

MediaWorkStation

DICOM Worklist Interface

Version 1.1

DICOM Conformance Statement

English

Edition 1-2020

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Abbreviations

AE	Application Entity
DICOM	Digital Imaging and Communication in Medicine
IOD	Information Object Definition
IE	Information Element
MPPS	Modality Performed Procedure Step
MPEG-2	Video Compression Standard
MWL	Modality Worklist
MWS	MediaWorkStation
PACS	Picture Archiving and Communication System
PDU	Protocol Data Unit
SOP	Service Object Pair
SCP	Service Class Provider
SCU	Service Class User
UID	Unique Identifier
VL	Visible Light
VR	Value Representation

Related Documents

[DICOM]	Digital Imaging and Communication in Medicine (DICOM), Parts 1-20 (2011), National Electrical Manufacturers Association, 1300 N. 17 th Street, Rosslyn, Virginia 22209 USA
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1 Overview

This document specifies the conformance of the MediaWorkStation documentation software (hereinafter also referred to as "MWS") with [DICOM] Version 3.0-2011.

The MWS DICOM Worklist Interface Version 1.1 is compatible to the following Products:

Product Name	Version
MediaWorkStation Classic Edition	2.8

Table 1: List of compatible products

The MWS software acts as an acquisition modality. It is able to query Worklist Orders from the scheduler, acquire videos and images on the client computer and send those files to the PACS image archive.

The MWS Application Entity provides conformance to the following SOP classes:

SOP Class Name	Role	SOP Class UID
Modality Worklist Information Model – FIND	SCU	1.2.840.10008.5.1.4.31
Patient Root Query/Retrieve Information Model – FIND	SCU	1.2.840.10008.5.1.4.1.2.1.1
Modality Performed Procedure Step	SCU	1.2.840.10008.3.1.2.3.3
VL Endoscopic Image Storage * ¹	SCU	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage * ¹	SCU	1.2.840.10008.5.1.4.1.1.77.1.2
VL Photographic Image Storage * ¹	SCU	1.2.840.10008.5.1.4.1.1.77.1.4
Secondary Capture Image Storage * ¹	SCU	1.2.840.10008.5.1.4.1.1.7
Video Endoscopic Image Storage * ²	SCU	1.2.840.10008.5.1.4.1.1.77.1.1.1
Video Microscopic Image Storage * ²	SCU	1.2.840.10008.5.1.4.1.1.77.1.2.1
Video Photographic Image Storage * ²	SCU	1.2.840.10008.5.1.4.1.1.77.1.4.1
Storage Commitment Push Model	SCU	1.2.840.10008.1.20.1
Verification	SCU	1.2.840.10008.1.1

Table 2: Supported SOP Classes for the MWS Application Entity

*¹: Only one of the given VL Image Storage SOP Classes may be activated and used for all VL Image Storage Services utilized by the software. VL Endoscopic Image Storage is the default class. Please pay attention to [Table 25: possible values for Own Modality](#).

*²: Only one of the given Video Image Storage SOP Classes may be activated and used for all Video Image Storage Services utilized by the software. Video Endoscopic Image Storage is the default class. Please pay attention to [Table 25: possible values for Own Modality](#).

For the purpose of providing an overview here is a list of widely-used SOP classes not supported by the product:

SOP Class Name	Role	Supported
Patient Root Query/Retrieve Information Model – MOVE, GET	SCU / SCP	not supported
Study Root Query/Retrieve Information Model – FIND, MOVE, GET	SCU / SCP	not supported
Print Management	SCP / SCU	not supported
Structured Report (SR) Document	SCP / SCU	not supported
Encapsulated Document	SCP / SCU	not supported
Media Storage	SCP / SCU	not supported

Table 3: Not supported SOP Classes

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3 Introduction

3.1 Revision History

Rev	Date	Name	Signature	Modified
1	2016-01-13	Yvonne Elmenhorst		derived from version 1-2015 (DICOM Worklist Interface 1.0)
2	2020-05-26	Stefan Schiele		added support for Secondary Capture Image Storage, minor fixes

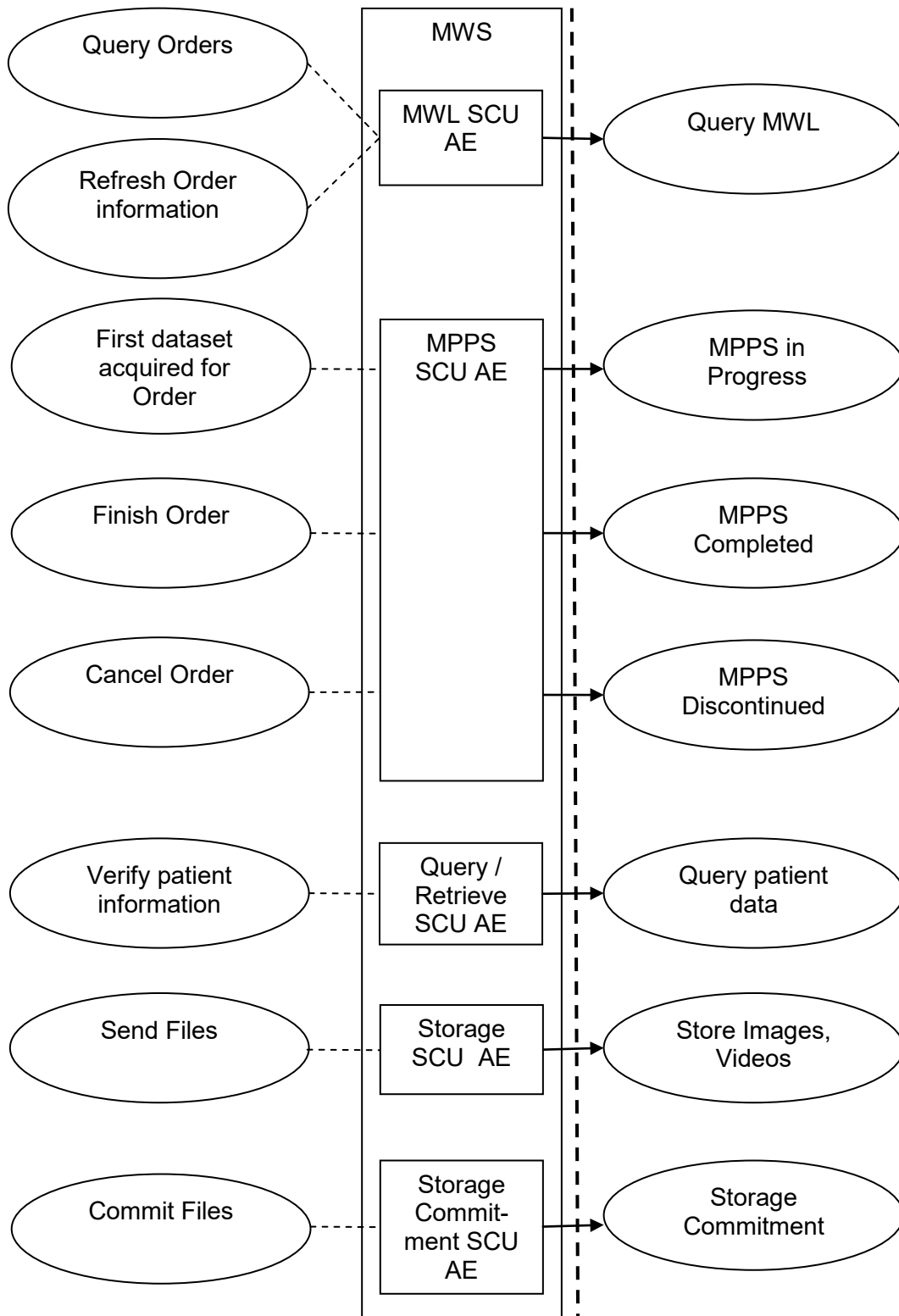
3.2 Audience

This document is intended for health system integrators, software designers and implementers, marketing and sales. It is assumed that the reader has working understanding of DICOM.

4 Networking

4.1 Implementation model

4.1.1 APPLICATION DATA FLOW DIAGRAM



4.1.2 FUNCTIONAL DEFINITIONS OF AEs

4.1.2.1 MWL SCU AE

There are two cases in which the Modality Worklist is queried:

1. A list of all active Requested Procedures for the AE shall be retrieved and displayed to the user (real-world event "Query Orders").
2. A single, specific Requested Procedure shall be retrieved (real-world event "Refresh Order information").

4.1.2.2 MPPS SCU AE

MPPS messages are sent in three different cases:

1. The first dataset is acquired for a Worklist Order, which marks the start of the Performed Procedure (real-world event "First dataset acquired for Order").
2. The user finishes work on the Order (real-world event "Finish Order").
3. The user cancels the Order (real-world event "Cancel Order").

4.1.2.3 QUERY/RETRIEVE SCU AE

If the parameter "Force unique ID" is enabled, whenever the user creates new patient data or edits existing patient data, a query for the entered patient ID is executed.

The result of this query is then compared to the locally edited data to ensure that a given patients ID is unique throughout the network (real-world event "Verify patient information").

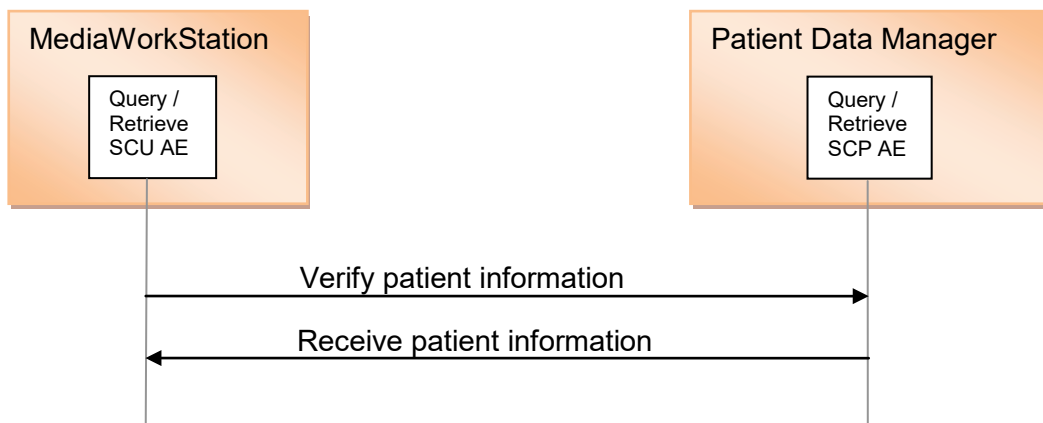
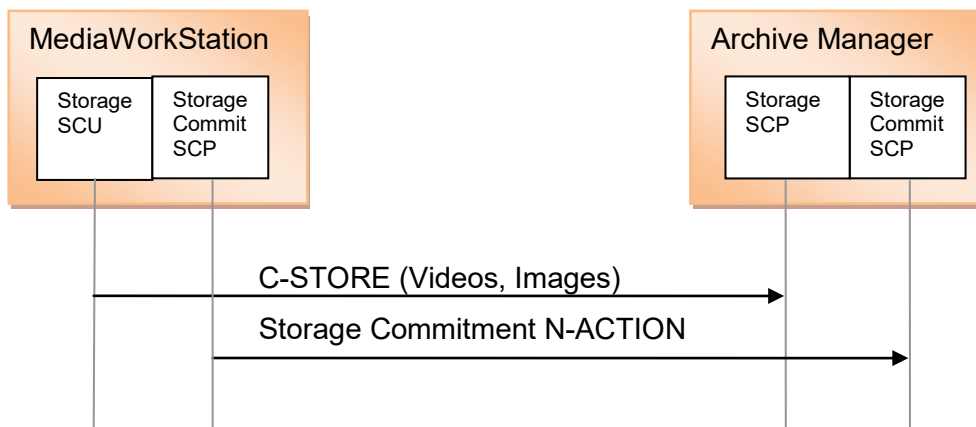
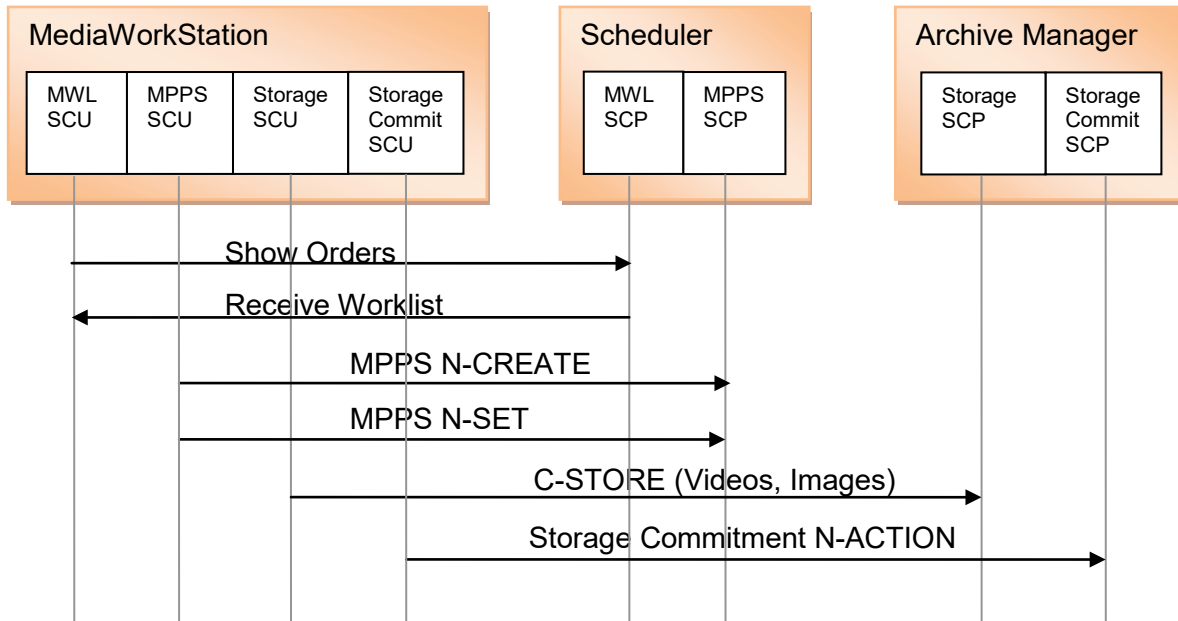
4.1.2.4 STORAGE SCU AE

Either the user manually selects files to be sent to the storage destination or the user finishes work on a Worklist Order and all acquired files are sent to the storage destination automatically. (real-world event "Send Files").

4.1.2.5 STORAGE COMMITMENT SCU AE

If Storage Commitment is activated in the product, the Storage Commitment SCU AE sends Storage Commitment requests.

4.1.3 SEQUENCING OF REAL WORLD ACTIVITIES



4.2 AE Specifications

4.2.1 GENERAL

The DICOM standard application context name for DICOM 3.0 is always proposed:

Application Context Name	1.2.840.10008.3.1.1.1
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Table 4: DICOM APPLICATION CONTEXT

A new association is established whenever a DICOM related operation is invoked, either by the user or semi-automatically by the software itself.

4.2.1.1.1 Number of Associations

Maximum number of initialized Associations	1
Maximum number of simultaneous Associations	1

Table 5: NUMBER OF ASSOCIATIONS ACCEPTED

The default maximum PDU size is 32768 Bytes.

4.2.1.1.2 Asynchronous Nature

The DICOM Worklist Interface does not support asynchronous communication (multiple outstanding transactions over a single Association).

4.2.1.1.3 Implementation Identifying Information

The implementation information for this Application Entity is:

Implementation Class UID	2.16.124.113543.6021.1
Implementation Version Name	RZDCX_2_0_5_9

Table 6: IMPLEMENTATION INFORMATION

4.2.2 MWL SCU AE

4.2.2.1 SOP CLASSES

SOP Class Name	Role	SOP Class UID
Modality Worklist Information Model -FIND	SCU	1.2.840.10008.5.1.4.31
Verification	SCU	1.2.840.10008.1.1

Table 7: SOP Classes for MWL-SCU AE

4.2.2.2 ASSOCIATION INITIATION POLICY

4.2.2.2.1 Activity – Show Orders

The real-world event "Query Orders" results in the initiation of a broad query which is filtered by one or more of the following attributes:

- Scheduled Station AE Title
- Modality
- (optionally) Scheduled Procedure Step Status
- (optionally) Scheduled Procedure Step Start Date
- (optionally) Scheduled Performing Physicians Name
- (optionally) Scheduled Station Name
- (optionally) Scheduled Procedure Step Location

The configuration defines which of the optional attributes, if any, shall be used to filter the Worklist. By default, all optional attributes are disabled.

If the Scheduled Procedure Step Start Date shall be filtered, it can be configured to be either the current day or a range of X days in the past (including the current day).

The real-world event "Refresh Order information" results in a patient based query which is filtered by the following attributes:

- Patient's Name
- Patient's ID
- Patient's birth date
- Scheduled Station AE Title
- Modality
- (optionally) Scheduled Procedure Step Status
- (optionally) Scheduled Procedure Step Start Date
- (optionally) Scheduled Performing Physicians Name
- (optionally) Scheduled Station Name
- (optionally) Scheduled Procedure Step Location
- (optionally) Scheduled Procedure Step Status

See [Table 9: Modality Worklist Query Keys](#) for a complete list of used keys.

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4.2.2.2.1.1 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Modality Worklist Information Model -FIND	1.2.840.1008.5.1.4.31	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
		Little Endian Explicit	1.2.840.10008.1.2.1		
		Big Endian Explicit	1.2.840.10008.1.2.2		
Verification	1.2.840.1008.1.1	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
		Little Endian Explicit	1.2.840.10008.1.2.1		
		Big Endian Explicit	1.2.840.10008.1.2.2		

Table 8: SOP Presentation Context Table - Show Orders

4.2.2.2.1.2 SOP Specific Conformance

The product opens a new association for each C-Find query and closes it after the respective response is received.

The following query keys are used for the Modality Worklist request:

Description / Module	Tag	Matching Key Type	Return Key Type	Remarks
Scheduled Procedure Step				
Scheduled Procedure Step Sequence	(0040,0100)	R	1	
>Scheduled Procedure Step ID	(0040,0009)	O	1	
>Scheduled Station AE Title	(0040,0001)	R	1	value configurable
>Scheduled Procedure Step Start Date	(0040,0002)	R	1	value configurable
>Scheduled Procedure Step Start Time	(0040,0003)	R	1	value configurable
>Modality	(0008,0060)	R	1	value configurable
>Scheduled Performing Physician's Name	(0040,0006)	R	2	value configurable
>Scheduled Procedure Step Description	(0040,0007)	R	1C	either Scheduled Procedure Step Description (0040,0007) or Requested Procedure Description (0032,1060) shall be provided by the SCP
>Scheduled Station Name	(0040,0010)	O	2	value configurable
>Scheduled Procedure Step Location	(0040,0011)	O	2	value configurable
>Scheduled Procedure Step Status	(0040,0020)	O	3	presence configurable; Values see <u>Table 10</u>
Requested Procedure				
Requested Procedure ID	(0040,1001)	O	1	
Requested Procedure Description	(0032,1060)	O	1C	either Scheduled Procedure Step Description (0040,0007)

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				or Requested Procedure Description (0032,1060) shall be provided by the SCP
Requested Procedure Priority	(0040,1003)	O	2	presence configurable; Values see Table 11
Referenced Study Sequence	(0008,1110)	O	2	
Patient Transport Arrangements	(0040,1004)	O	2	presence configurable
Requested Procedure Comments	(0040,1400)	O	3	presence configurable
Study Info				
Study Instance UID	(0020,000D)	O	1	
Study Date	(0008,0020)	O	3	presence configurable;
Study Time	(0008,0030)	O	3	presence configurable;
Study ID	(0020,0010)	O	2	presence configurable;
Study Description	(0008,1030)	O	3	presence configurable
Imaging Request				
Accession Number	(0008,0050)	O	2	
Requesting Physician	(0032,1032)	O	2	presence configurable
Referring Physician's Name	(0008,0090)	O	2	presence configurable
Patient Identification				
Patient's Name	(0010,0010)	R	1	
Patient's ID	(0010,0020)	R	1	
Patient Demographic				
Patient's Birth Date	(0010,0030)	O	2	
Patient's Sex	(0010,0040)	O	2	
Visit Identification				
Admission ID	(0038,0010)	O	2	presence configurable

Table 9: Modality Worklist Query Keys

Any key defined as "value configurable" may be empty, but is always present.

Any key defined as "presence configurable" may be present or not, depending on the configuration.

NOTE: To avoid ambiguity, either the Patient ID (0010,0020) or the Admission ID (0038,0010) or both shall be provided by the MWL SCP AE.

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The Scheduled Procedure Step Status attribute may contain one of the following values:

Value	Meaning
SCHEDULED	The Order is scheduled and ready to be executed
IN PROGRESS	Work on the Order is in progress
SUSPENDED	Work on the Order is interrupted and may be continued at a later time
DISCONTINUED	Work on the Order is discontinued
COMPLETED	The Order has been executed and work on it is finished
any other value	is interpreted as SCHEDULED

Table 10: Values for Scheduled Procedure Step Status

Requested Procedure Priority attribute may contain one of the following values:

Value	Meaning
HIGH	The procedure has high priority
any other value	The procedure has average priority

Table 11: Values for Requested Procedure Priority

The product accepts the following status codes:

Status Type	Status Code
Success	0000
Warning	0001 or Bxxx
Failure	Axxx or Cxxx
Cancel	FE00
Pending	FF00 and FF01

Table 12: Accepted Worklist Query Status Codes

4.2.3 MPPS SCU AE

4.2.3.1 SOP CLASSES

SOP Class Name	Role	SOP Class UID
Modality Performed Procedure Step	SCU	1.2.840.10008.5.1.4.31
Verification	SCU	1.2.840.10008.1.1

Table 13: SOP Classes for MPPS-SCU AE

4.2.3.2 ASSOCIATION INITIATION POLICY

An MPPS association is established in the following situations:

1. Work on an Order is started (N-CREATE with status "IN PROGRESS")
2. Work on an Order is finished (N-SET with status "COMPLETED")
3. An Order is canceled (N-SET with status "DISCONTINUED")

Each association is closed after the respective response is received.

4.2.3.2.1 Activity – Send MPPS

After selecting a Worklist Order the user may acquire the first image. This marks the start of the Performed Procedure Step and results in an N-CREATE message of an MPPS with the status "IN PROGRESS".

When the user decides to finish the Order, an N-SET MPPS message with the status "COMPLETED" is sent.

As long as the Order is not completed the user may cancel the Order, which results in an N-SET MPPS message with status "DISCONTINUED".

4.2.3.2.1.1 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
Verification	1.2.840.10008.1.1	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
		Little Endian Explicit	1.2.840.10008.1.2.1		
		Big Endian Explicit	1.2.840.10008.1.2.2		

Table 14: SOP Presentation Context Table – Send MPPS

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4.2.3.2.1.2 SOP Specific Conformance

The following attributes are used to create (N-CREATE) or edit (N-SET) a Modality Performed Procedure Step:

Description / Module	Tag	N-CREATE	N-SET	Remarks
SOP Common				
Specific Character Set	(0008,0005)	Y	N	ISO IR 192 or not present
Performed Procedure Relationship				
Scheduled Step Attributes Sequence	(0040,0270)	Y	N	
>Study Instance UID	(0020,000D)	Y	N	
> Referenced Study Sequence	(0008,1110)	Y	N	always empty
>Accession Number	(0008,0050)	Y	N	
>Requested Procedure ID	(0040,1001)	Y	N	
>Requested Procedure Description	(0032,1060)	Y	N	may be empty
>Scheduled Procedure Step ID	(0040,0009)	Y	N	
>Scheduled Procedure Step Description	(0040,0007)	Y	N	may be empty
>Scheduled Protocol Code Sequence	(0040,0008)	Y	N	always empty
Patient's Name	(0010,0010)	Y	N	
Patient ID	(0010,0020)	Y	N	
Patient's Birth Date	(0010,0030)	Y	N	may be empty
Patient's Sex	(0010,0040)	Y	N	possible values: "M" = male; "F" = female; "O" = other
Referenced Patient Sequence	(0008,1120)	Y	N	always empty
Admission ID	(0038,0010)	Y	N	only present if not empty
Performed Procedure Step information				
Performed Procedure Step ID	(0040,0253)	Y	N	
Performed Station AE Title	(0040,0241)	Y	N	value configurable
Performed Station Name	(0040,0242)	Y	N	value configurable
Performed Location	(0040,0243)	Y	N	value configurable
Performed Procedure Step Start Date	(0040,0244)	Y	N	
Performed Procedure Step Start Time	(0040,0245)	Y	N	
Performed Procedure Step End Date	(0040,0250)	Y	Y	always empty in N-CREATE
Performed Procedure Step End Time	(0040,0251)	Y	Y	always empty in N-CREATE
Performed Procedure Step Status	(0040,0252)	Y	Y	Possible values: "IN PROGRESS", "DISCONTINUED", "COMPLETED"
Performed Procedure Step	(0040,0254)	Y	Y	may be empty

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Description				
Performed Procedure Type Description	(0040,0255)	Y	Y	always empty
Procedure Code Sequence	(0008,1032)	Y	Y	always empty
Image Acquisition Results				
Modality	(0008,0060)	Y	N	value configurable
Study ID	(0020,0010)	Y	N	
Performed Protocol Code Sequence	(0040,0260)	Y	N	always empty
Performed Series Sequence	(0040,0340)	Y	Y	
>Performing Physician's Name	(0008,1050)	Y	Y	may be empty
>Operators' Name	(0008,1070)	Y	Y	may be empty
>Protocol Name	(0018,1030)	Y	Y	value configurable
>Series Instance UID	(0020,000E)	Y	Y	
>Series Description	(0008,103E)	Y	Y	always empty
>Retrieve AE Title	(0008,0054)	Y	Y	value configurable

Table 15: Modality Performed Procedure Step Attributes

Any key defined as "value configurable" or "may be empty" may be empty, but is always present.

Any key defined as "presence configurable" may not be present, depending on the configuration.

4.2.4 QUERY / RETRIEVE SCU AE

4.2.4.1 SOP CLASSES

SOP Class Name	Role	SOP Class UID
Patient Root Query/Retrieve Information Model	SCU	1.2.840.10008.5.1.4.1.2.1.1
Verification	SCU	1.2.840.10008.1.1

Table 16: SOP Classes for Query/Retrieve SCU

4.2.4.2 ASSOCIATION INITIATION POLICIES

The DICOM Worklist Interface initiates a new association when patient data should be requested from the Patient Data Manager.

4.2.4.3 ACTIVITY QUERY PATIENT INFO

If the parameter "Force unique ID" is enabled, whenever the user creates new patient data or edits existing patient data, a query for the entered patient ID is executed.

If a query result is received and the included patient data do not match with the edited data, the user cannot store the edited data.

This ensures that patients IDs are unique throughout the network.

4.2.4.3.1.1 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Patient Root Query / Retrieve Information Model	1.2.840.10008.5.1.4.1.2.1.1	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
		Little Endian Explicit	1.2.840.10008.1.2.1		
		Big Endian Explicit	1.2.840.10008.1.2.2		
Verification	1.2.840.10008.1.1	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
		Little Endian Explicit	1.2.840.10008.1.2.1		
		Big Endian Explicit	1.2.840.10008.1.2.2		

Table 17: SOP Presentation Context Table - Query Patient Info

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4.2.4.3.1.2 SOP Specific Conformance Statement

The following attributes are used:

Description / Module	Tag	Matching Key Type	Return Key Type	Remarks
SOP Common				
Specific Character Set	(0008,0005)	-	-	ISO IR 192 or not present
Query Retrieve Level	(0008,0052)	-	-	always "PATIENT"
Patient Module				
Patient's Name	(0010,0010)	R	1	
Patient ID	(0010,0020)	R	1	must contain unique value
Patients Birth Date	(0010,0030)	O	2	
Patient's Sex	(0010,0040)	O	2	

Table 18: Query Keys

The product accepts the following status codes:

Status Type	Status Code
Success	0000
Warning	0001 or Bxxx
Failure	Axxx or Cxxx
Cancel	FE00
Pending	FF00 and FF01

Table 19: Accepted Patient Query Status Codes

4.2.5 STORAGE SCU AE

4.2.5.1 SOP CLASSES

SOP Class Name	Role	SOP Class UID
VL Endoscopic Image Storage * ¹	SCU	1.2.840.10008.5.1.4.1.1.77.1.1
VL Microscopic Image Storage * ¹	SCU	1.2.840.10008.5.1.4.1.1.77.1.2
VL Photographic Image Storage * ¹	SCU	1.2.840.10008.5.1.4.1.1.77.1.4
Secondary Capture Image Storage * ¹	SCU	1.2.840.10008.5.1.4.1.1.7
Video Endoscopic Image Storage * ²	SCU	1.2.840.10008.5.1.4.1.1.77.1.1.1
Video Microscopic Image Storage * ²	SCU	1.2.840.10008.5.1.4.1.1.77.1.2.1
Video Photographic Image Storage * ²	SCU	1.2.840.10008.5.1.4.1.1.77.1.4.1
Verification	SCU	1.2.840.10008.1.1

Table 20: SOP CLASSES FOR STORAGE SCU AE

*¹: Only one of the given VL Image Storage SOP Classes may be activated and used for all VL Image Storage Services utilized by the software. VL Endoscopic Image Storage is the default class. Please pay attention to [Table 25: possible values for Own Modality](#).

*²: Only one of the given Video Image Storage SOP Classes may be activated and used for all Video Image Storage Services utilized by the software. Video Endoscopic Image Storage is the default class. Please pay attention to [Table 25: possible values for Own Modality](#).

4.2.5.2 ASSOCIATION INITIATION POLICIES

The DICOM Worklist Interface initiates a new association when the user wants to store images or videos on a remote AE

The DICOM Worklist Interface always establishes one association for each currently active Storage requests and closes this association afterwards.

4.2.5.2.1 Activity Send Files

4.2.5.2.1.1 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
VL Endoscopic Image Storage	1.2.840.1008.5.1.4.1.1.77.1.1	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
		Little Endian Explicit	1.2.840.10008.1.2.1		
		Big Endian Explicit	1.2.840.10008.1.2.2		
VL Microscopic Image Storage	1.2.840.1008.5.1.4.1.1.77.1.2	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
		Little Endian Explicit	1.2.840.10008.1.2.1		
		Big Endian Explicit	1.2.840.10008.1.2.2		
VL Photographic Image Storage	1.2.840.1008.5.1.4.1.1.77.1.4	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
		Little Endian Explicit	1.2.840.10008.1.2.1		
		Big Endian Explicit	1.2.840.10008.1.2.2		
Secondary Capture Image Storage	1.2.840.1008.5.1.4.1.1.7	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
		Little Endian Explicit	1.2.840.10008.1.2.1		
		Big Endian Explicit	1.2.840.10008.1.2.2		
Video Endoscopic Image Storage	1.2.840.1008.5.1.4.1.1.77.1.1.1	MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	SCU	None
		MPEG2 Main Profile @ High Level	1.2.840.10008.1.2.4.101		
Video Microscopic Image Storage	1.2.840.1008.5.1.4.1.1.77.1.1.1	MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	SCU	None
		MPEG2 Main Profile @ High Level	1.2.840.10008.1.2.4.101		
Video Photographic Image Storage	1.2.840.1008.5.1.4.1.1.77.1.1.1	MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	SCU	None
		MPEG2 Main Profile @ High Level	1.2.840.10008.1.2.4.101		
Verification	1.2.840.1008.1.1	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
		Little Endian Explicit	1.2.840.10008.1.2.1		
		Big Endian Explicit	1.2.840.10008.1.2.2		

Table 21: SOP Presentation Context Table - Send Files

4.2.5.2.1.2 SOP Specific Conformance

See chapter 8.1.1 Created SOP Instances for the structure of created SOP instances of:

- VL Endoscopic Image Storage IOD (chapter 8.1.1.1)
- VL Microscopic Image Storage IOD (chapter 8.1.1.1)
- VL Photographic Image Storage IOD (chapter 8.1.1.1)
- Secondary Capture Image Storage IOD (chapter 8.1.1.1)
- Video Endoscopic Image Storage IOD (chapter 8.1.1.2)
- Video Microscopic Image Storage IOD (chapter 8.1.1.2)
- Video Photographic Image Storage IOD (chapter 8.1.1.2)

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4.2.6 STORAGE COMMITMENT SCU AE

4.2.6.1 SOP CLASSES

SOP Class Name	Role	SOP Class UID
Storage Commitment Push Model SOP Class	SCU	1.2.840.10008.1.20.1
Verification	SCU	1.2.840.10008.1.1

4.2.6.2 ASSOCIATION INITIATION POLICIES

The DICOM Worklist Interface initiates a new association when the Storage Commitment should be requested from the remote AE that previously stored images (only if Storage Commitment is enabled)

For each previously sent Storage Request a new association is established to request the Storage Commitment of the respective file.

4.2.6.2.1 Activity Request Storage Commitment

4.2.6.2.1.1 Proposed Presentation Contexts

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
Verification	1.2.840.10008.1.1	Little Endian Implicit	1.2.840.10008.1.2	SCU	None
		Little Endian Explicit	1.2.840.10008.1.2.1		
		Big Endian Explicit	1.2.840.10008.1.2.2		

Table 22: SOP Presentation Context Table - Request Storage Commitment

The following attributes are used for the Storage Commitment request:

Description / Module	Tag	Matching Key Type	Return Key Type	Remarks
SOP Common				
Specific Character Set	(0008,0005)	Y	N	ISO IR 192 or not present
Storage Commitment Module				
Transaction UID	(0008,1195)	Y	Y	
Referenced SOP Sequence	(0008,1199)	Y	Y	
Retrieve AE Title	(0008,0054)	N	Y	See note 4.2.6.2.1.1.2
Storage Media File-Set ID	(0088,0130)	Y	Y	See note 4.2.6.2.1.1.1
Storage Media File-Set UID	(0088,0140)	Y	Y	See note 4.2.6.2.1.1.1
>Referenced SOP Class UID	(0008,1150)	Y	Y	
>Referenced SOP Instance UID	(0008,1155)	Y	Y	
>Retrieve AE Title	(0008,0054)	N	Y	See note 4.2.6.2.1.1.2
>Storage Media File-Set ID	(0088,0130)	Y	Y	See note 4.2.6.2.1.1.1
>Storage Media File-Set UID	(0088,0140)	Y	Y	See note 4.2.6.2.1.1.1

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Failed SOP Sequence	(0008,1198)	N	Y	Only present if failed
>Referenced SOP Class UID	(0008,1150)	N	Y	Only present if failed
>Referenced SOP Instance UID	(0008,1155)	N	Y	Only present if failed
>Failure Reason	(0008,1197)	N	Y	Only present if failed

4.2.6.2.1.1.1 Storage Media File Set ID Attributes

If present, the Storage Media File-Set ID (0088,0130) and Storage Media File-Set UID (0088,0140) appear either outside the Referenced SOP Sequence (0008,1199), or within one or more Items within that sequence, but not both. If they appear outside of the sequence, then all of the SOP Instances within the sequence shall be retrievable from the specified Storage Media File-Set. If they appear within an Item of that sequence, then the SOP Instance referenced to by that Item shall be retrievable from the specified Storage Media File-Set.

4.2.6.2.1.1.2 Retrieve AE Title Attribute

If present, the Retrieve AE Title (0008,0054) appears either outside the Referenced SOP Sequence (0008,1199), or within one or more Items within that sequence, but not both. If they appear outside of the sequence, then all of the SOP Instances within the sequence shall be retrievable from the specified Retrieve AE Title. If they appear within an Item of that sequence, then the SOP Instance referenced to by that Item shall be retrievable from the specified Retrieve AE Title.

4.2.7 NETWORK INTERFACES

4.2.8 PHYSICAL NETWORK INTERFACE

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

4.2.9 ADDITIONAL PROTOCOLS

When host names rather than IP addresses are used in the configuration file to specify presentation addresses for remote AEs, the application is dependent on the name resolution mechanism of the underlying operating system.

4.3 Configuration

All configurations are done either in a special settings dialog in the MediaWorkStation software or directly in the configuration file where the parameters are stored. Configurations should only be done by a system administrator.

4.3.1 AE TITLE / PRESENTATION ADDRESS MAPPING

4.3.1.1 LOCAL AE TITLES

There is exactly one AE Title for all local Application Entities of the DICOM Worklist Interface.

Application Entity	Default AE Title
MWL SCU AE	MWS
MPPS SCU AE	MWS
Query/Retrieve SCU AE	MWS
Storage SCU AE	MWS
Storage Commitment SCU AE	MWS

Table 23: Local AE Title Mapping

The following parameters can be configured for the local Application Entities. The specified values apply to all local Application Entities collectively.

Name	Default value	Remarks
Own AE Title	MWS	must not be empty
Own Location	OwnLocation	may be empty
Own Station Name	OwnStationName	may be empty
Own Modality	ES	See Table 25 : possible values for Own Modality or DICOM Standard part 11_03 chapter C.7.3.1.1.1 for defined terms

Table 24: configuration parameters for local Application Entities

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The parameter Own Modality shall contain one of the defined terms given in DICOM Standard part 11_03 chapter C.7.3.1.1.1. Here is a non-exhaustive list of possible values:

Abbr.	Name	Note
ES	Endoscopy	This value shall be used in combination with: <ul style="list-style-type: none"> VL Endoscopic Image Storage SOP Class Video Endoscopic Image SOP Class
GM	General Microscopy	This value shall be used in combination with: <ul style="list-style-type: none"> VL Microscopic Image Storage SOP Class Video Microscopic Image SOP Class
XC	External-camera Photography	This value shall be used in combination with: <ul style="list-style-type: none"> VL Photographic Image Storage SOP Class Video Photographic Image SOP Class
OT	Other	This value should only be used if none of the others are applicable or supported by the system

Table 25: possible values for Own Modality

4.3.1.2 REMOTE AE TITLE/PRESENTATION ADDRESS MAPPING

By default, there is exactly one AE Title for each remote Application Entity of the DICOM Worklist Interface.

By changing the default settings, you can configure several remote AE Titles for MWL SCPs and for MPPS SCPs to retrieve worklist entries from several remote AEs at once. Since MWL SCP and MPPS SCP are paired, there is always the same number of both remote AEs.

The DICOM Worklist Interface will retrieve worklist entries from all defined MWL SCP AEs. It will send MPPS information to the MPPS SCP AE that is paired to the MWL SCP AE from which the corresponding worklist entry was retrieved.

Application Entity	Number of configurable AEs
MWL SCP AE	1 – 20
MPPS SCP AE	1 – 20
Storage SCP AE	1
Storage Commitment SCP AE	1

Table 26: number of configurable Aes

Each of the remote Application Entities has its own set of configuration parameters:

remote AE	default AE Title	default IP address	default Port	default Station name
MWL SCP AE	MWL	127.0.0.1	6106	StationName
MPPS SCP AE	MWL	127.0.0.1	6106	StationName
Query/Retrieve SCP AE	PACS	127.0.0.1	6106	StationName
Storage SCP AE	PACS	127.0.0.1	6106	StationName
Storage Commitment SCP AE	PACS	127.0.0.1	6106	StationName

Table 27: configuration parameters for remote AEs

The parameter "AE Title" is the user-configurable title of the remote AE.

The configured IP address of the remote AE must be accessible by the client system.

The parameter "Port" must contain the numeric value of the port number, on which the remote AE listens for new associations. The Port must contain a numeric value between 1 and 65535.

The "Station name" is an optional parameter and may contain any user-defined value or an empty value.

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4.3.2 PARAMETERS

The following parameters can be configured through the MWS settings dialog:

Parameter	Configurable	Default Value	Remarks
General			
HCI enabled	Yes	Off	Enables the MWS DICOM interface
Use UTF-8 Encoding	Yes	Off	Sets "Character Set" to ISO_IR 192 or empty value
Connection Time-out	Yes	5 Sec.	Time in which the called AE must reply to association request
Max PDU size	No	32 kB	
LogLevel	Yes	3	0 = no logging 1 = fatal errors only 2 = all errors 3 = errors and warnings 4 = errors, warnings, content information 5 = debug information
Number of Worklist servers	Yes	1	Numeral value between 1 and 20. Defines the number of MWL SCP AEs and MPPS SCP AEs
Order refresh time (minutes)	Yes	10	Time interval of automatic MWL reloads; 0 = deactivate automatic reload
Strict Order check	Yes	Off	Whether or not the availability of Orders should be rechecked directly before accepting them. May prolong waiting times.
Force unique ID	Yes	On	Whether or not newly created or edited patient data should be queried to ensure that a patients ID is unique throughout the network
Manufacturer	No	MES Medien Elektronik Software	
Manufacturer Model Name	No	MWS-HCI	
Software Version	No	1.1	
Implementation Class UID	No	2.16.124.113543.6021.1	
Implementation Version Name	No	RZDCX_2_0_5_9	
Local AE			
Own AE Title	Yes	MWS	
Own Port	Yes	6105	Value between 1 and 65535
Own Modality	Yes	ES	See Table 25: possible values for Own Modality
Own Station Name	Yes	OwnStationName	Text value, may be empty
Own Location	Yes	OwnLocation	Text value, may be empty
MWL SCP AE (repeats for <Number of Worklist servers> times)			
Modality Worklist AE	Yes	MWL	

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Title			
Modality Worklist IP Address	Yes	127.0.0.1	
Modality Worklist Port	Yes	6106	Value between 1 and 65535
Modality Worklist Station name	Yes	StationName	Text value, may be empty
MPPS SCP AE (repeats for <Number of Worklist servers> times)			
Activate MPPS	Yes	On	Activates or deactivates the MPPS functionality
MPPS Server AE Title	Yes	MWL	Must only be configured if "Activate MPPS" is enabled
MPPS Server IP Address	Yes	127.0.0.1	
MPPS Server Port	Yes	6106	Value between 1 and 65535
MPPS Server Station name	Yes	StationName	Text value, may be empty
Query/Retrieve SCP AE			
Patients Query/Retrieve AE Title	Yes	PACS	Must only be configured if "Force unique ID" is enabled
Patients Query/Retrieve IP Address	Yes	127.0.0.1	Value between 1 and 65535
Patients Query/Retrieve Port	Yes	6106	
Patients Query/Retrieve Station name	Yes	StationName	Text value, may be empty
Storage SCP AE			
Storage Server AE Title	Yes	PACS	
Storage Server IP Address	Yes	127.0.0.1	
Storage Server Port	Yes	6106	Value between 1 and 65535
Storage Server Station name	Yes	StationName	Text value, may be empty
Permit sending videos	Yes	On	If enabled, images and videos may be transferred to Storage SCP. If disabled, only images may be transferred.
Video Clip max size	Yes	200 MB	Large video files are automatically split into pieces of the defined size before dicomization. 0 = no video splitting before dicomization
Performing Protocol Name	Yes	Protocol	Text value for the Performing Protocol attribute
Storage Timeout	Yes	60	Defines the time (in seconds) in which a single file must be transferred to the storage SCP. Raise this value if the transfer of long videos fails due to timeouts.
Storage Commitment SCP AE			

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Activate Storage Commitment	Yes	Off	Activates or deactivates the Storage Commitment functionality
Storage Commitment AE Title	Yes	PACS	Must only be configured if "Activate Storage Commitment" is enabled
Storage Commitment IP Address	Yes	127.0.0.1	
Storage Commitment Port	Yes	6106	Value between 1 and 65535
Storage Commitment Station name	Yes	StationName	Text value, may be empty
optional attributes for Modality Worklist			
Scheduled Performing Physicians Name	Hidden	empty value	Text value, may be empty. Filters the queried Worklist items for the Scheduled Performing Physicians Name. Filtering is deactivated if the value is empty.
SPS current start date	Hidden	Off	Boolean (0 = off; 1 = on); Whether or not the Worklist shall be filtered by the SPS start date attribute.
SPS current start time	Hidden	Off	Boolean (0 = off; 1 = on); Whether or not the Worklist shall be filtered by the SPS start time attribute.
SPS start date delta	Hidden	empty value	Numerical value; (only takes effect if <SPS start date> = ON); <u>0</u> or <empty value> = query worklist items scheduled for today; <u>1</u> = query worklist items scheduled for today and yesterday; <u>X</u> = query worklist items scheduled for today and X days in the past;
SPS Status	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the SPS Status attribute shall be queried. See Table 10: Values for Scheduled Procedure Step Status
Requesting Physician	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the SPS Requesting Physician attribute shall be queried
Requested Procedure Comments	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Requested Procedure Comments attribute shall be queried
Requested Procedure Priority	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Requested Procedure Priority attribute shall be queried. Worklist Orders with high priority are listed above all other Orders. See Table 11: Values for Requested Procedure Priority
Study Description	Hidden	On	Boolean (0 = off; 1 = on);

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			Whether or not the SPS Study Description attribute shall be queried
SPS Station Name	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Worklist shall be filtered by the SPS Station Name attribute
SPS Location	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Worklist shall be filtered by the SPS Location attribute
Study Data In SPS	Hidden	Off	Boolean (0 = off; 1 = on); Whether or not additional Study data attributes (Study Date & Time, Study ID, Description) shall be queried
Admission ID	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Admission ID attribute shall be queried
Patient Transport Arrangements	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Patient Transport Arrangements attribute shall be queried
Referring Physician	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Referring Physician attribute shall be queried
Swap Name Prefix Suffix	Hidden	Off	Boolean (0 = off; 1 = on); Whether or not the prefix and suffix of a person's name shall be swapped. May be necessary if names are converted from HL7 or IHE notation to DICOM notation.
optional attributes for MPPS			
Comments On The PPS	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Comments On The PPS attribute shall be sent
Series Description	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Series Description attribute shall be sent
optional attributes for Storage			
Study Description	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Study Description attribute shall be sent
Manufacturer Model Name	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Manufacturer Model Name attribute shall be sent
Software Version	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Software Version attribute shall be sent
Concatenation	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Concatenation attributes shall be sent for large video files, that were cut into smaller pieces. See 8.1.1.2

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Station Name	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Station Name attribute shall be sent
Referring Physician	Hidden	On	Boolean (0 = off; 1 = on); Whether or not the Referring Physician attribute shall be sent
Picture Storage SOP Class	Hidden	1.2.840.10008.5.1.4.1.1.77.1.1	Sets the Image Storage SOP Class UID for all images created by the software. Please pay attention to <u>Table 20: SOP CLASSES FOR STORAGE SCU AE</u> and <u>Table 25: possible values for Own Modality</u> . Intended to acquire compatibility with different PACS.
Video Storage SOP Class	Hidden	1.2.840.10008.5.1.4.1.1.77.1.1.1	Sets the Video Storage SOP Class UID for all videos created by the software. Please pay attention to <u>Table 20: SOP CLASSES FOR STORAGE SCU AE</u> and <u>Table 25: possible values for Own Modality</u> . Intended to acquire compatibility with different PACS.
Force Video Main Level	Hidden	On	Boolean (0 = off; 1 = on); Whether or not all videos shall be transferred as MPEG2 Main Profile @ Main Level, even though the dimensions of the video conform to MPEG2 Main Profile @ High Level. Intended to acquire compatibility with different PACS.

Table 28: list of parameters

Hidden parameters cannot be changed in the MediaWorkStation user interface, but may be edited in the configuration file C:\MWS\System\LocalMachine.ini, if necessary.

5 Media Interchange

Media Interchange is not supported.

6 Support of character sets

ISO_IR 192 (UTF8)

7 Security Profiles

Security Profiles are not supported.

7.1 ASSOCIATION LEVEL SECURITY

Remote AE access has to be configured in the settings of the MediaWorkStation software.

APPLICATION LEVEL SECURITY

All DICOM relevant configuration parameters are secured by the application login.

Only users with MWS Control rights are allowed to access the settings area.

The DICOM configuration is stored in a human readable format on the client computer.

8 ANNEXES

8.1 IOD Contents

8.1.1 CREATED SOP INSTANCES

Examples of VL Endoscopic images and Endoscopic videos created by MWS can be retrieved from the MediaWorkStation website:

<http://www.mediaworkstation.de/hci.html>

The following tables use a number of abbreviations. The abbreviations used in the "Presence of ..." column are:

Abbreviation	Meaning
VNAP	Value Not Always Present (attribute sent with zero length if no value is present)
ANAP	Attribute Not Always Present (if the attribute is present, it is never sent with zero length)
ALWAYS	Always Present
EMPTY	Attribute is always sent without a value

Table 29: Abbreviations for the "Presence of" column

The abbreviations used in the "Source" column:

Abbreviation	Meaning
USER	the attribute value source is from User input
AUTO	the attribute value is generated automatically
CONFIG	the attribute value source is a configurable parameter
MWL	the attribute value source is a Modality Worklist item
MPPS	the attribute value is the same as that used for Modality Performed Procedure Step

Table 30: Abbreviations for the "Source" column

NOTE: All dates and times are encoded according to DICOM:

- Dates are encoded as: YYYYMMDD
- Times are encoded as: HHNNSS.ZZZ

Where

- Each "Y" stands for one digit of the year
- Each "M" stands for one digit of the month
- Each "D" stands for one digit of the day
- Each "H" stands for one digit of the hour
- Each "N" stands for one digit of the minute
- Each "S" stands for one digit of the second
- Each "Z" stands for one digit of the millisecond

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8.1.1.1 VL ENDOSCOPIC IMAGE IOD, VL MICROSCOPIC IMAGE IOD, VL PHOTOGRAPHIC IMAGE IOD, SECONDARY CAPTURE IMAGE STORAGE IOD

The following Information Object Definition applies to all objects of

- VL Endoscopic Image
- VL Microscopic Image
- VL Photographic Image
- Secondary Capture Image

Information Entity	Module	Reference	Presence of Module
Patient	Patient	Table 33	ALWAYS
	Clinical Trial Subject		NEVER
Study	General Study	Table 34	ALWAYS
	Patient Study		NEVER
	Clinical Trial Study		NEVER
Series	General Series	Table 35	ALWAYS
	Clinical Trial Series		NEVER
Equipment	General Equipment	Table 36	ALWAYS
Image	General Image	Table 37	ALWAYS
	Image Pixel	Table 38	ALWAYS
	Acquisition Context	Table 39	ALWAYS
	Device		NEVER
	Specimen		NEVER
	VL Image	Table 41	ALWAYS
	Overlay Plane		NEVER
	ICC Profile		NEVER
	SOP Common	Table 40	ALWAYS

Table 31: IOD of created VL <*> IMAGE

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8.1.1.2 VIDEO ENDOSCOPIC IMAGE IOD, VIDEO MICROSCOPIC IMAGE IOD, VIDEO PHOTOGRAPHIC IMAGE IOD

The following Information Object Definition applies to all objects of

- Video Endoscopic Image
- Video Microscopic Image
- Video Photographic Image

Information Entity	Module	Reference	Presence of Module
Patient	Patient	Table 33	ALWAYS
	Clinical Trial Subject		NEVER
Study	General Study	Table 34	ALWAYS
	Patient Study		NEVER
	Clinical Trial Study		NEVER
Series	General Series	Table 35	ALWAYS
	Clinical Trial Series		NEVER
Equipment	General Equipment	Table 36	ALWAYS
Image	General Image	Table 37	ALWAYS
	Cine	Table 43	ALWAYS
	Multi-frame	Table 44	ALWAYS
	Multi-frame functional group	Table 45	ANAP
	Image Pixel	Table 38	ALWAYS
	Acquisition Context	Table 39	ALWAYS
	Device		NEVER
	Specimen		NEVER
	VL Image	Table 42	ALWAYS
	ICC Profile		NEVER
	SOP Common	Table 40	ALWAYS
	Frame Extraction		NEVER

Table 32: IOD of created VIDEO <*> IMAGE

NOTE: In some cases a video is split into several pieces prior to transfer to the Storage SCP. Each of those pieces contains the "Multi-frame functional group" module to define its relation to the original file, if all of the following conditions are met:

1. The parameter "Permit sending videos" is set to "On"
2. The parameter "Concatenation" is set to "On"
3. The parameter "Video Clip Max Size" is set to a value > 0
4. The video file that should be transferred has a file size greater than the value of the parameter "Video Clip Max Size"

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8.1.1.3 COMMON MODULES

Patient Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
Patient's Name	(0010,0010)	PN	max. 128 characters	ALWAYS	MWL/USER
Patient ID	(0010,0020)	LO	max. 20 characters	VNAP	MWL/USER
Patient's Birth Date	(0010,0030)	DA		VNAP	MWL/USER
Patient's Sex	(0010,0040)	CS		VNAP	MWL/USER

Table 33: Patient Module Attributes

NOTE: To avoid ambiguity, either the Patient ID (0010,0020) or the Admission ID (0038,0010) shall be provided by the MWL SCP AE.

General Study Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
Study Instance UID	(0020,000D)	UI		ALWAYS	MWL/AUTO
Study Date	(0008,0020)	DA		ALWAYS	MWL/AUTO
Study Time	(0008,0030)	TM		ALWAYS	MWL/AUTO
Referring Physician's Name	(0008,0090)	PN		ANAP	MWL
Study ID	(0020,0010)	SH		VNAP	MWL/AUTO
Accession Number	(0008,0050)	SH		VNAP	MWL
Study Description	(0008,1030)	LO	session comment	ANAP	USER

Table 34: General Study Module Attributes

General Series Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
Modality	(0008,0060)	CS		ALWAYS	CONFIG
Series Instance UID	(0020,000E)	UI		ALWAYS	MWL/AUTO
Series Number	(0020,0011)	IS		ALWAYS	MWL/AUTO
Laterality	(0020,0060)	CS		ALWAYS	EMPTY
Referenced Performed Procedure Step Sequence	(0008,1111)	SQ		VNAP	
>Referenced SOP Class UID	(0008,1150)	UI		VNAP	MPPS
>Referenced SOP Instance UID	(0008,1155)	UI		VNAP	MPPS

Table 35: General Series Module Attributes

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General Equipment Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
Manufacturer	(0008,0070)	LO	MES Medien Elektronik Software	ALWAYS	
Manufacturer's Model Name	(0008,1090)	LO	MWS-HCI	ANAP	
Software Versions	(0018,1020)	LO	1.1	ANAP	
Station Name	(0008,1010)	SH		ANAP	CONFIG

Table 36: General Equipment Module Attributes

General Image Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
Instance Number	(0020,0013)	IS		ALWAYS	AUTO
Patient Orientation	(0020,0020)	CS	always empty	EMPTY	
Image Type	(0008,0008)	CS	ORIGINAL\PRIMARY	ALWAYS	
Image Comments	(0020,4000)	LT		ANAP	USER
Lossy Image Compression	(0028,2110)	CS	00 or 01	ALWAYS	AUTO
Lossy Image Compression Method	(0028,2114)	CS	"ISO_10918_1" (JPG), "ISO_13818_1" (MPEG2)	VNAP	AUTO

Table 37: General Image Module Attributes

Image Pixel Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
Samples per Pixel	(0028,0002)	US	3	ALWAYS	
Photometric Interpretation	(0028,0004)	CS	YBR_FULL_422 or RGB	ALWAYS	AUTO
Rows	(0028,0010)	US		ALWAYS	AUTO
Columns	(0028,0011)	US		ALWAYS	AUTO
Bits Allocated	(0028,0100)	US	8	ALWAYS	
Bits Stored	(0028,0101)	US	8	ALWAYS	
High Bit	(0028,0102)	US	7	ALWAYS	
Pixel Representation	(0028,0103)	US	0	ALWAYS	
Pixel Data	(7FE0,0010)	OW		ALWAYS	AUTO
Planar Configuration	(0028,0006)	US	0	ALWAYS	
Pixel Aspect Ratio	(0028,0034)	IS		ANAP	AUTO

Table 38: Image Pixel Module Attributes

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Acquisition Context Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
Acquisition Context	(0040,0555)	SQ		EMPTY	

Table 39: Acquisition Context Module Attributes

SOP common Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
SOP Class UID	(0008,0016)	UI		ALWAYS	AUTO
SOP Instance UID	(0008,0018)	UI		ALWAYS	AUTO
Specific Character Set	(0008,0018)	CS	ISO_IR 192	ANAP	CONFIG

Table 40: SOP common Module Attributes

MediaWorkStation DICOM Worklist

DICOM Conformance Statement



8.1.1.4 VL IMAGE MODULES

VL Image Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
Image Type	(0008,0008)	CS	ORIGINAL\ PRIMARY	ALWAYS	
Photometric Interpretation	(0028,0004)	CS	YBR_FULL_422 or RGB	ALWAYS	AUTO
Bits Allocated	(0028,0100)	US	8	ALWAYS	
Bits Stored	(0028,0101)	US	8	ALWAYS	
High Bit	(0028,0102)	US	7	ALWAYS	
Pixel Representation	(0028,0103)	US	0	ALWAYS	
Samples per Pixel	(0028,0002)	US	3	ALWAYS	
Planar Configuration	(0028,0006)	US	0	ALWAYS	
Lossy Image Compression	(0028,2110)	CS	01	ALWAYS	

Table 41: VL Image Module Attributes

MediaWorkStation DICOM Worklist

DICOM Conformance Statement



8.1.1.5 VIDEO IMAGE MODULES

VL Image Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
Image Type	(0008,0008)	CS	ORIGINAL\PRIMARY	ALWAYS	
Photometric Interpretation	(0028,0004)	CS	YBR_PARTIAL_420	ALWAYS	
Bits Allocated	(0028,0100)	US		ALWAYS	AUTO
Bits Stored	(0028,0101)	US		ALWAYS	AUTO
High Bit	(0028,0102)	US		ALWAYS	AUTO
Pixel Representation	(0028,0103)	US		ALWAYS	AUTO
Samples per Pixel	(0028,0002)	US		ALWAYS	AUTO
Planar Configuration	(0028,0006)	US		ALWAYS	AUTO
Lossy Image Compression	(0028,2110)	CS	01	ALWAYS	

Table 42: VL Image Module Attributes

Cine Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
Frame Time	(0018,1063)	DS		ALWAYS	AUTO
Cine Rate	(0018,0040)	IS		ALWAYS	AUTO
Effective Duration	(0018,0072)	DS		ALWAYS	AUTO

Table 43: Cine Module Attributes

Multi-Frame Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
Number of Frames	(0028,0008)	IS		ALWAYS	AUTO
Frame Increment Pointer	(0028,0009)	AT	Frame Time (0018,1063)	ALWAYS	AUTO

Table 44: Multi-Frame Module Attributes

MediaWorkStation DICOM Worklist

DICOM Conformance Statement



Multi-Frame Functional Groups Module Attributes:

Attribute Name	Tag	VR	Value	Presence	Source
Shared Functional Groups Sequence	(5200,9229)	SQ	always empty	EMPTY	
Per-frame Functional Groups Sequence	(5200,9230)	SQ	always empty	EMPTY	
Instance Number	(0020,0013)	IS		ALWAYS	AUTO
Content Date	(0008,0023)	DA		ALWAYS	AUTO
Content Time	(0008,0033)	TM		ALWAYS	AUTO
Number of Frames	(0028,0008)	IS		ALWAYS	AUTO
Concatenation Frame Offset Number	(0020,9228)	UL		ALWAYS	AUTO
Concatenation UID	(0020,9161)	UI		ALWAYS	AUTO
SOP Instance UID of Concatenation Source	(0020,0242)	UI	always empty	EMPTY	
In-concatenation Number	(0020,9162)	US		ALWAYS	AUTO
In-concatenation Total Number	(0020,9163)	US		ALWAYS	AUTO

Table 45: Multi-Frame Functional Groups Module Attributes