

DICOM Conformance Statement

VISUSCOUT 100

Viewing Software

Version 4.02

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1 Conformance Statement Overview

VISUSCOUT 100 Viewing Software is an image acquisition modality. Its DICOM functionality allows to query the modality worklist and archive images.

It supports the following network services:

Table 1. Network Services

Networking SOP Classes	User of Service (SCU)	Provider of Service (SCP)
<i>Transfer</i>		
Ophthalmic Photography 8 Bit Image Storage	Yes	No
<i>Workflow Management</i>		
Modality Worklist Information Model – FIND	Yes	No
<i>Connectivity Verification</i>		
Verification	Yes	No

The verification function is accessible from application settings where Remote Application Entities are defined. The remaining DICOM functionality is integrated into the usual workflow.

VISUSCOUT 100 Viewing Software does not support Media Interchange.

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3 Introduction

3.1 Revision History

Version	Date	Author	Changes
1.0	Apr 2014	Tomas Burba	Initial document

3.2 Audience

This document is intended for the following:

- Potential users
- System integrators of medical equipment

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

3.3 Remarks

DICOM, by itself, does not guarantee interoperability. However, the Conformance Statement facilitates a firstlevel validation for interoperability between different applications supporting the same DICOM functionality.

This Conformance Statement is not intended to replace validation with other DICOM equipment to ensure proper exchange of information intended.

The scope of this Conformance Statement is to facilitate communication with other vendors' medical equipment. The Conformance Statement should be read and understood in conjunction with the DICOM Standard. However, by itself it is not guaranteed to ensure the desired interoperability and successful interconnectivity with existing DICOM systems.

The user should be aware of the following important issues:

- Test procedures should be defined to validate the desired level of connectivity.
- The DICOM standard will evolve to meet the users' future requirements.

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.

Abstract Syntax

the information agreed to be exchanged between applications, generally equivalent to a Service/Object Pair (SOP) Class.

Examples: Verification SOP Class, Modality Worklist Information Model Find SOP Class, Ophthalmic Photography 8 Bit Image Storage SOP Class.

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.

Application Entity Title

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

Application Context

the specification of the type of communication used between Application Entities.

Example: DICOM network protocol.

Association

a network communication channel set up between Application Entities.

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.

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.

Negotiation

first phase of Association establishment that allows Application Entities to agree on the types of data to be exchanged and how that data will be encoded.

Presentation Context

the set of DICOM network services used over an Association, as negotiated between Application Entities; includes Abstract Syntaxes and Transfer Syntaxes.

Protocol Data Unit (PDU)

a packet (piece) of a DICOM message sent across the network. Devices must specify the maximum size packet they can receive for DICOM messages.

Query Key

A input value for a query process. Query Keys denote the set of DICOM tags that are sent from the SCU to SCP and thus control the query result.

Service Class Provider (SCP)

role of an Application Entity that provides a DICOM network service; typically, a server that performs operations requested by another Application Entity (Service Class User).

Examples: Picture Archiving and Communication System (image storage SCP, and image query/retrieve SCP), Radiology Information System (modality worklist SCP).

Service Class User (SCU)

role of an Application Entity that uses a DICOM network service; typically, a client.

Examples: imaging modality (image storage SCU, and modality worklist SCU), imaging workstation (image query/retrieve SCU)

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

The following acronyms are used in this document.

- AE — Application Entity
- AET — Application Entity Title
- DICOM — Digital Imaging and Communication in Medicine
- DIMSE — DICOM Message Service Element

-
- ILE — Implicit VR Little Endian
 - ISO — International Standards Organization
 - LUT — Look-up Table
 - MWL — Modality Worklist
 - NEMA — National Electrical Manufacturers Association
 - PDU — Protocol Data Unit
 - SCP — Storage Class Provider
 - SCU — Storage Class User
 - SOP — Service Object Pair
 - TCP/IP — Transmission Control Protocol/Internet Protocol
 - TLS — Transport Layer Security
 - UID — Unique Identifier
 - 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/>)

4 Networking

4.1 Implementation Model

VISUSCOUT 100 Viewing Software is a Windows application that captures still images and converts them into DICOM Part 10 compliant files. The application can send these images to remote equipment using the DICOM protocol. The application uses the DICOM Worklist Management service to populate information in generated DICOM datasets. It is logically divided into 3 different DICOM Application Entities: Verification Client, Storage Client and Modality Worklist Client. However all AEs share the same Title.

These Clients are basically modified third-party backends, while the Viewing Software is a front-end. The Storage Client is a Java Application designed to run on any Java Virtual Machine 1.4 capable Operating System. The Verification and MWL Clients are monolithic Microsoft Windows PE executable files.

4.1.1 Implementation Data Flow

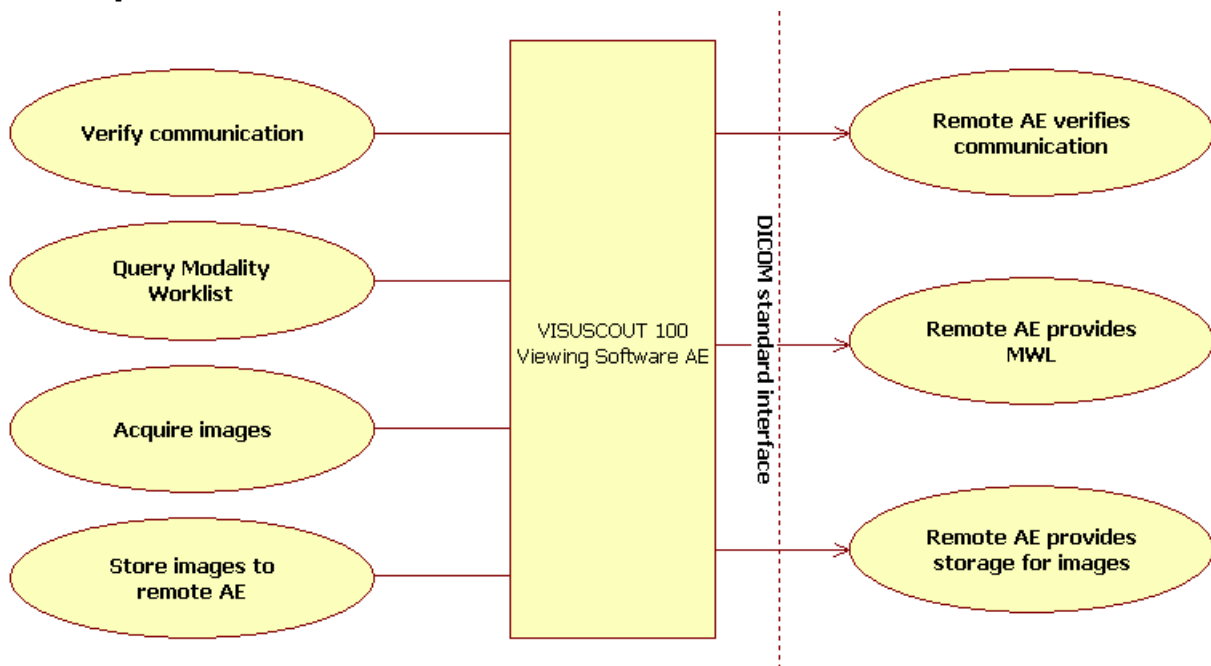


Figure 1. VISUSCOUT 100 Viewing Software Data Flow Diagram

4.1.2 Functional Definition of AEs

4.1.2.1 Functional Definition of Verification Client Application Entity

The Verification Client Application Entity is a Verification SCU. It connects to the presentation address configured as the Called Application Entity Title and establishes an Association with Presentation Context of the Verification Service Class. A message is then shown to the operator detailing whether the association was established successfully or not.

4.1.2.2 Functional Definition of Storage Client Application Entity

The Storage Client Application Entity is a Storage SCU. It connects to the presentation address configured as the Called Application Entity Title and establishes an Association with Presentation Context of the Storage Service Class. Then it sends any supported DICOM Instances specified by the operator, over a Storage Request.

4.1.2.3 Functional Definition of Modality Worklist Client Application Entity

The Modality Worklist Client Application Entity connects at the presentation address given as a Called Application Entity Title. It will propose Associations with Presentation Context for SOP Class of the Modality Worklist Service Class. When a WORKLIST-FIND request is sent, Modality Worklist Client AE will wait on the same Association for a C-FIND response and then release the Association. The operator is provided with a set of worklist items matching the query request.

4.1.3 Sequencing of Real-World Activities

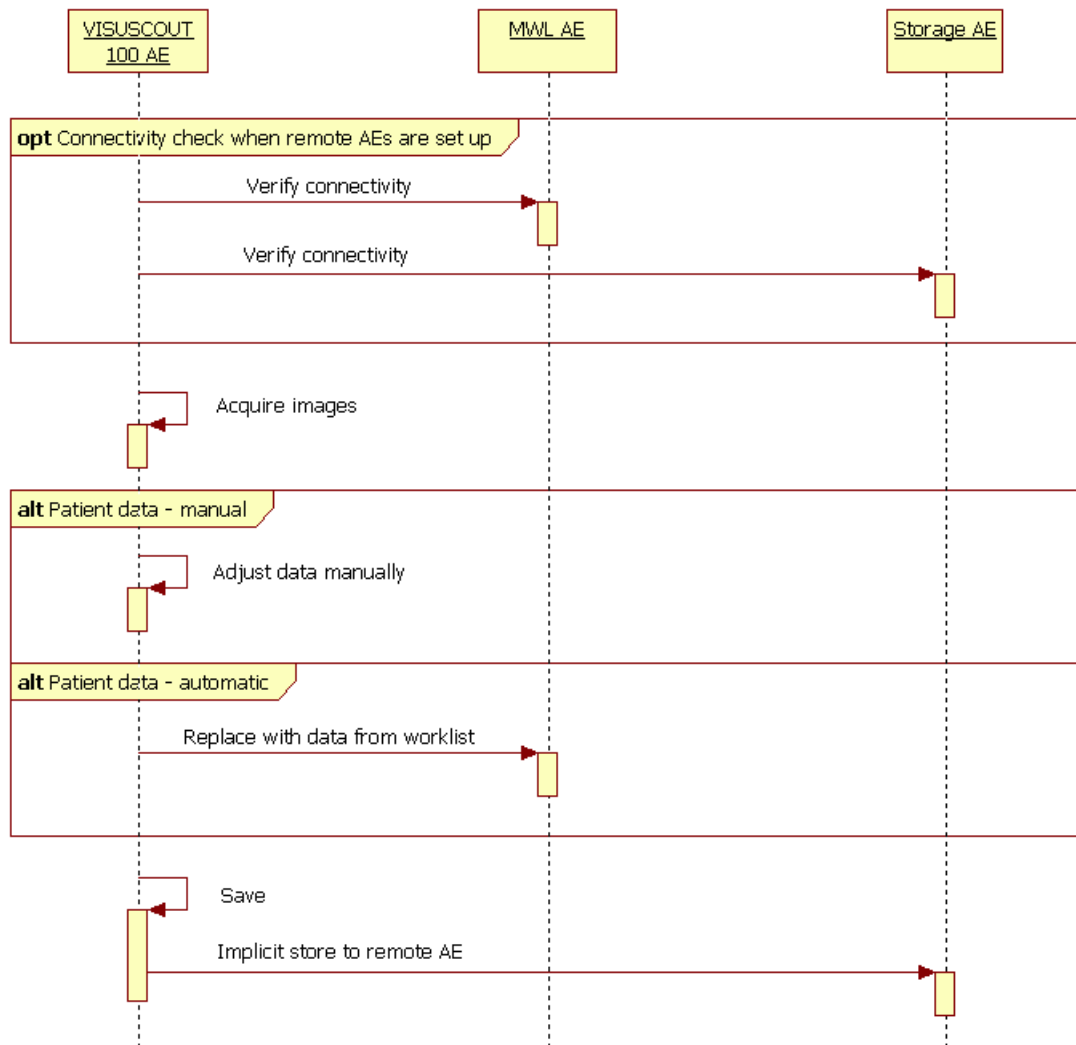


Figure 2. A typical diagnostic case

Acquire images

The operator uses the camera to image patient's eye(s). Additional imaging modes like red-free or infrared are chosen via camera menus. The operator can either

- perform the acquisition when the camera operates autonomously, then place the camera on the cradle. The operating system mounts an external storage device. The application detects it and imports all found images to a new study;
- produce a photo when the camera is already connected to the computer (using a slit lamp adapter etc). The application imports all newly appeared images (the camera can produce up to four images at once, depending on additional modes chosen) and adds them to the current study.

The operator is discouraged from imaging more than one patient between imports, as this increases probability of mixing patients up. It is equally important to remove old images (using a corresponding function on the camera) before imaging a new patient.

When a new study is created, a new dummy patient is created for it, too.

Query Modality Worklist

After images are imported, the operator adjusts patient's data. In very small clinics the correct data could be obtained directly by asking the patient for his/her national ID, etc. Then the operator would enter it manually.

In clinics with more developed infrastructure, the operator can search the Modality Worklist for an existing patient. In the same dialog where patient's data is edited, the operator enters search criteria (date, part of the name, etc) and initiates the worklist search. A pick-list is updated with results. After double-clicking an entry, patient's data is replaced with its contents. However, the operator can still adjust the data afterwards. When closing the Set Patient dialog, the operator must confirm changes.

Store images permanently

The operator decides that patient's data is correct and accesses the "Save" function. Up to this point images in unsaved studies were in the original JPEG format. Now they all are converted to DICOM and patient data can't be adjusted any more. Immediately after that, all converted studies are sent to the remote storage if one is configured. The operator can also repeatedly send a saved study any time.

4.2 AE Specifications

4.2.1 Verification Client AE Specification

4.2.1.1 SOP Classes

VISUSCOUT 100 Viewing Software Verification Client Application Entity provides Standard Conformance to the following SOP Classes:

Table 2. SOP Classes for Verification Client AE

SOP Class Name	SOP Class UID	SCU	SCP
Verification SOP Class	1.2.840.10008.1.1	Yes	No

4.2.1.2 Associations Policies

4.2.1.2.1 General

The Verification Client AE will propose Association Requests for the Verification Service. The Verification Client AE itself does not accept Associations. The DICOM standard application context name for DICOM 3.0 is always accepted and proposed:

Table 3. DICOM application context name for Verification Client AE

Application Context Name	1.2.840.10008.3.1.1.1
--------------------------	-----------------------

4.2.1.2.2 Number of Associations

Only a single Association is active at the moment. This is a direct result of the operator pressing a button dedicated to a particular Remote AE.

4.2.1.2.3 Asynchronous Nature

The Verification Client does not support asynchronous communication (multiple outstanding transactions over a single Association).

4.2.1.2.4 Implementation Identifying Information

The implementation information for this Application Entity is:

Table 4. DICOM Implementation Class and Version for Verification Client AE

Implementation Class UID	1.2.276.0.75.2.1.70.53666746657461
Implementation Version Name	VISUSCOUT100

4.2.1.3 Association Initiation Policy

4.2.1.3.1 Activity – Verify DICOM Communication

4.2.1.3.1.1 Description and Sequencing of Activity

This activity is available as part of the configuration process. When the user has entered Title, IP and Port of a particular Remote AE (either a Modality Worklist Server or Storage Server), he/she can press a nearby "Echo" button to immediately verify accessibility of that single AE.

Only the Verification SOP class is proposed. After the Remote AE accepts the association, a C-ECHO message is exchanged. A pop-up message will appear stating results of the check.

4.2.1.3.1.2 Proposed Presentation Contexts

Table 5. Accepted Presentation Contexts for Verification Client AE

Abstract Syntax		Transfer Syntax			Role	Ext. Neg.
Name	UID	Name List		UID List		
Verification SOP Class	1.2.840.10008.1.1	Implicit Endian	VR Little	1.2.840.10008.1.2	SCU	None

4.2.1.3.1.3 SOP Specific Conformance for Verification SOP Class

VISUSCOUT 100 Viewing Software Verification Client provides standard conformance to the DICOM Verification Service Class as a SCU.

4.2.2 Storage Client Application Entity Specification

4.2.2.1 SOP Classes

VISUSCOUT 100 Viewing Software Storage Client Application Entity provides Standard Conformance to the following SOP Classes:

Table 6. SOP Classes for Storage Client AE

SOP Class Name	SOP Class UID	SCU	SCP
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Yes	No

4.2.2.2 Associations Policies

4.2.2.2.1 General

The Storage Client AE proposes Association Requests for the Storage Service.

The Storage Client AE itself does not accept Associations.

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

Table 7. DICOM application context name for Storage Client AE

Application Context Name	1.2.840.10008.3.1.1.1
--------------------------	-----------------------

4.2.2.2.2 Number of Associations

Only a single Association is active at the moment. DICOM instances are sent one at a time.

4.2.2.2.3 Asynchronous Nature

The Storage Client does not support asynchronous communication (multiple outstanding transactions over a single Association).

4.2.2.2.4 Implementation Identifying Information

The implementation information for this Application Entity is:

Table 8. DICOM Implementation Class and Version for Storage Client AE

Implementation Class UID	1.2.276.0.75.2.1.70.53666746657461
Implementation Version Name	VISUSCOUT100

4.2.2.3 Association Initiation Policy

4.2.2.3.1 Activity – Send DICOM Instances

4.2.2.3.1.1 Description and Sequencing of Activity

This activity is triggered in the background as part of the permanent conversion of acquired images to the DICOM format (after which patient data can't be changed any more).

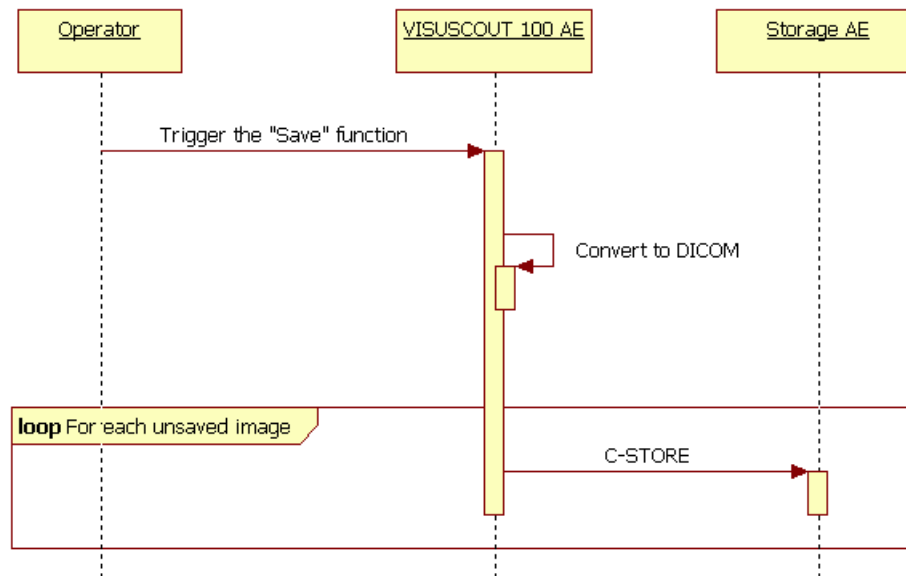


Figure 3. Storing images to Remote AE

There will be no attempt to send the created DICOM instances if the Storage AE Title is not configured in application settings.

4.2.2.3.1.2 Proposed Presentation Contexts

Table 9. Proposed Presentation Contexts for Storage Client AE

Name	Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
	UID		Name List	UID List		
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1		Transfer Syntaxes for Image Storage Services		SCU	None

Table 10. Proposed Transfer Syntaxes for Image Storage Services

Name	UID
Implicit VR Little Endian ¹	1.2.840.10008.1.2
JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50

¹ ILE is offered due to a corresponding requirement in the DICOM Standard. However, the Storage Client is incapable of converting between transfer syntaxes. The storage operation will only succeed if the SCP supports JPEG.

4.2.2.3.1.3 SOP Specific Conformance for Storage SOP Classes

The associated Activity with the Storage Client is the storage of medical DICOM data specified by the operator over the network to the SCP. The Storage Client AE will indicate a failure if it is unable to send the specified instance(s). It always attempts to send all remaining instances despite of failure with a particular one.

During the Save operation all DICOM instances are created with JPEG Baseline transfer syntax, which corresponds to the actual image format received from the camera (the JPEG stream is not modified in any way). If the Storage SCP returns the JPEG context marked as unsupported, then the Client will abort the Association as it does not perform any transfer syntax conversions, too. **Storage SCPs compatible with VISUSCOUT 100 Viewing Software must support JPEG Baseline (Process 1).**

Table 11. Storage Client C-STORE Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Success	Success	0000	The Composite SOP Instance was successfully received and stored in the system repository by the SCP. Send the next instance.
Warning	Data Element Coercion	B000	The SCP has corrected some Data Element(s) to avoid a conflict. Warning indication message might be copied to the application logs. Assume that the Instance has been stored successfully and send the next instance.

	Elements Discarded	B006	Some Data Element(s) were discarded by the SCP. Warning indication message might be copied to the application logs. Assume that the Instance has been stored successfully and send the next instance.
	Data Set does not match SOP Class	B007	Assume that the SCP has stored the Instance anyway. Warning indication message might be copied to the application logs. Send the next instance.
Error	Others	Others	Any unrecognized Error Code is considered an indication that the Instance wasn't stored. Error indication message might be copied to the application logs and will be displayed at the end of the operation. Send the next instance.

4.2.3 Modality Worklist Client Application Entity Specification

4.2.3.1 SOP Classes

Table 12. SOP Classes for Modality Worklist Client AE

SOP Class Name	SOP Class UID	SCU	SCP
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	Yes	No

4.2.3.2 Associations Policies

4.2.3.2.1 General

At a command from the operator, the Modality Worklist Client AE attempts to establish an association with the specified Remote AE. When the association is established, a C-FIND request is made to retrieve a worklist using the defined matching keys. The Modality Worklist Client waits for any C-FIND response. The established association remains active until a C-FIND response from the remote AE indicates the end of worklist items, or until a timeout period expires.

The Modality Worklist Client AE itself does not accept Associations.

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

Table 13. DICOM application context name for Modality Worklist Client AE

Application Context Name	1.2.840.10008.3.1.1.1
--------------------------	-----------------------

4.2.3.2.2 Number of Associations

Only a single Association is active at the moment. The results are displayed to the operator only after receiving them from SCP entirely.

4.2.3.2.3 Asynchronous Nature

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

4.2.3.2.4 Implementation Identifying Information

The implementation information for this Application Entity is:

Table 14. DICOM Implementation Class and Version for Modality Worklist Client AE

Implementation Class UID	1.2.276.0.75.2.1.70.53666746657461
Implementation Version Name	VISUSCOUT100

4.2.3.3 Association Initiation Policy

4.2.3.3.1 Activity – Query Modality Worklist

4.2.3.3.1.1 Description and Sequencing of Activity

The Modality Worklist SCU is governed by the "Patient Search" dialog that is opened from the "Study Information" dialog. The operator can specify date (today by default), Patient ID, Patient Name and Station AE. Wildcards are added implicitly to the entered Patient Name and Patient ID. A corresponding search is initiated when the operator presses the "Search" button nearby. After receiving all results, the application updates the pick-list from which an existing patient can be chosen. The operator can select an entry and press the OK button which closes the dialog, or just double-click on an entry. After either action is confirmed, Patient ID, Patient Name, Date of Birth, Sex and Referring Physician are copied to the corresponding entry controls in the parent dialog.

The "Study Information" and, consequently, "Patient Search" dialogs can be opened any time until the study has been permanently stored (see 4.2.2. Storage Client Application Entity Specification).

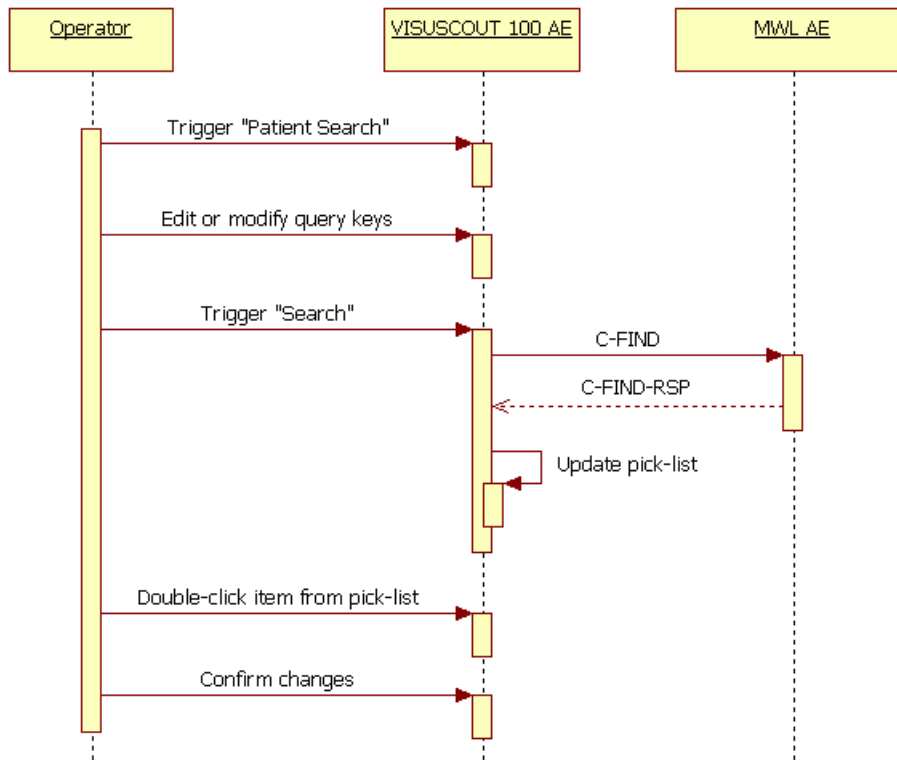


Figure 4. Searching in a Modality Worklist

4.2.3.3.2.2 Proposed Presentation Contexts

Table 15. Proposed Presentation Contexts for Modality Worklist Client AE

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Explicit VR Little Endian	1.2.840.10008.1.2.1		

All Transfer Syntaxes are proposed by default.

4.2.3.3.2.3 SOP Specific Conformance for Modality Worklist SOP Class

Table 16. Modality Worklist Client C-STORE Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Success	Matching is complete	0000	This is the last response and the Client will release the Association after collecting results. Then the pick-list will be updated.
Pending	Matching is continuing	FF00	The Client waits for another response.

Table 17. Modality Worklist Client Communication Failure Behavior

Exception	Behavior
Association aborted by the SCP or the network layers indicate communication loss (i.e. low-level TCP/IP socket closure)	Error message might go to the application logs. The pick-list is updated with as many entries as possible.

The attributes listed below might be requested in a query. The corresponding matching keys are empty if the operator didn't specify a particular value.

Table 18. Modality Worklist C-FIND SCU Supported Elements

Tag	VR	Attribute Name	Query key	Displayed in pick-list	Imported	Modifiable
(0008,0050)	SH	Accession Number	—	—	X	—
(0008,0090)	PN	Referring Physician Name	—	—	X	X
(0010,0010)	PN	Patient's Name	P	X	X	X
(0010,0020)	LO	Patient ID	P	X	X	X
(0010,0021)	LO	Issuer of Patient ID	—	—	X	—
(0010,0030)	DA	Patient's Birth Date	—	X	X	X
(0010,1000)	LO	Other Patient Ids	—	—	X	—
(0010,0040)	CS	Patient's Sex	—	X	X	X
(0010,2160)	SH	Ethnic Group	—	—	X	—
(0010,4000)	LT	Patient Comments	—	—	X	—
(0020,000D)	UI	Study Instance UID	—	—	X	—
(0032,1060)	LO	Requested Procedure Description	—	—	X	—
(0032,1064)	SQ	Requested Procedure Code Sequence				
>(0008,0100)	SH	Code Value	—	—	X	—
>(0008,0102)	SH	Coding Scheme Designator	—	—	X	—
>(0008,0103)	SH	Coding Scheme Version	—	—	X	—
>(0008,0104)	LO	Code Meaning	—	—	X	—
(0040,0100)	SQ	Scheduled Procedure Step Sequence				
>(0008,0060)	SH	Modality	F	—	—	—
>(0040,0001)	AE	Scheduled Station AE Title	X	—	—	—
>(0040,0002)	DA	Scheduled Procedure Step Start Date	X	—	—	—
>(0040,0003)	TM	Scheduled Procedure Step Start Time	—	—	—	—
>(0040,0006)	PN	Scheduled Performing Physician Name	—	—	—	—
>(0040,0007)	LO	Scheduled Procedure Step Description	—	—	X	—
>(0040,0008)	SQ	Scheduled Protocol Code Sequence				
>>(0008,0100)	SH	Code Value	—	—	X	—
>>(0008,0102)	SH	Coding Scheme Designator	—	—	X	—
>>(0008,0103)	SH	Coding Scheme Version	—	—	X	—
>>(0008,0104)	LO	Code Meaning	—	—	X	—
>(0040,0009)	SH	Scheduled Procedure Step ID	—	—	X	—
>(0040,0011)	SH	Scheduled Procedure Step Location	—	—	—	—
(0040,1001)	SH	Requested Procedure ID	—	—	X	—

Values for the **Query Key** column:

X

An exact match by default. Wildcards can be added manually by the operator. The key is only present in the query if the value is not empty.

P

Always a partial match. The Viewing Software automatically adds a leading and a trailing wildcard. The key is only present in the query if the value is not empty.

F

The value is fixed (hard-coded string "OP"). The key is always present in the query.

Default value for Patient Name, Patient ID and Scheduled Station AE Title is empty. The Scheduled Procedure Step Start Date has a default value of today. This field can be disabled altogether with a nearby checkbox, which means "all dates match".

Values for the **Imported** column:

X

Imported into the application and might be used in the resulting SOP instances. See also the table in [8.1.3 Attribute Mapping](#).

Values for the **Modifiable** column:

X

Copied to the corresponding controls in the "Study Information" dialog. If they are modified, the operator is offered a choice to dissociate the SOP instance from the worklist altogether; in such a case any imported elements are replaced with generated values, or are removed.

4.3 Network Interfaces

DICOM Upper Layer over TCP/IP is supported.

4.3.1 Physical Network Interface

VISUSCOUT 100 Viewing Software is indifferent to the physical medium over which TCP/IP executes. It inherits the TCP/IP stack from the operating system or, in case of Storage Client, from Java Runtime Environment.

4.3.2 Additional Protocols

No additional protocols are supported.

4.3.3 IPv4 and IPv6 Support

Only IPv4 is explicitly supported and was tested.

4.4 Configuration

The application settings dialog can be opened when all other dialogs are closed.

4.4.1 AE Title/Presentation Address Mapping

The remote AE Titles and TCP ports are configurable in application settings.

4.4.1.1 Local AE Titles

A single local AE Title is shared among all three AEs and is configurable in application settings.

Table 19. AE Title Configuration Table

Application Entity	Default AE Title	Default TCP/IP Port
Verification Client	VISUSCOUT100	—
Storage Client		
Modality Worklist Client		

A client chooses any free TCP/IP port offered by the Windows Sockets layer. The IP address is managed by the operating system and can be configured there.

4.4.1.2 Remote AE Titles

AETs for Storage SCP and MWL SCP are configurable. It's up to the user to ensure that Remote AEs accept the chosen Calling AE Title.

4.4.2 Parameters

VISUSCOUT 100 Viewing Software configuration parameters relevant to DICOM communication are as follows.

Table 20. Configuration Parameter Table

Parameter	Configurable (Yes/No)	Default Value
<i>General Parameters</i>		
Proposed Called AETs	Yes	Assigned by user
Proposed Calling AET	Yes	VISUSCOUT100
Time-out waiting for TCP/IP connection	No	no timeout
Time-out waiting for acceptance or rejection Response to an Association Open Request	No	30s
Time-out waiting for a DIMSE-RSP	No	no timeout
Maximum PDU size the AE can receive	No	16384
Maximum PDU size the AE can send	No	16384
Support for the Basic TLS Secure Transport Connection Profile	No	Off
<i>Storage Client AE</i>		
Pack Command and Data PDVs in one PDU	No	False
Time-out waiting for TCP/IP connection	No	3600s
Time-out waiting for acceptance or rejection Response to an Association Open Request. (Application Level timeout)	No	3600s
Time-out waiting for a DIMSE-RSP	No	3600s
Time-out waiting on an open association for the next message after sending A-RELEASE RSP or A-ABORT RQ (Closing timeout)	No	3600s

5 Media Interchange

VISUSCOUT 100 Viewing Software does not support Media Interchange.

6 Support of Extended Character Sets

VISUSCOUT 100 Viewing Software supports ISO_IR 192 (Unicode UTF-8) as an extended character set.

7 Security

The DICOM capabilities of the VISUSCOUT 100 Viewing Software do not support any specific security measures. It is assumed that the Software is used within a secured environment. It is assumed that a secured environment includes at a minimum:

- firewall or router protections to ensure that the Software only has network access to approved external hosts and services;
- appropriate secure network channels (e.g. such as a Virtual Private Network) for any communication with external hosts and services outside the locally secured environment.

Other network security procedures such as automated intrusion detection may be appropriate in some environments. Additional security features may be established by the local security policy and are beyond the scope of this conformance statement.

8 Annexes

8.1 IOD Contents

8.1.1 Created SOP Instances

Abbreviations used for presence of values (PoV):

VNAP

Value Not Always Present (attribute has 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

EMPTY

Attribute is sent without a value – Applicable for Type 2

Abbreviations used for sources of data:

USER

Attribute value is generated from user input.

AUTO

Attribute value is generated automatically.

MWL

Attribute value is the same as the value received using a DICOM service such as Modality Worklist, Modality Performed Procedure Step, etc.

CONFIG

Attribute value is a configurable parameter.

8.1.1.1 Ophthalmic Photography 8–Bit IOD

Table 21. Use of Modules

IE	Module	Usage
Patient		
	Patient	MANDATORY
	Clinical Trial Subject	OPTIONAL
Study		
	General Study	MANDATORY
	Patient Study	OPTIONAL
	Clinical Trial Study	OPTIONAL
Series		
	General Series	MANDATORY
	Ophthalmic Photography Series	MANDATORY
	Clinical Trial Series	OPTIONAL
Frame Of Reference		
	Synchronization	MANDATORY
Equipment		
	General Equipment	MANDATORY
Image		
	General Image	MANDATORY
	Image Pixel	MANDATORY

	Enhanced Contrast/Bolus	CONDITIONAL
	Cine	CONDITIONAL
	Multi-Frame	MANDATORY
	Device	OPTIONAL
	Acquisition Context	OPTIONAL
	Ophthalmic Photography Image	MANDATORY
	Ocular Region Imaged	MANDATORY
	Ophthalmic Photography Acquisition Parameters	MANDATORY
	Ophthalmic Photographic Parameters	MANDATORY
	ICC Profile	OPTIONAL
	SOP Common	MANDATORY
	Frame Extraction	CONDITIONAL

Table 22. Ophthalmic Photography IOD - Module "Patient"

Tag	Type	VR	Name	Description	PoV	Source
(0010,0010)	2	PN	Patient's Name	Patient's full name.	ALWAYS	MWL, USER
(0010,0020)	2	LO	Patient ID	Primary hospital identification number or code for the patient.	ALWAYS	MWL, USER
(0010,0021)	3	LO	Issuer of Patient ID	Identifier of the Assigning Authority that issued the Patient ID.	ANAP	MWL
(0010,0030)	2	DA	Patient's Birth Date	Birth date of the patient.	ALWAYS	MWL, USER
(0010,0040)	2	CS	Patient's Sex	Sex of the named patient. Enumerated Values: M = male F = female O = other	ALWAYS	MWL, USER
(0010,1000)	3	LO	Other Patient IDs	Other identification numbers or codes used to identify the patient.	ANAP	MWL
(0010,2160)	3	SH	Ethnic Group	Ethnic group or race of the patient.	ANAP	MWL
(0010,4000)	3	LT	Patient Comments	User-defined additional information about the patient.	ANAP	MWL

Table 23. Ophthalmic Photography IOD - Module "General Study"

Tag	Type	VR	Name	Description	PoV	Source
(0020,000D)	1	UI	Study Instance UID	Unique identifier for the Study. "1.2.276.0.75.2.1.70.10.1" extended by machine identifier and time information in unscheduled case. In scheduled case Unique identifier for the Study is copied from MWL (0020,000d).	ALWAYS	MWL, AUTO
(0008,0020)	2	DA	Study Date	Date the Study started. Date, when procedure step was started.	ALWAYS	MWL, AUTO
(0008,0030)	2	TM	Study Time	Time the Study started. Time, when procedure step was started.	ALWAYS	MWL, AUTO
(0008,0090)	2	PN	Referring Physician's Name	Name of the patient's referring physician.	VNAP	MWL, USER
(0020,0010)	2	SH	Study ID	User or equipment generated Study identifier.	ALWAYS	MWL, AUTO

				<i>In scheduled case the source attribute for this value is Requested Procedure ID In unscheduled case the value is an Equipment generated Study identifier</i>		
(0008,1030)	3	LO	Study Description	Institution-generated description or classification of the Study (component) performed. <i>In scheduled case the source attribute for this value is Requested Procedure Description. Attribute does not exist in unscheduled case.</i>	ANAP	MWL
(0008,0050)	2	SH	Accession Number	A RIS generated number that identifies the order for the Study. <i>Value does not exist in unscheduled case.</i>	VNAP	MWL
>(0008,1032)	3	SQ	Requested Procedure Code Sequence	A Sequence that conveys the type of procedure performed. One or more Items may be included in this Sequence.	ANAP	MWL
>(0008,0100)	1	SH	Code Value	<i>See chapter "8.3 Coded Terminology and Templates"</i>	ALWAYS	MWL
>(0008,0102)	1	SH	Coding Scheme Designator	<i>See chapter "8.3 Coded Terminology and Templates"</i>	ALWAYS	MWL
>(0008,0103)	1C	SH	Coding Scheme Version	Required if the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously. <i>See chapter "8.3 Coded Terminology and Templates"</i>	VNAP	MWL
>(0008,0104)	1	LO	Code Meaning	<i>See chapter "8.3 Coded Terminology and Templates"</i>	ALWAYS	MWL

Table 24. Ophthalmic Photography IOD - Module "General Series"

Tag	Type	VR	Name	Description	PoV	Source
(0020,000E)	1	UI	Series Instance UID	Unique identifier of the Series. <i>"1.2.276.0.75.2.1.70.10.2" appended with machine identifier and time information</i>	ALWAYS	AUTO
(0020,0011)	2	IS	Series Number	A number that identifies this Series.	ALWAYS	AUTO
(0008,0021)	3	DA	Series Date	Date the Series started.	ALWAYS	AUTO
(0008,0031)	3	TM	Series Time	Time the Series started.	ALWAYS	AUTO
(0018,1030)	3	LO	Protocol Name	User-defined description of the conditions under which the Series was performed. Note: This attribute conveys series-specific protocol identification and may or may not be identical to the one presented in the Performed Protocol Code Sequence(0040,0260). <i>In scheduled case: Same value as for Requested Procedure Description (0032,1060). Attribute does not exist in unscheduled case.</i>	ANAP	MWL

(0018,0015)	3	CS	Body Part Examined	Text description of the part of the body examined. See PS 3.16 Annexes on Correspondence of Anatomic Region Codes and Body Part Examined for Humans and for Animals for Defined Terms Note: Some IODs support the Anatomic Region Sequence (0008,2218), which can provide a more comprehensive mechanism for specifying the body part being examined. <i>Always "HEAD"</i>	ALWAYS	AUTO
(0040,0275)	3	SQ	Request Attributes Sequence	Sequence that contains attributes from the Imaging Service Request. The sequence may have one or more Items. <i>The Request Attributes Sequence is only included in Scheduled Case. In unscheduled case it will not be included.</i>	ANAP	MWL
>(0040,1001)	1C	SH	Requested Procedure ID	Identifier that identifies the Requested Procedure in the Imaging Service Request. Required if procedure was scheduled. May be present otherwise. Note: The condition is to allow the contents of this macro to be present (e.g., to convey the reason for the procedure, such as whether a mammogram is for screening or diagnostic purposes) even when the procedure was not formally scheduled and a value for this identifier is unknown, rather than making up a dummy value.	ALWAYS	MWL
>(0032,1060)	3	LO	Requested Procedure Description	Institution-generated administrative description or classification of Requested Procedure.	VNAP	MWL
>(0040,0009)	1C	SH	Scheduled Procedure Step ID	Identifier that identifies the Scheduled Procedure Step. Required if procedure was scheduled. Note: The condition is to allow the contents of this macro to be present (e.g., to convey the reason for the procedure, such as whether a mammogram is for screening or diagnostic purposes) even when the procedure step was not normally scheduled and a value for this identifier is unknown, rather than making up a dummy value.	ALWAYS	MWL
>(0040,0007)	3	LO	Scheduled Procedure Step Description	Institution-generated description or classification of the Scheduled Procedure Step to be performed.	VNAP	MWL
>(0040,0008)	3	SQ	Scheduled Protocol Code Sequence	Sequence describing the Scheduled Protocol following a specific coding scheme. This sequence contains one or more Items.	ANAP	MWL
>>(0008,0100)	1	SH	Code Value	See NEMA PS3.3 Section 8.1.	ALWAYS	MWL
>>(0008,0102)	1	SH	Coding Scheme Designator	See NEMA PS3.3 Section 8.2.	ALWAYS	MWL
>>(0008,0103)	1C	SH	Coding Scheme Version	See NEMA PS3.3 Section 8.2. Required if the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously. May be present otherwise.	VNAP	MWL

>>(0008,0104)	1	LO	Code Meaning	See NEMA PS3.3 Section 8.3.	ALWAYS	MWL
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Table 25. Ophthalmic Photography IOD - Module "Ophthalmic Photography Series"

Tag	Type	VR	Name	Description	PoV	Source
(0008,0060)	1	CS	Modality	Source equipment that produced the Ophthalmic Photography Series. Enumerated Value: OP <i>Always "OP"</i>	ALWAYS	AUTO

Table 26. Ophthalmic Photography IOD - Module "Synchronization"

Tag	Type	VR	Name	Description	PoV	Source
(0020,0200)	1	UI	Synchronization Frame of Reference UID	UID of common synchronization environment. See C.7.4.2.1.1. <i>Always "1.2.840.10008.15.1.1" with suffix generated from timestamp ".YYMMDDHHMMSSmmm".</i>	ALWAYS	AUTO
(0018,106A)	1	CS	Synchronization Trigger	Data acquisition synchronization with external equipment. Enumerated Values: SOURCE – this equipment provides synchronization channel or trigger to other equipment; EXTERNAL – this equipment receives synchronization channel or trigger from other equipment; PASSTHRU – this equipment receives synchronization channel or trigger and forwards it; NO TRIGGER – data acquisition not synchronized by common channel or trigger. <i>Always "NO TRIGGER"</i>	ALWAYS	AUTO
(0018,1800)	1	CS	Acquisition Time Synchronized	Acquisition DateTime (0008,002A) synchronized with external time reference. Enumerated Values: Y, N See C.7.4.2.1.4. <i>Always "N"</i>	ALWAYS	AUTO

Table 27. Ophthalmic Photography IOD - Module "General Equipment"

Tag	Type	VR	Name	Description	PoV	Source
(0008,0070)	2	LO	Manufacturer	Manufacturer of the equipment that produced the composite instances <i>Always "Carl Zeiss Meditec"</i>	ALWAYS	AUTO
(0008,0080)	3	LO	Institution Name	Institution where the equipment that produced the composite instances is located.	ANAP	CONFIG
(0008,1010)	3	SH	Station Name	User defined name identifying the machine that produced the composite instances.	ANAP	CONFIG
(0008,1090)	3	LO	Manufacturer's Model Name	Manufacturer's model name of the equipment that produced the composite instances.	ALWAYS	AUTO

				<i>Always "VISUSCOUT 100 Viewing Software"</i>		
(0018,1000)	3	LO	Device Serial Number	Manufacturer's serial number of the equipment that produced the composite instances. Note: This identifier corresponds to the device that actually created the images, such as a CR plate reader or a CT console, and may not be sufficient to identify all of the equipment in the imaging chain, such as the generator or gantry or plate.	ALWAYS	AUTO
(0018,1020)	3	LO	Software Version(s)	Manufacturer's designation of software version of the equipment that produced the composite instances. Multi-value attribute with 2 values: version of camera firmware, version of VISUSCOUT 100. Example: "3.2.7.3585\4.02.1403.0300".	ALWAYS	AUTO

Table 28. Ophthalmic Photography IOD - Module "General Image"

Tag	Type	VR	Name	Description	PoV	Source
(0020,0020)	2C	CS	Patient Orientation	Patient direction of the rows and columns of the image. Required if image does not require Image Orientation (Patient) (0020,0037) and Image Position (Patient) (0020,0032). May be present otherwise. See C.7.6.1.1.1 for further explanation. Note: IOD's may have attributes other than Patient Orientation, Image Orientation, or Image Position (Patient) to describe orientation in which case this attribute will be zero length. <i>Always "L\F"</i>	ALWAYS	AUTO
(0008,0022)	3	DA	Acquisition Date	The date the acquisition of data that resulted in this image started	ALWAYS	AUTO
(0008,0032)	3	TM	Acquisition Time	The date the acquisition of data that resulted in this image started	ALWAYS	AUTO

Table 29. Ophthalmic Photography IOD - Module "Image Pixel"

Tag	Type	VR	Name	Description	PoV	Source
(0028,0010)	1	US	Rows	Number of rows in the image.	ALWAYS	AUTO
(0028,0011)	1	US	Columns	Number of columns in the image	ALWAYS	AUTO
(0028,0100)	1	US	Bits Allocated	Number of bits allocated for each pixel sample. Each sample shall have the same number of bits allocated. See PS 3.5 for further explanation. <i>Always "8"</i>	ALWAYS	AUTO
(0028,0101)	1	US	Bits Stored	Number of bits stored for each pixel sample. Each sample shall have the same number of bits stored. See PS 3.5 for further explanation. <i>Always "8"</i>	ALWAYS	AUTO
(0028,0102)	1	US	High Bit	Most significant bit for pixel sample data. Each sample shall have the same high bit. See PS 3.5 for further explanation. <i>Always "7"</i>	ALWAYS	AUTO

(7FE0,0010)	1C	OB	Pixel Data	A data stream of the pixel samples that comprise the Image. See C.7.6.3.1.4 for further explanation. Required if Pixel Data Provider URL (0028,7FE0) is not present.	ALWAYS	AUTO
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Table 30. Ophthalmic Photography IOD - Module "Cine"

Tag	Type	VR	Name	Description	PoV	Source
(0018,1063)	1C	DS	Frame Time	Nominal time (in msec) per individual frame. See C.7.6.5.1.1 for further explanation. Required if Frame Increment Pointer (0028,0009) points to Frame Time. <i>Always "0"</i>	ALWAYS	AUTO

Table 31. Ophthalmic Photography IOD - Module "Multiframe"

Tag	Type	VR	Name	Description	PoV	Source
(0028,0008)	1	IS	Number of Frames	Number of frames in a Multi-frame Image. See C.7.6.6.1.1 for further explanation. <i>Always "1"</i>	ALWAYS	AUTO
(0028,0009)	1	AT	Frame Increment Pointer	Contains the Data Element Tag of the attribute that is used as the frame increment in Multi-frame pixel data. See C.7.6.6.1.1 for further explanation. <i>Always "(0018,01063)" for Frame Time</i>	ALWAYS	AUTO

Table 32. Ophthalmic Photography IOD - Module "Ophthalmic Photography Image"

Tag	Type	VR	Name	Description	PoV	Source
(0008,0008)	1	CS	Image Type	Image identification characteristics. See C.8.17.2.1.4 for specialization. Multi-value attribute containing 4 values: 1) Pixel Data Characteristics "ORIGINAL" for original acquired images. <i>Always "ORIGINAL"</i> 2) Patient Examination Characteristics. <i>Always "PRIMARY"</i> 3) Modality Specific Characteristics <i>Always empty.</i> 4) Implementation specific identifiers <i>"COLOR", "REDFREE", "RED" according to capture mode (configurable in the camera)</i>	ALWAYS	AUTO
(0020,0013)	1	IS	Instance Number	A number that identifies this image.	ALWAYS	AUTO
(0028,0002)	1	US	Samples per Pixel	Number of samples (planes) in this image. Enumerated values: 1 or 3. See C.8.17.2.1.2 for further explanation. "1" for greyscale images "3" for color images <i>Always "3"</i>	ALWAYS	AUTO

(0028,0004)	1	CS	Photometric Interpretation	Specifies the intended interpretation of the pixel data. See NEMA PS3.3 Section C.8.17.2.1.3 "MONOCHROME2" for greyscale images "YBR_FULL_422" for color images <i>Always "YBR_FULL_422"</i>	ALWAYS	AUTO
(0028,0103)	1	US	Pixel Representation	Data representation of the pixel samples. Each sample shall have the same pixel representation. Enumerated Values: 0000 = unsigned integer 0001 = 2's complement <i>Always "0"</i>	ALWAYS	AUTO
(0028,0006)	1C	US	Planar Configuration	Indicates whether the pixel data are sent color-by-plane or color-by-pixel. Required if Samples per Pixel (0028,0002) has a value greater than 1. Enumerated value shall be 0 (color-by-pixel). <i>Always "0"</i>	ALWAYS	AUTO
(0008,0033)	1	TM	Content Time	The time the image pixel data creation started.	ALWAYS	AUTO
(0008,0023)	1	DA	Content Date	The date the image pixel data creation started.	ALWAYS	AUTO
(0008,002A)	1C	DT	Acquisition Datetime	The date and time that the acquisition of data started. Note: The synchronization of this time with an external clock is specified in the synchronization Module in Acquisition Time Synchronized (0018,1800). Required if Image Type (0008,0008) Value 1 is ORIGINAL. May be present otherwise.	ALWAYS	AUTO
(0028,2110)	1	CS	Lossy Image Compression	Specifies whether an Image has undergone lossy compression. Enumerated Values: 00 = Image has NOT been subjected to lossy compression. 01 = Image has been subjected to lossy compression. See C.7.6.1.1.5 "01" if image is compressed "00" otherwise <i>Always "01"</i>	ALWAYS	AUTO
(0028,2112)	1C	DS	Lossy Image Compression Ratio	Describes the approximate lossy compression ratio(s) that have been applied to this image. See C.7.6.1.1.5 for further explanation. May be multivalued if successive lossy compression steps have been applied. Notes: 1. For example, a compression ratio of 30:1 would be described in this Attribute with a single value of 30. 2. For historical reasons, the lossy compression ratio should also be described in Derivation Description (0008,2111) Required if Lossy Image Compression (0028,2110) has a value of "01". <i>Always "12"</i>	ANAP	AUTO
(0028,2114)	1C	CS	Lossy Image Compression Method	A label for the lossy compression method(s) that have been applied to this image. See C.7.6.1.1.5 for further explanation. May be multivalued if successive lossy compression steps have been applied; the value order shall correspond to the values of Lossy Image Compression Ratio (0028,2112). Required if Lossy Image Compression (0028,2110) has a value of "01". Note: For historical reasons, the	ANAP	AUTO

				lossy compression method should also be described in Derivation Description (0008,2111). "ISO_10918_1" if image is compressed. <i>Always "ISO_10918_1"</i>		
(0028,0301)	1	CS	Burned In Annotation	Indicates whether or not image contains sufficient burned in annotation to identify the patient and date the image was acquired. Enumerated Value: YES NO "YES" if any identification info is burned in "NO" otherwise <i>Always "NO"</i>	ALWAYS	AUTO

Table 33. Ophthalmic Photography IOD - Module "Ocular Region Imaged"

Tag	Type	VR	Name	Description	PoV	Source
(0020,0062)	1	CS	Image Laterality	Laterality of object imaged (as described in Anatomic Region Sequence (0008,2218)) examined. Enumerated Values: R = right eye L = left eye B = both left and right eye Shall be consistent with any laterality information contained in Primary Anatomic Structure Modifier Sequence (0008,2230), if present. Note: Laterality (0020,0060) is a Series level Attribute and must be the same for all Images in the Series. Since most Ophthalmic Photographic Image studies contain images of both eyes, the series level attribute will rarely be present.	ALWAYS	AUTO
(0008,2218)	1	SQ	Anatomic Region Sequence	Sequence that identifies the anatomic region of interest in this Instance (i.e. external anatomy, surface anatomy, or general region of the body). Only a single Item shall be permitted in this sequence.	ALWAYS	AUTO
>(0008,0100)	1	SH	Code Value	See NEMA PS3.3 Section 8.1. <i>Always "T-AA000"</i>	ALWAYS	AUTO
>(0008,0102)	1	SH	Coding Scheme Designator	See NEMA PS3.3 Section 8.2. <i>Always "SRT"</i>	ALWAYS	AUTO
>(0008,0104)	1	LO	Code Meaning	See NEMA PS3.3 Section 8.3. <i>Always "Eye"</i>	ALWAYS	AUTO

Table 34. Ophthalmic Photography IOD - Module "Ophthalmic Photography Acquisition Parameters"

Tag	Type	VR	Name	Description	PoV	Source
(0022,0005)	2	CS	Patient Eye Movement Commanded	Enumerated Values: YES NO <i>Always EMPTY</i>	EMPTY	AUTO
(0022,001B)	2	SQ	Refractive State Sequence	The refractive state of the imaged eye at the time of acquisition. Zero or one Item shall be present. Zero length means the refractive state was not measured. <i>Always zero items</i>	EMPTY	AUTO

(0022,000A)	2	FL	Emmetropic Magnification	Emmetropic magnification value (dimensionless). Zero length means the emmetropic magnification was not measured. <i>Always EMPTY</i>	EMPTY	AUTO
(0022,000B)	2	FL	Intra Ocular Pressure	Value of intraocular pressure in mmHg. Zero length means the pressure was not measured. <i>Always EMPTY</i>	EMPTY	AUTO
(0022,000D)	2	CS	Pupil Dilated	Enumerated Values: YES NO If this tag is empty, no information is available. <i>Always EMPTY</i>	EMPTY	AUTO

Table 35. Ophthalmic Photography IOD - Module "Ophthalmic Photographic Parameters"

Tag	Type	VR	Name	Description	PoV	Source
(0022,0015)	1	SQ	Acquisition Device Type Code Sequence	Describes the type of acquisition device. A single item shall be present in the sequence.	ALWAYS	AUTO
>(0008,0100)	1	SH	Code Value	See NEMA PS3.3 Section 8.1. <i>Always "R-1021B"</i>	ALWAYS	AUTO
>(0008,0102)	1	SH	Coding Scheme Designator	See NEMA PS3.3 Section 8.2. <i>Always "SRT"</i>	ALWAYS	AUTO
>(0008,0104)	1	LO	Code Meaning	See NEMA PS3.3 Section 8.3. <i>Always "External Camera"</i>	ALWAYS	AUTO
(0022,0016)	2	SQ	Illumination Type Code Sequence	Coded value for illumination. Zero or one item shall be present in the sequence. <i>Always zero items</i>	EMPTY	AUTO
(0022,0017)	2	SQ	Light Path Filter Type Stack Code Sequence	Filters used in the light source path. Zero or more items may be present in the sequence. <i>Always zero items</i>	EMPTY	AUTO
(0022,0018)	2	SQ	Image Path Filter Type Stack Code Sequence	Describes stack of filters used in image path. Zero or more items may be present in the sequence. <i>Always zero items</i>	EMPTY	AUTO
(0022,0019)	2	SQ	Lenses Code Sequence	Lenses that were used during the image acquisition. Zero or more items may be present in the sequence. <i>Always zero items</i>	EMPTY	AUTO
(0018,7004)	2	CS	Detector Type	Type of detector used for creating this image. Defined terms: CCD = Charge Coupled Devices CMOS = Complementary Metal Oxide Semiconductor <i>Always "CMOS"</i>	ALWAYS	AUTO

Table 36. Ophthalmic Photography IOD - Module "SOP Common"

Tag	Type	VR	Name	Description	PoV	Source
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(0008,0016)	1	UI	SOP Class UID	Uniquely identifies the SOP Class. See C.12.1.1.1 for further explanation. See also PS 3.4. <i>Always "1.2.840.10008.5.1.4.1.1.77.1.5.1".</i>	ALWAYS	AUTO
(0008,0018)	1	UI	SOP Instance UID	Uniquely identifies the SOP Instance. See C.12.1.1.1 for further explanation. See also PS 3.4. <i>A constant prefix "1.2.276.0.75.2.1.70.10.3." for generated UIDs.</i>	ALWAYS	AUTO
(0008,0005)	1C	CS	Specific Character Set	Character Set that expands or replaces the Basic Graphic Set. Required if an expanded or replacement character set is used. See C.12.1.1.2 for Defined Terms. <i>Always "ISO_IR 192" for UTF-8 encoded Unicode</i>	ALWAYS	AUTO
(0008,0012)	3	DA	Instance Creation Date	Date the SOP Instance was created.	ALWAYS	AUTO
(0008,0013)	3	TM	Instance Creation Time	Time the SOP Instance was created.	ALWAYS	AUTO

8.1.2 Usage of Attributes from Received IODs

The usage of attributes of Modality Worklist IODs is described in chapter [4.2.3.3.1 Activity – Query Modality Worklist](#).

8.1.3 Attribute Mapping

The following attributes can be mapped from Modality Worklist to created SOP Instances:

Table 37. Attribute Mapping

MWL		Instance IOD	
(0010,0010)	Patient's Name	(0010,0010)	Patient's Name
(0010,0020)	Patient ID	(0010,0020)	Patient ID
(0010,0021)	Issuer of Patient ID	(0010,0021)	Issuer of Patient ID
(0010,1000)	Other Patient IDs	(0010,1000)	Other Patient IDs
(0010,0030)	Patient's Birth Date	(0010,0030)	Patient's Birth Date
(0010,0040)	Patient's Sex	(0010,0040)	Patient's Sex
(0010,2160)	Ethnic Group	(0010,2160)	Ethnic Group
(0010,4000)	Patient Comments	(0010,4000)	Patient Comments
(0008,0050)	Accession Number	(0008,0050)	Accession Number
(0008,0090)	Referring Physician's Name	(0008,0090)	Referring Physicians Name
(0040,1001)	Requested Procedure ID	(0020,0010)	Study ID
		(0040,1001)	Request Attributes Sequence > Requested Procedure ID
(0032,1060)	Requested Procedure Description	(0008,1030)	Study Description
		(0032,1060)	Request Attributes Sequence > Requested Procedure Description
		(0018,1030)	Protocol Name
(0032,1064)	Requested Procedure Code Sequence	(0008,1032)	Procedure Code Sequence
>(0008,0100)	Code Value	>(0008,0100)	Code Value

>(0008,0102)	Coding Scheme Designator	>(0008,0102)	Coding Scheme Designator
>(0008,0103)	Coding Scheme Version	>(0008,0103)	Coding Scheme Version
>(0008,0104)	Code Meaning	>(0008,0104)	Code Meaning
(0020,000D)	Study Instance UID	(0020,000D)	Study Instance UID
(0008,1110)	Referenced Study Sequence		Empty
>(0008,1150)	Referenced SOP Class UID		Empty
>(0008,1155)	Referenced SOP Instance UID		Empty
(0040,1400)	Requested Procedure Comments		Empty
(0040,0100)	Scheduled Procedure Step Sequence		Empty
>(0040,0007)	Scheduled Procedure Step Description	(0040,0007)	Request Attributes Sequence > Scheduled Procedure Step Description
>(0040,0008)	Scheduled Protocol Code Sequence	(0040,0008)	Request Attributes Sequence > Scheduled Protocol Code Sequence
>>(0008,0100)	Code Value	>(0008,0100)	Code Value
>>(0008,0102)	Coding Scheme Designator	>(0008,0102)	Coding Scheme Designator
>>(0008,0103)	Coding Scheme Version	>(0008,0103)	Coding Scheme Version
>>(0008,0104)	Code Meaning	>(0008,0104)	Code Meaning
>(0040,0009)	Scheduled Procedure Step ID	(0040,0009)	Request Attributes Sequence > Scheduled Procedure Step ID

8.1.4 Coerced/Modified Fields

See Table 18 in 4.2.3.3.2.3 [SOP Specific Conformance for Modality Worklist SOP Class](#). The attributes marked "Modifiable" can be modified manually.

8.2 Data Dictionary of Private Attributes

VISUSCOUT 100 Viewing Software does not define any private attributes.

8.3 Coded Terminology and Templates

VISUSCOUT 100 Viewing Software does not use any custom coded terminology.

8.4 Greyscale Image Consistency

Not applicable.

8.5 Standard Extended / Specialized/ Private SOP Classes

VISUSCOUT 100 Viewing Software does not use any standard extensions.

8.6 Private Transfer Syntaxes

No Private Transfer Syntax is supported.