 128 KB

4.2.10.2.2 Number of Associations

Table 4.2.10.2.2

NUMBER OF ASSOCIATIONS AS A SCP FOR FIND-SCU

Maximum number of simultaneous associations	Configurable Parameter

4.2.10.2.3 Asynchronous Nature

MOVE-SCU will only allow a single outstanding operation on an Association.

4.2.10.3 Association Acceptance Policy

MOVE-SCU does not accept associations.

4.2.10.4 Association Initiation Policy

MOVE-SCU attempts to initiate a new association when the user performs the retrieve action from the user interface. (Advanced Search > Remote Studies > Request).

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4.2.10.4.1 Activity – Retrieve Instances from Remote AE

4.2.10.4.1.1 Description and Sequencing of Activities

The attempts will be made to retrieve instances from remote AE.

4.2.10.4.1.2 Proposed Presentation Contexts

Proposed Presentation Contexts for MOVE-SCU are identical to Accepted Presentation Contexts of MOVE-SCP and illustrated in Table 4.2.9.4.1.2

4.2.10.4.1.2.1 Extended Negotiation

No extended negotiation is performed. In particular, relational retrievals are not supported.

4.2.10.4.1.3 SOP Specific Conformance

4.2.10.4.1.3.1 SOP Specific Conformance to C-MOVE SOP Class

MOVE-SCU provides standard conformance to the supported C-FIND SOP Classes. Only Study Root Query Information Model is supported and is used at the STUDY level. The requested attributes are illustrated in Table 4.2.10.4.1.3.1

Table 4.2.10.4.1.3.1

STUDY ROOT REQUEST IDENTIFIER FOR FIND-SCU

Name	Tag	Types of Matching
STUDY Level		
Study Instance UID	(0020,000D)	UNIQUE

4.2.10.4.1.3.2 Presentation Context Acceptance Criterion

MOVE-SCU will accept the Presentation Contexts given in Table 4.2.9.4.1.2.

4.2.10.4.1.3.3 Transfer Syntax Selection Policies

MOVE-SCU will prefer explicit transfer syntaxes over implicit transfer syntaxes.

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4.2.11 GET-SCP and GET-SCU

4.2.11.1 SOP Classes and Presentation Contexts

GET-SCP and GET-SCU provide Standard Conformance to the following SOP Classes:

Table 4.2.11.1

SOP CLASSES SUPPORTED BY GET-SCP AND GET-SCU

SOP Class Name	SOP Class UID	SCU	SCP
Study Root Query/Retrieve Information Model – GET	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes
Patient Root Query/Retrieve Information Model – GET	1.2.840.10008.5.1.4.1.2.1.2	No	Yes
Patient/Study Only Query/Retrieve Information Model - GET	1.2.840.10008.5.1.4.1.2.3.2	No	Yes

Table 4.2.11.2

Presentation Contexts for GET-SCP AND GET-SCU

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See Table 4.2.11.1	See Table 4.2.11.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP, SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP, SCU	None
		Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCP, SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP, SCU	None
		JPEG Lossy Baseline 8-bit Image Compression	1.2.840.10008.1.2.4.50	SCP, SCU	None

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Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
		JPEG Lossy Extended 12-bit Image Compression	1.2.840.10008.1.2.4.51	SCP, SCU	None
		JPEG Lossless Non-hierarchical (Process 14)	1.2.840.10008.1.2.4.57	SCP, SCU	None
		Explicit VR, Lossless JPEG, Non-hierarchical First-Order Prediction (Process 14)	1.2.840.10008.1.2.4.70	SCP, SCU	None
		JPEG 2000 Lossless	1.2.840.10008.1.2.4.90	SCP, SCU	None
		JPEG 2000	1.2.840.10008.1.2.4.91	SCP, SCU	None
		RLE Lossless Transfer Syntax	1.2.840.10008.1.2.5	SCP, SCU	None

4.2.11.2 Association Policies

Association Policies for GET-SCP and GET-SCU are identical to MOVE-SCP and MOVE-SCU.

The functional behavior of GET-SCP is identical to MOVE-SCP. The functional behavior of GET-SCU is identical to MOVE-SCU. The differences between those classes that GET-SCU and GET-SCP perform retrieve operations in same association as retrieve requests.

4.2.11.3 SOP Specific Conformance

4.2.11.3.1 SOP Specific Conformance to C-GET SOP Classes

GET-SCP and GET-SCU provide standard conformance to the supported C-GET SOP Classes. The move operation is performed to the destination AE Title that initiated C-GET request (GET-SCU AE Title).

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4.2.12 MWL-SCP

4.2.12.1 SOP Classes and Presentation Contexts

MWL-SCP provides Standard Conformance to the following SOP Class:

Table 4.2.12.1

SOP CLASSES SUPPORTED BY MWL-SCP AND MWL-SCP AND MWL-SCU

SOP Class Name	SOP Class UID	SCU	SCP
1.2.840.10008.5.1.4.31	1.2.840.10008.5.1.4.31	Yes	Yes

4.2.12.2 Association Policies

4.2.12.2.1 General

MWL-SCP accepts but never initiates associations.

4.2.12.2.2 Number of Associations

Each time the MWL-SCP accepts an association, an available thread is assigned to complete the find (query) request. The maximum number of concurrent associations supported by RamSoft PACS is set by configuration. Once this number is reached, no more associations will be accepted until one of the threads become available.

Table 4.2.12.2.2

NUMBER OF ASSOCIATIONS AS A SCP FOR MWL-SCP

Maximum number of simultaneous associations	Configurable Parameter

4.2.12.3 Association Initiation Policy

MWL-SCP does not initiate associations.

4.2.12.4 Association Acceptance Policy

When MWL-SCP accepts an association, it will respond to query requests. If the Called AE Title does not match the pre-configured AE Title in Station List and option “Allow receiving without verifying AE Title credentials” (See Paragraph 4.4.2**Error! Reference source not found.**) is unchecked the association will be rejected.

4.2.12.4.1 Activity – Receive Query Request

4.2.12.4.1.1 Description and Sequencing of Activities

As requests are received, the Database is queried for result set.

4.2.12.4.1.2 Accepted Presentation Contexts

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Table 4.2.12.4.1.2

PRESENTATION CONTEXTS FOR MWL-SCP AND MWL-SCU

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
See Table 4.2.12.1	See Table 4.2.12.1	Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCP, SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP, SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2	SCP, SCU	None

4.2.12.4.1.2.1 Extended Negotiation

No extended negotiation is performed.

4.2.12.4.1.3 SOP Specific Conformance

MWL-SCP provides standard conformance to the supported C-FIND SOP Classes. The maximum number of records to return is identical to number of records for FIND-SCP (See Section 4.2.7.4.1.3.1).

4.2.12.4.1.3.1.1 The types of Matching supported by the FIND-SCP and FIND-SCU

The types of Matching supported by MWL-SCP and MWL-SCU are identical to types of matching for FIND-SCP and FIND-SCU. (See Section 4.2.7.4.1.3.1.1).

4.2.12.4.1.3.1.2 Option for return requested attributes

This option is common for FIND-SCP and MWL-SCP (See Section 4.2.7.4.1.3.1.2).

4.2.12.4.1.3.1.3 MWL Query Information Model.

When the checkbox “Return C-FIND Request Attributes Only” is selected, all requested attributes are returned. In addition, the following set of attributes is always returned as shown in Table 4.2.12.4.1.3.1.3-1

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Table 4.2.12.4.1.3.1.3-1

SET OF RETURNED ATTRIBUTES FOR MWL-SCP
With selected option "Return C-FIND Request Attributes Only"

Name	Tag	Returned Attribute
Retrieve AETitle	(0010,0054)	YES
Patient's Name	(0010,0010)	YES
Patient's ID	(0010,0020)	YES
Requested Procedure Code Sequence	(0032,1064)	YES
Scheduled Procedure Step Sequence	(0040,0100)	YES
> Modality	(0008,0060)	YES
> Scheduled Station AETitle	(0040,0001)	YES
> Scheduled Procedure Step Start Date	(0040,0002)	YES
> Scheduled Procedure Step Start Time	(0040,0003)	YES
> Scheduled Performing Physician Name	(0040,0006)	YES
> Scheduled Protocol Code Sequence	(0040,0008)	YES

When the checkbox "Return C-FIND Request Attributes Only" is unselected, all requested attributes and additional attributes are returned as shown in Table 4.2.12.4.1.3.1.3-2

Table 4.2.12.4.1.3.1.3-2

SET OF RETURNED ATTRIBUTES FOR MWL-SCP
With option "Return C-FIND Request Attributes Only" unselected

Name	Tag	Types of Matching	Returned Attribute
Accession Number	(0008,0050)	S,*,U	YES
Retrieve AETitle	(0008,0054	S,*,U	YES
Institution's Name	(0008,0080)	S,*,U	YES
Retrieve AETitle	(0008,0054)	NONE	YES
Referring Physician's Name	(0008,0090)	NONE	YES

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Name	Tag	Types of Matching	Returned Attribute
Referenced Study Sequence	(0008,1110)	NONE	YES
>Referenced SOPClassUID	(0008,1150)	NONE	YES
>Referenced SOPInstanceUID	(0008,1155)	NONE	YES
Referenced Patient Sequence	(0008,1120)	NONE	YES
>Referenced SOPClassUID	(0008,1150)	NONE	YES
>Referenced SOPInstanceUID	(0008,1150)	NONE	YES
Patient's Name	(0010,0010)	S,*,U	YES
Patient's ID	(0010,0020)	S,*,U	YES
Patient's Issuer	(0010,0021)	S,*,U	YES
Patient's Birthdate	(0010,0030)	NONE	YES
Patient's Sex	(0010,0040)	NONE	YES
Other Patient's ID's	(0010,1000)	NONE	YES
Patient's Size	(0010,1020)	NONE	YES
Patient's Weight	(0010,1030)	NONE	YES
Medical Alerts	(0010,2000)	NONE	YES
Allergies	(0010,2110)	NONE	YES
Additional Patient's History	(0010,21b0)	NONE	YES
Pregnancy Status	(0010,21c0)	NONE	YES
Last Menstrual Date	(0010,21d0)	NONE	YES
Patient's Comments	(0010,4000)	NONE	YES
Study ID	(0020,0010)	S,*,U	YES
StudyInstanceUID	(0020,000D)	UNIQUE	YES
RETIRED StudyStatusID	(0032,000A)	S,U	YES
RETIRED StudyPriorityID	(0032,000C)	S,U	YES
Requesting Physician	(0032,1032)	NONE	YES
Requested Procedure Description	(0032,1060)	NONE	YES
Requested Procedure Code Sequence	(0032,1064)	NONE	YES
>Code Value	(0008,0100)	NONE	YES
>Coding Scheme Designator	(0008,0102)	NONE	YES

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Name	Tag	Types of Matching	Returned Attribute
>Code Meaning	(0008,0104)	NONE	YES
AdmissionID	(0038,0010)	NONE	YES
Special Needs	(0038,0050)	NONE	YES
Current Patient's Location	(0038,0300)	NONE	YES
Patient's State	(0038,0500)	NONE	YES
Scheduled Procedure Step Sequence	(0040,0100)	NONE	YES
>Modality	(0008,0060)	S,U	YES
>Scheduled Station AETitle	(0040,0001)	U	YES
>Scheduled Procedure Step Start Date	(0040,0002)	S,U,R	YES
>Scheduled Procedure Step Start Date	(0040,0003)	NONE	YES
>Scheduled Performing Physician's Name	(0040,0007)	NONE	YES
>Scheduled Protocol Code Sequence	(0040,0008)	NONE	YES
>>Code Value	(0008,0100)	NONE	YES
>>Coding Scheme Designator	(0008,0102)	NONE	YES
>>Code Meaning	(0008,0104)	NONE	YES
>Scheduled Procedure StepID	(0040,0009)	NONE	YES
>Scheduled Station Name	(0040,0010)	NONE	YES
>Scheduled Procedure Step Location	(0040,0011)	NONE	YES
>Comments On The Scheduled Procedure Step	(0040,0400)	NONE	YES
Requested ProcedureID	(0040,1001)	NONE	YES
Requested Procedure Priority	(0040,1003)	NONE	YES
Patient Transport Arrangements	(0040,1004)	NONE	YES
Confidentiality Constraint On PatientData	(0040,3001)	NONE	YES

4.2.12.4.1.3.2 Presentation Context Acceptance Criterion

MWL-SCP will accept the Presentation Contexts given in Table 4.2.1.4.1.2

4.2.12.4.1.3.3 Transfer Syntax Selection Policies

MWL-SCP will prefer explicit transfer syntaxes over implicit transfer syntaxes. Duplicate Presentation Contexts will not be accepted. If it is offered three identical Presentation Contexts, each of which offers any of the three acceptable

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Transfer Syntaxes, it will accept all Presentation Contexts, but with different Transfer Syntaxes in each. Other transfer syntax policies may be configured in the Station List.

4.2.12.4.1.3.4 Response Status

Response Status for MWL-SCP is identical to response status of FIND-SCP as shown in Table 4.2.7.4.1.3.4

4.2.13 MWL-SCU

4.2.13.1 SOP Classes

MWL-SCU provides Standard Conformance to the SOP Classes shown in Table 4.2.12.1

4.2.13.2 Association Policies

4.2.13.2.1 General

FIND-SCU initiates but never accepts associations.

Table 4.2.13.2.1

MAXIMUM PDU SIZE FOR MWL-SCU

Maximum PDU size	Configurable Parameter limited to 128 KB

4.2.13.2.2 Number of Associations

Table 4.2.13.2.2

NUMBER OF ASSOCIATIONS FOR MWL-SCU

Maximum number of simultaneous associations	Configurable Parameter

4.2.13.2.3 Asynchronous Nature

MWL-SCU will only allow a single outstanding operation on an Association.

4.2.13.3 Association Acceptance Policy

MWL-SCU does not accept associations.

4.2.13.4 Association Initiation Policy

MWL-SCU attempts to initiate a new association when the user performs the query action from the user interface. (Advanced Search -> Remote Worklist).

4.2.13.4.1 Activity – MWL Query Remote AE

4.2.13.4.1.1 Description and Sequencing of Activities

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The attempt will be made to query the remote AE.

4.2.13.4.1.2 Proposed Presentation Contexts

Proposed Presentation Contexts for MWL-SCU are identical to Accepted Presentation Contexts of MWL-SCP and illustrated in Table 4.2.12.4.1.2

4.2.13.4.1.2.1 Extended Negotiation

No extended negotiation is performed.

4.2.13.4.1.3 SOP Specific Conformance

4.2.13.4.1.3.1 SOP Specific Conformance to MWL C-FIND SOP Class

MWL-SCU provides standard conformance to the supported C-FIND SOP Classes. The requested attributes are illustrated in Table 4.2.13.4.1.3.1

MWL REQUEST Identifier for MWL-SCU

Table 4.2.13.4.1.3.1

Name	Tag	Types of Matching
Patient's ID	(0010,0020)	S,*,U
Patient's Issuer	(0010,0021)	S,*,U
Patient's Name	(0010,0010)	S,*,U
Modalities In Study	(0008,0061)	S,*,U
Institution Name	(0008,0080)	U,*
Study Date	(0008,0020)	U,R
Study ID	(0020,0010)	S,*,U
Accession Number	(0008,0050)	U,*
RETIRED StudyStatusID	(0032,000A)	S,*,U
RETIRED StudyPriorityID	(0032,000C)	S,*,U
RETIRED Study Comments	(0032,4000)	NONE
Scheduled AETitle	(0040,0001)	U

4.2.13.4.1.3.2 Presentation Context Acceptance Criterion

MWL-SCU will accept the Presentation Contexts given in Table 4.2.12.4.1.2.

4.2.13.4.1.3.3 Transfer Syntax Selection Policies

MWL-SCU will prefer explicit transfer syntaxes over implicit transfer syntaxes.

4.2.13.4.1.3.4 Response Status

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MWL-SCU will behave as described in Table 4.2.8.4.1.3.4 in response to the status returned in the MWL C-FIND response command messages.

4.2.14 STORAGE-SCP-MPPS and STORAGE-SCU-MPPS

4.2.14.1 SOP Classes and Presentation Contexts

Table 1.1.1.1-1

SOP CLASSES SUPPORTED BY STORAGE-SCP-MPPS AND STORAGE-SCU-MPPS

SOP Class Name	SOP Class UID	SCU	SCP
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3	Yes	Yes

Table 1.1.1.1-2

PRESENTATION CONTEXTS FOR STORAGE-SCP-MPPS AND STORAGE-SCU-MPPS

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name	UID		
See Table 1.1.1.1-1	See Table 1.1.1.1-1	Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCP,SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP,SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2	SCP,SCU	None

1.1.1.1 SOP Specific Conformance

4.2.14.1.1 SOP Specific Conformance to STORAGE-MPPS Classes

STORAGE-SCP-MPPS and STORAGE-SCU-MPPS provide standard conformance to the supported MPPS SOP Classes. When the association from STORAGE-SCU is initiated, STORAGE-SCU-MPPS performs N-CREATE operation and sets PPSSTATUS of MPPSLIST table to status “STARTED”. After transmission is finished, N-SET operation is invoked and updates above mentioned status to “COMPLETED”.

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4.2.15 PRINT-SCU

4.2.15.1 SOP Classes and Presentation Contexts

PRINT-SCU provides Standard Conformance to the following SOP Classes:

Table 4.2.15.1

SOP CLASSES SUPPORTED BY PRINT-SCU

SOP Class Name	SOP Class UID
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18

4.2.15.2 Association Policies

4.2.15.2.1 General

PRINT-SCU initiates but never accepts associations.

Table 4.2.15.2.1

MAXIMUM PDU SIZE SENDED FOR PRINT-SCU

Maximum PDU size sanded	Configurable Parameter limited to 128 KB

4.2.15.2.2 Number of Associations

Table 4.2.15.2.2

NUMBER OF ASSOCIATIONS FOR PRINT-SCU

Maximum number of simultaneous associations	Configurable Parameter

4.2.15.2.3 Asynchronous Nature

PRINT-SCU will only allow a single outstanding operation on an Association

4.2.15.3 Association Initiation Policy

PRINT-SCU attempts to initiate a new association when User sending images to remote DICOM printer.

4.2.15.3.1 Activity – Send Print Request

4.2.15.3.1.1 Description and Sequencing of Activities

An association is initiated with the selected DICOM printer. The user can select the desired images and the output format. All image display parameters and annotations are burned into the image and the preformatted images are sent to the printer in the background. Any error messages from the printer are recorded in the Print List. Images are printed as 8 bits or 16 bits per pixel in grayscale or color format.

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4.2.15.3.1.2 Proposed Presentation Contexts

Table 4.2.15.3.1.2

PROPOSED PRESENTATION CONTEXTS FOR PRINT-SCU

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Extended Negotiation**
Name	**UID**	**Name**	**UID**		
See Table 4.2.15.1	See Table 4.2.15.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
		Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Deflated Explicit VR, Little Endian	1.2.840.10008.1.2.1.99	SCU	None

4.2.15.3.1.2.1 Extended Negotiation

No extended negotiation is performed.

4.2.15.3.1.3 SOP Specific Conformance – Basic Grayscale and Color Print Management

This AE provides standard conformance to this SOP Class as an SCU. All mandatory elements are set for film sessions, film boxes and image boxes. The mandatory attribute, Image Display Format (2010, 0010), has possible values: “STANDARD\x,y” where x,y (columns, rows) combinations can be configured for each target printer. The optional attributes listed in Table 4.2.15.3.1.1-1 can also be set when creating film sessions.

Table 4.2.15.3.1.3 -1

Optional Attributes set for Creating Film Sessions

Entity Name	Tag	Values
Number Of Copies	(2000,0010)	1-99
Print Priority	(2000,0020)	LOW, MED, HIGH
Medium Type	(2000,0030)	BLUE FILM, CLEAR FILM, PAPER
Film Destination	(2000,0040)	MAGAZINE, PROCESSOR

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Table 4.2.15.3.1.3 -2

Optional Attributes set for Creating Film Boxes

Entity Name	Tag	Values
Film Orientation	(2010,0040)	Sent only if specified by user PORTRAIT, LANDSCAPE
Film Size ID	(2010,0050)	Sent only if specified by user 8INX10IN, 10INX12IN, 10INX14IN, 11INX14IN, 14INX14IN, 14INX17IN, 24CMX24CM, 24CMX30CM, 8_5INX11IN, A4, A3, A
Min Density	(2010,0120)	Sent only if specified by user 0
Max Density	(2010,0130)	Sent only if specified by user 399

Table 4.2.15.3.1.3-3

Optional Attributes set for Creating Image Boxes

Entity Name	Tag	Values
Requested Image Size	(2020,0030)	Values depend on Image Orientation, Film Width/Height/Columns

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4.2.16 WADO Specifications

WADO Specifications complies with Chapter 9 of PS3.18 Web Services.

4.2.16.1 WADO-URL Specifications

4.2.16.1.1 WADO – URI Retrieve Rendered Imaging Document

Table 4.2.16.1.1-1

WADO-URL Supported MIME Types

MIME Type	Description
application/dicom	The retrieved DICOM object will be encoded correspond to transfer syntax parameter in query. By default, the transfer syntax will be “Explicit VR Little Endian”.
image/jpeg	The body content will be a JPEG Image.

Table 4.2.16.1.1-2

WADO-URL Supported Query Parameters

Parameter	Kind of Prameter	Description
requesType	REQUIRED	The value should be “WADO”.
studyUID	REQUIRED	The Study Instansce UID of the requested DICOM Object.
seriesUID	REQUIRED	The Series Instansce UID of the requested DICOM Object.
objectUID	REQUIRED	The SOP Instansce UID of the requested DICOM Object.
contentType	OPTIONAL	Possible valuses: “application/dicom” or “ “image/jpeg”. Default is “image/jpeg”.
anonymize	OPTIONAL	Possible vaue is “yes”. Parameter shall only be present if contentType is “application/dicom”. The default behavior is not to be anonymize.
transferSyntax	OPTIONAL	Parameter shall only be present if contentType is “application/dicom”. The default Transfer Syntax is “Explicit VR Little Endian”.
Rows	OPTIONAL	The height of requested image. Parameter shall not be present if contentType is “application/dicom”.
columns	OPTIONAL	The width of requested image. Parameter shall not be present if contentType is “application/dicom”.

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frameNumber	OPTIONAL	Specifies the single frame with that number within a multi-frame image object that shall be returned. The parameter shall not be present if contentType is “application/dicom”. If parameter is omitted, the first frame of a requested multi-frame object will be returned.
region	OPTIONAL	The parameter allows selection of a rectangular region of an image matrix to be retrieved. The parameter shall not be present if contentType is “application/dicom”. The value shall be expressed as a list of four positive decimal strings, separated by the “,” character.
presentationUID	OPTIONAL	SOP Instance UID of the presentation state storage object to be applied to the image. The parameter shall not be present if contentType is “application/dicom”.
presentationSeriesUID	REQUIRED and shall only be present if “presentationUID” is present.	Series Instance UID of the series containing the presentation state storage object to be applied to the image.
windowWidth	REQUIRED if “windowCenter” Is present.	Control the contrast of the image. This parameter shall not be present if there is “presentationUID” parameter. The parameter shall not be present if contentType is “application/dicom”.
windowCenter	REQUIRED if “windowWidth” Is present.	Control the luminosity of the image. This parameter shall not be present if there is “presentationUID” parameter. The parameter shall not be present if contentType is “application/dicom”.
imageQuality	OPTIONAL	The parameter shall not be present if contentType is “application/dicom”, except if the the transferSyntax parameter is present and corresponds to a lossy compression . If the requested MIME type is for image/jpeg this parameter indicates the required quality of the image to be returned within the range 1 – 100. 100 being the best quality.

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Table 4.2.16.1.1-3

WADO-URI Retrieve Rendered Imaging Document

Parameter	Restrictions
Transfer Syntaxes Supported	Restricted to transfer syntaxes annotated in Table 4.2.3.4.1.2-1
SOP Class Restrictions	Restricted to SOP classes annotated in Table 4.2.3.1
Size Restriction	1 GB
Rendered formats available	Supports JPEG for IMAGE IODS and non-IMAGE IODS
Rows restrictions	16 – 32767
Columns restrictions	16 - 32767
Window Width restrictions	Whole Window in the range of image pixel values
Window Center restrictions	Greater than 4 and whole window in the range of image pixel values.
Region restrictions	None
Image Quality restrictions	None
Annotation restrictions	None
Anonymization	None Supported
Compression Available	JPEG Lossy
Other restrictions	None

WADO – URL Connection Policies

4.2.16.1.1.1 General

All URL connections are limited to HTTP GET Requests.

4.2.16.1.1.2 Number of Conections

Maximum Number of simultaneous HTTP Requests is not limited.

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4.2.17 DICOM WEB Support

DICOM Web support provides client URL access for the following operations:

- Echo (Provides the functionality similar to DICOM ECHO SCU)
- Store (Provides the functionality similar to DICOM STORAGE SCU)
- Find (Provides the functionality similar to DICOM FIND SCU)
- Retrieve (Provides the functionality similar to DICOM RETRIEVE SCU)

4.2.17.1 General Settings for DICOM WEB Support

For all functionalities in DICOM Web support we should set Station Type to "DICOM Web" for Specific Station In Station List General Service (See Figure 4.4.2-3 – Station List – General Service).
There are two options for DICOM Web Station types depending on OAuth flow:

- Client Credentials
- JWT Bearer token

The settings for Client Credentials OAuth flow are shown
In Figure 4.4.2-3-1 (Station List – General Service – Set and Check Connection to DICOM Web using Client Credentials for OAuth Flow). This type of OAuth flow should be used when Client Credentials are known.
The following attributes are specified:

- Server URI
- Authorization URI
- ClientID
- Scopes of the Server
- Client Secret

Those values are specified by the Servers.

The settings for JWT Bearer Token OAuth flow for example Station are shown
In Figure 4.4.2-3-2 (Station List – General Service – Set and Check Connection to DICOM Web using JWT Bearer Token for OAuth Flow). We are using this type of OAuth flow when Server gives API to get Access Token and private key (For Example Google HealthCare Server – https://cloud.google.com/healthcare/docs/dicom)
The following attributes are specified:

- Server URI - https://healthcare.googleapis.com/v1beta1/projects/PROJECT_ID/locations/us-central1/datasets/DATA_SET_NAME/dicomStores/DICOM_STORE_NAME/dicomWeb
  In this Server URL:
  - PROEJCT_ID – Project ID
  - locations - us-centra1l - location of Server (could be one of Google's Locations List)
  - datasets - DATA_SET_NAME – The name of the dataset that you are using
  - dicomStores - DATA_STORE_NAME - The name of the datastore that you are using
- JWT Signing Algorithm - RS256
- Token URI (Audience) - https://oauth2.googleapis.com/token

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- Claim Issuer (iss) - CLAIM_ISSUER_NAME@PROJECT_ID.iam.gserviceaccount.com (Service Account email). This is defined at the time of creating Service Account
  The following roles should be granted to the Service Account:
  - Healthcare DICOM Editor
  - Healthcare DICOM Viewer
- Private key is generated (only) when Service Account is created
- Scopes of the Server - https://www.googleapis.com/auth/cloud-healthcare

4.2.17.2 Echo operation

After the configuration of Station with Station Type "DICOM Web" (See p.4.2.17.1)
the "Test Connection" button in Station List can be used to verify the connection.
In this case RESTful connection between Client and Server is established.
The HTTP request includes the following attribute in header "Content-Type":

- The MIME type "application/dicom"

"DICOM Connection succeeded" message is appeared in case of successful connection. To detail see Figure 4.4.2-3-1 or Figure 4.4.2-3-2 depending on OAuth Flow.

4.2.17.3 Store operation

Store operation is compatible with Store Transaction in PS3.18 Web Services for Client in Study Level.
The HTTP request for store the data incudes the following attributes in header "Content-Type":

- The multipart/related media type
- The MIME type "application/dicom"
- The boundary separator

The HTTP response Status Codes identical to Status Codes of Chapter 8.5 PS3.18 Web Services.

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4.2.17.3.1 Activity – Send Store Request

Perform the configuration of Station with Station Type “DICOM Web” (See p.4.2.17.1).
Search the Study for send in GUI Search and click button “Send Study to another station”.
Choose the “DICOM Web” station and click “OK” button.
The sequence of activity to send the study of the patient “AXL489273” to DICOM Web” station “NHUNG-DICOMWEB” is shown in Figure 4.2.17.3.1-1

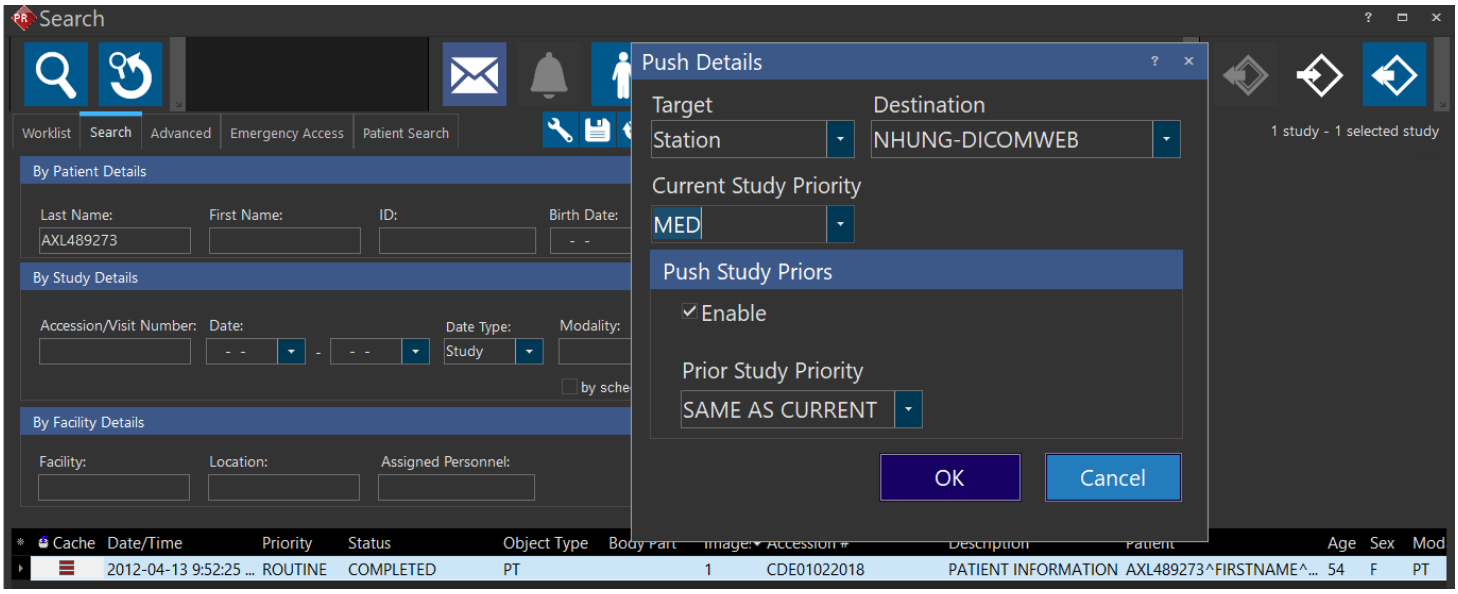

Figure 4.2.17.3.1-1 Send the study of the patient “AXL489273” to DICOM Web” station “NHUNG-DICOMWEB”

The following RESTful requests were sent to the servers of the stations

- Station – “NHUNG-DICOMWEB”
  https://healthcare.googleapis.com/v1beta1/projects/rapidresults-248519/locations/us-central1/datasets/RSQA/dicomStores/image_volume_1/dicomWeb/studies?StudyInstanceUID=NULL&limit=1.
  In this case StudyInstanceUID is retrieved from binary DICOM file.

- Station – “DicomWeb_MAIN_1B”
  “https://qa-main-1-dicom-api-webapp.azurewebsites.net/dicom/studies/1.2.892.999888.11.7.119787.86546.4568777”

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4.2.17.4 Query operation

Query operation is compatible with Search Transaction in PS3.18 Web Services for Client in Study Level.
The HTTP request for query incudes the following attribute in header “Content-Type”:

- The MIME type “application/dicom+json”
- The multipart/related media type

The attributes of Query Operation are illustrated in Table 4.2.17.4.1

Table 4.2.17.4.1

ATTRIBUTES FOR QUERY OPERATION

Name	Tag	Types of Matching
Patient’s ID	(0010,0020)	S,*,U
Patient’s Issuer	(0010,0021)	S,*,U
Patient’s Name	(0010,0010)	S,*,U
Patient’s BirthDay	(0010,0030)	S,*,U,R
Patient’s Sex	0010,0040)	S,*,U
Other Patient's ID's	(0010,1000)	S,*,U
Modalities In Study	(0008,0061)	S,*,U
Institution Name	(0008,0080)	U,*
Study Date	(0008,0020)	U,R
Study Time	(0008,0030)	U,R
Study ID	(0020,0010)	S,*,U
Accession Number	(0008,0050)	U,*
RETIRED StudyStatusID	(0032,000A)	S,*,U
RETIRED StudyPriorityID	(0032,000C)	S,*,U
StudyInstanceUID	(0020,000D)	S
StudyDescription	(0008,1030)	S

The tag without specified value that should be returned can be added as “includefield”.
“fuzzymatching” in query is supported.
“limit” and offset query parameters are supported. The maximum value of “limit” depends of Server.

The HTTP response Status Codes identical to Status Codes of Chapter 8.5 PS3.18 Web Services.

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4.2.17.4.1 Activity – Query Request

Perform the configuration of Station with Station Type “DICOM Web” (See p.4.2.17.1).
Search the Study for query in GUI Advance Search for “DICOM Web” Statiion.
The sequence of activity to query the study of the patient “AXL489273” from DICOM Web” station “NHUNG-DICOMWEB” is shown in Figure 4.2.17.4.1-1

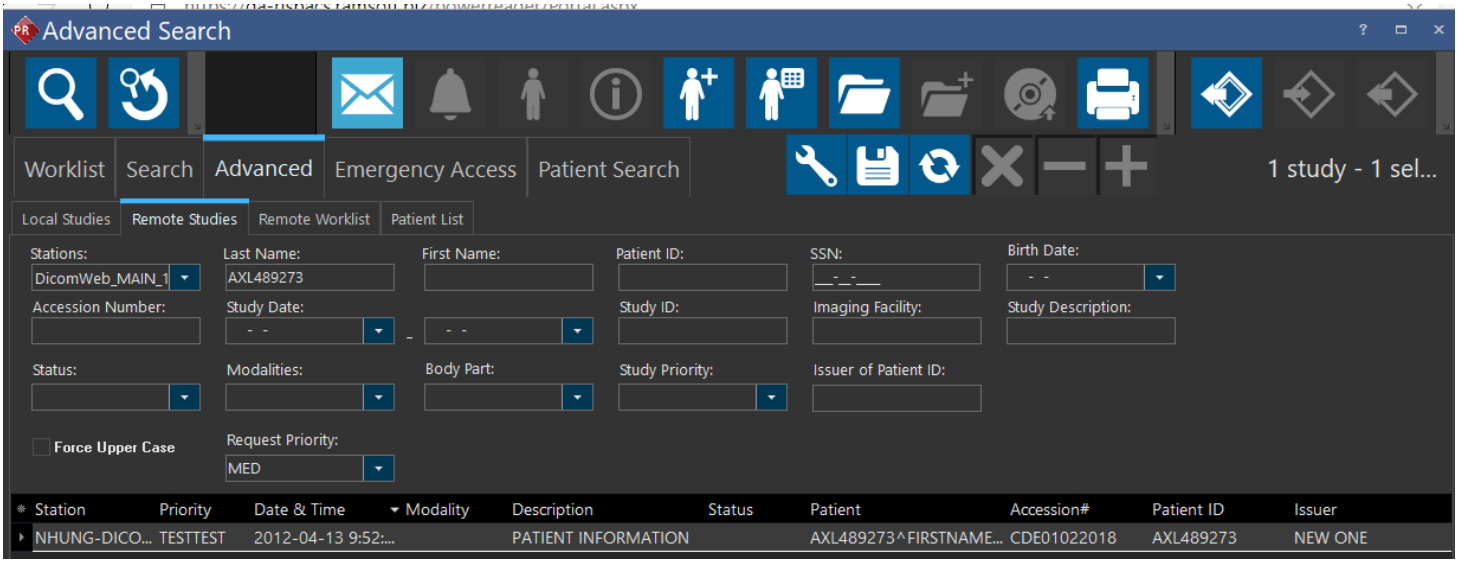

Figure 4.2.17.4.1-1 Query the study of the patient “AXL489273” from DICOM Web” station “NHUNG-DICOMWEB”

- The following RESTful request was sent to the server of the station “NHUNG-DICOMWEB” “https://healthcare.googleapis.com/v1beta1/projects/rapidresults-248519/locations/us-central1/datasets/RSQA/dicomStores/image_volume_1/dicomWeb/studies?fuzzymatching=true&PatientName=AXL489273&includefield=00080201&includefield=00080020&includefield=00080030&includefield=0032000C&includefield=00100021&includefield=00100030&includefield=00100010&includefield=00100040&includefield=00100020&includefield=00200010&includefield=0020000D&includefield=00080050&includefield=00080061&includefield=00081030&includefield=0032000A&includefield=00080080&includefield=00180015”

  All Include fields and their tags were mentioned in 4.2.7.4

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4.2.17.5 Retrieve operation

Retrieve operation is compatible with Retrieve Transaction in PS3.18 Web Services for Client in Study Level.
The HTTP request for store the data incudes the following attributes in header “Content-Type”:

- The multipart/related media type
- The MIME type “application/dicom”
- The boundary separator

The HTTP response Status Codes identical to Status Codes of Chapter 8.5 PS3.18 Web Services.

4.2.17.5.1 Activity – Retrieve Request

Perform the configuration of Station with Station Type “DICOM Web” (See p.4.2.17.1).
Search the Study for query in GUI Advance Search for “DICOM Web” Statiion.
The sequence of activity to query the study of the patient “AXL489273” from DICOM Web” station “NHUNG-DICOMWEB” is shown in Figure 4.2.17.4.1-1.
After finishing the search from “DICOM Web” station select the study and click “Request selected study from station” button. The selected study is extracted from “DICOM Web” station via WADO request.

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4.3 Network Interfaces

4.3.1 Physical Network Interface

All RamSoft PACS AE Titles provide DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.3.1.1 TCP/IP Stack

All RamSoft PACS AE Titles inherit their TCP/IP stack from the Windows system upon which they execute. RamSoft PACS has been tested with Winsock 2.2.2 on Windows 7 32-bit, Windows 7 64-bit, Windows 8 32-bit, Windows 8 64-bit, Windows 8.1 32-bit, Windows 8.1 64-bit, Windows 2008 R2 Server, Windows 2012 Server, Windows 2012 R2 Server.

4.3.1.2 Physical Media Support

All RamSoft PACS AE's are indifferent to the physical medium over which TCP/IP executes; they inherit this from the Windows system upon which they execute.

4.3.2 IPv4 and IPv6 support

The Application supports IPv4.

4.4 Configuration

All configuration of the application is performed through the use of configuration files stored in pre-defined locations and in Database.

4.4.1 AE Title/Presentation Address Mapping

The mapping from AE Title to TCP/IP addresses and ports is configurable through the Station List. Refer to the next Section of this document for more details.

4.4.2 The main interfaces for configuration settings

The main interface for configuration settings is show in the following figures:

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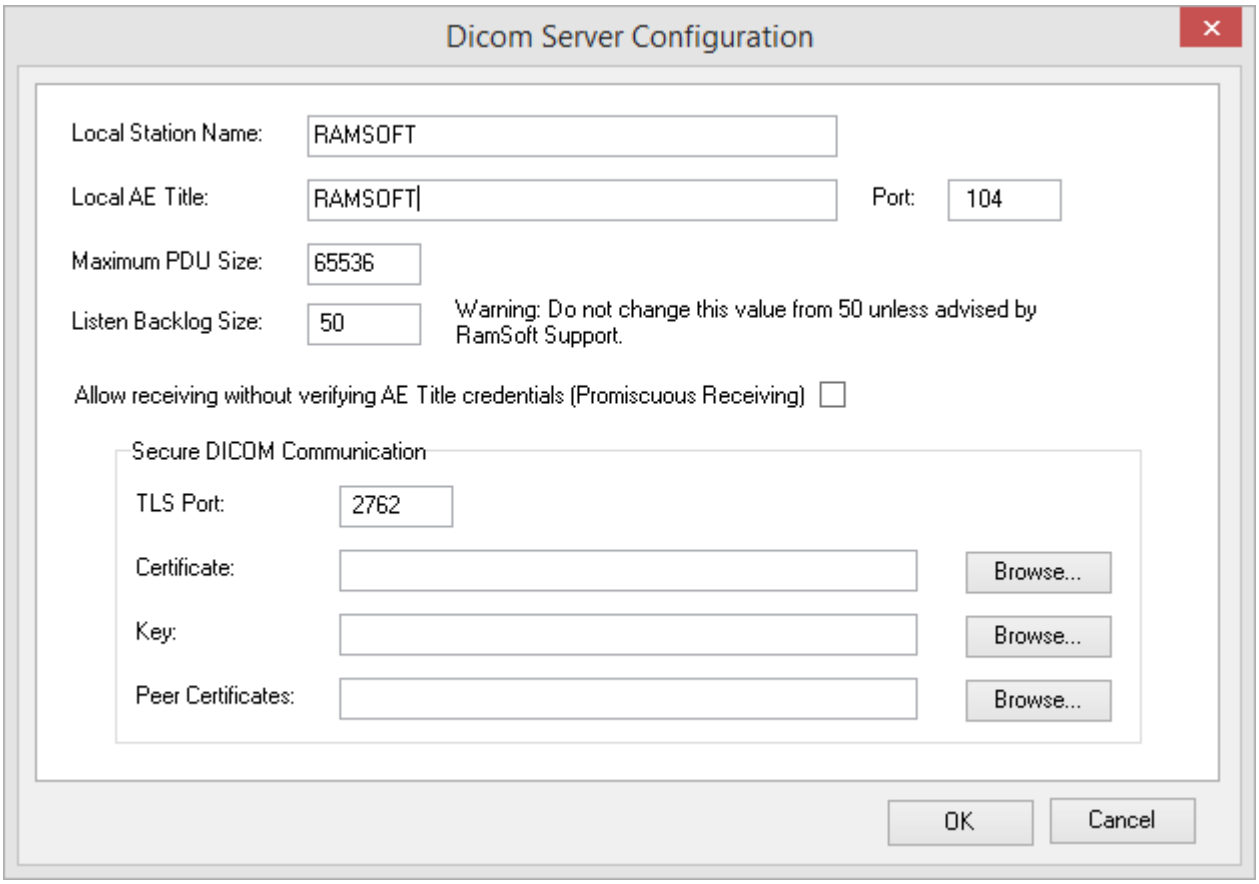

Figure **4.4.2-1** – DICOM Server Configuration

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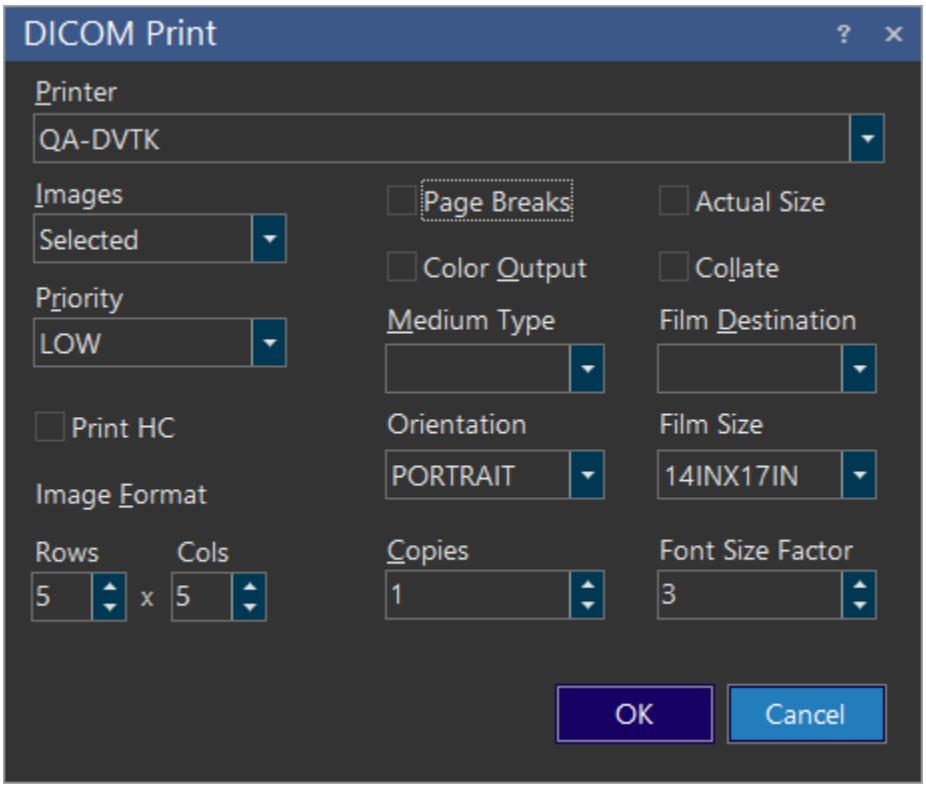

Figure **4.4.2-2** – DICOM Print SCU Configuration

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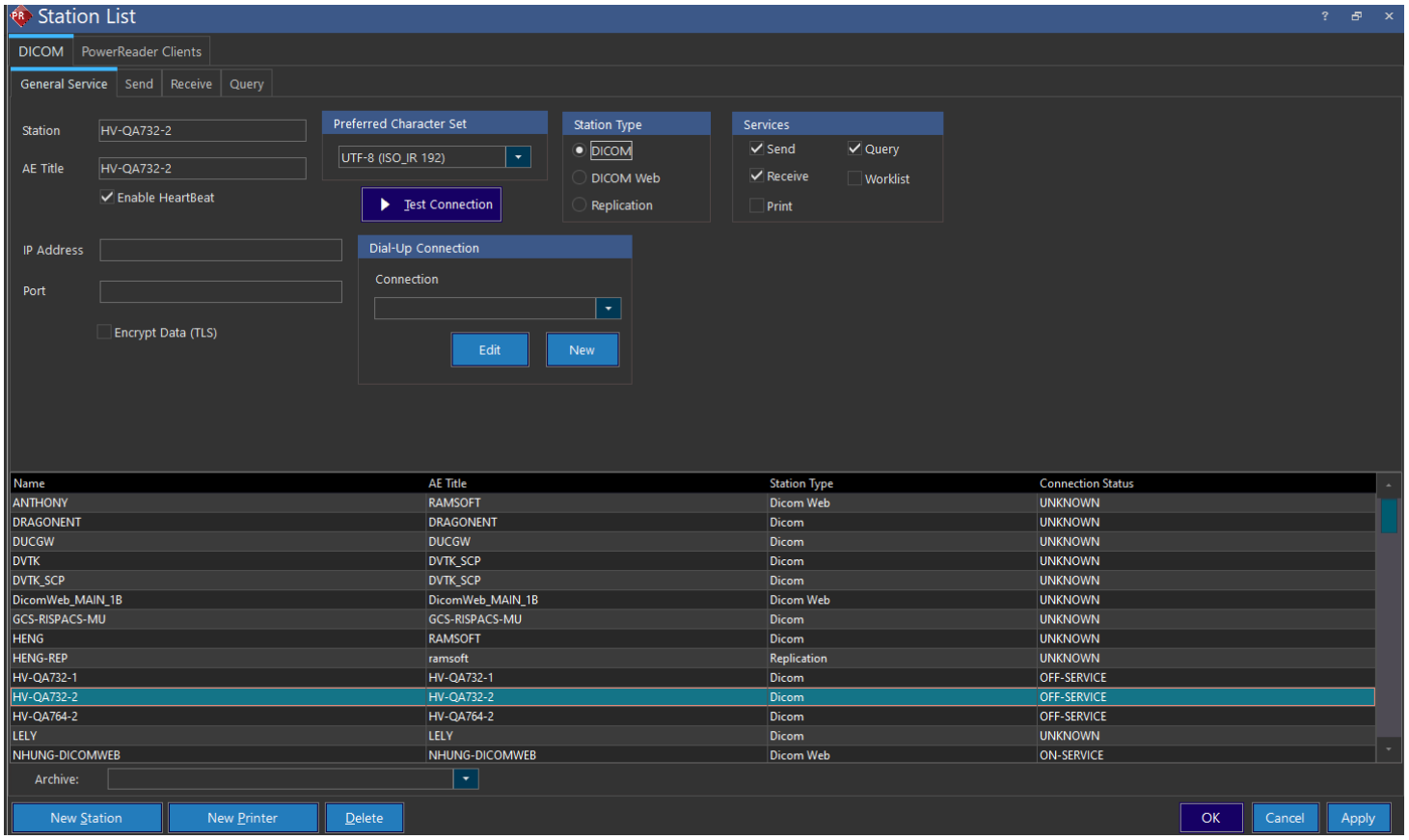

Figure **4.4.2-3** – Station List – General Service

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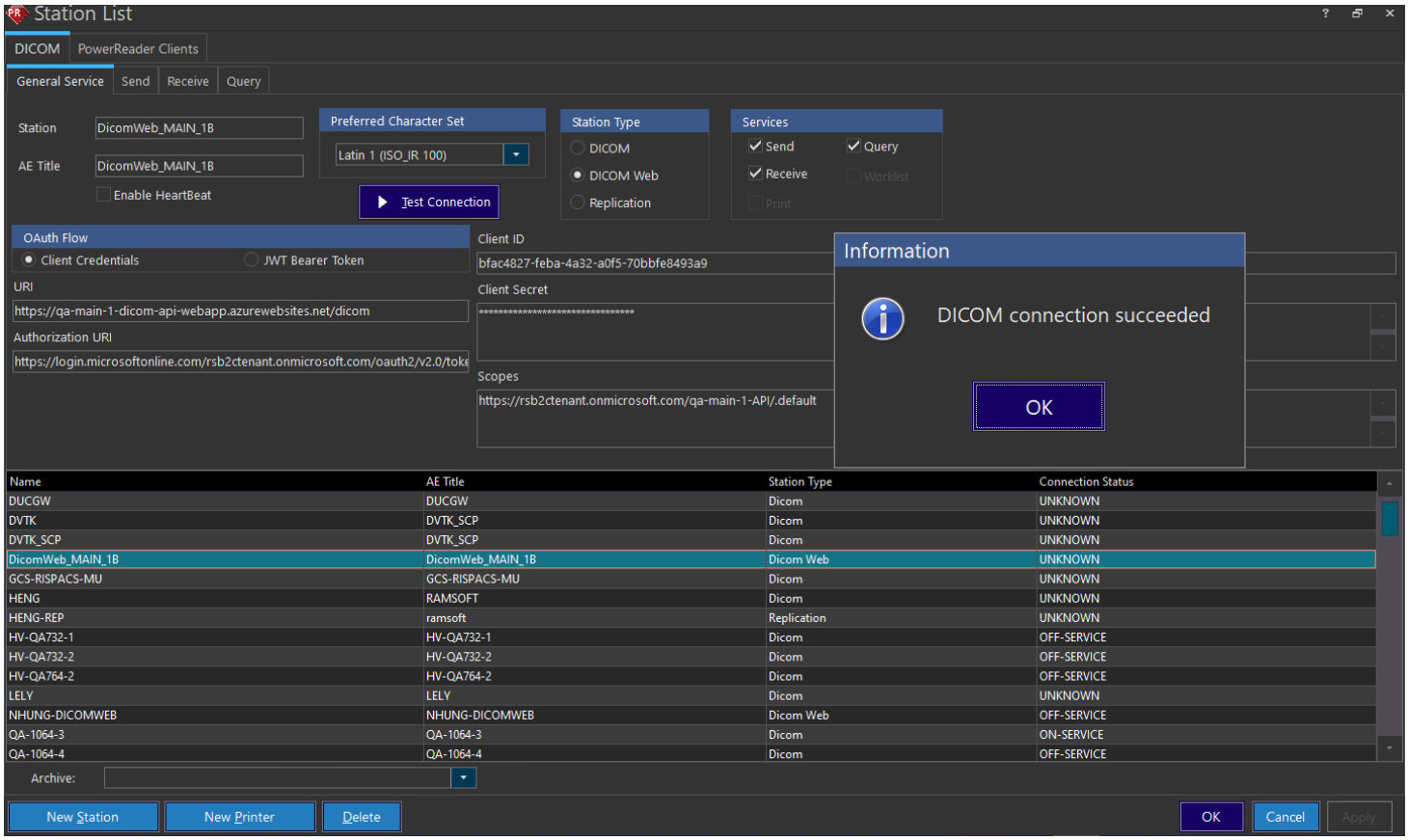

Figure **4.4.2-3-1** – Station List – General Service-Set and Check Connection to DICOM WEB using Client Credentials for OAuth Flow

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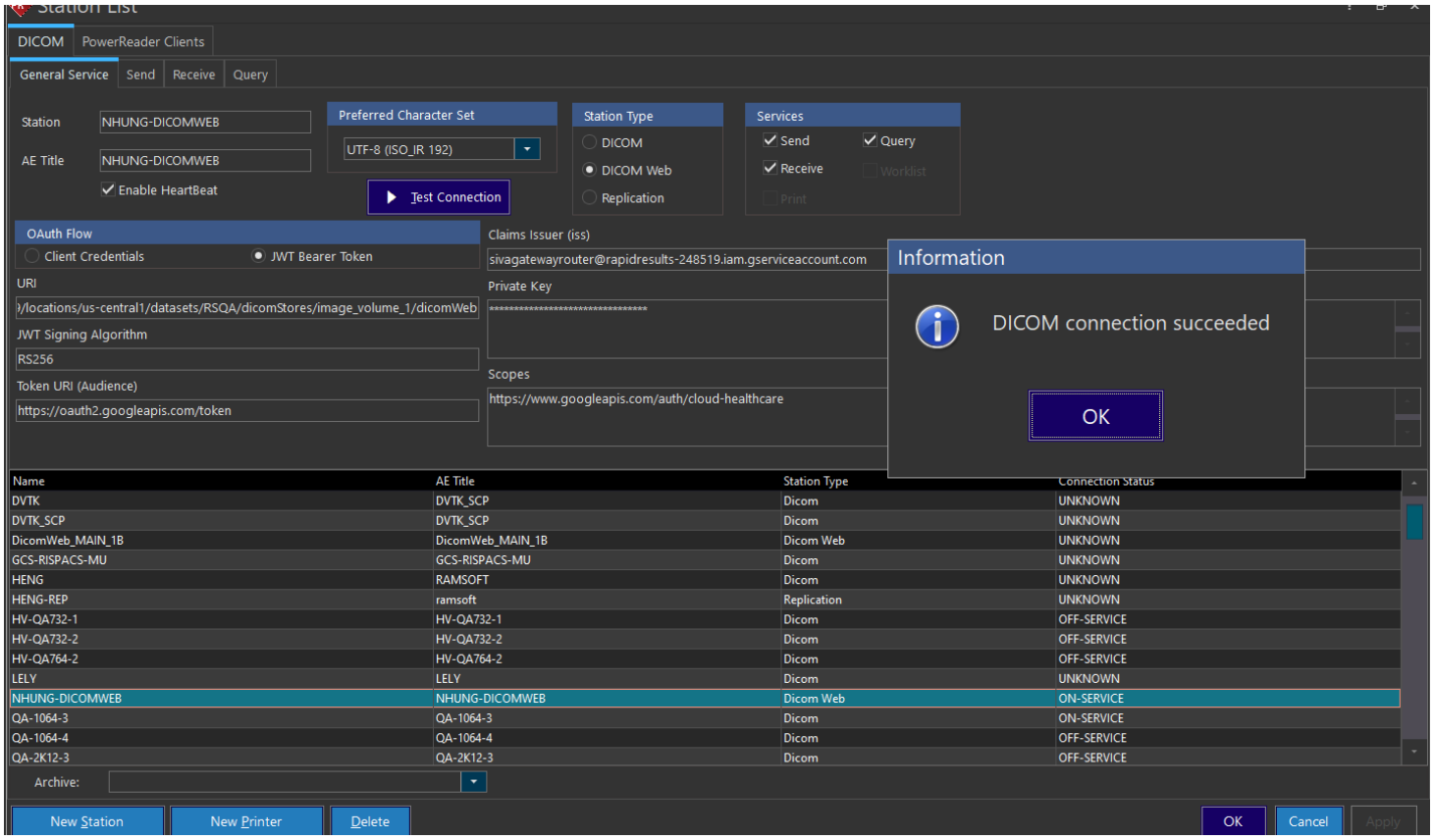

Figure **4.4.2-3-2** – Station List – General Service-Set and Check Connection to DICOM WEB using JWT Bearer Token for OAuth Flow

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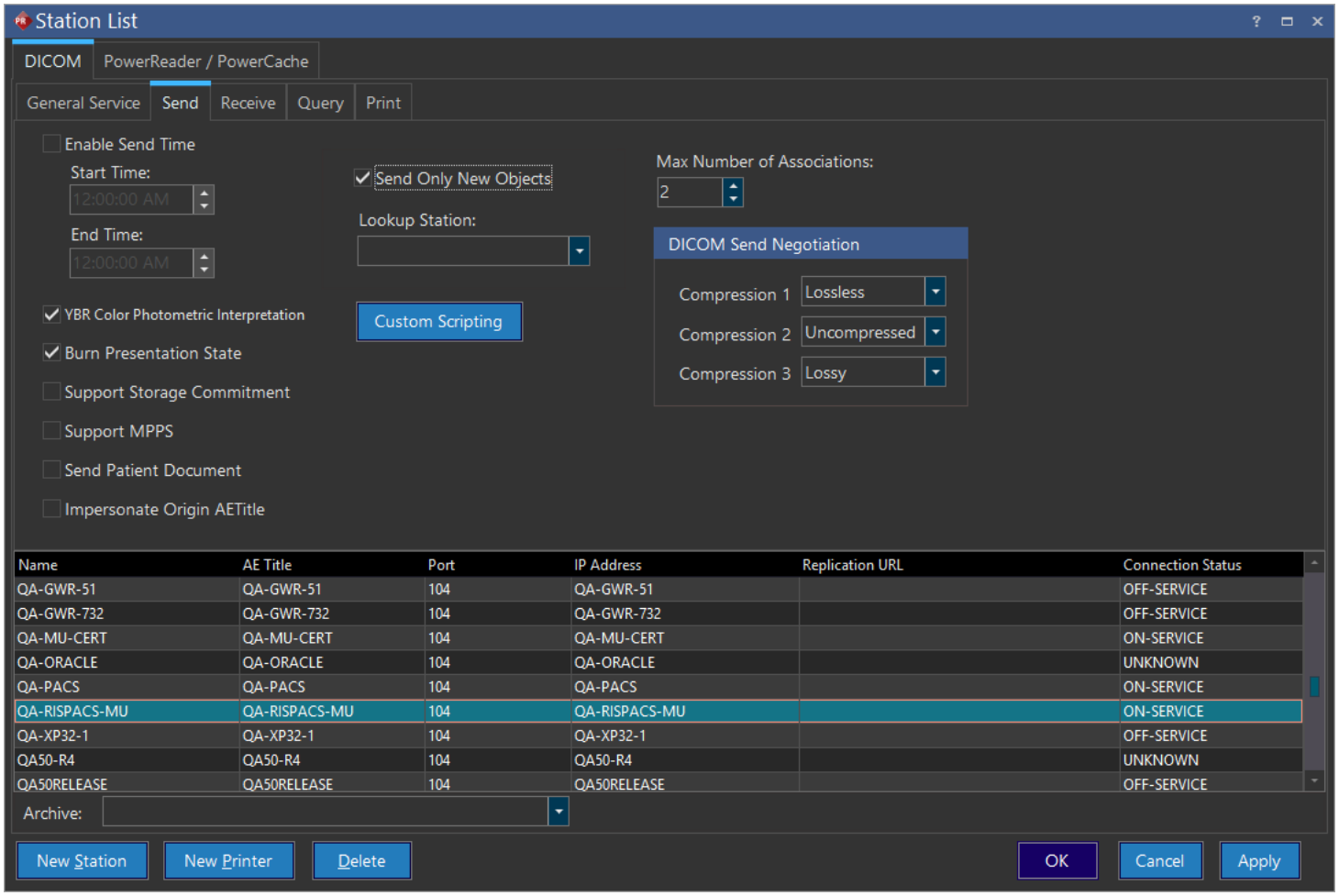

Figure **4.4.2-4** – Station List - Send Service

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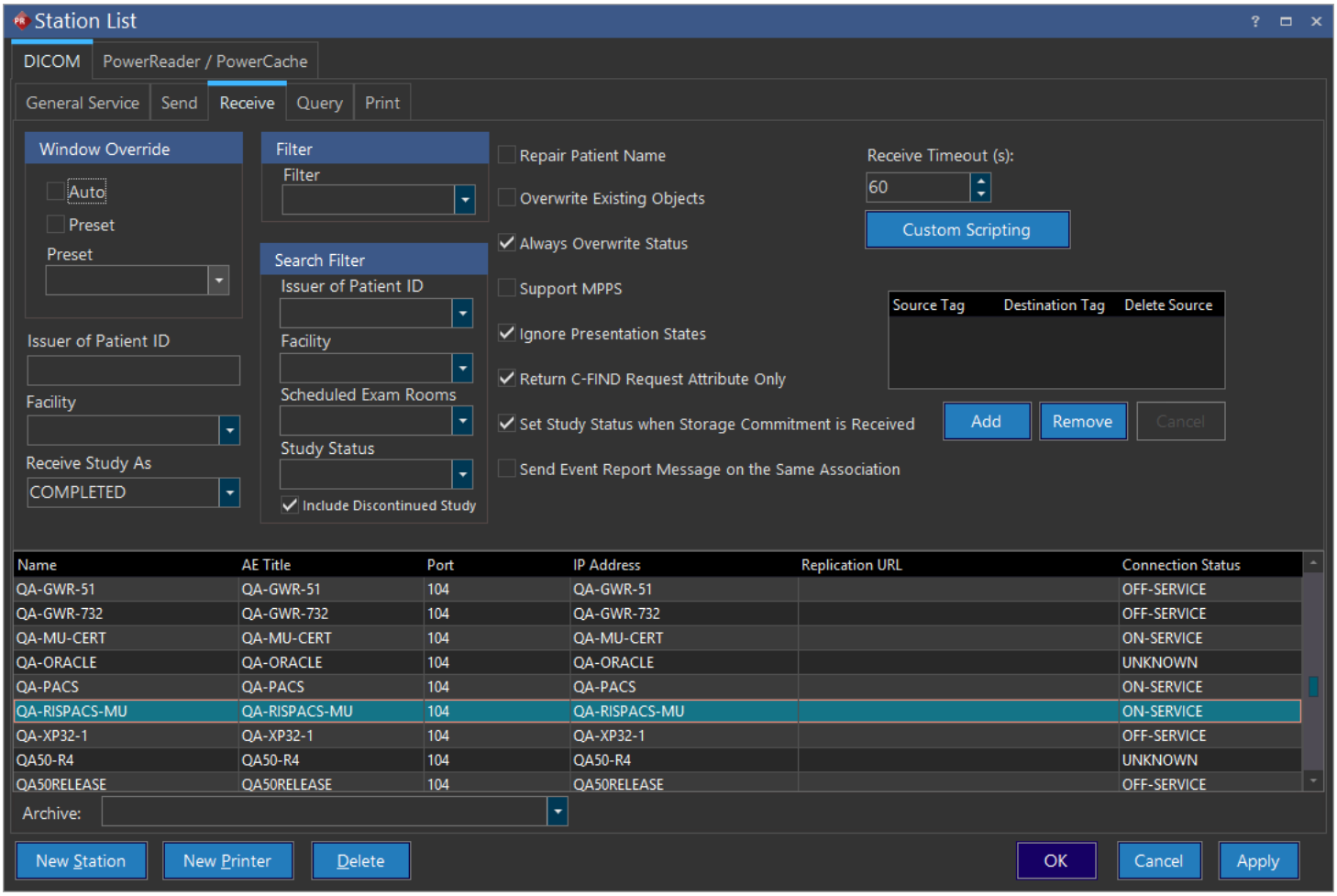

Figure **4.4.2-5** – Station List - Receive Service

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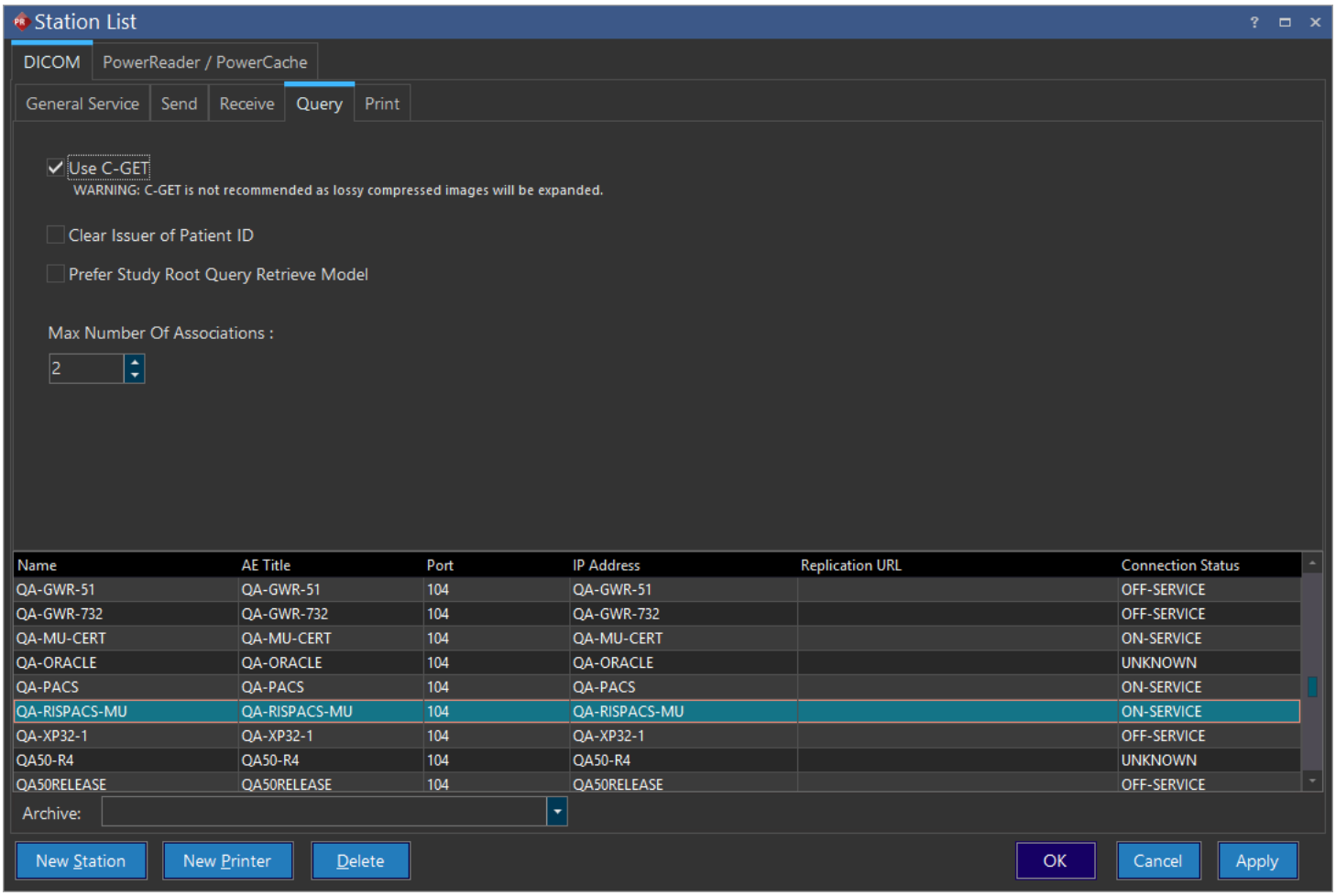

Figure **4.4.2-6** – Station List - Query Service

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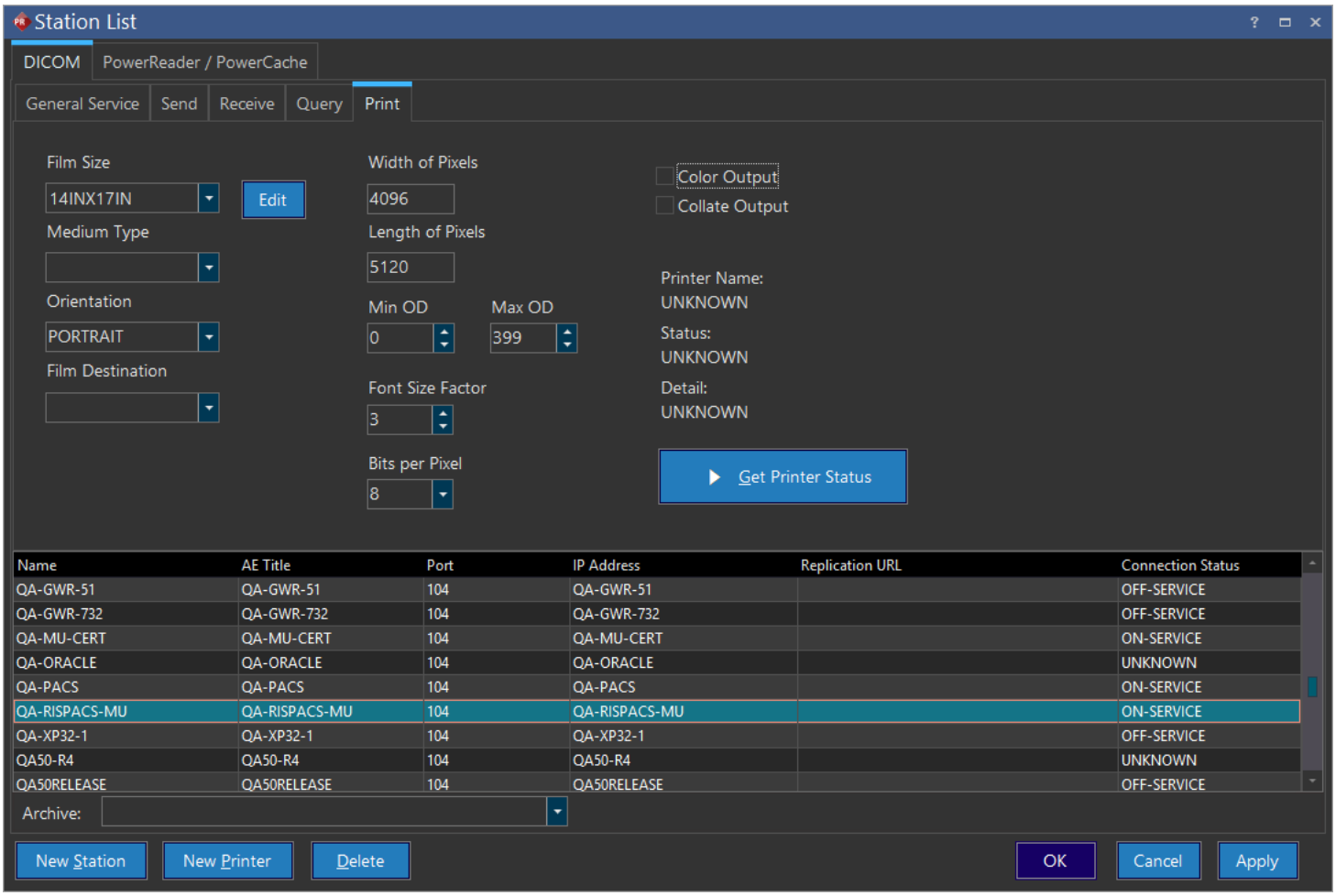

Figure **4.4.2-7** – Station List - Print Service

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4.4.3 Parameters

Table 4.4.3-1

Configuration Parameters Table

Parameter	Configurable	Default Value
General Parameters		
PDU Size	Yes	64 KB
Timeout for association responses, general DIMSE timeout, and TCP/IP messages	Yes	60 seconds
Any changes to default TCP/IP settings, such as configurable stack parameters.	No	None
Server Application AETitle Name	Yes	RAMSOFT
Server Station Name	Yes	RAMSOFT
Server Application Port	Yes	104, 2762 (for TLS)
Maximum of simultaneous Associations by Service and/or SOP Class	Yes	10
Encrypt Data (TLS)	Yes	No
Server Send Retry Interval	Yes	10000 (Timer interval in milliseconds at which the server will check for new items in the Transmit, Request, and Print Lists).
Capture Format	Yes	3 (Modifies the SOP Class used for newly created DICOM image objects. 0 - Ultrasound 1 - Secondary Capture(old) 2 - Fluoroscopy 3-Secondary Capture Multi-Frame (new))
Heartbeat Interval	Yes	600000 (Heartbeat retry interval in milliseconds).

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Parameter	Configurable	Default Value
AE Specific Parameters (all AE's)		
Size constraint for maximum object size	No	None
Maximum PDU size the AE can send	Yes	128 KB
Maximum PDU size the AE can receive	Yes	128 KB
Maximum concurrent print associations	Yes	5
Maximum concurrent request associations	Yes	5
Maximum concurrent transmit associations	Yes	5
SOP Class support	No	All supported SOP Classes always proposed and accepted
Transfer Syntax support	Yes	All supported Transfer Syntaxes
YBR Color Photometric Interpretation (when sending) Note: When this option is unselected, color images will be sent in RGB photometric interpretation.	Yes	Yes
Burn Presentation State (when sending)	Yes	No
Support Storage Commitment (when sending)	Yes	No
Support MPPS (when sending)	Yes	No
Sent Patient Documents Note: When this option is selected, Patient Level Documents are sent.	Yes	Yes
Custom Scripting (when sending) Note: Custom Scripting Button is used to modify DICOM objects before they are sent.	Yes	None
Script Execution Timeout	Yes	5 minutes
Return C-FIND Request Attributes Only	Yes	No
Set Study Status when Storage Commitment is Received	Yes	Yes
Send Event Report Message on the Same Association (For Storage Commitment Response)	Yes	No
Ignore Presentation States (when receiving)	Yes	No
Receive Study As (Configured Status)	Yes	COMPLETED
(Receive Study As Configured) Facility	Yes	No
(Receive Study As Configured) Issuer of PatientID	Yes	No

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Parameter	Configurable	Default Value
Always Overwrite Status (when receiving) Note: When this option is selected, incoming studies will have the status selected in the **Receive Study As** field no matter what their previous status was.	Yes	Yes
Support MPPS (when receiving)	Yes	No
Repair Patient Name (when receiving) Note: When this option is selected, incoming patient names are checked to presence of carets (^). If they are missing, they will automatically be placed into the name. This helps in reducing conflicts and matching up priors with existing patients.	Yes	No
Overwrite Existing Objects (when receiving) Note: When this option is selected, existing objects will be replaced with received objects.	Yes	No
Custom Scripting (when receiving) Note: Custom Scripting Button is used to modify DICOM receiving objects before they are stored.	Yes	None
Use C-GET (when retrieve request sent) Note: When this option is selected, C-GET retrieve requests are used. If DICOM queries are not working properly when attempting to use C-GET, de-selecting this option will force PowerServer to use the C-MOVE request instead.	Yes	Yes
Clear Issuer Of Patient ID (when query request sent) Note: When this option is selected, the Issuer of Patient ID will be cleared in C-MOVE requests.	Yes	No
Prefer Study Root Query Retrieve Model (when retrieve request sent) Note: When this option is selected, Study Root Query Retrieve Model is used for C-MOVE requests.	Yes	Yes
Maximum number of records to return in C-FIND query And MWL query	Yes	100

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5 MEDIA INTERCHANGE

5.1 Implementation Model

5.1.1 Application Data Flow

The Media Application Entity exports Images, Presentation States, SR, CADSR, PDF Objects to a CD-R Storage medium. It is associated with the local real-world activity "Write Study to a disk". " Write Study to a disk " is performed upon user request for selected studies.

5.1.2 Functional Definition of AEs

5.1.2.1 Functional Definition of Media Application Entity

Activation of the " Write Study to a disk " icon will pass the currently selected studies to the Media Application Entity. The SOP Instances associated with the selection will be collected into export job. The contents of export job will be written to a single medium.

5.1.3 Sequencing of Real-Word Activities

At least one DICOM object should be selected before the Media Application Entity can be invoked.
Table 5.1.3-1 shown the options for selection the objects to write to CD/DVD.

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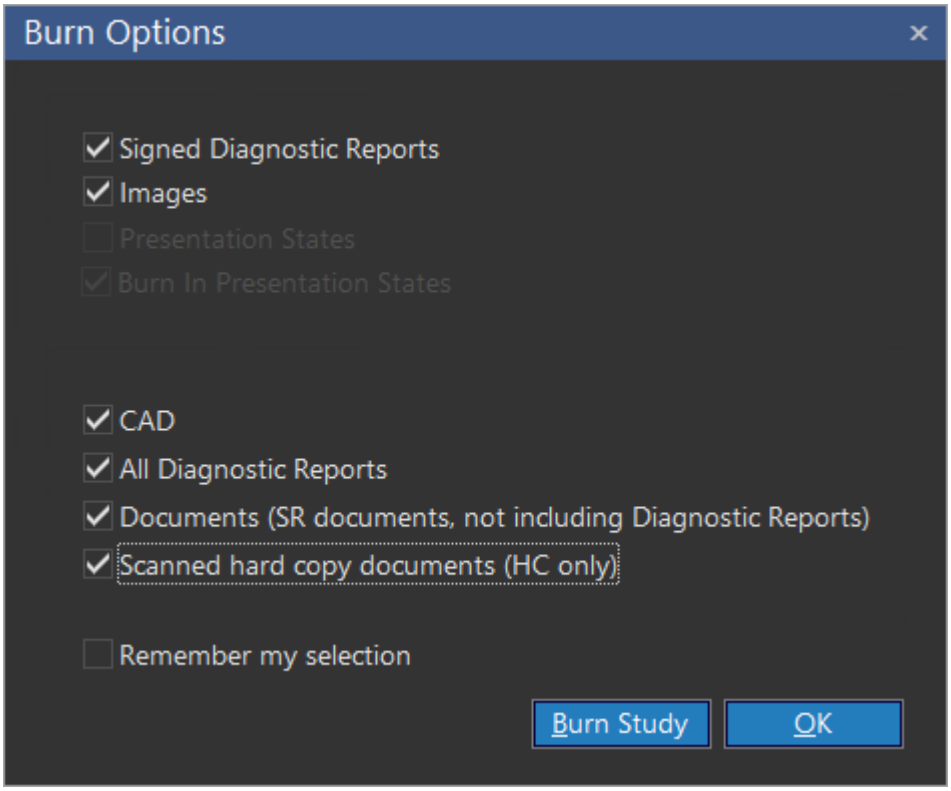
Table 5.1.3-1

THE OPTIONS FOR SELECTION OBJECTS TO WRITE TO CD-R



5.1.4 File Meta Information Options

The implementation information written to the File Meta Header in each file is identical to the information described in Table 4.2.

5.2 AE Specifications

5.2.1 Media Application Entity Specification

The Media Application Entity provides standard conformance to the Media Storage Service Class. The Application Profiles and roles are listed in Table 1-2

5.2.1.1 File Meta Information for the Application Entity

The Source Application Entity Title included in the File Meta Header is identical to Server Application Entity Title when disc is created (See Paragraph 4.4.3).

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5.2.1.2 Real-World Activities

5.2.1.2.1 Activity – Export to External Media

The Offline-Media Application Entity acts as an FSC when requested to export the studies from the local database to a disc. The dialogue will be presented allowing the user to select the DICOM objects for export (See par. 5.1.3). The user will be prompted to insert an empty disc for scheduling the export job. The contents of the export job will be written together with a corresponding DICOMDIR to the disc.
The user can cancel an export job in the queue.

5.2.1.2.2 Activity – Reading from External Media

RamSoft PACS has independent application PRViewer which reading full contents of disc.
The description of PRViewer goes out of scope of DICOM Conformance Statement.
In addition the Folder where DICOM objects of disc are located can be imported to RamSoft PACS.

6 TRANSFORMATION OF DICOM TO CDA

None supported.

7 SUPPORT OF CHARACTER SETS

7.1 Character Sets

In addition to the default character repertoire, the Defined Terms for Specific Character Set in Table 7.1-1 are supported:

Table 7.1-1

Supported Specific Character Set Defined Terms

Character Set Description	Defined Term
ASCII Default repertoire	ISO_IR 6 (Default)
Unicode UTF-8	ISO_IR 192
Latin alphabet No. 1	ISO_IR 100
Latin alphabet No. 2	ISO_IR 101
Latin alphabet No. 3	ISO_IR 109
Latin alphabet No. 4	ISO_IR 110
Cyrillic alphabet	ISO_IR 144
Arabic alphabet	ISO_IR 127
Greek alphabet	ISO_IR 126
Hebrew alphabet	ISO_IR 138
Latin alphabet No. 5	ISO_IR 148

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Thai	ISO_IR 166
Chinese	GB 18030
Japanese	ISO_IR 13

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8 SECURITY

8.1 Security Profiles

RamSoft PACS supports “Basic TLS Secure Transport Connection Profile” and “AES TLS Secure Transport Connection Profile”. Those profiles are defined in Part 15 of the DICOM Standard for secure DICOM Communication. Table 8.1-1 specifies mechanisms that shall be supported if the corresponding features within TLS are supported by the Application Entity. Transport Layer Security Version 1.0 protocol is used.

Table 8.1-1

Supported TLS Feature

Supported TLS Feature	Mechanism
Entity Authentication	RSA based certificates
Exchange of Master Secrets	RSA
Data Integrity	SHA
Privacy	CBC, Triple DES EDE

The list of the ciphersuites for negotiation is shown in Table 8.1-2, with the most preferred ciphersuites on top.

Table 8.1-2

List of the ciphersuites for secure negotiation

The name of ciphersuite	Key Exchange	Encryption	Secure Hash
TLS_DHE_RSA_WITH_AES_128_GCM_SHA256	DHE	AES (CBC mode) with 128 bit key	SHA256
TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	ECDHE	AES (CBC mode) with 128 bit key	SHA256
TLS_DHE_RSA_WITH_AES_256_GCM_SHA384	DHE	AES (CBC mode) with 256 bit key	SHA384
TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	ECDHE	AES (CBC mode) with 256 bit key	SHA384
TLS_RSA_WITH_AES_128_CBC_SHA	RSA	AES (CBC mode) with 128 bit key	SHA1
TLS_RSA_WITH_3DES_EDE_CBC_SHA	RSA	Triple DES (EDE CBC mode) with 168 bit key	SHA1

When a TLS integrity check fails, the connection is dropped and an A-P-ABORT indication is issued to the application by the DICOM upper layer state machine, together with an implementation-specific

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provider reason. For the RamSoft PACS implementation the provider reason for any A-P-ABORT indication is always “unspecified”. The error code reported to the application layer is DUL_PEERABORTEDASSOCIATION.

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8.2 Association Level Security

The associations can be established only with DICOM Nodes defined in Station List (To details see the Fig. 4.4.2 -3 Station List – General Service). A private key and certificate must be generated and peer certificates must be installed for all connected SCUs. Care must be taken while creating and exchanging certificates ensuring the privacy and authenticity of them.

8.3 Application Level Security

Application Level Security is enabled in Station List. The MWL-SCU and FIND-SCU queries from receiving DICOM node can be filtered by Issuer of PatientID, Facility, Study Status. To details see the Fig. 4.4.2 -5 Station List – Receive Service.

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9 ANNEXES

9.1 IOD Contents

9.1.1 Created SOP Instances

This section specifies the subsets of DICOM Information Object Definitions (IOD) used to represent the information objects produced by RamSoft PACS.
The abbreviations are used in the below tables are following:
VNAP - Value Not Always Present (attribute sent zero length if no value is present)
ANAP - Attribute Not Always Present
ALWAYS - Always Present with a value
EMPTY - Attribute is sent without a value
The abbreviations are used for the source of the data values in the tables are:
USER -The attribute value source is from User input
AUTO - The attribute value is generated automatically
MWL, MPPS, STORE SCU - The attribute value is the same as the value received using a DICOM service such as Modality Worklist, Modality Performed Procedure Step, STORE SCU Classes
CONFIG - the attribute value source is a configurable parameter

9.1.1.1 Grayscale Softcopy Presentation State IOD

This section describes the Grayscale Softcopy Presentation State IODs which are created by RamSoft PACS.

Table 9.1.1.1 -1

IOD of Created Grayscale Softcopy Presentation State SOP Instances

IE	MODULE	REFERENCE	PRESENCE OF MODULE
Patient	Patient	Table 9.1.1.6.1 - 1	ALWAYS
Visit	Visit Admission Module	Table 9.1.1.6.2 - 1	ALWAYS
	Visit Identification Module	Table 9.1.1.6.3 - 1	ALWAYS
	Visit Status Module	Table 9.1.1.6.4 - 1	ALWAYS
Study	General Study	Table 9.1.1.6.5 - 1	ALWAYS
	Requested Procedure Module	Table 9.1.1.6.6 - 1	VNAP
	Patient Study	Table 9.1.1.6.7 - 1	ALWAYS
Series	General Series	Table 9.1.1.6.8 - 1	ALWAYS
Equipment	General Equipment	Table 9.1.1.6.9 - 1	ALWAYS
Image	General Image	Table 9.1.1.7.3 - 1	ALWAYS
Presentation State	Presentation State	Table 9.1.1.7.1 - 1	ALWAYS
	SOP Common	Table 9.1.1.7.2 - 1	ALWAYS
	Display Shutter	Table 9.1.1.7.4 - 1	Only if Shutter is present

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	Displayed Area	Table 9.1.1.7.5 - 1	ALWAYS
	Graphic Annotation	Table 9.1.1.7.6 - 1	Only if Graphic Annotations are present
	Graphic Layer	Table 9.1.1.7.7 - 1	Only if Graphic Annotations are present
	Modality LUT	Table 9.1.1.7.8 - 1	ALWAYS
	Softcopy VOI LUT	Table 9.1.1.7.9 - 1	ALWAYS
	Softcopy Presentation LUT	Table 9.1.1.7.10 - 1	ALWAYS

9.1.1.2 Secondary Capture IODs

This section describes the Secondary Capture IODs which are created by RamSoft PACS when the user imports the image to Study in Patient Explorer.

Table 9.1.1.2 -1

IOD of Created Secondary Capture SOP Instances

IE	MODULE	REFERENCE	PRESENCE OF MODULE
Patient	Patient	Table 9.1.1.6.1 - 1	ALWAYS
Visit	Visit Admission Module	Table 9.1.1.6.2 - 1	ALWAYS
	Visit Identification Module	Table 9.1.1.6.3 - 1	ALWAYS
	Visit Status Module	Table 9.1.1.6.4 - 1	ALWAYS
Study	General Study	Table 9.1.1.6.5 - 1	ALWAYS
	Requested Procedure Module	Table 9.1.1.6.6 - 1	VNAP
	Patient Study	Table 9.1.1.6.7 - 1	ALWAYS
Series	General Series	Table 9.1.1.6.8 - 1	ALWAYS
Equipment	General Equipment	Table 9.1.1.6.9 - 1	ALWAYS
	SC Equipment	Table 9.1.1.8.1 - 1	ALWAYS
Image	General Image	Table 9.1.1.8.2 - 1	ALWAYS
	Image Pixel	Table 9.1.1.8.3 - 1	ALWAYS
	SOP Common	Table 9.1.1.8.4 - 1	ALWAYS
	Modality LUT	Table 9.1.1.8.5 -1	ALWAYS
	Softcopy VOI LUT	Table 9.1.1.8.6 - 1	ALWAYS

9.1.1.3 Hardcopy IODs

This section describes the Hardcopy IODs which are created by RamSoft PACS when the user scanning the image to Study in Patient Explorer.

Table 9.1.1.3 -1

IOD of Created Hardcopy SOP Instances

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IE	MODULE	REFERENCE	PRESENCE OF MODULE
Patient	Patient	Table 9.1.1.6.1 - 1	ALWAYS
Visit	Visit Admission Module	Table 9.1.1.6.2 - 1	ALWAYS
	Visit Identification Module	Table 9.1.1.6.3 - 1	ALWAYS
	Visit Status Module	Table 9.1.1.6.4 - 1	ALWAYS
Study	General Study	Table 9.1.1.6.5 - 1	ALWAYS
	Requested Procedure Module	Table 9.1.1.6.6 - 1	VNAP
	Patient Study	Table 9.1.1.6.7 - 1	ALWAYS
Series	General Series	Table 9.1.1.6.8 - 1	ALWAYS
Equipment	General Equipment	Table 9.1.1.6.9 - 1	ALWAYS
	SC Equipment	Table 9.1.1.9.1 - 1	ALWAYS
Image	General Image	Table 9.1.1.9.2 - 1	ALWAYS
	Image Pixel	Table 9.1.1.9.3 - 1	ALWAYS
	SOP Common	Table 9.1.1.9.4 - 1	ALWAYS
	Modality Lut	Table 9.1.1.9.5 - 1	ALWAYS
	Softcopy VOI LUT	Table 9.1.1.9.6 - 1	ALWAYS
	Softcopy Presentation LUT Module	Table 9.1.1.9.7 - 1	ALWAYS

9.1.1.4 Encapsulated PDF Document IODs

This section describes the PDF Document IODs which are created by RamSoft PACS when the user performs attachment of document in Document Viewer

Table 9.1.1.4 - 1

IOD of PDF Documents SOP Instances

IE	MODULE	REFERENCE	PRESENCE OF MODULE
Patient	Patient	Table 9.1.1.6.1 - 1	ALWAYS
Visit	Visit Admission Module	Table 9.1.1.6.2 - 1	ALWAYS
	Visit Identification Module	Table 9.1.1.6.3 - 1	ALWAYS
	Visit Status Module	Table 9.1.1.6.4 - 1	ALWAYS
Study	General Study	Table 9.1.1.6.5 - 1	ALWAYS
	Requested Procedure Module	Table 9.1.1.6.6 - 1	VNAP
	Patient Study	Table 9.1.1.6.7 - 1	ALWAYS
Series	General Series	Table 9.1.1.6.8 - 1	ALWAYS
Equipment	General Equipment	Table 9.1.1.6.9 - 1	ALWAYS
	SC Equipment	Table 9.1.1.10.1 - 1	ALWAYS
	General Image	Table 9.1.1.10.2 - 1	ALWAYS

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Encapsulated Document	Encapsulated Document	Table 9.1.1.10.3 - 1	ALWAYS
	SOP Common	Table 9.1.1.10.4 - 1	ALWAYS

9.1.1.5 Structured Report Document IODs

This section describes the Structured Report Document IODs which are created by RamSoft PACS when the user creating report or performs attachment of document to the report in Document Viewer. The implementation supports all three general purpose SR document classes as specified in the DICOM 2003 standard: Basic Text SR, Enhanced SR and Comprehensive SR.

Table 9.1.1.5 - 1

IOD of Structured Report Document SOP Instances

IE	MODULE	REFERENCE	PRESENCE OF MODULE
Patient	Patient	Table 9.1.1.6.1 - 1	ALWAYS
Visit	Visit Admission Module	Table 9.1.1.6.2 - 1	ALWAYS
	Visit Identification Module	Table 9.1.1.6.3 - 1	ALWAYS
	Visit Status Module	Table 9.1.1.6.4 - 1	ALWAYS
Study	General Study	Table 9.1.1.6.5 - 1	ALWAYS
	Requested Procedure Module	Table 9.1.1.6.6 - 1	VNAP
	Patient Study	Table 9.1.1.6.7 - 1	ALWAYS
Series	General Series	Table 9.1.1.6.8 - 1	ALWAYS
Equipment	General Equipment	Table 9.1.1.6.9 - 1	ALWAYS
Document	General Image	Table 9.1.1.11.1 - 1	ALWAYS
	SR Document General	Table 9.1.1.11.2 - 1	ALWAYS
	SR Document Content (Text Content)	Table 9.1.1.11.3 - 1	ALWAYS
	SR Document Content (Binary Content)	Table 9.1.1.11.4 - 1	ALWAYS
	SOP Common	Table 9.1.1.11.5 - 1	ALWAYS

9.1.1.6 Common Modules

9.1.1.6.1 Patient Module

Table 9.1.1.6.1- 1

Patient Module of Created SOP Instances

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Attribute Name	Tag	VR	Value	Presence of Value	Source
Patient's Name	(0010,0010)	PN	From Modality WorkList or Store SCU or user Input	ALWAYS	MWL / STORE SCU / USER
Patient ID	(0010,0020)	LO	From Modality WorkList or Store SCU or user Input	ALWAYS	MWL / STORE SCU / USER
Issuer of Patient ID	(0010,0021)	LO	From Modality WorkList or Store SCU or auto generated	ALWAYS	MWL / STORE SCU / AUTO
Patient's Birth Date	(0010,0030)	DA	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Patient's Sex	(0010,0040)	CS	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Patient's Insurance Plan Code Sequence	(0010,0050)	SQ	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
> Code Value	(0008,0100)	SH	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Patient's Address	(0010,1040)	CS	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Patient's Primary Language Code Sequence	(0010,0101)	SH	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Ethnic Group	(0010,2160)	SH	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
> Code Value	(0008,0100)	SH	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
RamSoft Race Identifier	(3129,0010)	Private Tag (LO)	Copied from referenced Image Object	ALWAYS	AUTO
Race	(3129,1010)	Private Tag (LO)	From Modality WorkList or Store SCU or user Input	ALWAYS	MWL / STORE SCU / USER / AUTO
Other Patient IDs	(0010,1000)	LO	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Country of Residence	(0010,2150)	LO	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Patient's Telephone Numbers	(0010,2154)	SH	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER

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Smoking Status	(0010,21A0)	CS	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Patient's Mother's Birth Name	(0010, 1060)	PN	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Allergies	(0010,2110)	LO	From Modality WorkList or STORE SCU or user Input The format is following: ALLERGY NAME\ALLERGY NOTES\SEVERITY	VNAP	MWL / STORE SCU / USER
Patient's Comments	(0010,4000)	LT	From Store SCU or user Input	VNAP	STORE SCU / USER

9.1.1.6.2 Visit Admission Module

Table 9.1.1.6.2- 1

Visit Admission Module of Created SOP Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Route of Admissions	(0038,0016)	LO	From Modality WorkList or Store SCU	VNAP	MWL, STORE SCU
Admitting Date	(0038,0020)	DA	From Store SCU	VNAP	STORE SCU
Admitting Time	(0038,0021)	TM	From Store SCU	VNAP	STORE SCU

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9.1.1.6.3 Visit Identification Module

Table 9.1.1.6.3- 1

Visit Identification Module of Created SOP Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Admission ID	(0038,0010)	LO	From Store SCU	VNAP	STORE SCU

9.1.1.6.4 Visit Status Module

Table 9.1.1.6.4 - 1

Visit Module Status of Created SOP Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Current Patient Location	(0038,0300)	LO	From Store SCU or user Input	VNAP	STORE SCU / USER
Visit Comments	(0038,4000)	LT	From Store SCU or user Input	VNAP	STORE SCU / USER

9.1.1.6.5 General Study Module

Table 9.1.1.6.5 - 1

General Study Module Attributes of Created SOP Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Study Instance UID	(0020,000D)	UI	From Modality WorkList or Store SCU or auto generated	ALWAYS	MWL / STORE SCU / AUTO
Study Date	(0008,0020)	DA	From Modality WorkList or Store SCU or user Input	ALWAYS	MWL / STORE SCU
Study Time	(0008,0030)	TM	From Modality WorkList or Store SCU or user Input	ALWAYS	MWL / STORE SCU
Study ID	(0020,0010)	SH	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / AUTO
Accession Number	(0008,0050)	SH	From Modality WorkList or Store SCU or user Input	ALWAYS	MWL / STORE SCU / USER
Study Description	(0008,1030)	LO	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER

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Referring Physician's Name	(0008,0090)	PN	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU /USER
Physician(s) of Record	(0008,1048) Value Multiplicity (1-n)	PN	From Modality WorkList or Store SCU or user Input (List of Consulting Physicians)	VNAP	MWL / STORE SCU / USER
Performing Physician's Name	(0008,1050)	PN	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Name of Physician Reading Study	(0008,1060)	PN	From Modality WorkList or Store SCU or user Input	ALWAYS	MWL / STORE SCU / USER
Interpretation Transcriber	(4008,010a)	PN	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Operator's Name	(0008,1070)	PN	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Reason For Study	(0032,1030)	LO	From Modality WorkList or Store SCU or user Input (Study Symptoms)	VNAP	MWL / STORE SCU / USER
Study Comments	(0032,4000)	LT	From Modality WorkList or Store SCU or user Input (Study Comments)	VNAP	MWL / STORE SCU / USER
Study Status ID	(0032,000A)	CS	From Modality WorkList or Store SCU or user Input	ALWAYS	MWL / STORE SCU / USER
Study Priority ID	(0032,000C)	CS	From Modality WorkList or Store SCU or user Input	ALWAYS	MWL / STORE SCU / USER
Procedure Code Sequence	(0008,1032)	SQ	From Modality WorkList or Store SCU or user Input (One or more Items are permitted in this Sequence)	VNAP	MWL / STORE SCU / USER
-> Code Value	(0008,0100)	SH	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
-> Coding Scheme Designator	(0008,0102)	SH	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
-> Code Meaning	(0008,0104)	LO	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER

9.1.1.6.6 Requested Procedure Module

Table 9.1.1.6.6 - 1

Requested Procedure Module Attributes of Created SOP Instances

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Attribute Name	Tag	VR	Value	Presence of Value	Source
Requested Procedure ID	(0040,1001)	SH	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Requested Procedure Priority	(0040,1003)	SH	From Modality WorkList or Store SCU or user Input	ALWAYS	MWL / STORE SCU / USER

9.1.1.6.7 Patient Study Module

Table 9.1.1.6.7 - 1

Patient Study Module Attributes of Created SOP Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Patient's Height	(0010,1020)	DS	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Patient's Weight	(0010,1030)	DS	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Additional Patient History	(0010,21B0)	LT	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
Admitting Diagnoses Code Sequence	(0008,1084)	SQ	From Modality WorkList or Store SCU or user Input (One or more Items are permitted in this Sequence)	VNAP	MWL / STORE SCU / USER
-> Code Value	(0008,0100)	SH	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
-> Coding Scheme Designator	(0008,0102)	SH	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER
-> Code Meaning	(0008,0104)	LO	From Modality WorkList or Store SCU or user Input	VNAP	MWL / STORE SCU / USER

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9.1.1.6.8 General Series Module

Table 9.1.1.6.8 - 1

General Series Module Attributes of Created SOP Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Modality	(0008,0060)	CS	• PR – for Created Grayscale Softcopy Presentation State SOP Instances • SC – for Created Secondary Capture SOP Instances • HC – for Created Hardcopy SOP Instances • SR – for Created Structured Report SOP Instances • DOC – for Created Encapsulated PDF Documents SOP Instances	ALWAYS	AUTO
Series Instance UID	(0020,000E)	UI	Auto Generated Using RamSoft UID prefix "1.2.124.113540.1.3"	ALWAYS	AUTO
Series Date	(0008,0021)	DA	Equal to Study Date – for all created SOP Instances	ALWAYS	AUTO
Series Time	(0008,0031)	TM	Equal to Study Time – for all created SOP Instances	ALWAYS	AUTO
Performing Physician's Name	(0008,1050)	PN	From Modality WorkList or STORE SCU or user Input One of Performing Physicians of Study	VNAP	AUTO
Operator's Name	(0008,1070)	PN	Technician in Study List	VNAP	AUTO
Series Number	(0020,0011)	IS	• For Created Grayscale Softcopy Presentation State SOP Instances - Series Number equal to Series Number of	ALWAYS	AUTO

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			Referenced Image plus the number of Current Presentation State. • For Created Secondary Capture SOP Instances - Series Number is equal to Series Number of Referenced Image. • For Created Hardcopy SOP Instances - Series Number is equal to Series Number of Referenced Image • For Created Structured Report SOP Instances - Series number is generated if Structured Reports doesn't exist for Study (otherwise existing series number of Structured Reports Series is used). • For Created PDF Documents SOP Instances - Series number is generated if PDF Document doesn't exist for Study (otherwise existing Series number of Encapsulated PDF Documents Series is used).		

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Series Description	(0008,103E)	LO	• For Created Grayscale Softcopy Presentation State SOP Instances - Series Description of Referenced Image. • For Created Secondary Capture SOP Instances - Series Description of Existing Series. • For Created Hardcopy SOP Instances - empty string. • For Created Structured Report SOP Instances – empty string. • For Created PDF Documents SOP Instances – empty string.	VNAP	AUTO
Body Part Examined	(0018,0015)	CS	Body Part Examined	EMPTY	AUTO
Laterality	(0020,0060)	CS	Laterality	EMPTY	AUTO

9.1.1.6.9 General Equipment Module

Table 9.1.1.6.9 - 1

General Equipment Module Attributes of Created SOP Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Manufacturer	(0008,0070)	LO	RamSoft Inc.	ALWAYS	AUTO
Institution Name	(0008,0080)	LO	• For Created Grayscale Softcopy Presentation State SOP Instances - Institution Name of Referenced Image. • For Created Secondary Capture SOP Instances - Institution Name of Existing Series.	ALWAYS	CONFIG

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			• For Created Hardcopy SOP Instances - Name of PowerServer. • For Created Structured Report SOP Instances – Institution Name of Related Study. For Created PDF Documents SOP Instances – Institution Name of Related Study.		
Station Name	(0008,1010)	LO	• For Created Grayscale Softcopy Presentation State SOP Instances - Station Name of Referenced Image. • For Created Secondary Capture SOP Instances - Station Name of Existing Series. • For Created Hardcopy SOP Instances - Station Name of Existing Series. • For Created Structured Report SOP Instances – newer sent. For Created PDF Documents SOP Instances – newer sent.	VNAP	AUTO
Manufacturer Model Name	(0008,1090)	LO	RAMSOFT POWESERVER	ALWAYS	AUTO
Software Versions	(0018,1020)	LO	6.0	ALWAYS	AUTO

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9.1.1.7 Grayscale Softcopy Presentation State Modules (GSPS)

9.1.1.7.1 Presentation State

Table 9.1.1.7.1 - 1

Presentation State Module Attributes of GSPS Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Instance Number	(0020,0013)	IS	Auto Generated (Number of Current Presentation State Instance of Referenced Image)	ALWAYS	AUTO
Presentation Label	(0070,0080)	CS	Auto Generated (Editable Name - Default – "ZOOM" + (Number of Current Presentation State Instance of Referenced Image) + Frame Number	ALWAYS	AUTO
Presentation Description	(0070,0081)	LO	Empty string	EMPTY	AUTO
Presentation Creation Date	(0070,0082)	DA	Auto Generated (Current Date)	ALWAYS	AUTO
Presentation Creation Time	(0070,0083)	TM	Auto Generated (Current Time)	ALWAYS	AUTO
Presentation Creator's Name	(0070,0084)	PN	Auto Generated (User's Name who created Presentation State)	ALWAYS	AUTO
Referenced Series Sequence	(0008,1115)	SQ	Auto Generated	ALWAYS	AUTO
> Series Instance UID	(0020,000E)	UI	Auto Generated	ALWAYS	AUTO
> Referred Image Sequence	(0008,1140)	SQ	Auto Generated	ALWAYS	AUTO
>> Referenced SOP Class UID	(0008,1150)	UI	Equal to SOP Class UID of Referenced Image	ALWAYS	AUTO

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>> Referenced SOP Instance UID	(0008,1155)	UI	Equal to SOP Instance UID of Referenced Image	ALWAYS	AUTO
>> Referenced Frame Number	(0008,1160)	IS	Auto Generated (In case of Multifrtame Annotated all related frames of Referenced Image using VM delimiter)	ALWAYS	AUTO

9.1.1.7.2 SOP Common

Table 9.1.1.7.2 - 1

SOP Common Module Attributes of GSPS Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
SOP Class UID	(0008,0016)	UI	Grayscale Softcopy Presentation State Storage: "1.2.840.10008.5.1.4.1.1.11.1"	ALWAYS	AUTO
SOP Instance UID	(0008,0018)	UI	Generated automatically	ALWAYS	AUTO
Specific Character Set	(0008,0005)	UI	Equal to Presentation State of Referenced Image	ALWAYS	AUTO
Instance Creation Date	(0008,0012)	DA	Auto Generated (Date of Created Presentation State)	ALWAYS	AUTO
Instance Creation Time	(0008,0013)	TM	Auto Generated (Time of Created Presentation State)	ALWAYS	AUTO
Instance Creator UID	(0008,0014)	UI	1.2.124.113540.0.0	ALWAYS	AUTO
Timezone Offset From UTC	(0008,0201)	SH	Offset Timezone Offset From UTC of Referenced Image	ALWAYS	AUTO

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9.1.1.7.3 General Image

Table 9.1.1.7.3 - 1

General Image Module Attributes of GSPS Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Content Date	(0008,0023)	DA	Auto Generated (Current Date)	ALWAYS	AUTO
Content Time	(0008,0033)	TM	Auto Generated (Current Time)	ALWAYS	AUTO
Acquisition Date	(0008,0022)	DA	Auto Generated (Current Date)	ALWAYS	AUTO
Acquisition Time	(0008,0032)	TM	Auto Generated (Current Time)	ALWAYS	AUTO
Acquisition DateTime	(0008,002A)	DT	Auto Generated (Current DateTime)	ALWAYS	AUTO
Acquisition Number	(0020,0012)	IS	-1	ALWAYS	AUTO

9.1.1.7.4 Display Shutter Module

Table 9.1.1.7.4 - 1

Display Shutter Module Attributes of Created GSPS Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Shutter Shape	(0018,1600)	CS	Enumerated Values: RECTANGULAR CIRCULAR POLYGONAL	ALWAYS	AUTO
Shutter Left Vertical Edge	(0018,1602)	IS	Sent if one value of Shutter Shape is rectangular	ALWAYS	AUTO
Shutter Right Vertical Edge	(0018,1604)	IS	Sent if one value of Shutter Shape is rectangular	ALWAYS	AUTO
Shutter Upper Horizontal Edge	(0018,1606)	IS	Sent if one value of Shutter Shape is rectangular	ALWAYS	AUTO
Shutter Lower Horizontal Edge	(0018,1608)	IS	Sent if one value of Shutter Shape is rectangular	ALWAYS	AUTO
Center of Circular Shutter	(0018,1610)	IS	Sent if one value of Shutter Shape is rectangular	ALWAYS	AUTO

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			(2 values with VM delimiter)		
Radius of Circular Shutter	(0018,1612)	IS	Sent if one value of Shutter Shape is rectangular (2 – 2n values with VM delimiter)	ALWAYS	AUTO
Vertices of the Polygonal Shutter	(0018,1620)	IS	Sent if one value of Shutter Shape is Polygonal	ALWAYS	AUTO
Shutter Presentation Value	(0018,1622)	US	Auto Generated if Shutter is present	ALWAYS	AUTO

9.1.1.7.5 Displayed Area Module

Table 9.1.1.7.5 - 1

Displayed Area Module Attributes of GSPS Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Displayed Area Selection Sequence	(0070,005A)	SQ	Auto Generated	ALWAYS	AUTO
> Referenced Image Sequence	(0008,1140)	SQ	Auto Generated	ALWAYS	AUTO
>> Referenced SOP Class UID	(0008,1150)	UI	Equal to SOP Class UID of Referenced Image	ALWAYS	AUTO
>> Referenced SOP Instance UID	(0008,1155)	UI	Equal to SOP Instance UID of Referenced Image	ALWAYS	AUTO
>> Referenced Frame Number	(0008,1160)	IS	Frame Number of Referenced Image	ALWAYS	AUTO
> Displayed Area Top Left Hand Corner	(0070,0052)	SL	(2 values with VM delimiter)	ALWAYS	AUTO
> Displayed Area Top Bottom Right Corner	(0070,0053)	SL	(2 values with VM delimiter)	ALWAYS	AUTO
> Presentation State Mode	(0070,0100)	CS	Enumerated Values: SCALE TO FIT TRUE SIZE MAGNIFY	ALWAYS	AUTO
> Presentation Pixel Spacing	(0070,0101)	DS	The values are identical to PixelSpacing of Referenced	ALWAYS	AUTO

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			Image (2 values with VM delimiter)		
> Presentation Pixel Spacing	(0070,0102)	DS	Generated if Presentation Pixel Spacing is not present	VNAP	AUTO
> Presentation Pixel Magnification Ratio	(0070,0103)	FL	Auto Generated	ALWAYS	AUTO
RamSoft Arbitrary Rotation Identifier	(310F,0010)	Private Tag (LO)	Generated if Arbitrary Rotation is present	VNAP	AUTO
Ramsoft Arbitrary Rotation	(310F,1010)	Private Tag (US)	Arbitrary Rotation Angle	VNAP	AUTO
RamSoft Apply Auto Size	(3121,1020)	Private Tag (CS)	Enumerated values: YES = Apply NO = Not Apply	ALWAYS	AUTO
RamSoft Fit To Width Identification	(3181, 0010)	Private Tag (LO)	Auto Generated Private Creator	ALWAYS	AUTO
RamSoft Fit To Width	(3181, 1010)	Private Tag (CS)	FIT TO WITH	VNAP	AUTO
RamSoft Image Horizontal Flip Identifier	(3185, 0010)	Private Tag (LO)	Auto Generated Private Creator	ALWAYS	AUTO
RamSoft Image Horizontal Flip	(3185,1010)	Private Tag (CS)	Enumerated values: Y, N	ALWAYS	AUTO
RamSoft Image Rotation Identifier	(3187,0010)	Private Tag (LO)	Auto Generated Private Creator	ALWAYS	AUTO
RamSoft Image Horizontal Flip	(3187,1010)	Private Tag (US)	Enumerated values: 0, 90, 180, 270	ALWAYS	AUTO

Note: In case of Multi-Frame Image Referenced Image Sequence is generated for each frame

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9.1.1.7.6 Graphic Annotation Module

Table 9.1.1.7.6 - 1

Graphic Annotation Module Attributes of GSPS Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Graphic Annotation Sequence	(0070,0001)	SQ	Generated only if Graphic Annotations are present	VNAP	AUTO
> Referenced Image Sequence	(0008, 1140)	SQ	Generated only if Graphic Annotations are present	VNAP	AUTO
>> Referenced SOP Class UID	(0008,1150)	UI	Equal to SOP Class UID of Referenced Image	VNAP	AUTO
>> Referenced SOP Instance UID	(0008,1155)	UI	Equal to Instance UID of Referenced Image	VNAP	AUTO
>> Referenced Frame Number	(0008,1160)	IS	Frame Number of Referenced Image. Sent in case of MultiFrame Referenced Image	VNAP	AUTO
> Graphic Layer	(0070, 0002)	CS	Generated only if Graphic Annotations are present	VNAP	AUTO
> Text Object Sequence	(0070, 0008)	SQ	Sent when text objectsor ROI objects are present in the graphic annotation	VNAP	AUTO
>> Bounding Box Annotation Units	(0070, 0003)	CS	Enumerated Value: PIXEL	VNAP	AUTO
>> Unformatted Text Value	(0070, 0006)	ST	In case of Text Annotation - Text Value entered by User In case of ROI: - Area of ROI in cm square - Perimiter pf ROI in cm - Mean of ROI - Std. Deviation of ROI	VNAP	USER
>> Bounding Box Top Left Hand Corner	(0070,0010)	FL	2 values with VM delimiter	VNAP	USER

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>> Bounding Box Bottom Right Hand Corner	(0070,0011)	FL	2 values with VM delimiter	VNAP	USER
>> Bounding Box Text Horizontal Justification	(0070,0012)	CS	Enumerated Value: LEFT	VNAP	USER
>> Text Annotation Identification	(3179,0010)	Private Tag (LO)	Private Creator. Generated if Text Annotation is present	VNAP	AUTO
>> Referenced Graphic Annotation InstanceUID	(3179,1010)	Private Tag (UI)	Private Tag. Generated if Text Annotation is present	VNAP	AUTO
>> Show Text Annotation	(3179,1020)	Private Tag (CS)	Enumerated values: YES, NO.	VNAP	USER
> Graphic Object Sequence	(0070,0009)	SQ	Sent when graphic objects are present in the graphic annotation	VNAP	AUTO
>> Graphic Annotation Units	(0070,0005)	CS	Enumerated Value: PIXEL	VNAP	AUTO
>> Graphic Dimensions	(0070,0020)	US	Enumerated Value: 2	VNAP	AUTO
>> Number of Graphic Points	(0070,0021)	US	2 - n	VNAP	AUTO
>> Graphic Data	(0070,0022)	FL	(2 – 2n values with VM delimiter)	VNAP	AUTO
>> Graphic Type	(0070,0023)	CS	Enumerated Values: RECTANGULAR CIRCULAR POLYGONAL	VNAP	AUTO
>> Graphic Filled	(0070,0024)	CS	Enumerated Values: Y, N	VNAP	AUTO

Note: In case of Multi-Frame Image Referenced Image Sequence is generated for each frame

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9.1.1.7.7 Graphic Layer Module

This conditional module is sent only if graph annotations are present in the Presentation State module.

Table 9.1.1.7.7 - 1

Graphic Layer Module Attributes of GSPS Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Graphic Layer Sequence	(0070,0060)	SQ	Generated only if Graphic Annotations are present	VNAP	AUTO
> Graphic Layer	(0070,0002)	CS	Graphic Layer Description Support only “Layer 0” value	VNAP	AUTO
> Graphic Layer Order	(0070,0062)	IS	Graphic Layer Order Support only First Layer	VNAP	AUTO

9.1.1.7.8 Modality LUT Module

This conditional module is sent only if graph annotations are present in the Presentation State module.

Table 9.1.1.7.8 - 1

Modality LUT Module Attributes of GSPS Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Resacale Intercept	(0028,1052)	DS	Copied from referenced image object in case of MONOCHROME Image	ALWAYS	AUTO
Resacale Slope	(0028,1053)	DS	Copied from referenced image object in case of MONOCHROME Image	ALWAYS	AUTO
Resacale Type	(0028,1054)	LO	Copied from referenced image object if exists in case of MONOCHROME Image. Otherwise in case of MONOCHROME Image value: “US” (unspecified).	ALWAYS	AUTO

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9.1.1.7.9 Softcopy VOI LUT Module

Table 9.1.1.7.9 - 1

Softcopy VOI LUT Module Attributes of GSPS Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
SoftCopy VOI LUT Sequence	(0028,3110)	SQ		ALWAYS	AUTO
> Referenced Image Sequence	(0008,1140)	SQ		ALWAYS	AUTO
>> Referenced SOP Class UID	(0008,1150)	UI	Equal to SOP Class UID of Referenced Image	ALWAYS	AUTO
>> Referenced SOP Instance UID	(0008,1155)	UI	Equal to SOP Instance UID of Referenced Image	ALWAYS	AUTO
>> Referenced Frame Number	(0008,1160)	IS	Frame Number of Referenced Image. Sent in case of Multi-Frame Referenced Image	ALWAYS	AUTO
Window Center	(0028,1050)	DS	User established value	ALWAYS	AUTO
Window Center	(0028,1051)	DS	User established value	ALWAYS	AUTO

9.1.1.7.10 Softcopy Presentation LUT Module

Table 9.1.1.7.10 - 1

Softcopy Presentation LUT Module Attributes of GSPS Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Presentation LUT Shape	(2050, 0010)	CS	Enumerated Values: NORMAL, INVERSE	VNAP	AUTO

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9.1.1.8 Secondary Capture IOD

9.1.1.8.1 SC Equipment

Table 9.1.1.8.1 - 1

SC Equipment Module Attributes of Secondary Capture Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Conversion Type	(0008,0064)	CS	Enumerated Value: WSD	ALWAYS	AUTO

9.1.1.8.2 General Image

Table 9.1.1.8.2 - 1

General Image Module Attributes of Secondary Capture Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Content Date	(0008,0023)	DA	Auto Generated (Current Date)	ALWAYS	AUTO
Content Time	(0008,0033)	TM	Auto Generated (Current Time)	ALWAYS	AUTO
Acquisition Date	(0008,0022)	DA	Auto Generated (Current Date)	ALWAYS	AUTO
Acquisition Time	(0008,0032)	TM	Auto Generated (Current Time)	ALWAYS	AUTO
Acquisition DateTime	(0008,002A)	DT	Auto Generated (Current DateTime)	ALWAYS	AUTO
Acquisition Number	(0020,0012)	IS	-1	ALWAYS	AUTO
Instance Number	(0020,0013)	IS	Increrased Last Image Number in Series	ALWAYS	AUTO
Patient Orientation	(0020,0020)	CS	Auto Generated	EMPTY	AUTO
Frame of ReferenceUID	(0020,0052)	CS	Auto Generated	EMPTY	AUTO
Time zone Offset From UTC	(0008,0201)	SH	Equal to Time zone Offset of the Study.	ALWAYS	AUTO
Image Type	(0008,0008)	CS	Enumerated value: DERIVED\PRIMARY	ALWAYS	AUTO

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9.1.1.8.3 Image Pixel

Table 9.1.1.8.39.1.1.8.2 - 1

Image Pixel Module Attributes of Secondary Capture Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Transfer Syntax	(0002,0010)	UI	JPEG 2000 LossLess Only 1.2.840.10008.1.2.4.90	ALWAYS	AUTO
Samples per Pixel	(0028,0002)	US	Grayscale Image: 1 Color Image: 3	ALWAYS	AUTO
Photometric Interpretation	(0028,0004)	CS	Grayscale Image: MONOCHROME2 Color Image: YBR_RCT	ALWAYS	AUTO
Number of Frames	(0028,0008)	IS	1 –n	ALWAYS	AUTO
Rows	(0028,0010)	US	Number of rows of imported image	ALWAYS	AUTO
Columns	(0028,0011)	US	Number of columns of imported image	ALWAYS	AUTO
Bits Allocated	(0028,0100)	US	Enumerated Value: 8	ALWAYS	AUTO
Bits Stored	(0028,0101)	US	Enumerated Value: 8	ALWAYS	AUTO
High Bit	(0028,0102)	US	Enumerated Value: 7	ALWAYS	AUTO
Pixel Representation	(0028,0103)	US	Enumerated Value: 0	ALWAYS	AUTO
Planar Configuration	(0028,0006)	US	Enumerated Value: 1	ALWAYS	AUTO
Lossy Image Compression	(0028,2110)	CS	Enumerated Value: 00	ALWAYS	AUTO
Pixel Data	(7FE0,0010)	OB	Always generated as OB	ALWAYS	AUTO

9.1.1.8.4 SOP Common Module

Table 9.1.1.8.49.1.1.8.2 - 1

SOP Common Module Attributes of Secondary Capture Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
SOP Class UID	(0008,0016)	UI	Secondary Capture Image Storage: 1.2.840.10008.5.1.4.1.1.7	ALWAYS	AUTO
SOP Instance UID	(0008,0018)	UI	Generated automatically	ALWAYS	AUTO

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Specific Character Set	(0008,0005)	CS	UTF8 Character Set ISO_IR 192	ALWAYS	AUTO
Instance Creation Date	(0008,0012)	DA	Auto Generated (Date of Created Secondary Capture Image)	ALWAYS	AUTO
Instance Creation Time	(0008,0013)	TM	Auto Generated (Time of Created Secondary Capture Image)	ALWAYS	AUTO
Instance Creator UID	(0008,0014)	UI	1.2.124.113540.0.0	ALWAYS	AUTO
Timezone Offset From UTC	(0008,0201)	SH	Offset Timezone Offset From UTC of Study	ALWAYS	AUTO

9.1.1.8.5 Modality LUT Module

Table 9.1.1.8.59.1.1.8.2 - 1

Modality LUT Module Attributes of Secondary Capture Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Resacale Intercept	(0028,1052)	DS	0.000000 in case of Grayscale Image	ALWAYS	AUTO
Resacale Slope	(0028,1053)	DS	1.000000 in case of Grayscale Image	ALWAYS	AUTO
Resacale Type	(0028,1054)	DS	US in case of Grayscale Image	ALWAYS	AUTO

9.1.1.8.6 Softcopy VOI LUT Module

Table 9.1.1.8.6 - 1

Softcopy VOI LUT Module Attributes of Secondary Capture Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Window Center	(0028,1050)	DS	In case of Grayscale Image: 128	ALWAYS	AUTO
Window Width	(0028,1051)	DS	In case of Grayscale Image: 256	ALWAYS	AUTO

9.1.1.9 Hardcopy IOD

9.1.1.9.1 SC Equipment

Table 9.1.1.9.1 - 1

Hardcopy Equipment Module Attributes of Hardcopy Instances

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Attribute Name	Tag	VR	Value	Presence of Value	Source
Conversion Type	(0008,0064)	CS	Enumerated Value: DF	ALWAYS	AUTO

9.1.1.9.2 General Image

Table 9.1.1.9.2 - 1

General Image Module Attributes of Hardcopy Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Content Date	(0008,0023)	DA	Auto Generated (Date of Created Hardcopy Image)	ALWAYS	AUTO
Content Time	(0008,0033)	TM	Auto Generated (Time of Created Hardcopy Image)	ALWAYS	AUTO
Acquisition Date	(0008,0022)	DA	Auto Generated (Date of Created Hardcopy Image)	ALWAYS	AUTO
Acquisition Time	(0008,0032)	TM	Auto Generated (Time of Created Hardcopy Image)	ALWAYS	AUTO
Acquisition DateTime	(0008,002A)	DT	Auto Generated (Date and Time of Created Hardcopy Image)	ALWAYS	AUTO
Acquisition Number	(0020,0012)	IS	-1	ALWAYS	AUTO
Instance Number	(0020,0013)	IS	1	ALWAYS	AUTO
Patient Orientation	(0020,0020)	CS	Auto Generated	EMPTY	AUTO
Frame of ReferenceUID	(0020,0052)	CS	Auto Generated	EMPTY	AUTO
Image Type	(0008,0008)	CS	Enumerated value: DERIVED\PRIMARY	ALWAYS	AUTO

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9.1.1.9.3 Image Pixel

Table 9.1.1.9.39.1.1.8.2 - 1

Image Pixel Module Attributes of Hardcopy Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Transfer Syntax	(0002,0010)	UI	JPEG LossLess, Non-hierarchical, 1st Order Prediction 1.2.840.10008.1.2.4.70	ALWAYS	AUTO
Samples per Pixel	(0028,0002)	US	Grayscale Image: 1 Color Image: 3	ALWAYS	AUTO
Photometric Interpretation	(0028,0004)	CS	Grayscale Image: MONOCHROME2 Color Image: RGB	ALWAYS	AUTO
Number of Frames	(0028,0008)	IS	1	ALWAYS	AUTO
Rows	(0028,0010)	US	Number of rows of scanned image	ALWAYS	AUTO
Columns	(0028,0011)	US	Number of columns of scanned image	ALWAYS	AUTO
Bits Allocated	(0028,0100)	US	Enumerated Value: 8	ALWAYS	AUTO
Bits Stored	(0028,0101)	US	Enumerated Value: 8	ALWAYS	AUTO
High Bit	(0028,0102)	US	Enumerated Value: 7	ALWAYS	AUTO
Pixel Representation	(0028,0103)	US	Enumerated Value: 0	ALWAYS	AUTO
Planar Configuration	(0028,0006)	US	Enumerated Value: 1	ALWAYS	AUTO
Imager Pixel Spacing	(0018,1164)	DS	Default Values in mm: 0.1693333\0.1693333	ALWAYS	CONFIG
Burned In Annotation	(0028,0301)	CS	Enumerated Value: YES	ALWAYS	AUTO
Lossy Image Compression	(0028,2110)	CS	Enumerated Value: 00	ALWAYS	AUTO
Pixel Data	(7FE0,0010)	OB	Always generated as OB	ALWAYS	AUTO

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9.1.1.9.4 SOP Common Module

Table 9.1.1.9.49.1.1.8.2 - 1

SOP Common Module Attributes of Hardcopy Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
SOP Class UID	(0008,0016)	UI	Multiframe True Color Secondary Capture Image Storage: 1.2.840.10008.5.1.4.1.1.7.4	ALWAYS	AUTO
SOP Instance UID	(0008,0018)	UI	Generated automatically	ALWAYS	AUTO
Specific Character Set	(0008,0005)	CS	UTF8 Character Set ISO_IR 192	ALWAYS	AUTO
Instance Creation Date	(0008,0012)	DA	Auto Generated (Date of Created Hardcopy Image)	ALWAYS	AUTO
Instance Creation Time	(0008,0013)	TM	Auto Generated (Time of Created Hardcopy Image)	ALWAYS	AUTO
Instance Creator UID	(0008,0014)	UI	1.2.124.113540.0.0	ALWAYS	AUTO
Timezone Offset From UTC	(0008,0201)	SH	Offset Timezone Offset From UTC of Study	ALWAYS	AUTO

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9.1.1.9.5 Modality LUT Module

Table 9.1.1.9.59.1.1.8.2 - 1

Modality LUT Module Attributes of Hardcopy Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Resacale Intercept	(0028,1052)	DS	0.000000 in case of Grayscale Image	ALWAYS	AUTO
Resacale Slope	(0028,1053)	DS	1.000000 in case of Grayscale Image	ALWAYS	AUTO
Resacale Type	(0028,1054)	DS	US in case of Grayscale Image	ALWAYS	AUTO

9.1.1.9.6 Softcopy VOI LUT Module

Table 9.1.1.9.6 - 1

Softcopy VOI LUT Module Attributes of Created GSPS Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Window Center	(0028,1050)	DS	In case of Grayscale Image: 128	ALWAYS	AUTO
Window Width	(0028,1051)	DS	In case of Grayscale Image: 256	ALWAYS	AUTO

9.1.1.9.7 Softcopy Presentation LUT Module

Table 9.1.1.9.7 - 1

Softcopy Presentation LUT Module Attributes of Created GSPS Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Presentation LUT Shape	(2050,0010)	CS	In case Grayscale Image Enumerated Values: NORMAL	ALWAYS	AUTO

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9.1.1.10 Encapsulated PDF Document IOD

9.1.1.10.1 SC Equipment

Table 9.1.1.10.1 - 1

SC Equipment Module Attributes of Encapsulated PDF Document Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Conversion Type	(0008,0064)	CS	Enumerated Value: WSD	ALWAYS	AUTO

9.1.1.10.2 General Image

Table Error! Reference source not found. **- 1**

General Image Module Attributes of Encapsulated PDF Document Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Content Date	(0008,0023)	DA	Auto Generated (The date the document content creation was started)	ALWAYS	AUTO
Content Time	(0008,0033)	TM	Auto Generated (The time the document content creation was started)	ALWAYS	AUTO
Acquisition Date	(0008,0022)	DA	Auto Generated (The date the document content creation was started)	ALWAYS	AUTO
Acquisition Time	(0008,0032)	TM	Auto Generated (The time the document content creation was started.	ALWAYS	AUTO
Acquisition DateTime	(0008,002A)	DT	Auto Generated (The date and time the document content creation was started)	ALWAYS	AUTO
Acquisition Number	(0020,0012)	IS	-1	ALWAYS	AUTO
Instance Number	(0020,0013)	IS	Number of Document in PDF Document Series	ALWAYS	AUTO

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9.1.1.10.3 Encapsulated Document

Table 9.1.1.10.3 - 1

Encapsulated Document Module Attributes of Encapsulated PDF Document Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Concept Name Code Sequence	(0040,A043)	SQ	A coded representation of the document title.	ALWAYS	AUTO
>> Code Value	(0008, 0100)	SH	DT.01	ALWAYS	AUTO
>> Coding Scheme Designator	(0008, 0102)	SH	99RAMSOFT	ALWAYS	AUTO
>> Code Meaning	(0008, 0104)	LO	Enumerated Values: Study Level Patient Level	ALWAYS	AUTO
Burned In Annotation	(0028, 0301)	DA	NO	ALWAYS	AUTO
Document Title	(0042, 0010)	ST	Identifies the Title of the Document. For Example (PRELIMINARY, FINAL)	ALWAYS	AUTO
MIME Type of Encapsulated Document	(0042, 0012)	LO	application/pdf	ALWAYS	AUTO
Encapsulated Document	(0042, 0011)	OB	Encapsulated Document stream, containing a document encoded according to the MIME Type	ALWAYS	AUTO
Content Creator Name	(0070,0084)	PN	99RAMSOFT	ALWAYS	AUTO
RamSoft Document Type Identifier	(311B, 0010)	Private Tag (LO)	RamSoft Document Type Identifier (Private Creator)	ALWAYS	AUTO
Document Type	(311B, 1010)	Private Tag (LO)	Document type of Encapsulated PDF Document. See Enumerated Values of Private Tag (311B, 1010) Paragraph 9.2	ALWAYS	AUTO

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9.1.1.10.4 SOP Common Module

Table 9.1.1.10.4 - 1

SOP Common Module Attributes of of Encapsulated PDF Document Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Transfer Syntax UID	(0002,0010)	UI	Deflated Little Endian Explicit 1.2.840.10008.1.2.1.99	ALWAYS	AUTO
SOP Class UID	(0008, 0016)	UI	Encapsulated PDF Storage: 1.2.840.10008.5.1.4.1.1.104.1	ALWAYS	AUTO
SOP Instance UID	(0008, 0018)	UI	Generated automatically	ALWAYS	AUTO
Specific Character Set	(0008, 0005)	CS	UTF8 Character Set ISO_IR 192	ALWAYS	AUTO
Instance Creation Date	(0008, 0012)	DA	Auto Generated (Date of Created Secondary Capture Image)	ALWAYS	AUTO
Instance Creation Time	(0008, 0013)	TM	Auto Generated (Time of Created Secondary Capture Image)	ALWAYS	AUTO
Instance Creator UID	(0008, 0014)	UI	1.2.124.113540.0.0	ALWAYS	AUTO
Timezone Offset From UTC	(0008, 0201)	SH	Offset Timezone Offset From UTC of Study	ALWAYS	AUTO
Coding Scheme Identification Sequence	(0008, 0110)	SQ	Sequence of items that map values of Coding Scheme Designator (0008,0102) to the local coding scheme	ALWAYS	AUTO
> Coding Scheme Designator	(0008, 0102)	SH	99RAMSOFT	ALWAYS	AUTO
> Coding Scheme Version	(0008, 0103)	SH	6.0	ALWAYS	AUTO
> Coding Scheme UID	(0008, 010C)	UI	1.2.124.113540.1.1.6	ALWAYS	AUTO
> Coding Scheme Name	(0008, 0115)	ST	RAMSOFT Coding Scheme	ALWAYS	AUTO
> Responsible Organization	(0010, 2299)	LO	RamSoft Inc.	ALWAYS	AUTO

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9.1.1.11 Structured Report Document IOD

9.1.1.11.1 General Image

Table 9.1.1.11.1 - 1

General Image Module Attributes of Structured Report Document Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Content Date	(0008,0023)	DA	Auto Generated (The date the document content creation was started)	ALWAYS	AUTO
Content Time	(0008,0033)	TM	Auto Generated (The time the document content creation was started)	ALWAYS	AUTO
Acquisition Date	(0008,0022)	DA	Auto Generated (The date the document content creation was started)	ALWAYS	AUTO
Acquisition Time	(0008,0032)	TM	Auto Generated (The time the document content creation was started.	ALWAYS	AUTO
Acquisition DateTime	(0008,002A)	DT	Auto Generated (The date and time the document content creation was started)	ALWAYS	AUTO
Acquisition Number	(0020,0012)	IS	-1	ALWAYS	AUTO
Instance Number	(0020,0013)	IS	Number of Document in SR Document Series	ALWAYS	AUTO

9.1.1.11.2 Structured Document General

Table 9.1.1.11.2 - 1

Structured Document General Module Attributes of Structured Report Document Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Completion Flag	(0040,A491)	CS	Enumerad values: PARTIAL COMPLETED	ALWAYS	AUTO
Verification Flag	(0040,A493)	CS	Enumerad values: UNVERIFIED VERIFIED	ALWAYS	AUTO

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Verification Observer Sequence	(0040,A073)	SQ	Sent if report was verified	VNAP	AUTO
> Verifying Organization	(0040,A027)	LO	Institution Name if the Study	ALWAYS	AUTO
> Verification Date Time	(0040,A030)	DT	Auto Generated (The date and time the document content creation was started)	ALWAYS	AUTO
> Verifying Observer Name	(0040,A075)	PN	Full Name of User who performed report	ALWAYS	AUTO
> Verification Observer Identification Code Sequence	(0040,A088)	SQ	Sent if User exists in RamSoft PACS	VNAP	AUTO
>> Code Value	(0008,0100)	SH	Identification Code of User in RamSoft PACS	ALWAYS	AUTO
>> Coding Scheme Designator	(0008,0102)	SH	99RAMSOFT	ALWAYS	AUTO
>> Code Meaning	(0008,0104)	LO	Enumerated value: Observer	ALWAYS	AUTO
Predecessor Documents Sequence	(0040,A360)	SQ	Generated if Document was verified (signed)	VNAP	AUTO
> Study Instance UID	(0020,000D)	UI	Study Instance UID of examinated study	ALWAYS	AUTO
> Referenced Series Sequence	(0008,1155)	SQ	Generated if Document was verified (signed)	VNAP	AUTO
>> Series Instance UID	(0020,000E)	UI	Series Instance UID of Structured Report Document Series	ALWAYS	AUTO
>> Referenced SOP Sequence	(0008,1199)	SQ	Generated if Document was verified (signed)	VNAP	AUTO
>>> Referenced SOP ClassUID	(0008,1150)	UI	Value: BasicTextSRStorage	ALWAYS	AUTO
>>> Referenced SOP Instance UID	(0008,1155)	UI	SOP Instance UID of Predecessor unverified Structured Report	ALWAYS	AUTO
Performed Procedure Code Sequence	(0040,A372)	SQ	Empty sequence sent	EMPTY	AUTO

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9.1.1.11.3 Structured Document Content (Basic Text)

Table 9.1.1.11.3 - 1

Structured Document Content (Text Content) Module Attributes of Structured Report Document Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Value Type	(0040,A040)	CS	Enumerated Value: CONTAINER	ALWAYS	AUTO
Concept Name Code Sequence	(0040,A043)	SQ	A coded representation of the document title	ALWAYS	AUTO
>> Code Value	(0008,0100)	SH	DT.01	ALWAYS	AUTO
>> Coding Scheme Designator	(0008,0102)	SH	99RAMSOFT	ALWAYS	AUTO
>> Code Meaning	(0008,0104)	LO	Identifies the Title of the Document. For Example (PRELIMINARY, FINAL)	ALWAYS	AUTO
Continuity Of Content	(0040,A050)	CS	Enumerated Value: SEPARATE	ALWAYS	AUTO
Content Sequence	(0040,A730)	SQ		ALWAYS	USER
> Relationship Type	(0040,A010)	CS	CONTAINS	ALWAYS	USER
> ValueType	(0040,A040)	CS	TEXT	ALWAYS	USER
> Concept Name Code Sequence	(0040,A043)	SQ	A coded representation of the document header	ALWAYS	AUTO
>> Code Value	(0008, 0100)	SH	UT_n (n – Identification of the Documnent Header)	ALWAYS	AUTO
>> Coding Scheme Designator	(0008, 0102)	SH	99RAMSOFT	ALWAYS	AUTO
>> Code Meaning	(0008, 0104)	LO	The header of the Document	ALWAYS	AUTO
> Text Value	(0040,A160)	UT	Text editedby the User	USER	AUTO
RamSoft Document Type Identifier	(311B, 0010)	Private Tag (LO)	RamSoft Document Type Identifier (Private Creator)	ALWAYS	AUTO
Document Type	(311B, 1010)	Private Tag (LO)	Document type of Strucured Report Document. See Enumerated Values of Private Tag (311B, 1010) Paragraph 9.2	ALWAYS	AUTO

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9.1.1.11.4 Structured Document Content (Binary Content)

Table 9.1.1.11.4 - 1

Structured Document Content Module Attributes of Structured Report Document Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source
Value Type	(0040,A040)	CS	Enumerated Value: CONTAINER	ALWAYS	AUTO
Concept Name Code Sequence	(0040,A043)	SQ	A coded representation of the document title.	ALWAYS	AUTO
>> Code Value	(0008, 0100)	SH	DT.01	ALWAYS	AUTO
>> Coding Scheme Designator	(0008, 0102)	SH	99RAMSOFT	ALWAYS	AUTO
>> Code Meaning	(0008, 0104)	LO	Identifies the Title of the Document. For Example (PRELIMINARY, FINAL)	ALWAYS	AUTO
Continuity Of Content	(0040,A050)	CS	Enumerated Value: SEPARATE	ALWAYS	AUTO
Content Sequence	(0040,A730)	SQ		ALWAYS	USER
> Relationship Type	(0040,A010)	CS	CONTAINS	ALWAYS	USER
> ValueType	(0040,A040)	CS	TEXT	ALWAYS	USER
> Concept Name Code Sequence	(0040,A043)	SQ	A coded representation of the document header	ALWAYS	AUTO
>> Code Value	(0008, 0100)	SH	UT_n (n – Identification of the Documnent Header)	ALWAYS	AUTO
>> Coding Scheme Designator	(0008, 0102)	SH	99RAMSOFT	ALWAYS	AUTO
>> Code Meaning	(0008, 0104)	LO	Enumerated Value: Report	ALWAYS	AUTO
> Text Value	(0040,A160)	UT	The Text translated from Binary Document	USER	AUTO
RamSoft File Kind Identifier	(3111, 0010)	Private Tag (LO)	RamSoft File Kind Identifier (Private Creator)	ALWAYS	AUTO
File Kind	(3111, 1010)	Private Tag (CS)	RamSoft File Kind of Strucured Report	ALWAYS	AUTO

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			Document. See Enumerated Values of Private Tag (3111, 1010) Paragraph 9.2		
RamSoft Custom Report Identifier	(3113, 0010)	LO	RamSoft Custom Report Identifier (Private Creator)	ALWAYS	AUTO
Custom Report Data	(3113, 1010)	OB	Binary Document stream, containing a document encoded according to Document Kind	ALWAYS	AUTO
Custom Report Data Size	(3113, 1020)	UL	Size of Custom Report Data in bytes	ALWAYS	AUTO
Custom Report Template Data	(3113, 1030)	OB	Custom report Word template data. Generated in case of Word Template	VNAP	AUTO
Custom Report Template Data Size	(3113, 1040)	UL	Size in bytes of custom report Word template in bytes. Generated in case of Word Template.	VNAP	AUTO
RamSoft Document Type Identifier	(311B, 0010)	Private Tag (LO)	RamSoft Document Type Identifier (Private Creator)	ALWAYS	AUTO
Document Type	(311B, 1010)	Private Tag (LO)	Document type of Strucured Report Document. See Enumerated Values of Private Tag (311B, 0010) Paragraph 9.2	ALWAYS	AUTO

9.1.1.11.5 SOP Common Module

Table 9.1.1.11.5 - 1

SOP Common Module Attributes of of Structured Report Document Instances

Attribute Name	Tag	VR	Value	Presence of Value	Source

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Transfer Syntax UID	(0002,0010)	UI	Deflated Little Endian Explicit 1.2.840.10008.1.2.1.99	ALWAYS	AUTO
SOP Class UID	(0008, 0016)	UI	Basic Text SR Storage: 1.2.840.10008.5.1.4.1.1.88.11 Enchanced SR Storage: 1.2.840.10008.5.1.4.1.1.88.22 Comprehensive SR Storage: 1.2.840.10008.5.1.4.1.1.88.33	ALWAYS	AUTO
SOP Instance UID	(0008, 0018)	UI	Generated automatically	ALWAYS	AUTO
Specific Character Set	(0008, 0005)	CS	UTF8 Character Set ISO_IR 192	ALWAYS	AUTO
Instance Creation Date	(0008, 0012)	DA	Auto Generated (Date of Created Secondary Capture Image)	ALWAYS	AUTO
Instance Creation Time	(0008, 0013)	TM	Auto Generated (Time of Created Secondary Capture Image)	ALWAYS	AUTO
Instance Creator UID	(0008, 0014)	UI	1.2.124.113540.0.0	ALWAYS	AUTO
Timezone Offset From UTC	(0008, 0201)	SH	Offset Timezone Offset From UTC of Study	ALWAYS	AUTO
Coding Scheme Identification Sequence	(0008, 0110)	SQ	Sequence of items that map values of Coding Scheme Designator (0008,0102) to the local coding scheme	ALWAYS	AUTO
> Coding Scheme Designator	(0008, 0102)	SH	99RAMSOFT	ALWAYS	AUTO
> Coding Scheme Version	(0008, 0103)	SH	6.0	ALWAYS	AUTO
> Coding Scheme UID	(0008, 010C)	UI	1.2.124.113540.1.1.6	ALWAYS	AUTO
> Coding Scheme Name	(0008, 0115)	ST	RAMSOFT Coding Scheme	ALWAYS	AUTO
> Responsible Organization	(0010, 2299)	LO	RamSoft Inc.	ALWAYS	AUTO

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9.1.2 Usage of Attributes From Received IODs

DICOM acquired images are stored AS IS by RamSoft PACS. Images that do not contain the mandatory fields for RamSoft PACS are rejected.

Table 9.1.2 -1

Image IOD Specifications

Entity Name	Tag	Type	Module Name	Details
Patient's Name	(0010,0010)	2	Patient	This field is mandatory for RamSoft PACS. At a minimum, the last name must be present.
Patient ID	(0010,0020)	2	Patient	If field is not present or blank, it will be auto generated.
Issuer Of PatientID	(0010,0021)	3	Patient	If field is not present or blank, it will be auto generated.
Patient's Birth Date	(0010,0030)	3	Patient	Date of birth of the named patient
Patient's Sex	(0010,0040)	3	Patient	Sex of the named patient. Enumerated Values: M = male F = female O = other
Patient's Insurance Plan Code Sequence	(0010,0050)	3	Patient	A sequence that conveys the patient's insurance plan. Zero or more Items is included in this Sequence.
> Code Value	(0008,0100	3	Patient	Values. For Example, "12345" (Account Number)

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Entity Name	Tag	Type	Module Name	Details
Patient's Primary Language Code Sequence	(0010,0101)	3	Patient	The languages that used to communicate with the patient.
> Code Value	(0008,0100	3	Patient	Values. If this is absent, the language is set to "DECLINED".
Other Patient IDs	(0010,1000	3	Patient	SSN or Health Card Number
Patient's Size	(0010,1020)	3	Patient	Patient height or length in meters
Patients' Weight	(0010,1030)	3	Patient	Patient weight in kilograms
Patient's Address	(0010,1040)	3	Patient	The format of address is following: Street Address^City^State^Zip For Example: 10808 FOOTHILL BLVD^RANCHO CUCAMONGA^CA^91730
Country of Residence	(0010,2150)	3	Patient	Country code in which patient currently resides. We store only the first 2 characters as we are expecting a 2 character country code.
Patient's Telephone Numbers	(0010,2154)	3	Patient	Telephone numbers at which the patient can be reached. (Only Digits are exported).

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Entity Name	Tag	Type	Module Name	Details
Ethnic Group	(0010,2160)	3	Patient	Ethnicity of patient. Enumerated values: 2135-2 (HISPANIC OR LATINO) 2186-5 (NOT HISPANIC OR LATINO) UNK (DECLINED).
Smoking Status	(0010,21A0)	3	Patient	Indicates whether patient smokes. Enumerated values: EVERYDAY SMOKER SOMEDAY SMOKER FORMER SMOKER NEVER SMOKER UNKNOWN SMOKER UNKNOWN
Additional Patient History	(0010,21B0)	3	Patient	Additional information about the patient's medical history
Allergies	(0010,2110)	3	Patient	The format is following: ALLERGY NAME\ALLERGY NOTES\SEVERITY Enumerated Values for Severity are following: "MI" – Mild 'MO" – Moderate "SV" – Severe For Example: PENICILLIN\PRODUCES HIVES\SV
Admission ID	(0038, 0010)	3	Visit	Visit ID

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Entity Name	Tag	Type	Module Name	Details
Route of Admissions	(0038, 0016)	3	Visit	Mode of admission. Enumerated values: E = EMERGENCY I = INPATIENT O = OUTPATIENT P = PREADMIT R = RECURRING PATIENT B = OBSTETRICS
Admitting Date	(0038, 0020)	3	Visit	Date patient visit began
Admitting Time	(0038, 0021)	3	Visit	Time patient visit began
Current Patient Location	(0038,0300)	3	Visit	The current department of the patient
Patient's Institution Residence	0038,0400)	3	Visit	The current room where patient resides
Visit Comments	(0038, 4000)	3	Visit	User-defined comments about the visit
Study Instance UID	0020,000D)	1	Study	This field is mandatory for RamSoft PACS.
Accession Number	(0008,0050)	2	Study	This field is essential for RIS connectivity, but auto-generated if blank.
StudyID	(0020,0010	1	Study	Identification of the Study. Auto-generated if blank.

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Entity Name	Tag	Type	Module Name	Details
StudyStatusID	(0032,000A)	2	Study	Status values are customized for each site. The following lists only our default values: ORDERED SCHEDULED CONFIRMED ARRIVED CANCELLED READYFORSCAN STARTED EXAMCOMPLETED DISCONTINUED INPROGRESS COMPLETED HOLD REJECTED VERIFIED TO BE AMENDED DICTATED TRANSCRIBED SIGNED PRIOR

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Entity Name	Tag	Type	Module Name	Details
Study Priority ID	(0032,000C)	3	Study	Priority statuses are customized for each site. The following lists only our default values: LOW (ROUTINE) MED (MEDIUM) HIGH (HIGH) STAT (STAT) CRITTEST (CRITTEST) STAT (CRITFIND)
Study Description	(0008,1030)	3	Study	Study Description
Requested Procedure ID	(0040,1001)	3	Study	Requested Procedure ID
Institution Name	(0008,0080)	3	Study	Institution Name.
Department Name	(0008,1040)	3	Study	Department Name.
Procedure Code Sequence	(0008,1032)	3	Study	Zero or more Items is included in this Sequence.
> CodeValue	(0008,0100)	3	Study	Procedure Code (For Example “70100”).
> Coding Scheme Designator	(0008,0102)	3	Study	Coding Scheme Designator (For Example “DCM”)

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Entity Name	Tag	Type	Module Name	Details
> Code Meaning	(0008,0104)	3	Study	Procedure Description (For Example "XRAY JAW < 4 VIEWS")
Admitting Diagnoses Code Sequence	(0008,1084)	3	Study	Zero or more Items is included in this Sequence.
> CodeValue	(0008,0100)	3	Study	Diagnosis Code (For Example "830.1")
> Coding Scheme Designator	(0008,0102)	3	Study	Coding Scheme Designator (For Example "DCM")
> Code Meaning	(0008,0104)	3	Study	Diagnosis Description (For Example "DISLOCATION OF JAW; OPEN DISLOCATION")
Reason for Study	(0032,1030)	3	Study	Symptoms
Study Comments	(0032,4000)	3	Study	Study Comments
Referring Physician's Name	(0008,0090)	3	Study	Referring Physician
Performing Physician's Name	(0008,1050)	3	Study	Performing Physician
Name Of Physician Reading Study	(0008,1060)	3	Study	Reading Physician
Operators Name	(0008,1070)	3	Study	Performing Technologist

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Entity Name	Tag	Type	Module Name	Details
Physicians Of Record	(0008,1048)	3 Value Multiplicity (1-n)	Study	Consulting Physicians. For Example 2 Consulting Physicians: (JANG^ANTHONY\PATIL^ANIL).
Interpretation Transcriber	(4008,010a)	3	Study	Transcriptionist
Series Instance UID	(0020,000E)	1	General Series	This field is mandatory for RamSoft PACS.
Series Number	(0020,0011)	2	General Series	The first series of a study is assigned the number 1 for acquired and imported images. This acquisition number is incremented for each successive image.
Modalty	(0008,0060)	1	General Series	Modalty. For Example (“CT”)
Laterality	(0020,0062)	2C	General Series	Laterality. For Exampe (“L”)
Body Part Examined	(0018,0015)	3	General Series	Body Part Examined. For Example (“CHEST”)
Specific Character Set	(0008,0005)	3	SOP Common	Specific Character Set. For Example (ISO_IR 100)
Manufacturer	(0008,0070)	2	General Equipment	Manufacturer. For Example (“GE MEDICAL SYSTEM”).

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Entity Name	Tag	Type	Module Name	Details
Manufacturer's Model Name	(0008,1090)	3	General Equipment	Manufacturer's Model Name. For Example “Optima MR450w”.
Software Versions	(0018,1020)	3	General Equipment	Software Versions. For Example (“23\LX\MR Software release:DV22.0_V02_1122.a).
Image Type	(0008,0008)	3	General Image and US Image	Image Type. For Example [DERIVED\PRIMARY].
Acquisition Number	(0020,0012)	3	General Image	Acquisition Number.
Time zone Offset From UTC	(0008,0201)	3	General Image	Contains the offset from UTC to the time zone for all DA and TM Attributes present in this SOP Instance, and for all DT Attributes present in this SOP Instance that do not contain an explicitly encoded time zone offset.
Referenced Image Sequence	(0008,1140)	3	General Image	This is set and used to display scout thumbnails on CT/MR images.
>Referenced SOP Class UID	(0008,1150)	1C	General Image	Set and used if Referenced Image Sequence is present.
>Referenced SOP Instance UID	(0008,1155)	1C	General Image	Set and used if Referenced Image Sequence is present.

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Entity Name	Tag	Type	Module Name	Details
Derivation Description	(0008,2111)	3	General Image	If JPEG lossy compression is used to save the image, this is set to "JPEG Lossy N:1" to indicate the lossy compression ratio used. This field is displayed as an overlay on the image to indicate the lossy compression ratio of images.
Burned in Annotation	(0028,0301)	3	General Image	For Example "YES".
Lossy Image Compression	(0028,2110)	3	General Image	Set to "01" if the image has been subjected to lossy image compression.
Lossy Image Compression Ratio	(0028,2112)	3	General Image	Set to the approximate lossy compression ratio that has been applied to the image e.g. 30 for 30:1 compression.
Pixel Spacing	(0028,0030)	1	Image Plane	Used to establish the pixel calibration of the image. This may be modified or created using the Calibration tool.
Image Orientation (Patient)	(0020,0037)	1	Image Plane	This field is required to use cross-sectional imaging tools.
Image Position (Patient)	(0020,0032)	1	Image Plane	This field is required to user cross-sectional imaging tools.
Conversion Type	(0008,0064)	1	SC Image	For Example "WSD"
Physical Units X Direction	(0018,6024)	1	US Frame of Reference	US Frame of Reference is used only when the unit is cm (0003H)

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Entity Name	Tag	Type	Module Name	Details
Physical Units Y Direction	(0018,6026)	1	US Frame of Reference	US Frame of Reference is used only when the unit is cm (0003H)
Samples per Pixel	(0028,0002)	1	Image Pixel	Images can be displayed when this element is 1 or 3.
Photometric Interpretation	(0028,0004)	1	Image Pixel	Images can be displayed when this element is "MONOCHROME2", “MONOCHROME1”, "RGB", "YBR_FULL", "YBR_FULL_422", "YBR_PARTIAL_422", "YBR_ICT", "YBR_RCT" and "PALETTE COLOR". This element may be set to "MONOCHROME2", “MONOCHROME1”, "RGB", "YBR_FULL", "YBR_FULL_422", "YBR_RCT" and "YBR_ICT".
Rows	(0028,0010)	1	Image Pixel	No restriction is placed on the number of rows.
Columns	(0028,0011)	1	Image Pixel	No restriction is placed on the number of columns.
Ultrasound Color Data Present	(0028,0014)	3	US Image	This field is set for frame grabbed ultrasound color images.
Bits Allocated	(0028,0100)	1	Image Pixel	Images can be displayed when this field is set to between 1 bit to 16 bits.
Bits Stored	(0028,0101)	1	Image Pixel	Images can be displayed when this field is set to between 1 bit to 16 bits.

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Entity Name	Tag	Type	Module Name	Details
High Bit	(0028,0102)	1	Image Pixel	Images can be displayed when this field is set to between 1 to 15.
Pixel Representation	(0028,0103)	1	Image Pixel	This must be set to 0 or 1.
Planar Configuration	(0028,0006)	1C	Image Pixel	Images can be displayed both color-by-plane and color-by-pixel. Created images always set this element to 1.
Red Palette Color Lookup Table Data	(0028,1201)	1C	Image Pixel	Mandatory for images with a palette. This element is unused for created images as images with a palette are never created.
Green Palette Color Lookup Table Data	(0028,1202)	1C	Image Pixel	Mandatory for images with a palette.
Blue Palette Color Lookup Table Data	(0028,1203)	1C	Image Pixel	Mandatory for images with a palette.
Frame Time	(0018,1063)	1C	Cine	This element is used to calculate the playback speed for multi-frame images.
Number of Frames	(0028,0008)	1	Multi-frame	This element is used to display multi-frame images.
Modality LUT Sequence	(0028,3000)	1C	Modality LUT	Should be present if Rescale Intercept is not present for accurate display.
>LUT Descriptor	(0028,3002)	1C	Modality LUT	Must contain three values describing the format of LUT Data.

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Entity Name	Tag	Type	Module Name	Details
>Modality LUT Type	(0028,3004)	1C	Modality LUT	Specifies the units used in the LUT.
>LUT Data	(0028,3006)	1C	Modality LUT	Contains the LUT entry values.
Rescale Intercept	(0028,1052)	1C	Modality LUT	Should be present if Modality LUT Sequence is not present for accurate display.
Rescale Slope	(0028,1053)	1C	Modality LUT	Should be present if Modality LUT Sequence is not present for accurate display.
Window Center	(0028,1050)	3	VOI LUT	Should be present for accurate display.
Window Width	(0028,1051)	1C	VOI LUT	Should be present for accurate display.

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9.1.3 Attribute Mapping

The mapping between received DICOM attributes and PowerReader Screns of PowerServer is shown in Table 9.1.3-1.

Table 9.1.3 -1

Attribute Mapping

Entity Name	Tag	Screen of PowerReader	Tab or Sub Menu	Fields of PowerReader Screen
Patient's Name	(0010,0010)	Patient Info	Demographics	Last Name First Name Middle Name Prefix Suffix
Patient ID	(0010,0020)	Patient Info	Demographics	Patient ID
Issuer Of PatientID	(0010,0021)	Patient Info	Demographics	Issuer of Patient ID
Patient's Birth Date	(0010,0030)	Patient Info	Demographics	Birth Date
Patient's Sex	(0010,0040)	Patient Info	Demographics	Sex
Patient's Insurance Plan Code Sequence -> Code Value	(0010,0050) -> (0008,0100)	Patient Info	Demographics	Account Number

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Entity Name	Tag	Screen of PowerReader	Tab or Sub Menu	Fields of PowerReader Screen
Patient's Primary Language Code Sequence -> Code Value	(0010,0101) -> (0008,0100)	Patient Info	Demographics	Language
Other Patient IDs	(0010,1000)	Patient Info	Demographics	SSN
Patient's Mother's Birth Name	(0010,1060)	Patient Info	Demographics	Mother's Maiden Name
Ethnic Group	(0010,2160)	Patient Info	Demographics	Ethnicity
Race	(3129,1010)	Patient Info	Demographics	Race
Smoking Status	(0010,21A0)	Patient Info	Demographics	Smoking Status
Patient's Address	(0010,1040)	Patient Info	Demographics	Address, Zip / Postal Code, City, State / Province
Country of Residence	(0010,2150)	Patient Info	Demographics	Country
Patient's Telephone Numbers	(0010,2154)	Patient Info	Demographics	Home Phone Number, Business Phone Number,

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Entity Name	Tag	Screen of PowerReader	Tab or Sub Menu	Fields of PowerReader Screen
Allergies	(0010,2110)	Patient Info	Health Information	Allergy Name Allergy Notes Severity
Additional Patient History	(0010,21B0)	Patient Info	Demographics	Additional Notes
Study Description	(0008,1030)	Study Info	Study Details	Study Description
StudyID	(0020,0010)	Study Info	Study Details	StudyID
Requested Procedure ID	(0040,1001)	Study Info	Study Details	Requested Procedure ID
Requested Procedure ID	(0040,1001)	Study Info	Study Details	Requested Procedure ID
Study Status ID	(0032,000A)	Study Info	Study Details	Status
Study Priority ID	(0032,000C)	Study Info	Study Details	Priority
Accession Number	(0008,0050)	Study Info	Study Details	Accession Number
Study Date	(0008,0020)	Study Info	Study Details	Date & Time
Study Time	(0008,0030)	Study Info	Study Details	Date & Time

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Entity Name	Tag	Screen of PowerReader	Tab or Sub Menu	Fields of PowerReader Screen
Modalty	(0008,0060)	Study Info	Study Details	Modalty
Laterality	(0020,0062)	Study Info	Study Details	Laterality
Body Part Examined	(0018,0015)	Study Info	Study Details	Body Part
Institution Name	(0008,0080)	Study Info	Study Details	Imaging Facility
Institutional Department Name	(0008,1040)	Study Info	Study Details	Department
Current Patient Location	(0038,0300)	Study Info	Study Details	Patient's Location
Scheduled Study Location	(0032,1020)	Study Info	Study Details	Exam Room
Procedure Codes Sequence -> Code Value	(0032,1064) -> (0008,0100)	Study Info	Procedure Codes	Procedure Codes
Procedure Codes Sequence -> Code Meaning	(0032,1064) -> (0008,0104)	Study Info	Procedure Codes	Description
Admitting Diagnoses Code Sequence -> Code Value	(0008,1084) -> (0008,0100)	Study Info	Diagnosis Codes	Diagnosis Code

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Entity Name	Tag	Screen of PowerReader	Tab or Sub Menu	Fields of PowerReader Screen
Admitting Diagnoses Code Sequence -> Code Meaning	(0008,1084) -> (0008,0104)	Study Info	Procedure Codes	Description
Reason For Study	(0032,1030)	Study Info	Notes	Reason for Referral
Additional Patient History	(0010, 21B0)	Study Info	Notes	Clinical Notes
Study Comments	(0032,4000)	Study Info	Notes	Comments
Admission ID	(0038, 0010)	Study Info	Visit	Visit Number
Route of Admission	(0038, 0016)	Study Info	Visit	Patient Class
Visit Comments	(0038, 4000)	Study Info	Visit	Description
Ambulatory Status	(3135,1010)	Study Info	Visit	Ambulatory Status
Patient's Height	(0010, 1020)	Study Info	Visit	Height (cm).
Patient's Weight	(0010, 1030)	Study Info	Visit	Weight (kg).
Referring Physician's Name	(0008,0090)	Study Info	Assigned Personal	Referring Physician

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Entity Name	Tag	Screen of PowerReader	Tab or Sub Menu	Fields of PowerReader Screen
Name Of Physician Reading Study	(0008,1060)	Study Info	Assigned Personal	Reading Physician
Performing Physician's Name	(0008,1050)	Study Info	Assigned Personal	Performing Physician
Operator's Name	(0008,1070)	Study Info	Assigned Personal	Performing Technologist
Interpretation Transcriber	(4008,010A)	Study Info	Assigned Personal	Transcriptionist
Physicians Of Record	(0008,1048) Value Multiplicity (1-n)	Study Info	Assigned Personal	List of Consulting Physicians.

9.1.4 Coerced / Modified Fields

Coercion and Modification of the fields can be performed using Custom Scripting Possibility for each received DICOM node. Custom Scripting Possibilitity is invoked from Station List (See Fig. 4.4.2-5)

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9.2 Data Dictionary of Private Attributes

Table 9.2-1

Data Dictionary of Private Attributes

Entity Name	Tag	Type	Module Name	Details
Filter Object Identification Code	(3109,0010)	3	Private Tag (LO)	Ramsoft Filter
Filter Object Sequence Group	(3109,1010)	3	Private Tag (SQ)	Filter Object Sequence Group
Filter Object Sequence Identification Code	(310B,0010)	3	Private Tag (LO)	Ramsoft Sequence Filter
Filter Object Sequence	(310B,1010)	3	Private Tag (SQ)	Filter Object Sequence
Filter Type	(310B,1020)	3	Private Tag (SS)	Possible values: Kernel Maximum Minimum Median Custom Values
Filter Size	(310B,1030)	3	Private Tag (SS)	Possible values: 3 X 3 5 X 5 7 X 7
Filter Name	(310B,1040)	3	Private Tag (LO)	Possible values: Detect Edges Enhance Edges

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Entity Name	Tag	Type	Module Name	Details
				Maximum Minimum Median Shadowing Sharpening Smoothing Custom Value
Filter Kernel Sum	(310B,1050)	3	Private Tag (SL)	Sum of Filter Kernels Elements
Filter Kernel Elements	(310B,1060)	3	Private Tag (SL) (1-n)	Filter Kernel Element Value
Filter Modality	(310B,1070)	3	Private Tag (CS)	Filter Modality Code
Filter BodyPart	(310B,1080)	3	Private Tag (CS)	Filter BodyPart Code
Image Process Identification	(310D,0010)	3	Private Tag (LO)	Ramsoft Image Processing Identifier
Sharpness	(310D,1010)	3	Private Tag (DS)	Sharpness degree for DICOM PR object, range from 0.0 to 1.0
Unsharp Mask	(310D,1020)	3	Private Tag (DS)	Unsharp mask degree for DICOM PR object, range from 0.0 to 1.0
PS VOI LUT Function	(310D,1070)	3	Private Tag (CS)	VOI LUT function for DICOM PR object

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Entity Name	Tag	Type	Module Name	Details
PS VOI LUT Center	(310D,1080)	3	Private Tag (DS)	VOI LUT Window Center for DICOM PR object
PS VOI LUT Width	(310D,1090)	3	Private Tag (DS)	VOI LUT Window Width for DICOM PR object
Arbitrary Rotation Identification	(310F,0010)	3	Private Tag (LO)	RamSoft Arbitrary Rotation Identifier
Arbitrary Rotation	(310F,1010)	3	Private Tag (US)	Rotation angle for DICOM PR object. If rotation angle is oblique, it will be stored in this field.
RamSoft File Kind Identifier	(3111,0010)	3	Private Tag (LO)	RamSoft File Kind Identifier
File Kind	(3111,1010)	3	Private Tag (CS)	File kind (file extension) of DICOM SR object, e.g. DOCX, DOC, JPG, BMP.
Template File Kind	(3111,1020)	3	Private Tag (CS)	Template file kind (file extension) of DICOM SR object, e.g. DOT, DOTX, DOTM.
Custom Report Data Identification	(3113,0010)	3	Private Tag (LO)	RamSoft Custom Report Identifier
Custom Report Data	(3113,1010)	3	Private Tag (OB)	Custom report data in DICOM SR object
Custom Report Data Size	(3113,1020)	3	Private Tag (UL)	Size in bytes of custom report data in DICOM SR object

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Entity Name	Tag	Type	Module Name	Details
Custom Report Template Data	(3113,1030)	3	Private Tag (OB)	Custom report Word template data in DICOM SR object
Custom Report Template Data Size	(3113,1040)	3	Private Tag (UL)	Size in bytes of custom report Word template data in DICOM SR object
Custom Object Reference Identification	(3115,0010)	3	Private Tag (LO)	RamSoft Custom Object Reference Identifier
Scout Reference UID	(3115,1010)	3	Private Tag (UI)	Scout Reference UID of DICOM PR object
Scout Reference Frame Number	(3115,1020)	3	Private Tag (US)	Scout Reference Frame Number of DICOM PR object
Ramsoft Color Mapping Identifier	(3117,0010)	3	Private Tag (LO)	Ramsoft Color Mapping Identifier
Color Mapping Name	(3117,1010)	3	Private Tag (CS)	Name of color mapping in DICOM PR object
Color Mapping Palette Size	(3117,1020)	3	Private Tag (US)	Palette size of color mapping in DICOM PR object
Color Mapping Palette	(3117,1030)	3	Private Tag (US)	Palette of color mapping in DICOM PR object
Document Type Identification	(311B,0010)	3	Private Tag (LO)	Document Type Identifier

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Entity Name	Tag	Type	Module Name	Details
Document Type	(311B,1010)	3	Private Tag (LO)	Document type of DICOM SR object. Enumerated values: DIAGNOSTIC REPORT DIAGNOSTIC PRELIMINARY ADMIN CLINICAL STUDY FORM INSTRUCTION MAMMO RIS Rx SCREENING REFERRAL INSURANCE CARD PATIENT FORMS LABS PATIENT REGISTRATION FORM PATIENT INSURANCE CARDS HIPAA CONSENT FORM MEDICAL RECORDS RELEASE FORM PRIOR REPORT SURGERY CONSULTATION REPORT
RIS Page Number Identification	(311D,0010)	3	Private Tag (LO)	RIS Page Number Identifier
RIS Page Number	(311D,1010)	3	Private Tag (LO)	RIS Page Number Value
RamSoft DragonNS Data Identification	(311F,0010)	3	Private Tag (LO)	RamSoft DragonNS Data Identifier
Dragon NS Data	(311F,1010)	3	Private Tag (OB)	Dragon® Medical Data in DICOM SR object

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Entity Name	Tag	Type	Module Name	Details
Dragon NS Data Size	(311F,1020)	3	Private Tag (UL)	Size in bytes of Dragon® Medical Data in DICOM SR Object
RamSoft Image Tissue Edge ROI Identification	(3121,0010)	3	Private Tag (LO)	RamSoft Image Tissue Edge ROI Identifier
Edge ROI	(3121,1010)	3	Private Tag (DS)	Edge ROI Value
Apply Auto Size of Edge ROI	(3121,1020)	3	Private Tag (CS)	Enumerated values: YES = Apply NO = Not Apply
Show Annotation Identificaion	(3123,0010)	3	Private Tag (LO)	Show Annotation Identifier
Show Annotation ROI	(3123,1010)	3	Private Tag (CS)	Show Annotation ROI Value
SUV Type Identification	(3125,0010)	3	Private Tag (LO)	SUV Type Identifier
SUV Type	(3125,1010)	3	Private Tag (SH)	SUV (Standardized Uptake Value) types of DICOM PR object. Enumerated values: SUVbw = body weight SUVlbm = lean body mass SUVbsa = body surface area
Document Protection Identification	(3127,0010)	3	Private Tag (LO)	Document Protection Identifier

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Entity Name	Tag	Type	Module Name	Details
Document Protection Type	(3127,1010)	3	Private Tag (UL)	Document Protection Type of DICOM SR Object. Enumerated Values: 0xFFFFFFFF = No Protection 0x00000000 = Allow Only Revisions 0x00000001 = Allow Only Comments 0x00000002 = Allow Only Form Fields
Race	(3129,1010)	3	Private Tag (LO)	Enumerated values: 1002-5 (AMERICAN INDIAN OR ALASKA NATIVE) 2028-9 (ASIAN) 2054-5 (BLACK OR AFRICAN AMERICAN) 2076-8 (NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER) 2106-3 (WHITE) UNK (DECLINED)
Ambulatory Status Identification	(3135, 0010)	3		

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Entity Name	Tag	Type	Module Name	Details
Ambulatory Status	(3135,1010)	3	Private Tag (LO)	Enumerated values: A0 = NO FUNCTIONAL LIMITATIONS A1 = AMBULATES WITH ASSISTIVE DEVICE A2 = WHEELCHAIR/STRETCHER BOUND A3 = COMATOSE; NON-RESPONSIVE A4 = DISORIENTED A5 = VISION IMPAIRED A6 = HEARING IMPAIRED A7 = SPEECH IMPAIRED A8 = NON-ENGLISH SPEAKING A9 = FUNCTIONAL LEVEL UNKNOWN B1 = OXYGEN THERAPY B2 = SPECIAL EQUIPMENT (TUBES, IVS, CATHETERS) B3 = AMPUTEE B4 = MASTECTOMY B5 = PARAPLEGIC B6 = PREGNANT
Graphic Annotation InstanceUID	(3177,1010)	3	Private Tag (UI)	Graphic Annotation InstanceUID Code
Text Annotation Identification	(3179,0010)	3	Private Tag (LO)	Text Annotation Identifier
Referenced Graphic Annotation InstanceUID	(3179,1010)	3	Private Tag (UI)	Referenced Graphic Annotation InstanceUID Value
Show Text Annotation	(3179,1020)	3	Private Tag (CS)	Text Annotation Value
Fit To Width Identification	(3181,0010)	3	Private Tag (LO)	Fit To Width Identifier
Fit To Width	(3181,1010)	3	Private Tag (CS)	Fit To Width Value

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Entity Name	Tag	Type	Module Name	Details
Number List Preserve Identification	(3183,0010)	3	Private Tag (LO)	Number List Preserve Identifier
Number List Preserve	(3183,1010)	3	Private Tag (CS)	Number List Preserve Value
RamSoft Image Horizontal Flip Identification	(3185,0010)	3	Private Tag (LO)	RamSoft Image Horizontal Flip Identifier
RamSoft Image Horizontal Flip	(3185,1010)	3	Private Tag (CS)	RamSoft Image Horizontal Flip Value
RamSoft Image Rotation Identification	(3187,0010)	3	Private Tag (LO)	RamSoft Image Horizontal Flip Identifier
RamSoft Image Rotation	(3187,1010)	3	Private Tag (CS)	RamSoft Image Rotation Value

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10 DICOM Patient, Visit, Study and Series Fields stored in DB

The following DICOM Patient, Visit, Study and Series Fields are stored in the database:

- Patient ID (0010, 0020)
- Issuer of Patient ID (0010, 0021)
- Patient Name (0010, 0010)
- Patient Birth Date (0010, 0030)
- Patient Sex (0010, 0040)
- Patient Address (0010, 1040)
- Patient Country of Residence (0010, 2150)
- Patient Telephone Numbers (0010, 2154)
- Patient Telecom Info (0010, 2155)
- Patient Primary Language (0010, 0101)
- Patient Insurance Plan (0010, 0050)
- Other Patient IDs (0010, 1000)
- Patient Comments (0010, 4000)
- Patient Contrast Allergies (0010, 2110)
- Patient's Weight (0010, 1030)
- Patient's Size (0010, 1020)
- Patient's Race (3129, 1010)
- Patient's Ethnic Group (0010, 2160)
- Patient's smoking status (0010, 21A0)
- Patient's mother birth name (0010, 1060)
- Admission ID (Visit) (0038, 0010)
- Admitting Date (Visit) (0038, 0020)
- Admitting Time (Visit) (0038, 0021)
- Visit Comments (0038, 4000)
- Route of Admissions (0038, 0016)
- Ambulatory Status (3135, 1010)
- Study Instance UID (0020, 000d)
- Study Priority ID (0032, 000C)
- Requested Procedure Priority (0040, 1003)
- Study Date (0008, 0020)
- Study Time (0008, 0030)
- Study Description (0008, 1030)
- Study ID (0020, 0010)
- Accession Number (0008, 0050)
- Requested Procedure ID (0040, 1001)

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- Reading Physician Name (0008, 1060)
- Referring Physician Name $0008, 0090)
- Performing Physician Name (0008, 1050)
- Operator Name (Technologist) (0008, 1070)
- Transcriptionist Name (4008, 010A)
- Procedure Code Sequence (0008, 1032)
- Diagnosis Code Sequence (0008, 1084)
- Study Status ID (0032, 000A)
- Institution Name (0008, 0080)
- Study Comments (0032, 4000)
- Current Patient Location (0038, 0300)
- Reason for Study (0032, 1030)
- Reason for the Imaging Service Request (0040, 2001)
- Additional Patient History (0010, 21b0)
- Scheduled Study Location (0032, 1020)
- Patient's Institution Residence (0038, 0400)
- Institutional Department Name (0008, 1040)
- Physician's of Record (Consulting Physicians) (0008, 1048)
- Series Date (0008, 0021)
- Series Time (0008, 0031)
- Series Description (0008, 103e)
- Series Instance UID (0020, 000e)
- Series Number (0020, 0011)
- Series Laterality (0020, 0060)
- Body Part Examined (0018, 0015)
- Modality (0008, 0060)

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11 Revision History

Version	Revision Notes	Updated by	Reviewed by	Effective Date
Rev. A	Initial version for 6.0	VKM	VRN	2015/05/28
Rev. B	TLS conformance updated	VRN	VRN	2015/07/06
Rev. C	Added Document DICOM Patient, Visit, Study and Series Fields stored in DB	JZG		
Rev. D	- Add Negotiation Fuji Computed Radiography Image Storage. - TLS conformance updated - Add DICOM WEB Support for Client Echo, Store, Find, Retrieve operations	VKM	LLG	2020/06/28
Rev. E	- Add Negotiation for Ophthalmic Tomography Image	SVN	LLG	2020/12/31

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