



DICOM Conformance Statement

Retina Workplace

Version 2.6

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1 Conformance Statement Overview

Retina Workplace is a software application that is integrated into FORUM as a plugin. The software provides interactive display and analysis of OCT data and fundus images from retina examinations.

Retina Workplace supports doctors in analysis and monitoring of changes to the macula. The analysis is carried out on the basis of OCT images and fundus images of the patient.

The central function of the Retina Workplace is visualization of OCT images in a TripleView, consisting of the fundus image, B-scan, and analysis data. Up to three TripleViews can be displayed simultaneously in the Retina Workplace work area.

OCT images and fundus images captured by the following devices can be displayed and analyzed with Retina Workplace:

- ZEISS CIRRUS OCT devices
- Fundus cameras (any fundus image in DICOM Ophthalmic Photography 8 Bit (OP) format)

Retina Workplace provides its own preselections in FORUM but can also be used to open one or more OCT images directly. Suitable images are macular cube scans, OCT angiography scans and raster scans of the macula. When using suitable OCT images and fundus images, fundus images can be registered with macular cube scans and raster scans with macular cube scans or fundus images.

The overall DICOM communication of Retina Workplace is managed by FORUM. To understand the FORUM supported network services and the FORUM Implementation Model please refer to the FORUM DICOM Conformance Statement.

The current document only describes the specifics for Retina Workplace, these are mainly the specific Storage IODs.

This document is structured as suggested in the DICOM Standard (PS 3.2: Conformance).

2 Table of Contents

1	Conformance Statement Overview	2
2	Table of Contents.....	3
3	Introduction	4
3.1	Revision History	4
3.2	Audience.....	4
3.3	Remarks	4
3.4	Definitions and Terms	5
3.5	Abbreviations	6
3.6	References	6
4	Networking.....	7
4.1	Implementation Model	7
4.1.1	Application Data Flow	7
4.1.2	Functional Definition of AEs	7
4.1.2.1	Functional Definition of FORUM Application Entity	7
4.1.2.2	Functional Definition of FORUM Worklist Application Entity	8
4.1.2.3	Functional Definition of Retina Workplace	8
4.1.3	Sequencing of Real-World Activities	8
4.1.3.1	Retina Workplace Activities.....	8
4.2	AE Specifications.....	8
4.3	Network Interfaces	8
4.4	Configuration.....	9
4.4.1	AE Title/Presentation Address Mapping.....	9
4.4.2	Parameters	9
4.4.2.1	General Parameters	9
5	Media Interchange.....	10
6	Support of Character Sets	11
6.1	Accepted Character Sets	11
6.2	Returned Character Sets	11
7	Security	12
8	Annexes.....	13
8.1	IOD Contents	13
8.1.1	Created SOP Instance(s)	13
8.1.1.1	Encapsulated PDF Information Object Definition	14
8.1.1.2	Raw Data Information Object Definition	21
8.1.2	Usage of Attributes from Received IOD's	24
8.1.3	Attribute Mapping	24
8.1.4	Coerced/Modified Files	25
8.2	Data Dictionary of Private Attributes	25
8.3	Coded Terminology and Templates.....	25
8.4	Greyscale Image Consistency	25
8.5	Standard Extended / Specialized/ Private SOP Classes	25
8.6	Private Transfer Syntaxes	25

3 Introduction

3.1 Revision History

Document Version	Date	Author	Changes
1.0	2015-06-10	Rms	Initial revision for Retina Workplace v1.0
1.1	2016-11-29	Rms	Revision for Retina Workplace v2.0 <ul style="list-style-type: none">- Raw Data IOD for Clinical Events added- New scan types and analysis types to Encapsulated PDF added.
1.2	2018-03-05	Rms	Revision for Retina Workplace v2.5 <ul style="list-style-type: none">- Encapsulated PDF supporting new scan types (Angiography 3x3 mm", "Angiography 6x6 mm", "Angiography 8x8 mm") and new analysis (Angiography Change Analysis)- Language pack version removed from attribute (0018,1020) Software Version(s)- PoV and Source corrected in Raw Data IOD – Patient Module- Note about Mapping of AcquisitionDatetime in chapter 8.1.3 added
1.3	2018-03-05	Rms	Revision for Retina Workplace v2.6 <ul style="list-style-type: none">- Changed StudyID handling- added Contributing Equipment Sequence

3.2 Audience

This document is written for the people that need to understand how Retina Workplace 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 Retina Workplace 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.

3.4 Definitions and Terms

Informal definitions are provided for the following terms used in this Conformance Statement. The DICOM Standard is the authoritative source for formal definitions of these terms.

Application Entity (AE)

an end point of a DICOM information exchange, including the DICOM network or media interface software; i.e., the software that sends or receives DICOM information objects or messages. A single device may have multiple Application Entities.

Application Entity Title

the externally known name of an Application Entity, used to identify a DICOM application to other DICOM applications on the network.

Attribute

a unit of information in an object definition; a data element identified by a tag. The information may be a complex data structure (Sequence), itself composed of lower level data elements.

Examples: Patient ID (0010,0020), Accession Number (0008,0050), Photometric Interpretation (0028,0004), Procedure Code Sequence (0008,1032).

Information Object Definition (IOD)

the specified set of Attributes that comprise a type of data object; does not represent a specific instance of the data object, but rather a class of similar data objects that have the same properties. The Attributes may be specified as Mandatory (Type 1), Required but possibly unknown (Type 2), or Optional (Type 3), and there may be conditions associated with the use of an Attribute (Types 1C and 2C).

Examples: MR Image IOD, CT Image IOD, Print Job IOD.

Joint Photographic Experts Group (JPEG)

a set of standardized image compression techniques, available for use by DICOM applications.

Module

a set of Attributes within an Information Object Definition that are logically related to each other.

Example: Patient Module includes Patient Name, Patient ID, Patient Birth Date, and Patient Sex.

Service/Object Pair (SOP) Class

the specification of the network or media transfer (service) of a particular type of data (object); the fundamental unit of DICOM interoperability specification.

Examples: Ultrasound Image Storage Service, Basic Grayscale Print Management.

Service/Object Pair (SOP) Instance

an information object; a specific occurrence of information exchanged in a SOP Class.

Examples: a specific x-ray image.

Tag

a 32-bit identifier for a data element, represented as a pair of four digit hexadecimal numbers, the "group" and the "element". If the "group" number is odd, the tag is for a private (manufacturer-specific) data element.

Examples: (0010,0020) [Patient ID], (07FE,0010) [Pixel Data], (0019,0210) [private data element]

Transfer Syntax

the encoding used for exchange of DICOM information objects and messages.

Examples: JPEG compressed (images), little endian explicit value representation.

Unique Identifier (UID)

a globally unique "dotted decimal" string that identifies a specific object or a class of objects; an ISO-8824 Object Identifier.

Examples: Study Instance UID, SOP Class UID, SOP Instance UID.

Value Representation (VR)

the format type of an individual DICOM data element, such as text, an integer, a person's name, or a code. DICOM information objects can be transmitted with either explicit identification of the type of each data element (Explicit VR), or without explicit identification (Implicit VR); with Implicit VR, the receiving application must use a DICOM data dictionary to look up the format of each data element.

3.5 Abbreviations

Table 3-1 Abbreviations used in this document

Abbreviation	Definition
AE	Application Entity
AET	Application Entity Title
DICOM	Digital Imaging and Communications in Medicine
EMR	Electronic Medical Record
EPDF	Encapsulated Portable Document Format
IOD	Information Object Definition
SOP	Service Object Pair, union of a specific DICOM service and related IOD.
UI	User Interface
UID	Unique Identifier
VM	Value Multiplicity
VR	Value Representation

3.6 References

NEMA PS3 / ISO 12052, Digital Imaging and Communications in Medicine (DICOM) Standard, National Electrical Manufacturers Association, Rosslyn, VA, USA (available free at <http://medical.nema.org/>)

FORUM DICOM Conformance Statements (available at <http://www.zeiss.com/dicom>).

4 Networking

4.1 Implementation Model

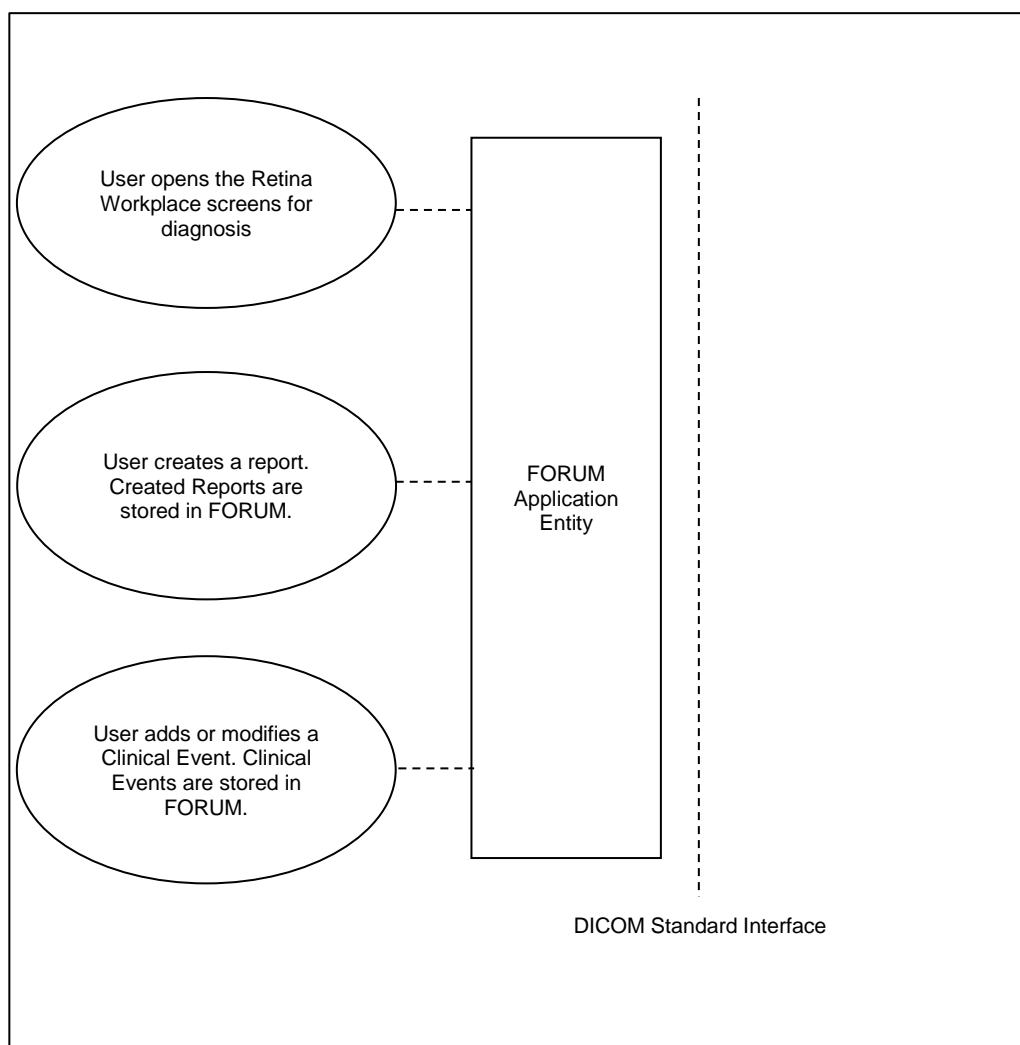
4.1.1 Application Data Flow

Figure 4-1 FORUM Archive - Functional Overview

See FORUM DICOM Conformance Statement.

Figure 4-2 Retina Workplace – Functional Overview

The local activities described in Figure 4-2 below are additional activities to the functional range of FORUM Archive described in Figure 4-1 FORUM Archive - Functional Overview of the FORUM DICOM Conformance Statement. These additional activities are added with the installation of the Retina Workplace as software plugin to FORUM. All DICOM related local and real world activities of FORUM Archive as described in the FORUM DICOM Conformance Statement remain valid.



4.1.2 Functional Definition of AEs

4.1.2.1 Functional Definition of FORUM Application Entity

See FORUM DICOM Conformance Statement.

4.1.2.2 Functional Definition of FORUM Worklist Application Entity

See FORUM DICOM Conformance Statement

4.1.2.3 Functional Definition of Retina Workplace

Retina Workplace is a software application that is integrated into FORUM as a plugin. The software provides interactive display and analysis of OCT data and fundus images from retina examinations.

Retina Workplace supports doctors in analysis and monitoring of changes to the macula. The analysis is carried out on the basis of OCT images and fundus images of the patient.

The central function of the Retina Workplace is visualization of OCT images in a TripleView, consisting of the fundus image, B-scan, and analysis data. Up to three TripleViews can be displayed simultaneously in the Retina Workplace work area.

OCT images and fundus images captured by the following devices can be displayed and analyzed with Retina Workplace:

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Retina Workplace provides its own preselections in FORUM but can also be used to open one or more OCT images directly. Suitable images are macular cube scans, OCT angiography scans and raster scans of the macula. When using suitable OCT images and fundus images, fundus images can be registered with macular cube scans and raster scans with macular cube scans or fundus images.

Retina Workplace offers the following functionality:

- Processing and displaying of optical coherence tomography data and fundus images
- Generation of reports with results from optical coherence tomography and fundus photography
- Usage of CIRRUS algorithms and normative databases as a quantitative tool for the comparison of macular thickness data to a database of normal subjects.
- Processing of CIRRUS' AngioPlex OCT Angiography data.
- Creating, managing and displaying clinical events.

All instances generated by Retina Workplace are automatically stored in FORUM Archive and made available for other DICOM activities like Storage to a remote AE, Query/Retrieve by a remote AE or export to local storage media.

4.1.3 Sequencing of Real-World Activities

See FORUM DICOM Conformance Statement.

4.1.3.1 Retina Workplace Activities

DICOM EPDF Report Creation

Retina Workplace creates DICOM Encapsulated PDF objects when the user creates a report using the Retina Workplace UI.

4.2 AE Specifications

See FORUM DICOM Conformance Statement.

4.3 Network Interfaces

See FORUM DICOM Conformance Statement.

4.4 Configuration

4.4.1 AE Title/Presentation Address Mapping

See FORUM DICOM Conformance Statement for AE Title settings (local/remote) settings.

4.4.2 Parameters

4.4.2.1 General Parameters

See FORUM DICOM Conformance Statement.

5 Media Interchange

See FORUM DICOM Conformance Statement.

6 Support of Character Sets

6.1 Accepted Character Sets

See FORUM DICOM Conformance Statement.

6.2 Returned Character Sets

See FORUM DICOM Conformance Statement.

7 Security

See FORUM DICOM Conformance Statement.

8 Annexes

8.1 IOD Contents

8.1.1 Created SOP Instance(s)

Retina Workplace can generate overview and OCT reports that contain analysis results from OCT and registered fundus images.

In case new UIDs are created, they contain a constant prefix as follows:

Study Instance UID: 1.2.276.0.75.2.5.100.25.1

Series Instance UID: 1.2.276.0.75.2.5.100.25.2

SOP Instance UID: 1.2.276.0.75.2.5.100.25.3

Abbreviations used for Presence of Values (PoV):

VNAP

Value Not Always Present (attribute sent zero length if no value is present) – Applicable for Type 2, 2C.

ANAP

Attribute is not always present – Applicable for Type 3

ALWAYS

Attribute is always present with a value – Applicable for Type 1, 1C, 2, 2C and 3

EMPTY

Attribute is sent without a value – Applicable for Type 2

Abbreviations used for sources of data:

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

ANALYSIS

The sources of data come from data generated by application or add/edit/update by user when images are analysed.

SRC

The attribute value is the same as the value in the selected patient or source dataset

For Retina Workplace generated IODs the following is valid:

The attribute value is the same as in the DICOM IOD which contains the source raw data set of the report. In case of multiple sources, the latest source is used.

SRC/AUTO

The attribute value is the same as in the DICOM IOD which contains the raw data source of the report, if the source was a single exam. If the sources are multiple exams (multi exam reports), this value is generated automatically.

8.1.1.1 Encapsulated PDF Information Object Definition

IE	Module	PoM
Patient		
	Patient	ALWAYS
	ClinicalTrialSubject	NEVER
Study		
	GeneralStudy	ALWAYS
	PatientStudy	NEVER
	ClinicalTrialStudy	NEVER
Series		
	EncapsulatedDocumentSeries	ALWAYS
	ClinicalTrialSeries	NEVER
Equipment		
	GeneralEquipment	ALWAYS
	ScEquipment	ALWAYS
EncapsulatedDocument		
	EncapsulatedDocument	ALWAYS
	SopCommon	ALWAYS
	CzmNimInternal	ALWAYS

Table 8-1 Encapsulated PDF IOD – RW – File Meta Information

Tag	Type	VR	Name	Content (Description)	PoV	Source
(0002,0001)	1	OB	File Meta Information Version	00\01	ALWAYS	AUTO
(0002,0002)	1	UI	Media Storage SOP Class UID	1.2.840.10008.5.1.4.1.1.104.1 (Encapsulated PDF Storage)	ALWAYS	AUTO
(0002,0003)	1	UI	Media Storage SOP Instance UID	The SOP instance UID has a prefix of 1.2.276.0.75.2.5.100.25.3.	ALWAYS	AUTO
(0002,0010)	1	UI	Transfer Syntax UID	1.2.840.10008.1.2.1 (Explicit VR Little Endian)	ALWAYS	AUTO
(0002,0012)	1	UI	Implementation Class UID	1.2.276.0.75.2.5.30	ALWAYS	AUTO
(0002,0013)	3	SH	Implementation Version Name	Version of FORUM, written by FORUM.	ALWAYS	AUTO
(0002,0016)	3	AE	Source Application Entity Title	Generated dynamically	ALWAYS	AUTO

Table 8-2 Encapsulated PDF IOD – RW – Module "Patient"

Tag	Type	VR	Name	Description	PoV	Source
(0010,0010)	2	PN	Patient's Name	Patient's full name from source raw data.	ALWAYS	SRC
(0010,0020)	2	LO	Patient ID	Patient ID from source raw data.	ALWAYS	SRC
(0010,0021)	3	LO	Issuer of Patient ID	Issuer of Patient ID from source raw data.	ANAP	SRC
(0010,0030)	2	DA	Patient's Birth Date	Birth date of the patient from source raw data.	ALWAYS	SRC
(0010,0040)	2	CS	Patient's Sex	Sex of the named patient from source raw data. Enumerated Values: M = male F = female O = other Can be empty if empty in source raw data.	VNAP	SRC
(0010,1000)	3	LO	Other Patient IDs	Other patient IDs from source raw data.	ANAP	SRC
(0010,2160)	3	SH	Ethnic Group	Ethnic group or race of the patient from source raw data.	ANAP	SRC
(0010,4000)	3	LT	Patient Comments	Patient Comments from source raw data.	ANAP	SRC

Table 8-3 Encapsulated PDF IOD – RW – Module "General Study"

Tag	Type	VR	Name	Description	PoV	Source
(0020,000D)	1	UI	Study Instance UID	Study Instance UID from source raw data for single exam report. For study newly created, a new UID is generated with a UID prefix of 1.2.276.0.75.2.5.100.25.1 A new study is created, if the source of the report contains multiple DICOM instances.	ALWAYS	SRC/ AUTO
(0008,0020)	2	DA	Study Date	Study Date from source raw data for single exam report. Current date in case of multi exam reports.	ALWAYS	SRC/ AUTO
(0008,0030)	2	TM	Study Time	Study Time from source raw data for single exam report. Current time in case of multi exam reports.	ALWAYS	SRC/ AUTO
(0008,0090)	2	PN	Referring Physician's Name	Name of the patient's referring physician from latest source raw data. Can be empty if empty in the source raw data.	VNAP	SRC
(0020,0010)	2	SH	Study ID	Study ID from source raw data.	ALWAYS	SRC/ AUTO

				Newly generated if a new study is created.		
(0008,0050)	2	SH	Accession Number	Accession Number from latest source raw data. Can be empty if empty in the source raw data.	VNAP	SRC
(0008,1030)	3	LO	Study Description	Study Description from source raw data (not in case of overview report). For overview report the attribute contains the name of the analysis displayed in the working area during report creation. Possible values: "Macular Thickness Analysis" or "Macular Change Analysis" or "High Definition Images"	ANAP	SRC/ AUTO
(0008,1032)	3	SQ	Procedure Code Sequence	Procedure Code Sequence from latest source raw data.	ANAP	SRC

Table 8-4 Encapsulated PDF IOD – RW – Module "Encapsulated Document Series"

Tag	Type	VR	Name	Description	PoV	Source
(0008,0060)	1	CS	Modality	Newly created and set to OPT.	ALWAYS	AUTO
(0020,000E)	1	UI	Series Instance UID	Newly created series instance UID with root: 1.2.276.0.75.2.5.100.25.2	ALWAYS	AUTO
(0020,0011)	1	IS	Series Number	Newly created and set to "1".	ALWAYS	AUTO
(0008,103E)	3	LO	Series Description	Scan type that was performed. Possible values (except for overview report): "Macular Cube 200x200", "Macular Cube 512x128", "5 Line Raster", "HD 5 Line Raster", "HD Cross", "HD Radial", "HD 21 Line", "HD 1 Line", "Angiography 3x3 mm", "Angiography 6x6 mm", "Angiography 8x8 mm". For overview report the attribute contains the name of the analysis displayed in the working area during report creation. Possible values: "Macular Thickness Analysis" or "Macular Change Analysis" or "High Definition Images".	ALWAYS	AUTO
(0040,0275)	3	SQ	Request Attributes Sequence	Request Attributes Sequence from latest source raw data. Not available if not present in the source raw data.	ANAP	SRC
>(0032,1060)	3	LO	Requested Procedure Description	Requested Procedure Description from source raw data.	ANAP	SRC

>(0040,0009)	1C	SH	Scheduled Procedure Step ID	Scheduled Procedure Step ID from source raw data.	ANAP	SRC
>(0040,0007)	3	LO	Scheduled Procedure Step Description	Scheduled Procedure Step Description from source raw data.	ANAP	SRC
>(0040,0008)	3	SQ	Scheduled Protocol Code Sequence	Scheduled Protocol Code Sequence from source raw data.	ANAP	SRC
(0040,0253)	3	SH	Performed Procedure Step ID	Performed Procedure Step ID from raw source data.	ANAP	SRC
(0040,0244)	3	DA	Performed Procedure Step Start Date	Performed Procedure Step Start Date from raw source data.	ANAP	SRC
(0040,0245)	3	TM	Performed Procedure Step Start Time	Performed Procedure Step Start Time from raw source data.	ANAP	SRC
(0040,0254)	3	LO	Performed Procedure Step Description	<p>Scan type that was performed.</p> <p>All scan types that are shown on the report are included. Possible scan types are: "Macular Cube 200x200", "Macular Cube 512x128", "5 Line Raster", "HD 5 Line Raster", "HD Cross", "HD Radial", "HD 21 Line", "HD 1 Line", "Angiography 3x3 mm", "Angiography 6x6 mm", "Angiography 8x8 mm".</p> <p>The Angiography scan types cannot be part of an overview report.</p>	ALWAYS	AUTO

Table 8-5 Encapsulated PDF IOD – RW – Module "General Equipment"

Tag	Type	VR	Name	Description	PoV	Source
(0008,0070)	2	LO	Manufacturer	Set to "Carl Zeiss Meditec"	ALWAYS	AUTO
(0008,0080)	3	LO	Institution Name	Institution Name from FORUM configuration	ANAP	CONFIG
(0008,0081)	3	ST	Institution Address	Institution Address from FORUM configuration	ANAP	CONFIG
(0008,1010)	3	SH	Station Name	Hostname of the machine used for creating the report.(Retina Workplace Server)	ALWAYS	AUTO
(0008,1090)	3	LO	Manufacturer's Model Name	Set to "Retina Workplace"	ALWAYS	AUTO
(0018,1020)	3	LO	Software Version(s)	Multi valued: < Retina Workplace SW version><acquisition software version>	ALWAYS	AUTO

Table 8-6 Encapsulated PDF IOD – RW – Module "SC Equipment"

Tag	Type	VR	Name	Description	PoV	Source
(0008,0064)	1	CS	Conversion Type	Set to: SYN = Synthetic Image	ALWAYS	AUTO

Table 8-7 Encapsulated PDF IOD – RW – Module "Encapsulated Document"

Tag	Type	VR	Name	Description	PoV	Source
(0020,0013)	1	IS	Instance Number	Set to 1.	ALWAYS	AUTO
(0008,0023)	2	DA	Content Date	Set to current date.	ALWAYS	AUTO
(0008,0033)	2	TM	Content Time	Set to current time.	ALWAYS	AUTO
(0008,002A)	2	DT	Acquisition Datetime	Acquisition Date/Time from raw data exam	VNAP	SRC
(0020,0062)	3	CS	Image Laterality	"R" if all source exams are OD or "L" if all source exams are OS.	ALWAYS	SRC
(0028,0301)	1	CS	Burned In Annotation	Set to "YES"	ALWAYS	AUTO
(0042,0013)	1C	SQ	Source Instance Sequence	Contains the UIDs from all source documents. Minimum one sequence item.	ALWAYS	AUTO
>(0008,1150)	1	UI	Referenced SOP Class UID	SOP Class UID from the source data.	ALWAYS	AUTO
>(0008,1155)	1	UI	Referenced SOP Instance UID	SOP Instance UID from the source data.	ALWAYS	AUTO
(0042,0010)	2	ST	Document Title	<p>The title of the document containing laterality and analysis name following the format:</p> <p><Laterality> + " " + <Analysis Name></p> <p>Allowed values for Laterality: {"OD" or "OS"}</p> <p>Allowed values for Analysis Name: {"Macular Thickness Analysis", "Macular Change Analysis", "High Definition Images", "En Face Analysis", "Advanced RPE Analysis", "Mixed Analysis", "Angiography Change Analysis"}</p> <p>In an overview report the values are the same, except "Angiography Change Analysis".</p>	ALWAYS	AUTO
(0040,A043)	2	SQ	Concept Name Code Sequence	This sequence is always empty.	EMPTY	
(0042,0012)	1	LO	MIME Type of Encapsulated Document	Set to "application/pdf"	ALWAYS	AUTO
(0042,0011)	1	OB	Encapsulated Document	Encapsulated Document stream, containing the pdf report.	ALWAYS	ANALYSIS

Table 8-8 Encapsulated PDF IOD – RW – Module "SOP Common"

Tag	Type	VR	Name	Description	PoV	Source
(0008,0016)	1	UI	SOP Class UID	Set to: "1.2.840.10008.5.1.4.1.1.104.1"	ALWAYS	AUTO
(0008,0018)	1	UI	SOP Instance UID	Newly created with root: 1.2.276.0.75.2.5.100.25.3	ALWAYS	AUTO
(0008,0005)	1C	CS	Specific Character Set	Set to: "ISO_IR 192" (UTF-8 encoded Unicode)	ALWAYS	AUTO
(0008,0012)	3	DA	Instance Creation Date	Current date.	ALWAYS	AUTO
(0008,0013)	3	TM	Instance Creation Time	Current time	ALWAYS	AUTO
(0018,A001)	3	SQ	Contributing Equipment Sequence	Contains information about the equipment used to create the source data shown in the report.	ANAP	SRC
>(0040,A170)	1	SQ	Purpose of Reference Code Sequence	Set to: "109101", "DCM", "Acquisition Equipment"	ALWAYS	AUTO
>(0008,0070)	1	LO	Manufacturer	Manufacturer of the equipment that contributed to the composite instance.	ALWAYS	SRC
>(0008,0080)	3	LO	Institution Name	Institution where the equipment that contributed to the composite instance is located.	ANAP	SRC
>(0008,0081)	3	ST	Institution Address	Address of the institution where the equipment that contributed to the composite instance is located.	ANAP	SRC
>(0008,1010)	3	SH	Station Name	User defined name identifying the machine that contributed to the composite instance.	ANAP	SRC
>(0008,1090)	3	LO	Manufacturer's Model Name	Manufacturer's model name of the equipment that contributed to the composite instance.	ANAP	SRC
>(0018,1000)	3	LO	Device Serial Number	Manufacturer's serial number of the equipment that contributed to the composite instance.	ANAP	SRC
>(0018,1020)	3	LO	Software Version(s)	Manufacturer's designation of the software version of the equipment that contributed to the composite instance.	ANAP	SRC
>(0018,1200)	3	DA	Date of Last Calibration	Date when the image acquisition device calibration was last changed in any way.	ANAP	SRC

Table 8-9 Encapsulated PDF IOD – RW – Module "CZM NIM INTERNAL"

Tag	Type	VR	Name	Description	PoV	Source
(2201,1000)	1	LT	IOD name meta info	Name of the Information Object Definition as specified by CZM-XML.	ALWAYS	AUTO

(2201,1001)	1	LT	CZM-XML Version	Version of the CZM-XML used to create this IOD.	ALWAYS	AUTO
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8.1.1.2 Raw Data Information Object Definition

IE	Module	Usage
Patient		
	Patient	ALWAYS
Study		
	General Study	ALWAYS
Series		
	General Series	ALWAYS
Equipment		
	General Equipment	ALWAYS
RawData		
	Acquisition Context	ALWAYS
	Raw Data	ALWAYS
	Sop Common	ALWAYS
	CZM NIM Internal	ALWAYS

Table 8-10 Raw Data IOD - Module "Patient"

Tag	Type	VR	Name	Description	PoV	Source
(0010,0010)	2	PN	Patient's Name	Patient's full name from FORUM.	ALWAYS	SRC
(0010,0020)	2	LO	Patient ID	Patient ID from FORUM.	ALWAYS	SRC
(0010,0021)	3	LO	Issuer of Patient ID	Issuer of patient id from FORUM.	ANAP	SRC
(0010,0030)	2	DA	Patient's Birth Date	Birth date of the patient.	VNAP	SRC
(0010,0040)	2	CS	Patient's Sex	Sex of the patient. Enumerated Values: M = male F = female O = other	VNAP	SRC

Table 8-11 Raw Data IOD - Module "General Study"

Tag	Type	VR	Name	Description	PoV	Source
(0020,000D)	1	UI	Study Instance UID	A new UID is generated with a UID prefix of 1.2.276.0.75.2.5.100.25.1	ALWAYS	AUTO
(0008,0020)	2	DA	Study Date	Date the event was created. Current date.	ALWAYS	AUTO
(0008,0030)	2	TM	Study Time	Time the event was created. Current time.	ALWAYS	AUTO
(0008,0090)	2	PN	Referring Physician's Name	Information not available for clinical events.	EMPTY	
(0020,0010)	2	SH	Study ID	A newly generated Study identifier-	ALWAYS	AUTO
(0008,0050)	2	SH	Accession Number	No accession number available for a clinical event. (clinical events are unscheduled cases)	EMPTY	

(0008,1030)	3	LO	Study Description	"clinical event"	ALWAYS	AUTO
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Table 8-12 Raw Data IOD - Module "General Series"

Tag	Type	VR	Name	Description	PoV	Source
(0008,0060)	1	CS	Modality	Set to "DOC".	ALWAYS	AUTO
(0020,000E)	1	UI	Series Instance UID	Newly created series instance UID with root: 1.2.276.0.75.2.5.100.25.2	ALWAYS	AUTO
(0020,0011)	2	IS	Series Number	"1"	ALWAYS	AUTO
(0008,0021)	3	DA	Series Date	Date the event was created. Current date.	ALWAYS	AUTO
(0008,0031)	3	TM	Series Time	Time the event was created. Current time.	ALWAYS	AUTO
(0008,103E)	3	LO	Series Description	"clinical event"	ALWAYS	AUTO

Table 8-13 Raw Data IOD – Module "General Equipment"

Tag	Type	VR	Name	Description	PoV	Source
(0008,0070)	2	LO	Manufacturer	Set to "Carl Zeiss Meditec"	ALWAYS	AUTO
(0008,0080)	3	LO	Institution Name	Institution from FORUM configuration	ANAP	CONFIG
(0008,0081)	3	ST	Institution Address	Institution from FORUM configuration	ANAP	CONFIG
(0008,1010)	3	SH	Station Name	Hostname of the machine used for creating the clinical event.(FORUM plugin Server)	ALWAYS	AUTO
(0008,1090)	3	LO	Manufacturer's Model Name	Set to: "Retina Workplace"	ALWAYS	AUTO
(0018,1020)	3	LO	Software Version(s)	Multi valued 1. Retina Workplace version.	ALWAYS	AUTO

Table 8-14 Raw Data IOD – Module "Acquisition Context"

Tag	Type	VR	Name	Description	PoV	Source
(0040,0555)	2	SQ	Acquisition Context Sequence	Empty, no acquisition done for the creation of clinical events.	EMPTY	

Table 8-15 Raw Data IOD – Module "Raw Data"

Tag	Type	VR	Name	Description	PoV	Source
(0020,0013)	2	IS	Instance Number	"1"	ALWAYS	AUTO
(0008,0023)	1	DA	Content Date	Current date.	ALWAYS	AUTO
(0008,0033)	1	TM	Content Time	Current time.	ALWAYS	AUTO
(0008,002A)	3	DT	Acquisition Datetime	Current date and time.	ALWAYS	AUTO
(0020,0062)	3	CS	Image Laterality	Laterality of the clinical event. e. g. left for an event like surgery left eye. Enumerated Values: R = right L = left U = unpaired B = both left and right	ALWAYS	USER

(0008,9123)	1	UI	Creator-Version UID	Set to 1.2.276.0.75.2.5.100.25.6.< Retina Workplace version >	ALWAYS	AUTO
(0008,114A)	3	SQ	Referenced Instance Sequence	Contains the predecessor of a clinical event in case of a changed or deleted event. Used to mark changes of an event, or that the event is deleted. Not present for the initial version of a clinical event.	ANAP	AUTO
>(0008,1150)	1	UI	Referenced SOP Class UID	SOP Class of the referenced clinical event, "1.2.840.10008.5.1.4.1.1.66"	ALWAYS	AUTO
>(0008,1155)	1	UI	Referenced SOP Instance UID	The UID of the instance containing the previous state of the clinical event. The event that was changed or deleted.	ALWAYS	AUTO
>(0040,A170)	1	SQ	Purpose of Reference Code Sequence	Describes the purpose for which the reference is made. Only a single Item shall be included in this sequence. Contains the action that was performed with the linked clinical event. Contains values for "Changed" and "Deleted".	ALWAYS	AUTO
>> Include ,Code Sequence Macro'				(EVENT_CHANGED, 99CZM, "CZM clinical event changed") or (EVENT_DELETED, 99CZM, "CZM clinical event deleted")		

Table 8-16 Raw Data IOD - Module "Sop Common"

Tag	Type	VR	Name	Description	PoV	Source
(0008,0016)	1	UI	SOP Class UID	Set to Raw Data Storage "1.2.840.10008.5.1.4.1.1.66"	ALWAYS	AUTO
(0008,0018)	1	UI	SOP Instance UID	Newly created with UID prefix of: 1.2.276.0.75.2.5.100.25.3	ALWAYS	AUTO
(0008,0005)	1C	CS	Specific Character Set	Set to: "ISO_IR 192" (Unicode encoding)	ALWAYS	AUTO
(0008,0012)	3	DA	Instance Creation Date	Date the SOP Instance was created. Current date.	ALWAYS	AUTO
(0008,0013)	3	TM	Instance Creation Time	Time the SOP Instance was created. Current time.	ALWAYS	AUTO

Table 8-17 Raw Data IOD – Module CZM-NIM-INTERNAL

Tag	Type	VR	Name	Description	PoV	Source
(2201,1000)	1	LT	IOD name meta info	Name of the Information Object Definition as specified by CZM-XML.	ALWAYS	AUTO
(2201,1001)	1	LT	CZM-XML Version	Version of the CZM-XML used to create this IOD.	ALWAYS	AUTO
(2201,1002)	3	LT	Private module names and versions	Names and versions of the private modules used in this IOD.	ALWAYS	AUTO

8.1.2 Usage of Attributes from Received IOD's

See FORUM DICOM Conformance Statement.

8.1.3 Attribute Mapping

See FORUM DICOM Conformance Statement for FORUM generated DICOM objects.

Table 8-18 Attribute Mapping from Source Raw Data IOD into Retina Workplace generated Encapsulated PDF IODs

Source Raw Data IOD	Encapsulated PDF IOD	Editable
Study Instance UID	Study Instance UID ¹⁾	No
Study Date	Study Date ¹⁾	No
Study Time	Study Time ¹⁾	No
Study ID	Study ID ¹⁾	No
Study Description	Study Description ¹⁾	No
Accession Number	Accession Number ²⁾	No
Procedure Code Sequence	Procedure Code Sequence ²⁾	No
Request Attributes Sequence > Requested Procedure ID	Request Attributes Sequence ²⁾ > Requested Procedure ID	No
Request Attributes Sequence > Requested Procedure Description	Request Attributes Sequence > Requested Procedure Description	No
Request Attributes Sequence > Scheduled Procedure Step Description	Request Attributes Sequence > Scheduled Procedure Step Description	No
Request Attributes Sequence > Scheduled Procedure Step ID	Request Attributes Sequence > Scheduled Procedure Step ID	No
Request Attributes Sequence > Scheduled Protocol Code Sequence	Request Attributes Sequence > Scheduled Protocol Code Sequence	No
Performed Procedure Step ID	Performed Procedure Step ID ²⁾	No
Performed Procedure Step Start Date	Performed Procedure Step Start Date ²⁾	No
Performed Procedure Step Start Time	Performed Procedure Step Start Time ²⁾	No
Laterality	Laterality	No
Acquisition Date Time	Acquisition Date Time ²⁾	No
Image Laterality	Image Laterality	No
Referring Physicians Name	Referring Physicians Name ²⁾	No
Patients Name	Patients Name	No
Patient ID	Patient ID	No
Issuer of Patient ID	Issuer of Patient ID	No
Other Patient IDs	Other Patient IDs	No
Patients Birth Date	Patients Birth Date	No
Patients Sex	Patients Sex	No
Patient Comments	Patient Comments	No
Ethnic Group	Ethnic Group	No

1) Only applies when the source is a single raw data object. In case of multiple source raw data sets the values in the resulting ePDF IODs are newly generated and not mapped from the source.

2) Copied from latest source raw data set.

8.1.4 Coerced/Modified Files

See FORUM DICOM Conformance Statement.

8.2 Data Dictionary of Private Attributes

Table 8-19 Private Dictionary Group (2201,00xx) = "99CZM_NIM_INTERNAL_01"

Occurs in: all instances generated by Retina Workplace

Tag	Attribute Name	VR	VM
(2201,00xx)	Private Creator	LO	1
(2201,xx00)	iod_name_meta_info	LT	1
(2201,xx01)	czm_xml_version	LT	1
(2201,xx02)	private_module_names_and_versions	LT	1

8.3 Coded Terminology and Templates

Retina Workplace uses (0040,A170) Purpose of Reference Code Sequence with following codes to track the history of a clinical event.

Occurs in: Raw Data IOD

Table 8-20 Purpose of Reference Code Sequence

Code Value	Coding Scheme Designator	Code Meaning
EVENT_CHANGED	99CZM	"CZM clinical event changed "
EVENT_DELETED	99CZM	"CZM clinical event deleted"

8.4 Greyscale Image Consistency

This chapter is not applicable.

8.5 Standard Extended / Specialized/ Private SOP Classes

The following standard extensions are used in the IODs described in chapter 8.1.1 Created SOP Instance(s).

Table 8-9 Encapsulated PDF IOD – RW – Module "CZM NIM INTERNAL"

Error! Reference source not found.

Table 8-17 Raw Data IOD – Module CZM-NIM-INTERNAL

8.6 Private Transfer Syntaxes

No Private Transfer Syntax is supported.

The product is labeled with



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