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QDR FOR WINDOWS XP 12.5
DICOM CONFORMANCE STATEMENT

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1.Introduction

1.1.Purpose of the Document

This document is the DICOM Conformance Statement for Hologic QDR Bone Densitometers, version 12.5. It describes DICOM capabilities of the QDR and how it conforms to the DICOM 3.0 standard.

1.2.References

1. American College of Radiology - National Electrical Manufacturers Association (ACR-NEMA) Digital Imaging and Communications in Medicine V3.0-2000.

1.3.Definitions

This section provides the definitions of terms, acronyms, and abbreviations that are used throughout the document.

DICOM	Digital Imaging and Communication in Medicine, a standard on image communications in medical applications
HIS	Hospital Information System
RIS	Radiology Information System
AE	Application Entity
SCU	Service Class User
SCP	Service Class Provider
SOP	Service-Object Pair, a definition of an information object (like an image) and a service (like storage) that can be performed for the object
VR	Value Representation, a data encoding method in DICOM
UID	Unique Identifier
DIMSE	DICOM Message Service Element
TCP/IP	Transmission Control Protocol / Internet Protocol, a widely used computer networking protocol
MWL	Modality Worklist
MPPS	Modality Performed Procedure Step

2.Implementation Model

2.1.Application Data Flow Diagram

Following are the Real-World Activities that can occur in the QDR: Storage, Storage Commitment, Modality Worklist, Modality Performed Procedure Step, Query/Retrieve, and Verification. The Application Data Flow Diagram shown on Figure 1 represents all

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of the Application Entities present in the QDR application, and graphically depicts the relationship of the AE's use of DICOM to Real-World Activities.

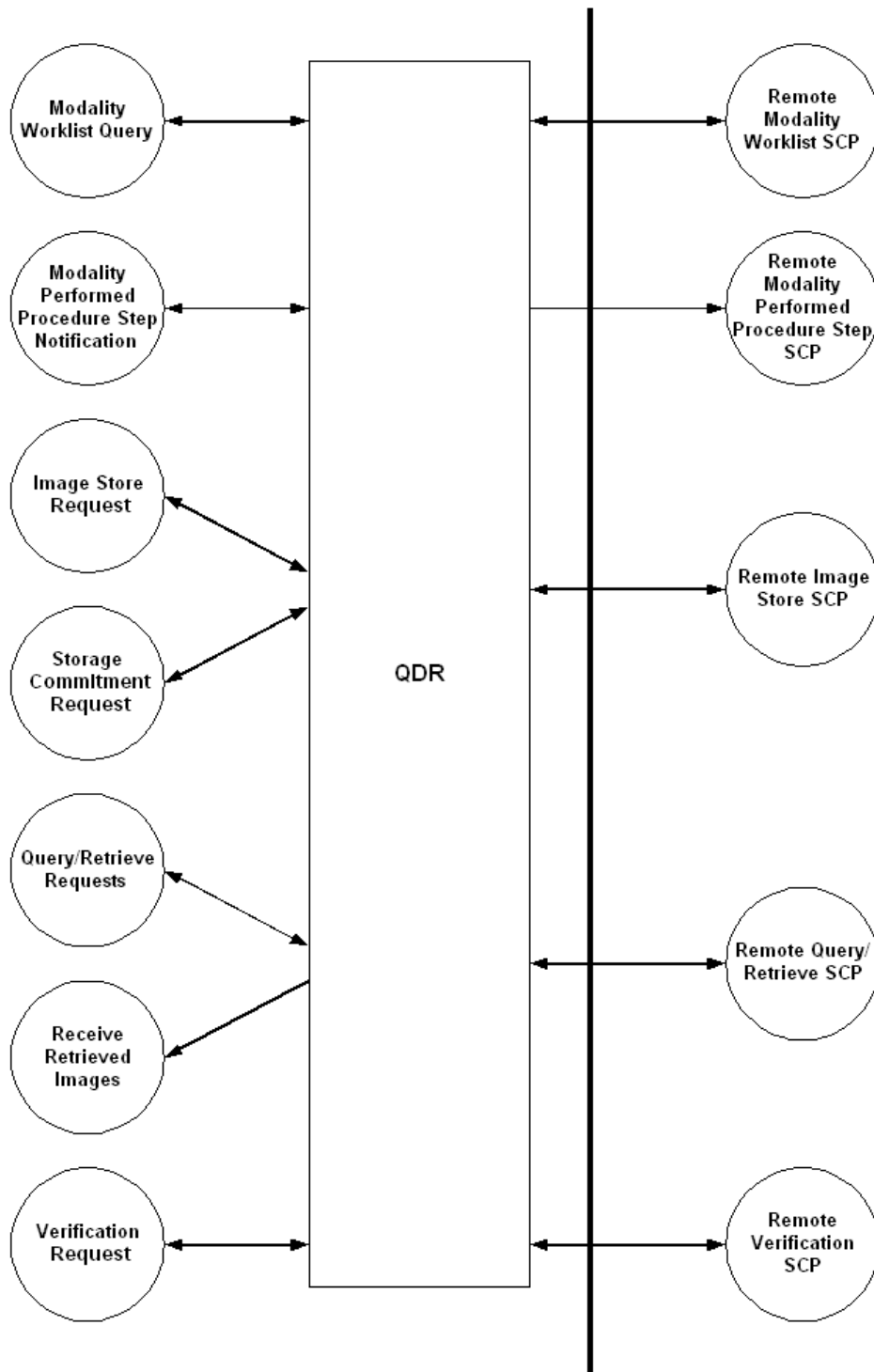


Figure 1. Application Data Flow Diagram

2.1.1.Storage

1. QDR AE generates a DICOM file and stores it locally.
2. QDR AE initiates an association with remote Storage SCP.
3. QDR AE pushes the file to the remote Storage SCP using C-STORE command, and then closes the association.

2.1.2.Storage Commitment

1. QDR AE initiates an association with remote Storage Commitment SCP.
2. QDR AE sends a Storage Commitment request to the remote Storage Commitment SCP using N-ACTION command, and then closes the association.
3. The remote Storage Commitment SCP initiates an association with QDR AE and uses N-EVENT-REPORT command to send a notification about Storage Commitment results, and then closes the association.

2.1.3.Modality Worklist

1. QDR AE initiates an association with remote Modality Worklist SCP.
2. QDR AE queries the Modality Worklist SCP to obtain Modality Worklist information using C-FIND command, and then closes the association.
3. QDR AE stores obtained Modality Worklist information in the local database.

2.1.4.Modality Performed Procedure Step

1. QDR AE initiates an association with remote Modality Performed Procedure Step SCP.
2. QDR AE notifies the MPPS SCP about started procedure using N-CREATE command, and then closes the association.
3. QDR AE initiates an association with remote MPPS SCP.
4. QDR AE notifies the MPPS SCP about completed or canceled procedure using N-SET command, and then closes the association.

2.1.5.Query/Retrieve

1. QDR AE initiates an association with remote Query/Retrieve SCP.
2. QDR AE queries the Query/Retrieve SCP to obtain the information about studies using C-FIND command, and then closes the association.
3. QDR AE initiates an association with remote Query/Retrieve SCP.
4. QDR AE sends a retrieve request using C-MOVE command.
5. QDR AE listens for incoming C-STORE requests, receives the images and stores them locally.
6. QDR AE closes the association.

2.1.6.Verification

1. QDR AE initiates an association with remote Verification SCP.
2. QDR AE verifies the DICOM connectivity using C-ECHO command.
3. QDR AE closes the association.

2.2.Functional Definitions of AE's

2.2.1.Storage

The QDR application may serve as Storage SCU. The QDR generates DICOM files and stores them locally. Then it sends them to one or more remote Storage SCPs. For each file, QDR AE initiates an association, and sends the file using C-STORE Request. Upon receipt of a C-STORE Response Code Status or in case of any failure, it closes the association. In case of failure, it will retry sending files according to the configuration settings.

Remote Storage SCPs may also be selected as QDR scan archive locations. In this case DICOM files will also include private QDR scan data, for subsequent restoring using the Query/Retrieve. The SCP parameters and study information associated with a QDR scan will be saved in the local database.

2.2.2.Storage Commitment

The QDR application may serve as Storage Commitment SCU. One of the remote Storage SCPs may also serve as a Storage Commitment SCP. Upon successful completion of Storage request, the QDR AE sends a storage commitment request using N-ACTION command. Upon receipt of an N-ACTION Response, it closes the association. If the response status is successful, the QDR starts waiting for the notification message from the Storage Commitment SCP, otherwise the storage commitment operation is considered failed. Upon receiving a notification message from the Storage Commitment SCP (the N-EVENT-REPORT Request), the QDR sends back an N-EVENT-REPORT response. The notification message from the SCP lists both: files successfully stored and files that it failed to store. The SCP closes the association.

2.2.3.Modality Worklist

The QDR application may serve as Modality Worklist SCU. According to the configuration settings (Section 5), QDR AE initiates an association with the Modality Worklist SCP and queries it for Modality Worklist information using C-FIND Request. Upon receipt of a successful C-FIND Response Status Code from the SCP, the QDR application closes the association and stores received Worklist information into a local database for future use.

In case of error (either network error, or problems experienced by the SCP, or receiving a failure Status Code with C-FIND Response), the QDR application closes the association (if it is still open), and will retry the entire Worklist Service flow according to the configuration settings.

2.2.4.Modality Performed Procedure Step

The QDR application may serve as Modality Performed Procedure Step SCU. If the MPPS Service is enabled (Section 5), the QDR application sends MPPS notification messages to the MPPS SCP.

Right after the QDR scanning process starts, the QDR application initiates an association with the MPPS SCP and notifies it about a started procedure using N-CREATE Request. Upon receipt of a successful N-CREATE Response Status Code, the QDR application closes the association and is ready for sending a notification about procedure completion. In case of error, it will retry the entire flow according to configuration settings.

Right after the QDR scanning process is either completed or aborted, and if the previous N-CREATE Request was successful, the QDR applications initiates an association with the MPPS SCP and notifies it about procedure status using N-SET Request. Upon receipt of a successful N-SET Response Status Code, the QDR application closes the association with the MPPS SCP. In case of error, it will retry the entire flow according to configuration settings.

2.2.5.Query/Retrieve

The QDR application may serve as Query/Retrieve SCU.

2.2.5.1.Query

QDR AE initiates an association with the Query/Retrieve SCP and queries it for studies according to the specified search criteria using C-FIND Request. Upon receipt of a successful C-FIND response from the SCP, the QDR closes the association and displays the received study information.

2.2.5.2.Retrieve

For retrieve parameters, QDR application may either use the study information obtained from query, or use the information previously saved in the local database at the time when images were sent to a remote SCP.

QDR AE initiates an association with the Query/Retrieve SCP and requests to move specified studies to itself. It starts listening for incoming C-STORE associations and receives the studies. After receiving a DICOM file, the application extracts the private QDR scan data and restores the scan into the system, discarding the rest of the file contents. Upon receiving status notifications for all the studies requested to retrieve, the QDR AE closes the association.

2.2.6.Verification

The QDR application may serve as Verification SCU.

Any remote SCP, which QDR is configured to use, may also serve as a Verification SCP. QDR AE opens an association and send C-ECHO request to a Verification SCP. Upon receiving the response from SCP or in case of failure, it closes the association.

2.3. Sequencing of Real-World Activities

1. A Storage Commitment Request for a specific study and SCP may be sent only after successful completion of a Storage Request for the same study and SCP.
2. MPPS notifications for a specific procedure will be sent only if the procedure was previously retrieved using Modality Worklist service (i.e. not entered manually).

3.AE Specifications

QDR application provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCU:

SOP Class Name	SOP Class UID
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3
Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7
Storage Commitment Push Model	1.2.840.10008.1.20.1
Study Root Query/Retrieve Model – FIND	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2
Verification	1.2.840.10008.1.1

3.1. Association Establishment Policies

3.1.1. General

The maximum PDU length for Storage service is 16,384 bytes.
The maximum PDU length for all other services is 28,672 bytes.
The SOP Class Extended Negotiation is not supported.

3.1.2. Number Of Associations

QDR application initiates only one association at a time.

3.1.3. Asynchronous Nature

QDR application does not support asynchronous communications.

3.1.4. Implementation Identifying Information

The Implementation Identifying Information for QDR is:

Implementation Class UID	1.2.840.113850
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3.2.Association Initiation by Real-World Activity

QDR application initiates new associations for the following Real-World Activities:

- Storage
- Storage Commitment
- Modality Worklist
- Modality Performed Procedure Step
- Query
- Retrieve
- Verification

3.2.1.Storage Request

3.2.1.1. Associated Real-World Activity

QDR application initiates an association with Storage SCP and sends DICOM files using C-STORE command.

3.2.1.2. Proposed Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Secondary Capture Storage	1.2.840.10008.5.1.4.1.1.7	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

3.2.1.3. SOP Specific Conformance

Module	Attribute Name	Type	Value	Tag	VR
Patient	Patient's Name	2		0010, 0010	PN
	Patient ID	2		0010, 0020	LO
	Patient's Birth Date	2		0010, 0030	DA
	Patient's Sex	2		0010, 0040	CS
General Study	Study Instance UID	1	Note 11	0020, 000D	UI
	Study Date	2		0008, 0020	DA
	Study Time	2		0008, 0030	TM
	Referring Physician's Name	2		0008, 0090	PN
	Study ID	2	Note 1	0020, 0010	SH
	Accession Number	2	Note 1	0008, 0050	SH
	Study Description	3		0008, 1030	LO
	Physician Reading	3	Note 17	0008, 1060	PN

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	Study				
General Series	Modality	1	“OT”	0008, 0060	CS
	Series Instance UID	1	Note 11	0020, 000E	UI
	Series Number	2	Note 14	0020, 0011	IS
	Laterality	2C	Note 5	0020, 0060	CS
	Body Part Examined	3	Note 4	0018, 0015	CS
General Equip.	Manufacturer	2	“Hologic”	0008, 0070	LO
	Institution Name	3	Note 18	0008, 0080	LO
	Station Name	3	Note 9	0008, 1010	SH
	Manfr’s Model Name	3	Note 7	0008, 1090	LO
	Device S/N	3	Note 7	0018, 1000	LO
	S/W Versions	3	Note 7	0018, 1020	LO
SC Equipment	Conversion Type	1	“WSD”	0008, 0064	CS
	SC Device Software Version	3	Note 8	0018, 1019	LO
General Image	Image Number	2	“1”	0020, 0013	IS
	Patient Orientation	2C	Note 6	0020, 0020	CS
	Image Comments	3	Note 2	0020, 4000	LT
Image Pixel	Samples per pixel	1	“1”	0028, 0002	US
	Photometric Interpretation	1	Note 10	0028, 0004	CS
	Pixel Spacing	3	Note 19	0028, 0006	US
	Rows	1		0028, 0010	US
	Columns	1		0028, 0011	US
	Bits Allocated	1	Note 13	0028, 0100	US
	Bits Stored	1	Note 13	0028, 0101	US
	High Bit	1	Note 13	0028, 0102	US
	Pixel Representation	1	“0000H”	0028, 0103	US
	Pixel Data	1		7FE0, 0010	OB
	Pixel Aspect Ratio	1C	“1\1”	0028, 0034	IS
SC Image	Date of Secondary Capture	3	Note 3	0018, 1012	DA
	Time of Secondary Capture	3	Note 3	0018, 1014	TM
Other	Window Center	3		0028, 1050	DS
	Window Width	3		0028, 1051	DS
SOP Common	SOP Class UID	1	Note 12	0008, 0016	UI
	SOP Instance UID	1	Note 11	0008, 0018	UI
Hx Questionnaire	Private Creator Data Element		Note 15	0011, 0010	LO
	HxQuestionnaire		Note 16	0011, 1000	OB
Scan Data	Private Creator Data Element		Note 15	0023, 0010	LO

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	Encoding Scheme Version		Note 20	0023,1000	LO
	P File Name		Note 21	0023,1001	LO
	P File Data			0023,1002	OB
	P File Length		Note 22	0023,1003	UL
	R File Data			0023,1004	OB
	R File Length		Note 22	0023,1005	UL

Notes:

1. Accession number entered by operator is placed in both fields.
2. Text incorporating analysis results.
3. Date and time of this DICOM file creation.
4. Body Part Values: LSPINE, HIP, ARM. For scan types not described by these values, place NULL in the field.
5. Required only for paired structures. Values are: R = right, L = left.
6. Patient Orientation Values A, P, R, L, H, F.
7. These fields refer to the scan device.
8. These fields refer to the analyze device and software.
9. Station name is stored in a configuration table.
10. "MONOCHROME2"
11. Unless obtained from Modality Worklist, all UIDs start with the following <org root>: 1.2.840.113850 (Number 113850 represents a Hologic identifier assigned by ANSI).

The Study Instance UID may be either obtained from Modality Worklist or generated. In the case it is generated, it consists of the <org root> followed by the unique part. The unique part is constructed as following: First, the structure nnnnn.sssss is created, where nnnnn is the Hologic serial number of the scanner, and sssss is the accession number if available. Then this structure is used as an input for MD5 hash algorithm function.

The Series Instance UID consists of the <org root> followed by the unique part. The unique part is constructed as following: First, the structure nnnnn.sssss.mm.ff is created, where nnnnn is the Hologic serial number of the scanner, sssss is the accession number if

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available, mm is the series number, and ff is the destination number. Then this structure is used as an input for MD5 hash algorithm function.

The SOP Instance UID consists of the <org root> followed by the unique part. The unique part is constructed as following: First, the structure nnnnn.sssss.mm.aaaa.ff is created, where nnnnn is the Hologic serial number of the scanner, sssss is the accession number if available, mm is the series number, aaaa is the analysis date and time, and ff is the destination number. Then this structure is used as an input for MD5 hash algorithm function.

12. SOP Class UID for Secondary Capture Image Storage Service Class is
1.2.840.10008.5.1.4.1.1.7

13. Images can be either 8 or 12 bits deep. Values for each are:

	<u>8 bit</u>	<u>12 bit</u>
Bits Allocated	8	16
Bits Stored	8	12
High Bit	7	11

Single energy IVA images are 12 bits, all other images are 8 bits.

14. Series number starts at 1 and increases by 1 for each series in a study.

15. “Hologic”, required if the private group is present.

16. HxQuestionnaire data in binary format.

17. This field refers to the “Interpreting physician” field stored in the DICOM configuration nodes.

18. This field refers to the “Institution Name” field stored in the Header Block of the Common Block Configuration table of the report settings.

19. Populated only for IVA images

20. Version of the encoding scheme – currently “1.0”

21. Original name of the file (as was stored in QDR)

22. Original file length in bytes (as was stored in QDR)

3.2.2. Storage Commitment

3.2.2.1. Associated Real-World Activity

QDR application initiates an association with Storage Commitment SCP and sends a Storage Commitment request using N-ACTION command.

3.2.2.2. Proposed Presentation Contexts

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

3.2.2.3. SOP Specific Conformance

Attribute Name	Attribute Tag
Transaction UID	0008,1195
Retrieve AE Title	0008,0054
Referenced SOP Sequence	0008,1199
>Referenced SOP Class UID	0008,1150
>Referenced SOP Instance UID	0008,1155

3.2.3. Modality Worklist

3.2.3.1. Associated Real-World Activity

The Modality Worklist service may start in three ways:

- Upon the User’s request
- According to the scheduled time
- As a retry after the previous one has failed

In either case the QDR application initiates an association with the Modality Worklist SCP. Once the association has been established, the QDR sends a C-FIND request according to user-configured parameters and waits for transmission of conformant

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Modality Worklist Service messages. The association is closed after retrieving the last message or after an error.

3.2.3.2. Proposed Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Worklist Find	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

3.2.3.3. SOP Specific Conformance

3.2.3.3.1. Modality Worklist Matching Keys

The following attributes are user-configurable and may be used in Modality Worklist query.

1. Standard query:

Matching Key Attribute	Tag
Scheduled Procedure Step Start Date	0040, 0002
Modality	0008, 0060
Scheduled Station AE Title	0040, 0001

2. Detailed query:

Matching Key Attribute	Tag
Patient's Name	0010, 0010
Patient ID	0010, 0020
Accession Number	0008, 0050
Requested Procedure ID	0040, 1001

3.2.3.3.2. Modality Worklist Return Keys

The QDR application supports all attributes defined by a Worklist Information Model as Return Key Attributes, no matter what Data Element Type they have. The list of

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attributes is configurable, so specific attributes may be removed if it is required. By default, QDR is configured to use all attributes.

3.2.3.3.3.Modality Worklist Message Status Codes

The following table describes QDR behavior depending on Status Codes of messages received from the Worklist SCP.

Status	Status Code	Meaning	QDR Behavior
Success	0000	Matching is complete – No final Identifier is supplied	Completes retrieving of matches
Pending	FF00	Matches are continuing – Current Match is supplied and any Optional Keys were supported in the same manner as Required Keys	Receiving of matches continues
Pending (No Optional Key Support)	FF01	Matches are continuing – Warning that one or more Optional Keys were not supported for existence for this Identifier	Receiving of matches continues without any warnings or errors
Other	Other	All other Status Codes	Terminates receiving of matches and logs a failure message. The matches received prior to this code are handled normally.

3.2.3.3.4.Error Handling

If an error occurs while processing a Worklist response message (for example, if a required attribute has invalid value), this message is skipped and the QDR proceeds with the next message.

3.2.4.Modality Performed Procedure Step

3.2.4.1.Associated Real-World Activity

The QDR application initiates an association with the Modality Performed Procedure Step SCP in two cases:

- Right after a QDR scan procedure started, with status “IN PROGRESS”

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- Right after a QDR scan procedure either completed (with status “COMPLETED”), or aborted (with status “DISCONTINUED”).

3.2.4.2. Proposed Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Worklist Find	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

3.2.4.3. SOP Specific Conformance

3.2.4.3.1. N-CREATE Request

The QDR application supports following attributes used in Modality Performed Procedure Step N-CREATE Request:

Module Name	Supported Attributes
Performed Procedure Step Relationship	All attributes
Performed Procedure Step Information	All Type 1 attributes
Image Acquisition Results	All Type 1 attributes
Radiation Dose	Not supported
Billing and Material Code	Not supported

In order to conform to DICOM requirements for Type 2 attributes, all non-supported attributes of Type 2 are included in N-CREATE message with empty values.

The QDR application expects to get back an N-CREATE response with an attribute (0000,1000) (Affected SOP Instance UID) filled out with a Unique ID identifying this transaction.

3.2.4.3.2.N-SET Request

The QDR application supports following attributes used in MPPS N-SET Request:

Attribute Name	Attribute Tag
Performed Procedure Step Status	0040,0252

The QDR fills attribute (0000,1001) (Requested SOP Instance UID) with a transaction Unique ID received with N-CREATE response message.

3.2.5. Query/Retrieve

3.2.5.1.Associated Real-World Activity

3.2.5.1.1.Query

The QDR application initiates an association with the Query/Retrieve SCP by the user request. Once the association has been established, the QDR sends a C-FIND request according to user-configured parameters and waits for transmission of conformant Query service messages. The association is closed after retrieving the last message or in case of error.

3.2.5.1.2.Retrieve

The QDR application initiates an association with the Query/Retrieve SCP either by the user request or as result of a retry attempt of failed transaction. Once the association has been established, the QDR sends a C-MOVE request and waits for transmission of retrieving status messages. The association is closed after receiving the last message or in case of error.

3.2.5.2. Proposed Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Worklist Find	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

3.2.5.3.SOP Specific Conformance

3.2.5.3.1.Query

The following attributes may be entered by the user and used in Study Root Query request. (Only Study Level keys are supported.)

Attribute Name	Tag
Patient ID	0010, 0020
Patient's Name	0010, 0010
Patient's Birth Date	0010, 0030
Study Date	0008, 0020
Study Time	0008, 0030
Accession Number	0008, 0050
Study ID	0020, 0010
Study Instance UID	0020, 000D
Referring Physician's Name	0008, 0090
Modalities In Study	0008, 0061

3.2.5.3.2.Retrieve

The following attributes may be entered by the user and used in Retrieve request.

Attribute Name	Tag	Notes
Move Destination	0000, 0600	Same as QDR AE Title
Query/Retrieve Level	0008, 0052	Either "STUDY" or "SERIES"
Study Instance UID	0020, 000D	
Series Instance UID	0020, 000E	Included if the Query/Retrieve Level is "SERIES"

3.2.6. Verification

3.2.6.1.Associated Real-World Activity

The QDR application initiates an association with the Verification SCP by the user request using C-ECHO command.

3.2.6.2. Proposed Presentation Contexts

Name	Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
	UID	Name List	UID List			
Modality Worklist Find	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2		SCU	None

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		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

3.3. Association Acceptance Policy

QDR application accepts associations from Query/Retrieve SCP to receive studies being moved as result of C-MOVE request, and to receive N-EVENT-REPORT notification messages from Storage Commitment SCP about storage commitment status.

3.3.1. Storage Commitment

3.3.1.1. Associated Real-World Activity

Upon receipt of a successful N-ACTION response from the Storage Commitment SCP, the QDR application waits for incoming association with N-EVENT-REPORT request message from the SCP. It accepts the association and sends back a N-EVENT-REPORT response message.

3.3.1.2. Proposed Presentation Contexts

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2 .1		
		Explicit VR Big Endian	1.2.840.10008.1.2 .2		

QDR for Windows XP DICOM Conformance Statement

3.3.1.3.SOP Specific Conformance

The QDR application supports following attributes used in N-EVENT-REPORT message:

Attribute Name	Attribute Tag
Transaction UID	0008,1195
Retrieve AE Title	0008,0054
Referenced SOP Sequence	0008, 1199
>Referenced SOP Class UID	0008,1150
>Referenced SOP Instance UID	0008,1155
Failed SOP Sequence	0008,1198
>Referenced SOP Class UID	0008,1150
>Referenced SOP Instance UID	0008,1155

3.3.2.Query/Retrieve

3.3.2.1.Associated Real-World Activity

Upon sending a C-MOVE request to the Query/Retrieve SCP, the QDR application waits for associations with C-STORE request messages from the SCP. It accepts the associations and sends back C-STORE response messages.

3.3.2.2.Proposed Presentation Contexts

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

3.3.2.3.SOP Specific Conformance

The QDR application uses following attributes of the C-STORE request message. (The rest of the attributes are ignored.)

Attribute Name	Tag	Notes
Manufacturer	0008, 0070	Note 1
Study Instance UID	0020, 000D	
Series Instance UID	0020, 000E	
Date of Secondary Capture	0018, 0012	
Time of Secondary Capture	0018, 0014	
Image Comments	0020, 4000	
Private Creator Data Element	0023, 0010	Note 1
Encoding Scheme Version	0023, 1000	
P File Name	0023, 1001	
P File Data	0023, 1002	
P File Length	0023, 1003	
R File Data	0023, 1004	
R File Length	0023, 1005	

Note 1. The expected value is "HOLOGIC". In case of any other value the file is ignored.

4.Communication Profiles

4.1.Supported Communication Stacks

DICOM Upper Layer (PS 3.8.) is supported using TCP/IP.

4.2.TCP/IP Stack

The TCP/IP stack is inherited from the operating system on which it is running.

4.3.Physical Media Support

The physical medium is inherited from the computer on which it is running.

5.Configuration

5.1.AE Title / Presentation Address Mapping

The AE Title is user configurable.

5.2. Configurable Parameters

5.2.1. Modality Worklist Service

5.2.1.1. User Configurable Parameters

Worklist Query Parameters:

- Scheduled Station AE Title
- Modality
- Days Back
- Days Forward
- Maximum Hits Per Query
- Patient ID
- Patient Name
- Accession Number
- Requested Procedure ID

Worklist SCP:

- Remote AE Title
- Remote Host
- Remote Port Number

Automatic Worklist Query Interval

Worklist Query Retry Parameters:

- Query Timeout
- Retry Number
- Retry Interval

Attribute Mapping. There are 15 QDR data fields that can be mapped to selected DICOM attributes:

- Patient Name
- Patient ID
- Patient ID2
- Patient Ethnicity
- Patient DOB
- Patient Sex
- Patient Weight
- Patient Height
- Referring Physician
- Procedure ID
- Study Name
- Procedure Start Date
- HL7 Field 1

- HL7 Field 2
- HL7 Field 3

5.2.1.2. Service Engineer Configurable Parameters

- Attributes used as Worklist Query Return Keys.
- Attributes available for Attribute Mapping for a specific QDR data field.

5.2.2. Modality Performed Procedure Step Service

The user may select whether to use the Modality Performed Procedure Step Service or not.

5.2.3. Storage Service

5.2.3.1. Communication Parameters

- Remote AE Title
- Remote Host
- Remote Port Number
- Use as Archive Location

5.2.3.2. DICOM Attributes

- Institution Name
- Station Name
- Physician Reading Study

5.2.4. Storage Commitment Service

The user may select one of the existing Storage SCPs to serve also as a Storage Commitment SCP.

6. Support of Extended Character Set

No Extended Character sets are supported.