DICOM Conformance Statement

syngo.via View&GO VA57A

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SIEMENS Healthineers

DICOM Conformance Statement Overview

The ***syngo*.via View&*GO*** is lightweight reading software solution with connectivity to DICOM modalities and healthcare information systems. By default, one ***syngo*.via View&*GO*** (DICOM Application Entity) is used. It is possible to configure usage of multiple different AEs for the individual DICOM services.

The ***syngo*.via View&*GO***:

- requests storage of objects (images, reports)
- support query and retrieval of objects from a remote node
- displays images to a user
- sends/transmits images to a printer
- imports objects from portable interchange media
- exports objects to non-optical storage device (e.g. USB stick)

The ***syngo.*via View&*GO*** conforms to the DICOM Standard and supports the network services as described in Table 1: Network Services and the media services as described in Table 2: Media Services.

Table 1: Network Services

SOP Classes	SOP Class UID	User of Service (SCU)	Provider of Service (SCP)	Visualization
Verification				
Verification Service	1.2.840.10008.1.1	Yes	Yes	N/A
Storage Transfer (Image SOP Class)				
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	Yes	Yes
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes	Yes
Digital X-Ray Image Storage - For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	Yes	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	Yes	Yes
Ultrasound Multi-Frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	Yes	Yes
Ultrasound Multi-Frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	Yes	Yes
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes	Yes
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes	Yes
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	Yes	Yes	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes	Yes
X-Ray Radio-Fluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	Yes	Yes
Transfer (Private SOP Class)				
Syngo Non-Image Storage	1.3.12.2.1107.5.9.1	Yes	Yes	No
Query / Retrieve				
Patient Root – Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Yes	No	NA
Patient Root – Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Yes	No	NA
Study Root – Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	No	NA
Study Root – Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Yes	No	NA
Patient/Study Only – Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.3.1	Yes	No	NA
Patient/Study Only – Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.3.2	Yes	No	NA
Print Management				
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1	Yes	No	No
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Yes	No	No
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Yes	No	No

SOP Classes	SOP Class UID	User of Service (SCU)	Provider of Service (SCP)	Visualization
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Yes	No	No
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Yes	No	No
Print Job SOP Class	1.2.840.10008.5.1.1.14	Yes	No	No
Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No	No
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Yes	No	No
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Yes	No	No

Table 2: Media Services

Media Storage Application Profile	Write Files (FSC)	Read Files (FSR)
Compact Disk - Recordable		
AUG-GEN-CD	N/A	Yes
STD-GEN-CD	N/A	Yes
DVD		
AUG-GEN-DVD-J2K	N/A	Yes
STD-GEN-DVD-J2K	N/A	Yes
Blu-Ray		
AUG-GEN-BD-J2K	N/A	Yes
STD-GEN-BD-J2K	N/A	Yes
USB		
AUG- GEN-USB-J2K	Yes	Yes
STD-GEN-USB-J2K	Yes	Yes

Table 3: Implementation Identifying Information

Name	Value
Application Context Name	1.2.840.10008.3.1.1.1
Implementation Class UID	1.3.12.2.1107.5.8.20
Implementation Version Name	**syngo.via.ViewAndGO**

3 Introduction

3.1 Revision history

Version	Date	Change
R0.1	2025-07-03	Updated the version to VA57A and incorporated changes to address defect 6024298
R1.0	2025-07-24	Released after incorporating review comments

3.2 Audience

This document is intended for hospital staff, health system integrators, software designers or implementers. It is assumed that the reader has a working understanding of DICOM.

3.3 Remarks

The scope of this DICOM Conformance Statement is to facilitate integration between **syngo.via View&GO** and other DICOM products. The Conformance Statement should be read and understood in conjunction with the DICOM Standard [1]. 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 conformance statements is the first step towards assessing interconnectivity and interoperability between **syngo.via View&GO** 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.

Siemens Healthineers reserves the right to modify the design and specifications contained herein without prior notice. Please contact your local Siemens representative for the most recent product information.

3.4 Definitions, Terms and Abbreviations

Definitions, terms and abbreviations used in this document are defined within the different parts of the DICOM standard.

Additional Abbreviations and terms are as follows:

AE	DICOM Application Entity
AET	Application Entity Title
ASCII	American Standard Code for Information Interchange
DB	Database
DCS	DICOM Conformance Statement
DICOM	Digital Imaging and Communications in Medicine
FSC	File Set Creator
FSR	File Set Reader
FSU	File Set Updater
IOD	DICOM Information Object Definition
ISO	International Standard Organization
n. a.	not applicable
O	Optional Key Attribute
PDU	DICOM Protocol Data Unit
R	Required Key Attribute
SCU	DICOM Service Class User (DICOM client)
SCP	DICOM Service Class Provider (DICOM Server)
SOP	DICOM Service-Object Pair
TLS	Transport Layer Security
U	Unique Key Attribute
UID	Unique Identifier
UTF-8	Unicode Transformation Format-8
VR	Value Representation

3.5 References

[1] Digital Imaging and Communications in Medicine (DICOM), https://www.dicomstandard.org

[2] Integrating the Healthcare Enterprise – IHE Radiology Technical Framework – http://www.ihe.net

3.6 Scope and field of application

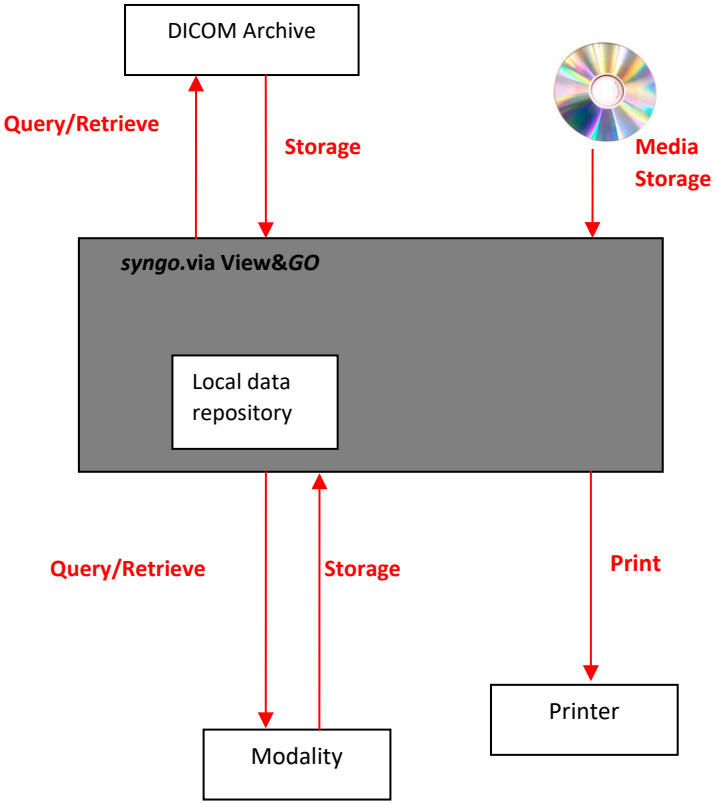


Figure 1: Overview about DICOM capabilities of *syngo*.via View&*GO* VA57A

4 Networking

4.1 Implementation Model

4.1.1 Application Data Flow

The Application Data Flow diagram in Figure 2: Application Data Flow Diagram depicts the DICOM data flow to and from the individual applications within ***syngo*.via View&*GO***.

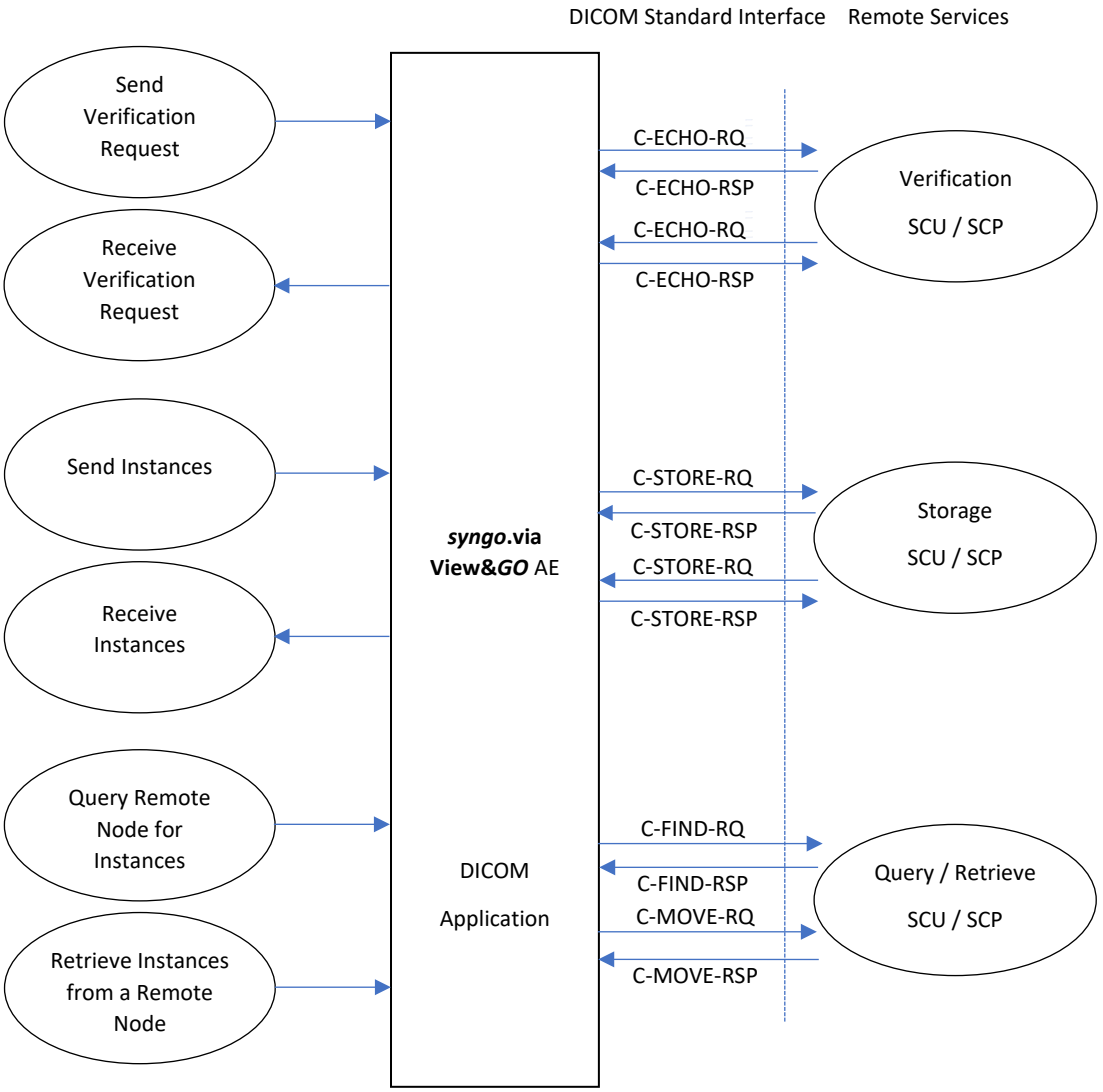


Figure 2: Application Data Flow Diagram

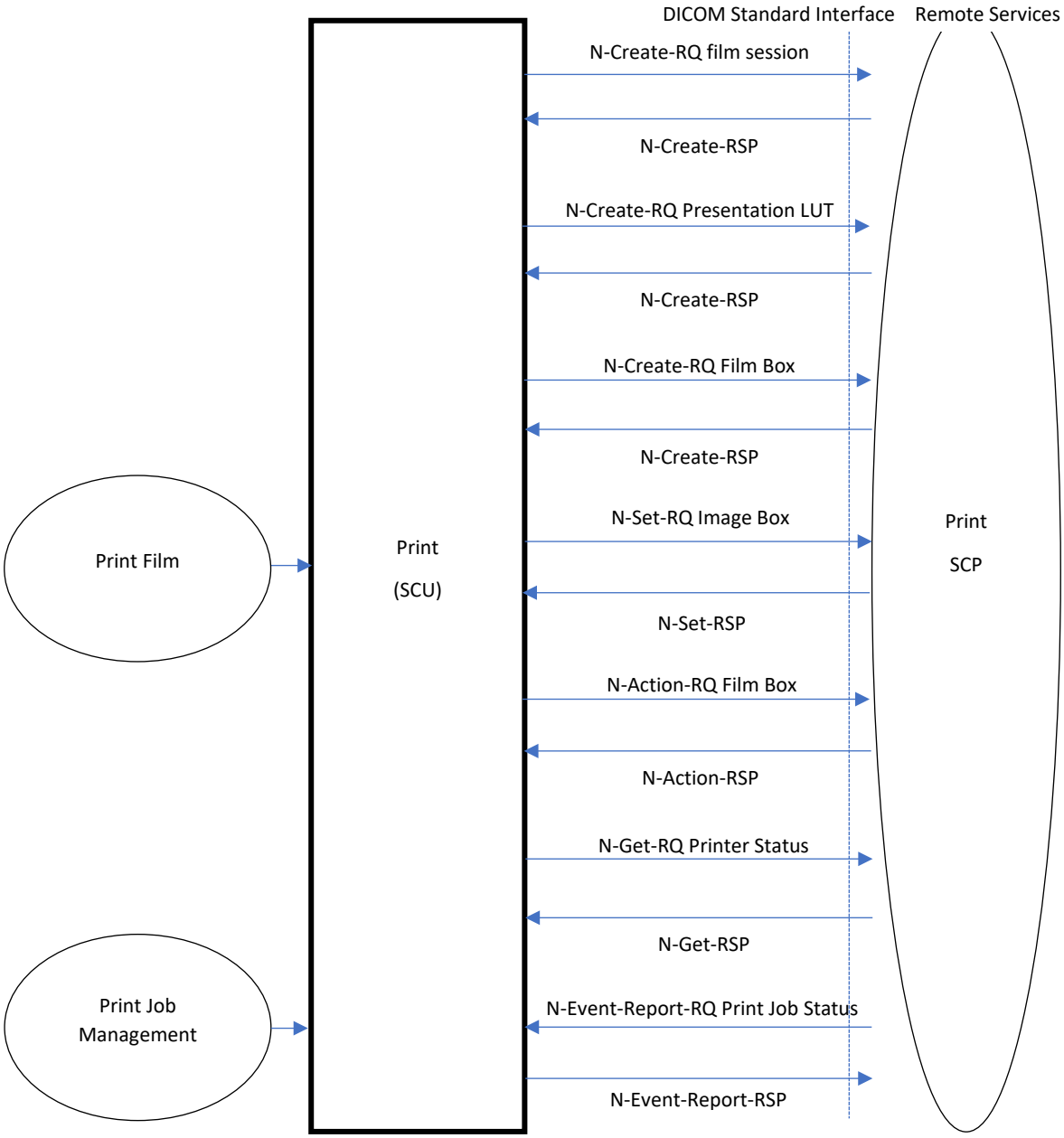


Figure 3: *syngo*.via View&*GO* DICOM Data Flow diagram- Printing

4.1.2 Functional Definitions of Application Entity

The SCP components of the Application Entities of the ***syngo*.via View&*GO*** operate as background server processes. They exist as soon as the system is powered up and wait for association requests. Upon accepting an association with a negotiated Presentation Context they start to receive and process the requests described in the following sections.

The SCU components of the Application Entity are invoked upon requests from the user interface or indirect by trigger from internal processes.

4.1.2.1 Functional Definition of Verification Service

The ***syngo*.via View&*GO*** supports the Verification service as a SCP and SCU. As a SCU, Verification can be activated from the Configuration Panel – Devices tab during system configuration by sending a C-ECHO-Request.

As a SCP of the Verification Service the ***syngo*.via View&*GO*** processes and responds to incoming verification requests using the C-ECHO-Response.

4.1.2.2 Functional Definition of Storage Service

The ***syngo.*via View&*GO*** Storage SCU is invoked directly by the user, or by the Query/Retrieve Application Entity that is responsible for processing retrieve requests. The job consists of data describing the composite objects selected for storage and the destination Application Entity Title. An association is negotiated with the destination Application Entity and the image data is transferred using the C-STORE-Request. The transfer status is reported to the initiator of the Storage request.

The Storage SCP component of the ***syngo*.via View&*GO*** starts to receive the Composite Objects and import them into the database after accepting an association with a negotiated Presentation Context. The system responds to the Storage Request immediately after reception of the Data.

4.1.2.3 Functional Definition of Query/Retrieve Service

The ***syngo*.via View&*GO*** supports DICOM Query/Retrieve as a SCU: The user can initiate a query to a remote node using the C-FIND-Request. After matching the specified keys, the remote Query /Retrieve SCP uses the C-FIND-Response to return the results of its search, which will be displayed to the user. Depending on user action the ***syngo*.via View&*GO*** Query/Retrieve DICOM SCU sends a C-MOVE-Request to initiate a C-STORE sub-operation on the SCP to start an image transfer from remote Storage SCU (running on Query/Retrieve SCP) to the system's Storage SCP.

The ***syngo*.via View&*GO*** supports the following query models:

- Study Root Query Model
- Patient Root Query Model
- Patient/Study Only Query Model

Furthermore the SCU services may issue relational queries, if supported by the remote Query/Retrieve SCP node and required by the querying Application.

4.1.2.4 Functional Definition of Print Service

The Print SCU of the *syngo*.via View&GO is invoked by the user interface to setup film-sheet layout and whenever an image is ready to be printed on film. The Print SCU will hold and maintain all data needed to compile a complete film-sheet from the data (images, layout, configuration) received. Whenever a film-sheet is ready to print, the related data is used to supply the Information to the SOP Classes of the Print Management Service Class. A queue is maintained in order to intermediately store several film-sheets in case of resource problems on printer. The SCU will only supply and require the mandatory SOP Classes of the Print Management Service Class.

The *syngo*.via View&GO will supply and require the mandatory SOP Classes of the color, grayscale or both Print Management Service Class as well as the optional Print Job and Presentation LUT SOP Classes.

4.1.3 Sequencing of Activities

This section describes the sequencing of Real-World Activities performed by the ***syngo*.via View&*GO*** Entities using a UML sequence diagram. Real-World Activities are depicted as vertical bars and arrows show the events exchanged between them.

4.1.3.1 Verify

The communication between ***syngo*.via View&*GO*** and an external DICOM node in case of Verify is depicted in more detail.

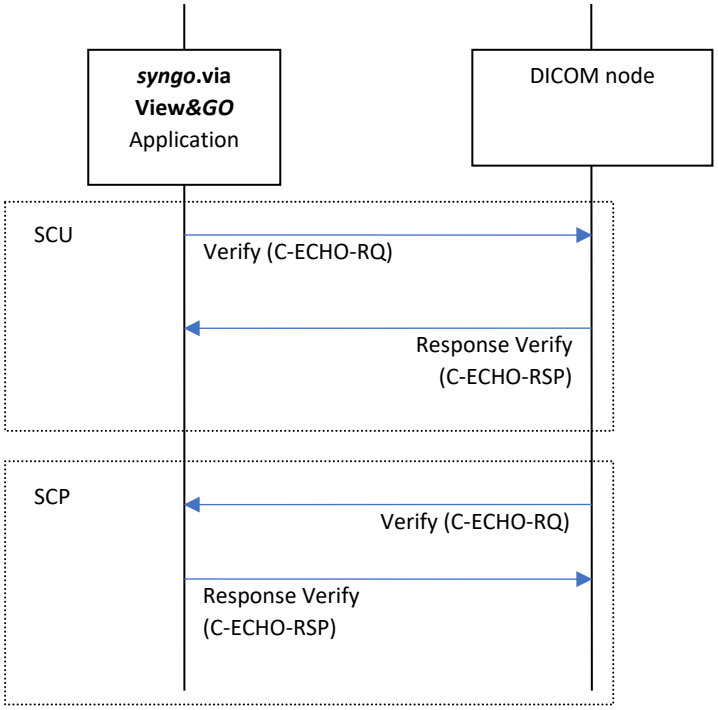


Figure 4: Sequence Diagram for Real World Activities - Verify

4.1.3.2 Storage

The communication between ***syngo*.via View&*GO*** and an external DICOM node in case of triggering the transfer or accepting storage requests is depicted in more detail.

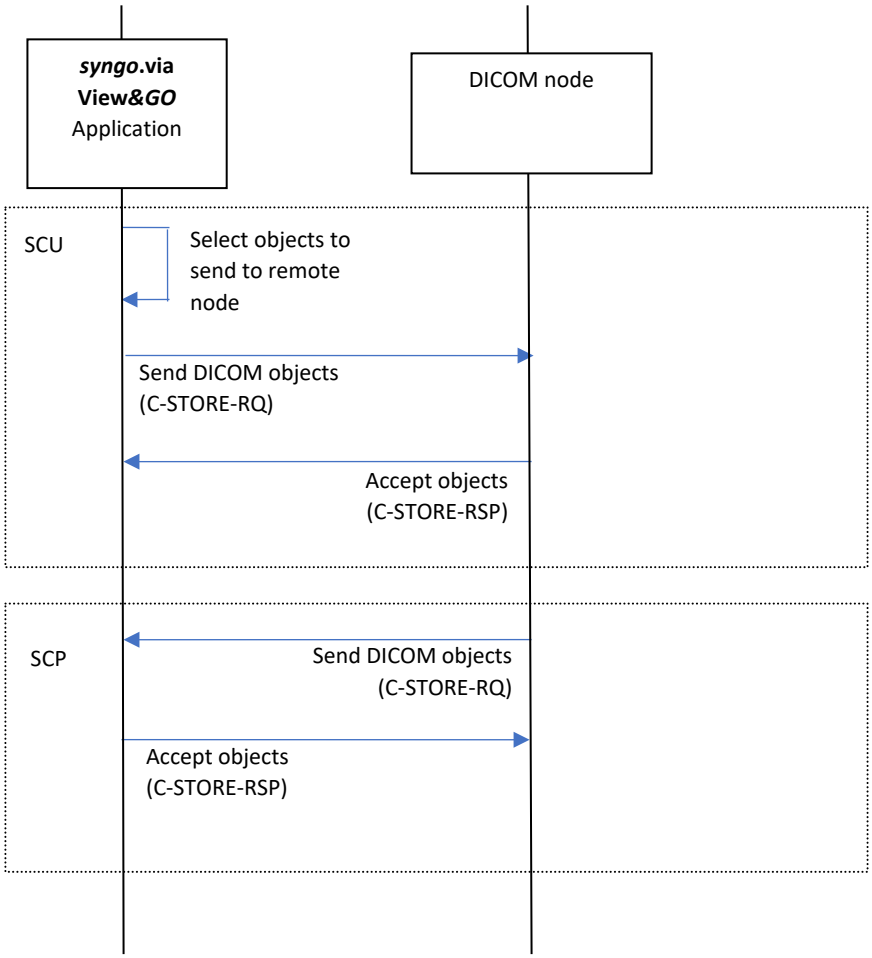


Figure 5: Sequence Diagram for Real World Activities - Storage

4.1.3.3 Query and Retrieval

The communication between ***syngo*.via View&*GO*** and an external DICOM node in case of querying for objects from a remote DICOM node and retrieval to ***syngo*.via View&*GO*** is depicted in more detail.

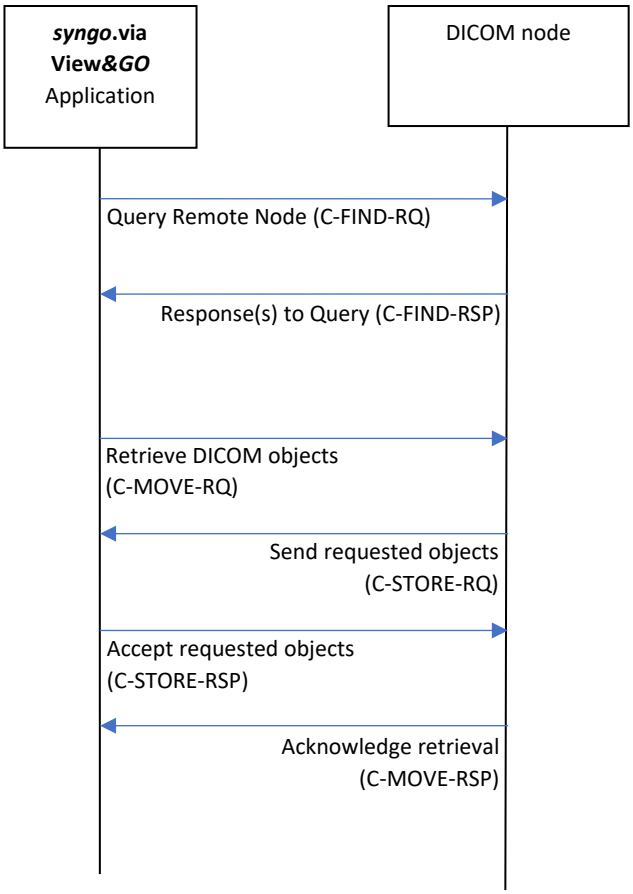
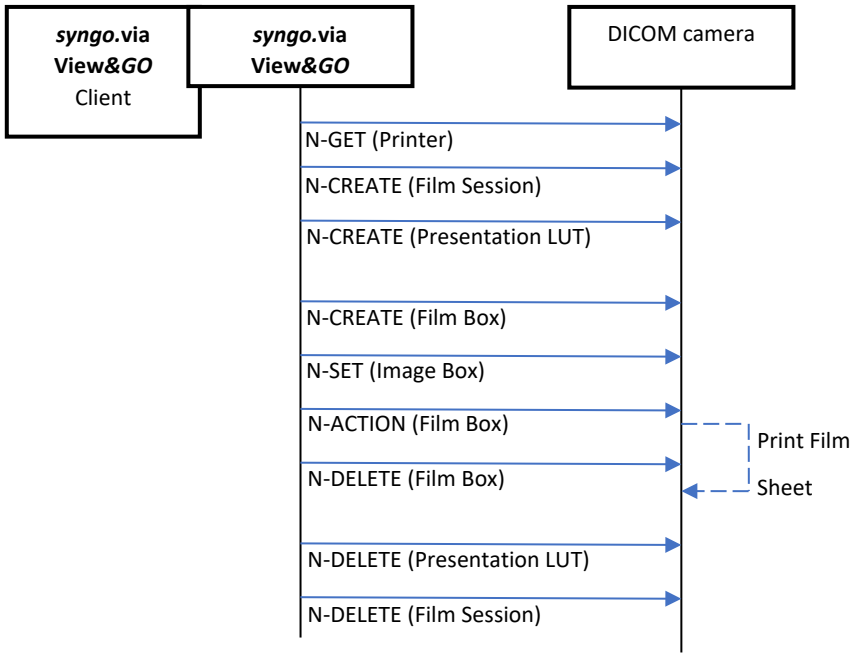


Figure 6: Sequence Diagram for Real World Activities - Query/Retrieve

4.1.3.4 Printing Workflow

The communication between ***syngo.*via View&*GO*** and an external DICOM camera in case of printing of images is depicted in Figure 7 in more detail.



All events (arrows) stand for a request / response pair.

Figure 7: Sequence Diagram for Real World Activities - Printing

4.2 Application Entity Specification

This section outlines the specifications for each of the DICOM Services that are part of the ***syngo*.via View&*GO* AE**.

4.2.1 Verification Service Specification

4.2.1.1 SOP Classes

The Verification AE of the ***syngo*.via View&*GO*** provides standard conformance to the Verification SOP Class listed in Table 1: Network Services, section "Verification" in the "Conformance Statement Overview".

4.2.1.2 Association Policy

The **syngo.via View&GO** Admin Portal attempts to open an association for verification request whenever the Verification function is activated.

Table 4: Association Policies

Application Context Name	1.2.840.10008.3.1.1.1
PDU size	32 kB [1]
Maximum PDU Length	512kb
ARTIM Timeout	30 seconds
Maximum number of simultaneous associations as an association acceptor	12[3]
Maximum number of simultaneous associations as an association initiator	unlimited[2]

The ***syngo*.via View&*GO*** AE contains a limitation of 512 kB for the maximum PDU size. By default, the PDU size is set to 32kB.

The maximum number of simultaneous receiving associations (SCP) is configurable at run time, based on the system resources available. By default, the maximum number of associations is set to 5.

There is no inherent limit to the number of outgoing associations (SCU), other than limits imposed by the computer operating system. Nevertheless, transfer jobs to one distinct remote system (Send, Retrieve) will be run sequentially one after the other.

4.2.1.2.1 Asynchronous Nature

The **syngo.via View&GO** supports asynchronous communication (multiple outstanding transactions over a single association). On the SCU side the Window size proposed is infinite. On the SCP Side any size is supported.

Table 5: Asynchronous Nature as an Association Initiator

Maximum number of outstanding asynchronous Transactions	10[4]

[1] Default, the value is configurable

[2] There is no inherent limit to the number of outgoing Associations, other than limits imposed by the computer Operating System. As Association Initiators syngo.via View&Go opens only one Association per Remote AE.

[3] The maximum number of simultaneous receiving Associations is configurable at run time, based on the system resources available. By default, the maximum number of Associations is set to 12.

[4] syngo.via View&Go supports asynchronous communication (multiple outstanding transactions over a single Association). On the SCU side the Window size proposed is infinite. On the SCP side any size is supported.

4.2.1.2.2 Implementation Identifying Information

For Implementation Identifying Information please refer to “Table 3: Implementation Identifying Information” in the “Conformance Statement Overview”.

4.2.1.3 Association Initiation Policy

syngo*.via View&*GO initiates associations while processing the service operations and internal messages as shown below:

Table 6: Association initiation policies

Operation or Real-World Activity	Association for
Verification	C-ECHO
Send / Receive Instance	C-STORE
Querying a remote node	C-FIND
Retrieval of Instances	C-MOVE

4.2.1.3.1 Activity “Send Verification Request”

4.2.1.3.1.1 Description and Sequencing of Activity

The ***syngo*.via View&*GO*** serves as a SCU of the Verification Service Class. A C-ECHO-Request is initiated by the Configuration Panel whenever "Verification" is requested. If an association to a remote Application Entity is successfully established, Verification with the configured AET is requested via the open association. If the C-ECHO Response from the remote Application contains a status other than "Success" this will be indicated to the user and the association is closed.

4.2.1.3.1.2 Proposed Presentation Contexts

Table 7: Presentation Context Table "Verification" below lists the supported presentation contexts for verification requests.

Table 7: Presentation Context Table "Verification" for Role SCU

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

4.2.1.3.1.3 SOP Specific Conformance – Verification SCU

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

4.2.1.4 Association Acceptance Policy

4.2.1.4.1 Activity “Receive Verification Request”

4.2.1.4.1.1 Description and Sequencing of Activity

The ***syngo*.via View&*GO*** serves as a SCP of the Verification Service Class. If the Verification SCP accepts an association, it will respond to C-ECHO-Requests. If the Called AE Title does not match any pre-configured AE Title shared by SCP, the association will be rejected.

4.2.1.4.1.2 Accepted Presentation Contexts

The **syngo.via View&GO** DICOM application will accept Presentation Contexts as shown in the following table:

Table 8: Presentation Context Table "Verification" for Role SCP

Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

4.2.1.4.1.3 SOP Specific Conformance – Verification SCP

The ECHO-SCP provides standard conformance to the Verification Service Class.

4.2.2 Storage Service Specification

4.2.2.1 SOP Classes

The Storage AE provides Standard Conformance to the the SOP Classes listed in Table 1: Network Services, section "SOP Classes Created by the ***syngo*.via View&*GO***" and "SOP Classes Managed by the ***syngo*.via View&*GO***" in the "Conformance Statement Overview".

4.2.2.2 Association Policy

The ***syngo*.via View&*GO*** contains a limitation of 512 kB for the maximum PDU size. By default, the maximum PDU size is set to 32kB.

The maximum number of simultaneous receiving associations (SCP) is configurable at run time, based on the system resources available. By default, the maximum number of associations is set to 6.

There is no inherent limit to the number of outgoing associations (SCU), other than limits imposed by the computer operating system.

Refer Table 4: Association Policies

4.2.2.2.1 Asynchronous Nature

The **syngo.via View&GO** supports asynchronous communication (multiple outstanding transactions over a single association). On the SCU side the Window size proposed is infinite. On the SCP Side any non-infinite maximum size will be accepted.

Refer Table 5: Asynchronous Nature as an Association Initiator

4.2.2.2.2 Implementation Identifying Information

For Implementation Identifying Information please refer to "Table 3: Implementation Identifying Information" in the "Conformance Statement Overview".

4.2.2.3 Association Initiation Policy

4.2.2.3.1 Activity "Send Instances"

4.2.2.3.1.1 Description and Sequencing of Activities

Storage of DICOM objects is triggered internally in the ***syngo*.via View&*GO***.

If an association to a remote Application Entity could successfully be established, each image will be transferred one after another via the same open association.

In case the transfer fails for a permanent reason (rejection permanent reported by SCP, all Presentation Contexts are refused, …) the transfer will not be retried.

4.2.2.3.1.2 Proposed Presentation Contexts

For all Image Objects listed in Table 1: Network Services in the Conformance Statement Overview the Transfer Syntaxes marked with "yes" in the Image Objects Column of the table below are supported.
For all Non-Image Objects listed in Table 1: Network Services in the Conformance Statement Overview the Transfer Syntaxes marked with "yes" in the Non-Image Objects Column of the table below are supported.
For a distinction between Image and Non-Image Objects please refer to the DICOM Standard PS3.3 Section A.1.4 "Overview of the Composite IOD Module Content" [1].

Table 9: Proposed Presentation Contexts for Storage

UID value	Transfer Syntax	Image Objects	Non-Image Objects
1.2.840.10008.1.2	Implicit Value Representation Little Endian native	Yes	Yes
1.2.840.10008.1.2.1	Explicit Value Representation Little Endian native	Yes	Yes
1.2.840.10008.1.2.4.50	JPEG Baseline (Process 1) lossy compressed	Yes	No
1.2.840.10008.1.2.4.51	JPEG Extended (Process 2 & 4) lossy compressed	Yes	No
1.2.840.10008.1.2.4.70	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14) lossless compressed	Yes	No
1.2.840.10008.1.2.4.90	JPEG 2000 Image Compression (Lossless Only) compressed	Yes	No
1.2.840.10008.1.2.4.91	JPEG 2000 Image Compression lossy compressed	Yes	No
1.2.840.10008.1.2.5	RLE Lossless compressed	Yes	No

Storage SCU Service will choose a compressed or uncompressed Transfer Syntax among those accepted by the SCP for images.

An instance will be JPEG lossless compressed only if it fulfills the following criteria:

- Is an image and not already compressed
- Photometric Interpretation (0028,0004) is either MONOCHROME1, MONOCHROME2, RGB, YBR_FULL or YBR_FULL_422
- Bits Allocated (0028,0100) equal to ‘16’ or ‘8'
- Bits Stored (0028,0101) equal to ‘12' or ‘8'
- High Bit (0028,0102) equal to Bits Stored (0028,0101) - 1
- Pixel Representation (0028,0103) equal to ‘0'

An instance will be JPEG lossy compressed during transfer only if the following criteria is fulfilled:

- Is an image
- Photometric Interpretation (0028,0004) is either MONOCHROME1, MONOCHROME2 or RGB
- Bits Allocated (0028,0100) equal to ‘16' or ‘8'
- Bits Stored (0028,0101) equal to ‘12' or ‘8'
- High Bit (0028,0102) equal to Bits Stored (0028,0101) - 1
- Pixel Representation (0028,0103) equal to ‘0'
- Only lossy transfer syntaxes are supported (Implicit Little Endian is not supported) at the remote side

An instance will be JPEG 2000 lossless compressed only if it fulfills the following criteria:

- Is an image and not already compressed
- Photometric Interpretation (0028,0004) is either MONOCHROME, RGB, YBR_FULL or YBR_FULL_422
- Bits Allocated (0028,0100) equal to ‘16' or ‘8'

An instance will be RLE lossless compressed only if it fulfills the following criteria:

- Is an image and not already compressed
- Photometric Interpretation (0028,0004) is MONOCHROME, RGB, YBR_FULL or RGB
- Bits Allocated (0028,0100) neither ‘16' nor ‘8'

An instance will be JPEG 2000 lossy compressed during transfer only if the following criteria is fulfilled:

- Is an image
- Photometric Interpretation (0028,0004) is MONOCHROME or RGB
- Bits Stored (0028,0101) equal to ‘12' or ‘8'
- Only lossy transfer syntaxes are supported (Implicit Little Endian is not supported) at the remote side

There is no extended negotiation as an SCU.

4.2.2.3.1.3 SOP specific Conformance for SOP classes

The ***syngo*.via View&*GO*** does not add or change private attributes by default, even in case objects are compressed or the image header is updated according to IHE [2] Patient Information Reconciliation Profile.

The behavior of ***syngo*.via View&*GO*** when encountering status codes in a C-STORE response is summarized in Table 10:

Table 10: DICOM Command Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Error	Duplicate SOP Instance UID: some of the instances sent to the SCP were already available there.	0111	Duplicated SOP Instances are ignored, job is continued until the end.
Error	Out-Of-Resources: The remote node has run out of resources (storage resources for example)	A7XX	Job is continued till the end. The result can be checked by checking the availability of the data on the target node.
Error	Any other DIMSE Error Status	XXXX	User does not get notified. Job is continued till the end. Error is logged in the system log. The result can be checked by checking the availability of the data on the target node.
Success	Image is successfully stored on file system	0000	User does not get notified. The result can be checked by checking the availability of the data on the target node.

Table 11 below indicates the behavior if exceptions occur:

Table 11: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	User does not get notified. The result can be checked by checking the availability of the data on the target node.
Association Aborted	User does not get notified. The result can be checked by checking the availability of the data on the target node.

4.2.2.4 Association Acceptance Policy

4.2.2.4.1 Activity “Receive Instances”

4.2.2.4.1.1 Description and Sequencing of Activities

The ***syngo*.via View&*GO*** receiving process will accept C-STORE association requests, receive any objects transmitted on that association and store the objects on disk.

4.2.2.4.1.2 Accepted Presentation Contexts

For all supported Transfer objects (see SOP Classes in Table 1: Network Services) the Transfer Syntaxes described in Table 9 are supported.
Generally all Presentation Contexts are accepted as long as they contain at least one suitable Transfer Syntax. All other Presentation Contexts are rejected.
There is no Extended Negotiation as an SCP.

4.2.2.4.1.3 SOP-specific Conformance Statement for Storage SOP classes

The ***syngo*.via View&*GO*** conforms to the Full Storage Class at Level 2.

In case of a successful C-STORE operation, the image has successfully been received in either Explicit Little Endian format or in the compression format received.

syngo*.via View&*GO AE returns the status “success” when the data is received and a minimal image header validation has been performed.

The following header attributes must be available and filled:

- SOP Class UID,
- Study Instance UID,
- Series Instance UID and
- SOP Instance UID.

Table 12: Storage C-STORE Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Image received correctly (success notification is done after receiving, before indexing and storing)
Failure	Out-of-resource	A700-A7FF	No resource left in the Short Term Storage
Failure	Cannot Understand	C000-CFFF	Error during instance reception
Failure	Data set does not match SOP Class	A900-A9FF	The data set is not conform to the SOP Class contained in the resource.

Restriction: successful operation does not guarantee storage on disk and storage of header data in the database.

4.2.2.4.1.4 Other SOP specific behavior

If an image is received that is already stored in the database - identified by the SOP Instance UID - the new image will be ignored. The existing instance is not superseded.

4.2.3 Query/Retrieve Service Specification

4.2.3.1 SOP Classes

The Storage AE provides Standard Conformance to the the SOP Classes listed in Table 1: Network Services, section "SOP Classes Created by the ***syngo*.via View&*GO***" and "SOP Classes Managed by the ***syngo*.via View&*GO***" in the “Conformance Statement Overview”.

4.2.3.2 Association Policy

The ***syngo*.via View&*GO*** contains a limitation of 512 kB for the maximum PDU size. By default, the maximum PDU size is set to 32kB.

The maximum number of simultaneous receiving associations (SCP) is configurable at run time, based on the system resources available. By default, the maximum number of associations is set to 6.

There is no inherent limit to the number of outgoing associations (SCU), other than limits imposed by the computer operating system.

Refer Table 4: Association Policies

4.2.3.2.1 Asynchronous Nature

The **syngo.via View&GO** supports asynchronous communication (multiple outstanding transactions over a single association). On the SCU side the Window size proposed is infinite. On the SCP Side any non-infinite maximum size will be accepted.

Refer Table 5: Asynchronous Nature as an Association Initiator

4.2.3.2.2 Implementation Identifying Information

For Implementation Identifying Information please refer to "Table 3: Implementation Identifying Information" in the "Conformance Statement Overview".

4.2.3.3 Association Initiation Policy

4.2.3.3.1 Activity "Querying a Remote Node for Instances"

4.2.3.3.1.1 Description and Sequencing of Activities

The ***syngo*.via View&*GO*** serves as a SCU for the following SOP Classes

- Patient Root Q/R Information Model – FIND SOP Class
- Study Root Q/R Information Model – FIND SOP Class
- Patient/Study only Q/R Information Model – FIND SOP Class.

Using the attributes specified by the user as Query Keys (in accordance with the query model) the Query SCU initiates a C-FIND Request and displays the responses to the user.

4.2.3.3.1.2 Proposed Presentation Contexts

The ***syngo*.via View&*GO*** will propose Presentation Contexts as shown in the following table:

Table 13: Proposed Presentation Contexts for Query

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	**UID**	**Name List**	**UID List**		
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	Yes
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Study Root Query/ Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	Yes
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Patient/Study Only Query/ Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

Table 14: Extended Negotiation as an SCU

Name	UID	Extended Negotiation
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Relational Query will be negotiated as defined in DICOM PS3.4.
Study Root Query/ Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Relational Query will be negotiated as defined in DICOM PS3.4.

4.2.3.3.1.3 SOP specific Conformance for SOP classes

The ***syngo*.via View&*GO*** checks for the following status codes in the Query SCP's C-FIND-Response:

Table 15: DICOM Command Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Failure	e.g. Out of Resources; Cancellation; Identifier does not match SOP Class; Unable to process	Any none null Code	User does not get notified. Job is continued till the end. Error is logged in the system log.
Pending	All optional keys are supported the same manner as Required Keys.	FF00	Pending state is indicated to user
	Matching Operation continues; some of the optional keys were not supported the same way as the required keys	FF01	Pending state is indicated to user
Success	Query has been performed successfully.	0000	Success reported to user

Table 16: below indicates the behavior if exceptions occur:

Table 16: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	User does not get notified. Job is continued till the end. Error is logged in the system log.
Association Aborted	User does not get notified. Job is continued till the end. Error is logged in the system log.

The ***syngo*.via View&*GO*** supports the following query levels:

- Study
- Series

Matching Keys on Instance Level are not supported by the ***syngo*.via View&*GO*** as SCU.

The following table lists the various attributes at Study and Series level, which can be used for hierarchical queries as well as return values for display. The display capabilities are highly configurable and “yes” indicates that it is possible to configure display of the data:

Table 17: Attributes supported for Study/Series Query - SCU

Attribute Name	Tag	Type	User input	UI
Study Level				
Patient's Name	(0010,0010)	O	enter value	Yes
Patient ID	(0010,0020)	O	enter value	Yes
Issuer of Patient ID	(0010,0021)	O	enter value	Yes
Patient’s Birth Date	(0010,0030)	O	enter value	Yes
Patient's Birth Time	(0010,0032)	O	enter value	Yes
Patient’s Sex	(0010,0040)	O	enter value	Yes
Accession Number	(0008,0050)	O	enter value	Yes
Study ID	(0020,0010)	O	enter value	Yes
Study Instance UID	(0020,000D)	U	enter value	Yes
Study Date	(0008,0020)	O	enter value	Yes
Study Time	(0008,0030)	O	enter value	Yes
Referring Physician' s Name	(0008,0090)	O	enter value	Yes
Study Description	(0008,1030)	O	enter value	Yes
Number of Study related Instances	(0020,1208)	O	-	Yes
Modalities in Study	(0008,0061)	O	enter value	Yes
Number of Study Related Series	(0020,1206)	O	-	Yes
Series Level				
Modality	(0008,0060)	O	enter value	Yes
Series Date	(0008,0021)	O	enter value	Yes
Series Timef	(0008,0031)	O	enter value	Yes
Number of Series related Instances	(0020,1209)	O	-	Yes
Series Number	(0020,0011)	O	enter value	Yes
Series Description	(0008,103E)	O	enter value	Yes
Request Attributes Sequence \ Requested Procedure ID	(0040,0275) \ (0040,1001)	O	enter value	Yes
Request Attributes Sequence \ Scheduled Procedure Step ID	(0040,0275) \ (0040,0009)	O	enter value	Yes
Performed Procedure Step Start Date	(0040,0244)	O	enter value	Yes
Performed Procedure Step Start Time	(0040,0245)	O	enter value	Yes
Series Instance UID	(0020,000E)	U	-	Yes

Legend:

U Unique Key Attribute
R Required Key Attribute
O Optional Key Attribute

4.2.3.3.2 Activity "Retrieve Instances from a Remote Node"

4.2.3.3.2.1 Description and Sequencing of Activities

The ***syngo*.via View&*GO*** serves as a SCU for the following SOP Classes

- Patient Root Q/R Information Model - MOVE SOP Class
- Study Root Q/R Information Model – MOVE SOP Class
- Patient/Study only Q/R Information Model – MOVE SOP Class.

The C-MOVE-Request is used to retrieve the selected imaging objects. The Retrieve AE supports the query model Patient Root, Study Root, Patient/Study Root.

4.2.3.3.2.2 Proposed Presentation Contexts

The ***syngo*.via View&*GO*** proposes Presentation Contexts shown in the following table:

Table 18: Proposed Presentation Contexts for Retrieve and Activity "MOVE SCU"

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	**UID**	**Name List**	**UID List**		
Patient Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Study Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Patient/Study Root Query/Retrieve Model - MOVE	1.2.840.10008.5.1.4.1.2.2.3	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

4.2.3.3.2.3 SOP Specific Conformance Statement for Move SCU Classes

The behavior of ***syngo*.via View&*GO*** when encountering status codes in a C-MOVE response is summarized in Table 19

Table 19: DICOM Command Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Error	e.g. Out of Resources; Cancellation; Identifier does not match SOP Class; Unable to process; Move destination unknown	Any none null Code	User does not get notified. Job is continued till the end. Error is logged in the system log.
Pending	Move Operation continues	FF00	Operation continues in background
Success	Move has been performed successfully.	0000	Success reported to user

Table 20 below indicates the behavior if exceptions occur:

Table 20: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	User does not get notified. Job is continued till the end. Error is logged in the system log.
Association Aborted	User does not get notified. Job is continued till the end. Error is logged in the system log.

4.2.4 Print Service Specification

4.2.4.1 SOP Classes

The Print AE provides Standard Conformance to the SOP Classes listed in Table 1: Network Services, section “Print Management" in the “Conformance Statement Overview”.

4.2.4.2 Association Policy

Table 21: Association Policies

Application Context Name	1.2.840.10008.3.1.1.1
PDU size	32 kB [1]
Maximum number of simultaneous associations as an association acceptor	6[1]
Maximum number of simultaneous associations as an association initiator	unlimited

The ***syngo*.via View&*GO*** contains a limitation of 512 kB for the maximum PDU size. By default, the maximum PDU size is set to 32kB.

The maximum number of simultaneous receiving associations (SCP) is configurable at run time, based on the system resources available. By default, the maximum number of associations is set to 6.

There is no inherent limit to the number of outgoing associations (SCU), other than limits imposed by the computer operating system.

4.2.4.2.1 Asynchronous Nature

The **syngo.via View&GO** supports asynchronous communication (multiple outstanding transactions over a single association). On the SCU side the Window size proposed is infinite. On the SCP Side any non-infinite maximum size will be accepted.

Table 22: Asynchronous Nature as an Association Initiator

Maximum number of outstanding asynchronous transactions	Infinite

4.2.4.2.2 Implementation Identifying Information

For Implementation Identifying Information please refer to “Table 3: Implementation Identifying Information” in the “Conformance Statement Overview”.

[1] Default, the value is configurable

4.2.4.3 Association Initiation Policy

4.2.4.3.1 Activity "Print Film"

4.2.4.3.1.1 Description and Sequencing of Activities

Whenever a film-sheet is prepared by the user, it is forwarded to the Printer Job queue. As soon as the associated Printer device is available the job is activated, and an association is established.
After he film sheet is internally processed, converted to a Standard/1,1 layout and the page image is sent to the printer, the status is controlled by awaiting any N-EVENT-REPORT message throughout the transfer until the last image or film-sheet is sent. If the response from the remote application contains a status other than Success or Warning the printing is stopped and the job status is set to Aborted.

4.2.4.3.1.2 Proposed Presentation Contexts

The ***syngo*.via View&*GO*** will propose Presentation Contexts as shown in the following table:

Table 23: Proposed Presentation Contexts for Print

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	**UID**	**Name List**	**UID List**		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No
Print Job SOP Class	1.2.840.10008.5.1.1.14	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No
Basic Color Image Box SOP Class	1.2.840.10008.5.1.1.4.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No

4.2.4.3.1.3 SOP specific Conformance for SOP classes

The ***syngo*.via View&*GO*** Print SCU conforms to the DICOM Basic Grayscale Print Management Meta SOP Class and the Basic Color Print Management Meta SOP Class.
The application uses a configuration platform to define the properties of the connected DICOM SCP, e.g.:

- supported film sizes of the connected DICOM SCP
- supported film formats of the DICOM SCP

The printing is only suspended in the case of a failure return status of the SCP.
The command communication failure behavior for the following subchapters is identical. Therefore, it has been put as only one table to this position:

Table 24: below indicates the behavior if exceptions occur:

Table 24: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	Failure reported to user (Timeout configurable; default 30s)
Association Aborted	Failure reported to user

Basic Film Session SOP Class

The Basic Film Session information object definition describes all the user-defined parameters, which are common for all the films of a film session. The Basic Film Session refers to one or more Basic Film Boxes that are printed on one hardcopy printer.
The ***syngo*.via View&*GO*** Print Management SCU supports the following DIMSE Service elements for the Basic Film Session SOP Class as SCU:

- N-CREATE
- N-DELETE

The Basic Film Session SOP Class N-CREATE-RQ (SCU) uses the attributes listed in the table below:

Table 25: Attributes for the N-CREATE-RQ of the Basic Film Session

Attribute Name	Tag	Usage SCU	Supported Values
Number of Copies	(2000,0010)	U	1
Medium Type	(2000,0030)	U	BLUE FILM
			CLEAR FILM
			PAPER
			MAMMO BLUE FILM
			MAMMO CLEAR FILM

The Affected SOP Instance UID received with N-CREATE-RSP message will be kept internally and used for later requests (e.g., N-DELETE-RQ) on the Basic Film Session.
The Basic Film Session SOP class interprets the status codes (from N-CREATE-RSP messages) listed in the table below:

Table 26: N-CREATE-RSP Status Handling Behavior for the Basic Film Session

Service Status	Further Meaning	Error Code	Behavior
Warning	Memory Allocation not supported	B600	Print job continues, warning is logged
Success	Film session successfully created	0000	Print job continues

The N-DELETE-RQ on the Basic Film Session SOP Class is used to remove the complete Basic Film Session SOP Instance hierarchy.

Basic Film Box SOP Class

The Basic Film Box information object definition describes all user-defined parameters of one film of the film session including presentation parameters, which are common for all images on a given film sheet.

The Basic Film Box refers to one or more Image Boxes.
The ***syngo*.via View&*GO*** Print Management SCU supports the following DIMSE Service elements for the Basic Film Box SOP Class as SCU:

- N-CREATE
- N-ACTION
- N-DELETE

The Basic Film Box SOP Class N-CREATE-RQ message uses the attributes listed below. The actual values for each attribute depend on DICOM printer configuration within the ***syngo*.via View&*GO*** DICOM Print Management SCU:

Table 27: Attributes for the N-CREATE-RQ of the Basic Film Session

Attribute Name	Tag	Usage SCU	Supported Values
Image Display Format	(2010,0010)	M	STANDARD\1,1
Referenced Film Session Sequence	(2010,0500)	M	
> Referenced SOP Class UID	(0008,1150)	M	1.2.840.10008.5.1.1.1
> Referenced SOP Instance UID	(0008,1155)	M	
Film Orientation	(2010,0040)	M	PORTRAIT, LANDSCAPE
Film Size ID	(2010,0050)	M	8INX10IN, 10INX12IN, 10INX14IN, 11INX14IN,, 14INX14IN, 14INX17IN, 24CMX24CM, 24CMX30CM
Magnification Type	(2010,0060)	M	BILINEAR, CUBIC, NONE, REPLICATE
Border Density	(2010,0100)	U	BLACK, WHITE
Max Density	(2010,0130)	U	0 < Value
Min Density	(2010,0120)	U	0 < Value < 50
Required if Presentation LUT is present			
Reflective Ambient Light	(2010,0160)	U	0 < Value
Illumination	(2010,015E)	U	0 < Value
Referenced Presentation LUT Sequence	(2050,0500)	U	

For Page Mode printing, the Image Display format used is Standard\1,1.
The N-CREATE-RSP message from the Print SCP includes the Referenced Image Box Sequence with SOP Class/Instance UID pairs which will be kept internally to be further used for the subsequent Basic Image Box SOP Class N-SET-RQ messages.
When all Image Boxes (including parameters) for the film-sheet have been set, the ***syngo*.via View&*GO*** print manager will issue an N-ACTION-RQ message with the SOP Instance UID of the Basic Film Box and the Action Type ID of 1.
The affected SOP Instance UID received with N-CREATE-RSP message will be kept internally and used for later requests (e.g., N-DELETE-RQ) on the Basic Film Box.

The Basic Film Box SOP class interprets the status codes listed in the tables below:

Table 28: N-CREATE-RSP Status Handling Behavior for Basic Film Box

Service Status	Further Meaning	Error Code	Behavior
Failure	There is an existing Film Box that has not been printed and N-ACTION at the Film Session level is not supported. A new Film Box will not be created when a previous Film Box has not been printed	C616	Print job is marked as failed and the reason is logged
Warning	Requested Min Density or Max Density outside of printer's operating range. The printer will use its respective minimum or maximum density value instead	B605	Print job continues and warning is logged
Success	Film Box successfully created	0000	Print job continues

Table 29: N-ACTION-RSP Status Handling Behavior for Basic Film Box

Service Status	Further Meaning	Error Code	Behavior
Failure	Unable to create print job, print queue is full	C602	Print job is marked as failed and the reason is logged
	Image size is larger than images box size	C603	Print job is marked as failed and the reason is logged
	Combined Print Image size is larger than the Image Box size	C613	Print job is marked as failed and the reason is logged
Warning	Film box does not contain image box (empty page)	B603	Print job continues and warning is logged
	Image size is larger than image box size, the image has been demagnified	B604	Print job continues and warning is logged
	Image size is larger than the Image Box size. The Image has been cropped to fit.	B609	Print job continues and warning is logged
	Image size or Combined Print Image size is larger than the Image Box size. Image or Combined Print Image has been decimated to fit.	B60A	Print job continues and warning is logged
Success	Film accepted for printing	0000	Print job continues

Basic Grayscale Image Box SOP Class

The Basic Grayscale Image Box information object definition is the presentation of an image and image related data in the image area of a film. The Basic Image Box information describes the presentation parameters and image pixel data, which apply to a single image of a sheet of film.

The Grayscale Image Box SOP Class uses only the N-SET-RQ with the attributes listed in the table below:

Table 30: Attributes for N-SET-RQ of Basic Grayscale Image Box

Attribute Name	Tag	Usage SCU	Supported Values
Image Position	(2020,0010)	M	1
Basic Grayscale Image Sequence	(2020,0110)	M	
> Samples per Pixel	(0028,0002)	M	1
> Photometric Interpretation	(0028,0004)	M	MONOCHROME2
> Rows	(0028,0010)	M	
> Columns	(0028,0011)	M	
> Pixel Aspect Ratio	(0028,0034)	M	
> Bits Allocated	(0028,0100)	M	8,16
> Bits Stored	(0028,0101)	M	8,12
> High Bit	(0028,0102)	M	7,11
> Pixel Representation	(0028,0103)	M	0
> Pixel Data	(7FE0,0010)	M	

The Basic Grayscale Image Box SOP class interprets the status codes as listed below:

Table 31: N-SET-RSP Status Handling Behavior for the Basic Grayscale Image Box SOP Class

Service Status	Further Meaning	Error Code	Behavior
Failure	Image contains more pixel than printer can print in Image Box	C603	Print job is marked as failed and the reason is logged
	Insufficient memory in printer to store the image	C605	Print job is marked as failed and the reason is logged
	Combined Print Image size is larger than the Image Box size	C613	Print job is marked as failed and the reason is logged
Warning	Image size is larger than image box size, the image has been demagnified.	B604	Print job continues and the reason is logged
	Requested MinDensity or MaxDensity outside of Printer's operating range	B605	Print job continues and the reason is logged
	Image size is larger than the Image Box size. The Image has been cropped to fit.	B609	Print job continues and warning is logged
	Image size or Combined Print Image size is larger than the Image Box size. Image or Combined Print Image has been decimated to fit.	B60A	Print job continues and warning is logged
Success	Image successfully stored in Image Box	0000	Print job continues

Basic Color Image Box SOP Class

The Basic Color Image Box information object definition is the presentation of an image and image related data in the image area of a film. The Basic Image Box information describes the presentation parameters and image pixel data, which apply to a single image of a sheet of film.

The Color Image Box SOP Class uses only the N-SET-RQ with the attributes listed below:

Table 32: Attributes for N-SET-RQ of Basic Color Image Box

Attribute Name	Tag	Usage SCU	Supported Values
Image Position	(2020,0010)	M	1
BASIC Color Image Sequence	(2020,0111)	M	
> Samples per Pixel	(0028,0002)	M	3
> Photometric Interpretation	(0028,0004)	M	RGB
> Planar Configuration	(0028,0006)	M	0
> Rows	(0028,0010)	M	
> Columns	(0028,0011)	M	
> Pixel Aspect Ratio	(0028,0034)	M	
> Bits Allocated	(0028,0100)	M	8
> Bits Stored	(0028,0101)	M	8
> High Bit	(0028,0102)	M	7
> Pixel Representation	(0028,0103)	M	0
> Pixel Data	(7FE0,0010)	M	

The Color Image Box SOP class interprets the status codes listed below:

Table 33: DICOM Command Response Status Handling Behavior for Basic Color Image Box SOP Class

Service Status	Further Meaning	Error Code	Behavior
Failure	Image contains more pixel than printer can print in Image Box	C603	Print job is marked as failed and the reason is logged
	Insufficient memory in printer to store the image	C605	Print job is marked as failed and the reason is logged
	Combined Print Image size is larger than the Image Box size	C613	Print job is marked as failed and the reason is logged
Warning	Image size larger than image box size	B604	Print job continues and the reason is logged
	Image size is larger than the Image Box size. The Image has been cropped to fit.	B609	Print job continues and warning is logged
	Image size or Combined Print Image size is larger than the Image Box size. Image or Combined Print Image has been decimated to fit.	B60A	Print job continues and warning is logged
Success	Image successfully stored in Image Box	0000	Print job continues

Presentation LUT SOP Class

The objective of the Presentation LUT is to realize image hardcopy printing tailored for specific modalities, applications, and user preferences.

The output of the Presentation LUT is Presentation Values (P-Values). P-Values are approximately related to human perceptual response. They are intended to facilitate common input for hardcopy. P-Values are intended to be independent of the specific class or characteristics of the hardcopy device.
The ***syngo*.via View&*GO*** Print Management SCU supports the following DIMSE Service elements for the Basic Film Session SOP Class as SCU:

- N-CREATE
- N-DELETE

The Presentation LUT SOP Class uses only the N-CREATE-RQ with the attributes listed below:

Table 34: Attributes for N-CREATE-RQ of Presentation LUT SOP Class

Attribute Name	Tag	Usage SCU	Supported Values
Presentation LUT Shape	(2050,0020)	U	IDENTITY

The affected SOP Instance UID received with N-CREATE-RSP message will be kept internally and is used for later requests on the Basic Film Box (N-CREATE-RQ) and on the Presentation LUT (N-DELETE-RQ).
The Presentation LUT SOP class interprets the status codes listed below:

Table 35: N-CREATE-RSP Status Handling Behavior for the Presentation LUT SOP Class

Service Status	Further Meaning	Error Code	Behavior
Warning	Requested MinDensity or MaxDensity outside of HCD's operating range. HCD will use its respective minimum or maximum density value instead.	B605	Print job continues and the reason is logged
Success	Presentation LUT successfully created	0000	Print job continues

Printer SOP Class
The Printer SOP Class provides the possibility to monitor the status of the hardcopy printer in a synchronous and in an asynchronous way.
The SCU uses the mandatory N-EVENT-REPORT DIMSE service to monitor the changes of the printer status in an asynchronous way.
It can directly ask the Printer (SCP) for its status or receive Events from the Printer asynchronously:

- N-GET as SCU
- N-EVENT-REPORT as SCU

In both cases the information listed in the two following tables is supported:

Table 36: Used Printer N-EVENT-REPORT-RQ attributes

Event-type Name	Event	Attributes	Tag	Usage SCU
Normal	1	-	-	-
Warning	2	Printer Status Info	(2110,0020)	U
Failure	3	Printer Status Info	(2110,0020)	U

Table 37: Used Printer N-GET-RSP attributes

Attribute Name	Tag	Usage SCU	Supported Values
Printer Status	(2110,0010)	M	NORMAL, FAILURE, WARNING
Printer Status Info	(2110,0020)	M	See table in chapter 9.7 for possible values.

The command communication failure behavior listed below applies to all SOP classes used for the “Print Film” activity:

Table 38: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	Failure reported to user (Timeout configurable; default 30s)
Association Aborted	Failure reported to user

Print Job SOP Class

The Print Job SOP Class is the possibility to monitor the execution of the print process.

The ***syngo*.via View&*GO*** DICOM Print Management application supports the optional N-EVENT-REPORT DIMSE Service to receive the changes of the Print Job Status in an asynchronous way. It can receive Events from the Print SCP asynchronously.

Note: The ***syngo*.via View&*GO*** DICOM Print Management application does not support receiving N-EVENT-REPORT requests from the camera during print sessions. Normally this is configurable in the camera. Refer to Table 39 for the N-EVENT-REPORT attributes the ***syngo*.via View&*GO*** DICOM Print Management application can handle.

Attributes that can be handled by the Print AE of the product are listed in the table below.

Table 39: Used Print Job N-EVENT-REPORT attributes

Event-type Name	Event	Attributes	Tag	Usage SCU
Pending	1	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	-- (Print Queue Management SOP Class not supported)
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U
Printing	2	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	-- (Print Queue Management SOP Class not supported)
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U
Done	3	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	-- (Print Queue Management SOP Class not supported)
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U
Failure	4	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	-- (Print Queue Management SOP Class not supported)
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U

4.2.4.4 Association Acceptance Policy

The ***syngo*.via View&*GO*** does not provide the functionality of a SCP of the Print Job SOP Class.

4.3 Network Interfaces

4.3.1 Physical Network Interface

The ***syngo*.via View&*GO*** provides DICOM 3.0 TCP/IP network communication support as defined in Part 8 of the DICOM Standard. The network communication is independent from the physical medium over which TCP/IP executes; it inherits this from the Windows OS system upon which it executes.

4.3.2 Additional Protocols

none

4.3.3 IPv4 and IPv6 Support

IPv4 and IPv6 are supported. Regarding IPv6 please note, that the complete networking infrastructure in the hospital (firewalls, DNS-Servers, …) must support IPv6 to get a functioning communication.

4.4 Configuration

4.4.1 AE Title/Presentation Address Mapping

AE Titles shall be unique within the hospital. A common way to achieve that is to use the hostname as part of the AE Titles. The string can be up to 16 characters and must not contain any extended characters. Only 7-bit ASCII characters (excluding Control Characters) are allowed according to the DICOM Standard.

4.4.1.1 Local AE Titles

The ***syngo*.via View&*GO*** allows to configure AETitles, Ports and Services in any wished way. Default delivery is that all services are using the same AE title and only one port number. In case the connected systems cannot handle this default, the customer service engineer is able to configure for each service its own AE title and Port number.

Table 40: AE Titles

Parameter	Configurable	Default Value
Default AE title	Yes	hostname in uppercase characters; limited to 16 characters
Default Basic Port	Yes	104
Default Secure Port	Yes	2762

4.4.1.2 Remote AE Title/Presentation Address Mapping

4.4.1.2.1 Remote Association Initiators

All relevant remote applications that may setup DICOM associations towards ***syngo*.via View&*GO*** need to be configured in ***syngo*.via View&*GO***, before the association can be established.

The mapping of external AE Titles to TCP/IP addresses and ports is configurable and initially set at the time of installation by Installation Personnel. Changes can later on also be performed by the local system administrator. The Application Entity Titles and supported transfer syntaxes need to be known for configuration.

To enable a fast and efficient configuration possibility Siemens will deliver templates for known configuration examples, so that the behavior (usage of one AE title, default port numbers, supported services) is determined already through the template.

Remote Application Entities can be configured without restarting the process.

4.4.1.2.2 Remote Association Acceptors

For remote applications that shall be able to accept DICOM associations from ***syngo*.via View&*GO***, the following information needs to be available:

- Application Entity Title
- Host Name / IP address on which the remote application service runs
- Port number on which the remote application accepts association requests.

The remote system will be indicated in the UI of ***syngo*.via View&*GO*** with a logical name, that is also entered when configuring the node in the administration UI.

To enable a fast and efficient configuration possibility Siemens will deliver templates for known configuration examples, so that the behavior (usage of one AE title, default port numbers, supported services) is determined already through the template.

Remote Application Entities can be configured without restarting the process.

4.4.1.3 Secure DICOM Communication

The system supports configuring the DICOM communication to use secure channel (TLS) between ***syngo*.via View&*GO*** and configured remote nodes. As a security measure the certificate thumbprint or certificate trust chain of the remote nodes shall be added (pinned) to the ***syngo*.via View&*GO*** system to authorize the incoming connection.

Detailed instructions how to set up secure DICOM communication are available in the Administrator Online Help.

Note: The default DICOM port will change to 2762.

If the certificate of remote node contains Enhanced Key Usage (Extended Key Usage) field, then:

- If the remote node acts as DICOM SCP it shall contain Server Authentication (1.3.6.1.5.5.7.3.1)
- If the remote node acts as a DICOM SCU it shall contain Client Authentication (1.3.6.1.5.5.7.3.2)

Otherwise ***syngo*.via View&*GO*** will not accept the certificate.

4.4.2 Parameters

The next table lists configuration parameters, which are true for all Application Entities.

Table 41: Parameter List

Parameter	Default Value
Timeout waiting for acceptance or rejection Response to an Association Open Request. (Association Negotiation Timeout, Application-Level)	30 seconds
Timeout waiting for a response to an Association release request (Transfer Inactivity Timeout, Application-Level)	30 seconds
General DIMSE level timeout values	30 Seconds
Maximum PDU size	32768 Bytes
TCP/IP Socket Timeout	5 seconds
TCP/IP Send Buffer	65535 Bytes
TCP/IP Receive Buffer	65535 Bytes
Timeout for waiting for a C-MOVE-RSP	1200 s
Number of image collection before saving to database	20
Max matches query limit	100
Max number of parallel receiving associations	6

5 Media Interchange

5.1 Implementation Model

5.1.1 Application Data Flow Diagram

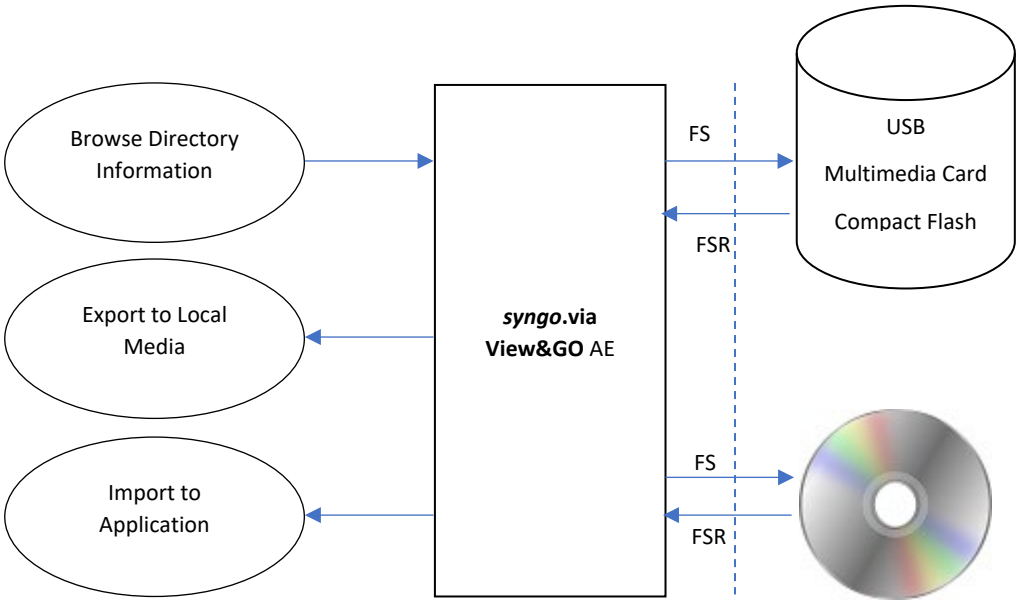


Figure 8: Media Interchange Application Data Flow Diagram

The ***syngo*.via View&*GO*** provides the functionality to Import or Export DICOM Instances from and to the File System. During export, a DICOMDIR may also be generated (user selection). All SOP Classes defined in Table 1: Network Services and Table 43: Transfer Syntaxes for STD-GEN-DVD-J2K, STD-GEN-BD-J2K and STD-GEN-USB-J2K are supported for the Import/Export functionality.

5.1.2 Functional definitions of AEs

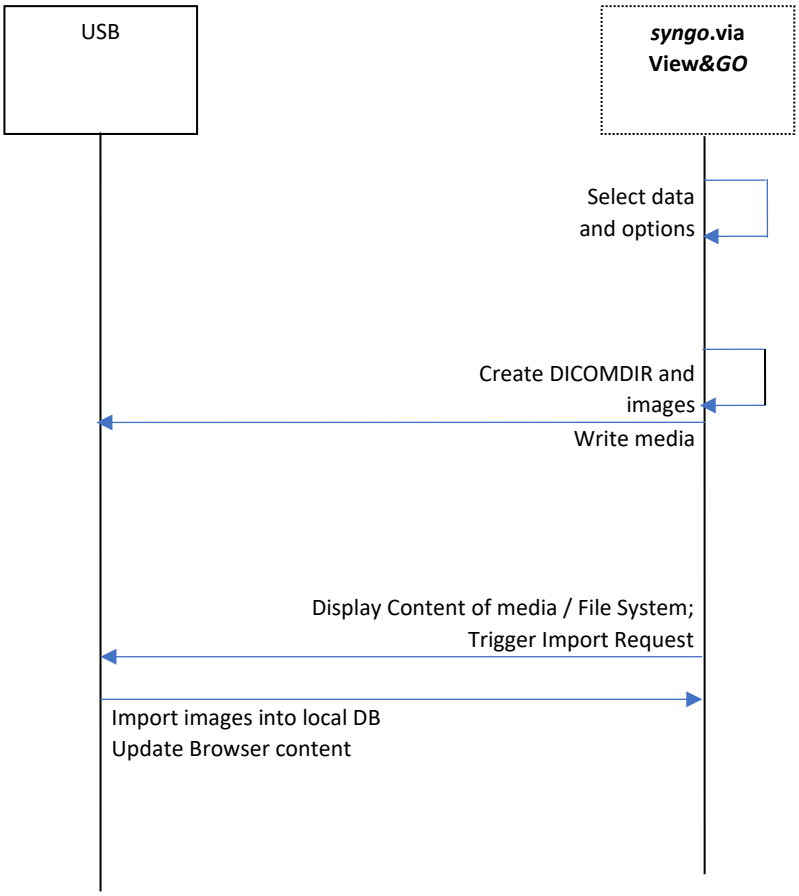
The ***syngo*.via View&*GO*** application is capable of

- creating a new File-set in the File System (Export to ...)
- importing SOP Instances from the medium onto local storage
- writing the File-sets DICOMDIR information into the file system.

5.1.3 Sequencing of Real-World Activities

Whenever data is written to an external media, ***syngo*.via View&*GO*** creates a DICOMDIR may be created for the selected data.

Figure 9: Sequence diagram – Media creation



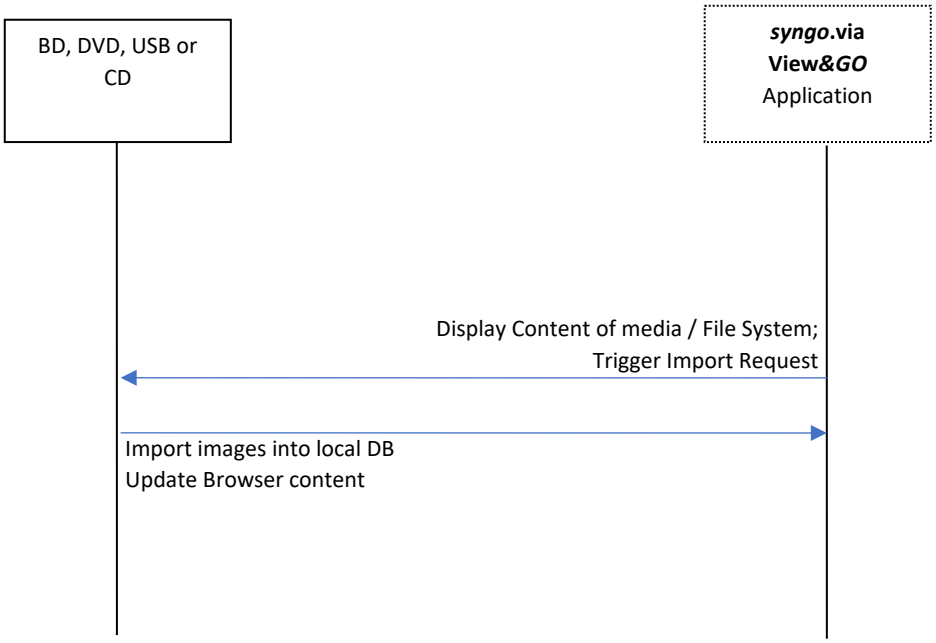


Figure 10: Sequence diagram – Media Import

5.1.4 File Meta Information for Implementation Class and Version

This section describes the values assigned to the File Meta Information attributes (see part PS 3.10) that pertain to the Implementation Class and Version. The implementation Class UID and the Implementation Version name in the File Meta Header are the same as the values specified for networking.

Table 42: Implementation Class/Version Name - Media Interchange

File Meta Information Version	0001
Implementation Class UID	1.3.12.2.1107.5.8.20
Implementation Version Name	**syngo.via.ViewAndGO**

5.2 AE SPECIFICATIONS

5.2.1 Media Storage AE – Specification

The ***syngo*.via View&*GO*** provides conformance to the following Application Profiles as an FSR. FSC and FSU are supported only on a non-optical storage device (e.g. USB stick).

In addition augmented conformance is provided to store extra data objects important for the full feature support of the syngo®-based products. Details are listed in Table 2: Media Services.

5.2.1.1 Real-World Activities

5.2.1.1.1 Activity "Browse Directory Information"

The ***syngo*.via View&*GO*** acts as FSR using the interchange option when requested to read the media directory.

The ***syngo*.via View&*GO*** will read the DICOMDIR and insert those directory entries that are valid for the application profiles supported, into a local database. The database then is used for browsing media contents.

Note: The "Icon Image Sequence" is also supported in DICOMDIR. But only those Icon Images with "Bits Allocated" (0028,0100) equal to 8 and size of 64x64 or 128x128 pixels are imported into database and are visible in the Browser.

5.2.1.1.1.1 Media Storage Application Profiles

See Table 2: Media Services for the Application Profiles listed that invoke this Application Entity for the Browse Directory Information

5.2.1.1.2 Real World Activity "Import into Application"

The ***syngo*.via View&*GO*** application acts as FSR using the interchange option when requested to read SOP Instances from the medium into the application.

The SOP Instance selected from the media directory will be copied into the running Application. Only SOP Instances, that are valid for the application profile supported and supported by ***syngo*.via View&*GO*** can be retrieved from media.

5.2.1.1.2.1 Media Storage Application Profiles

See Table 2: Media Services for the Application Profiles listed that invoke this Application Entity for the Browse Directory Information

5.2.1.2 SOP Classes and Transfer Syntaxes

These Application Profiles are based on the Media Storage Service Class with the Interchange Option. The ***syngo*.via View&*GO*** provides Standard Conformance to the the SOP Classes listed in Table 1: Network Services, section "SOP Classes Created by the ***syngo*.via View&*GO***" and "SOP Classes Managed by the ***syngo*.via View&*GO***" in the "Conformance Statement Overview".
In the table below (Table 43) the Transfer Syntax UID "RLE Lossless "only applies for decompression.
Using the Application Profiles supporting compression (STD-GEN-DVD-J2K, STD-GEN-USB-J2K, STD-GEN-BD-J2K) the following Transfer Syntaxes are supported:

Table 43: Transfer Syntaxes for STD-GEN-DVD-J2K, STD-GEN-BD-J2K and STD-GEN-USB-J2K

UID value	Transfer Syntax	Image Objects	Non-Image Objects
1.2.840.10008.1.2.1	Explicit Value Representation Little Endian native	Yes	Yes
1.2.840.10008.1.2.4.50	JPEG Baseline (Process 1) lossy compressed	Yes	No
1.2.840.10008.1.2.4.51	JPEG Extended (Process 2 & 4) lossy compressed	Yes	No
1.2.840.10008.1.2.4.70	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14) lossless compressed	Yes	No
1.2.840.10008.1.2.4.90	JPEG 2000 Image Compression (Lossless Only) compressed	Yes	No
1.2.840.10008.1.2.4.91	JPEG 2000 Image Compression lossy compressed	Yes	No
1.2.840.10008.1.2.5	RLE Lossless compressed	Yes	No

Using the Application Profiles that do not support compression (STD-GEN-CD, STD-GEN-DVD) only Explicit Value Representation Little Endian (1.2.840.10008.1.2.1) is supported.

5.3 AUGMENTED AND PRIVATE APPLICATION PROFILES

5.3.1 Augmented Application Profiles

The standard application profiles are augmented with private object Siemens CSA Non-Image.

Table 44: Private SOP Classes and Transfer Syntaxes for Augmented Media Profiles

Information Object Definition	SOP Class UID	Transfer Syntax UID	FSC	FSR
CSA Non-Image Storage	1.3.12.2.1107.5.9.1	Explicit VR Little Endian Uncompressed 1.2.840.10008.1.2.1	O	M

The Siemens non-image is typically used for raw data and 3D private data.

5.4 MEDIA CONFIGURATION

none

6 Support of Extended Character Sets

The **syngo.via View&GO** DICOM application supports the following character sets as defined in the four tables below:

Table 45: Single-Byte Character Sets without Code Extension

Defined Term	IANA	Description
Single-Byte Character Sets without Code Extensions		
None / ISO_IR 6[1)]	ISO-646	Default Repertoire
ISO_IR 100	ISO-8859-1	Latin Alphabet No. 1 (West European)
ISO_IR 101	ISO-8859-2	Latin Alphabet No. 2 (Central European)
ISO_IR 109	ISO-8859-3	Latin Alphabet No. 3 (South European)
ISO_IR 110	ISO-8859-4	Latin Alphabet No. 4 (North European)
ISO_IR 144	ISO-8859-5	Cyrillic
ISO_IR 127	ISO-8859-6	Arabic
ISO_IR 126	ISO-8859-7	Greek
ISO_IR 138	ISO-8859-8	Hebrew
ISO_IR 148	ISO-8859-9	Turkish
ISO_IR 13	JIS_X0201	Japanese (half-width Katakana)
ISO_IR 166	ISO-8859-11	Thai
Single-Byte Character Sets with Code Extension		
ISO 2022 IR 6		Default repertoire
ISO 2022 IR 100		Latin Alphabet No. 1 (West European)
ISO 2022 IR 101		Latin Alphabet No. 2 (Central European)
ISO 2022 IR 109		Latin Alphabet No. 3 (South European)
ISO 2022 IR 110		Latin Alphabet No. 4 (North European)
Multi-Byte Character Sets without Code Extensions		
GB18030	GB18030	GB18030-2000 (P.R China Norm GB18030)
ISO_IR 192	UTF-8	Unicode in UTF-8
Multi-Byte Character Sets with Code Extensions		
ISO 2022 IR 87	ISO-2022-JP	Japanese (full-width Katakana, Hiragana and Kanji)
ISO 2022 IR 149	ISO-2022-KR	Korean (Hangul and Hanja)

The ***syngo*.via View&*GO*** does support GB18030:2022

All Special Character Sets (SCS) listed above are supported for incoming Data. When creating new Instances, the system will use the default SCS (or SCS List) configured on the machine.

When there is a mismatch between the given character set in attribute (0008,0005) and the characters in an IOD received by the system, then the following measures are taken to make the characters DICOM conform:

- Convert each illegal character to '?'

There are three categories of character sets which have to be differentiated because of their different encoding formats:

- Conventional ISO character sets: ISO_IR 6, ISO 2022 IR 6, ISO_IR 100, etc.
  → encoded in ISO 2022
- ISO_IR 192 → encoded in UTF-8
- GB18030 → encoded in GB18030

It is not possible to recognize the following mismatches automatically on receiving or importing:

- An attribute value is encoded in ISO_IR 192 ←→ (0008,0005) contains a conventional ISO character set as primary character set
- An attribute value is encoded in GB18030 ←→ (0008,0005) contains a conventional ISO character set as primary character set
- An attribute value is encoded in ISO 2022 ←→ (0008,0005) contains ISO_IR 192
- An attribute value is encoded in ISO 2022 ←→ (0008,0005) contains GB18030

An IOD that contains one of the above mentioned inconsistencies is not DICOM conform. As these kinds of inconsistencies cannot be recognized by the system, the IOD will not be rejected but the character data might be corrupted.

The ***syngo*.via View&*GO*** supports Kanji characters in the byte zones after 74 (79, 7A, 7B and 7C).

7 Attribute confidentiality profiles

7.1 De-identification

The ***syngo*.via View&*GO*** application can de-identify attributes. During export to file system it is the user responsibility to select anonymization.

For anonymization private attributes are not included in anonymized Studies.

The following table contains the attributes that are anonymized:

Table 46: Application Level Confidentiality Profile attributes (standard tags)

DICOM Tag	Attribute Name
(0000,1000)	Affected SOP Instance UID
(0000,1001)	Requested SOP Instance UID
(0002,0003)	Media Storage SOP Instance UID
(0004,1511)	Referenced SOP Instance UID in File
(0008,0014)	Instance Creator UID
(0008,0015)	Instance Coercion DateTime
(0008,0018)	SOP Instance UID
(0008,0020)	Study Date
(0008,0021)	Series Date
(0008,0022)	Acquisition Date
(0008,0023)	Content Date
(0008,0024)	Overlay Date
(0008,0025)	Curve Date
(0008,002A)	Acquisition DateTime
(0008,0030)	Study Time
(0008,0031)	Series Time
(0008,0032)	Acquisition Time
(0008,0033)	Content Time
(0008,0034)	Overlay Time
(0008,0035)	Curve Time
(0008,0050)	Accession Number
(0008,0058)	Failed SOP Instance UID List
(0008,0080)	Institution Name
(0008,0081)	Institution Address
(0008,0082)	Institution Code Sequence
(0008,0090)	Referring Physician's Name
(0008,0092)	Referring Physician's Address
(0008,0094)	Referring Physician's Telephone Numbers
(0008,0096)	Referring Physician's Identification Sequence

DICOM Tag	Attribute Name
(0008,010D)	Context Group Extension Creator UID
(0008,0201)	Timezone Offset From UTC
(0008,1010)	Station Name
(0008,1030)	Study Description
(0008,103E)	Series Description
(0008,1040)	Institutional Department Name
(0008,1048)	Physician(s) of Record
(0008,1049)	Physician(s) of Record Identification Sequence
(0008,1050)	Performing Physicians' Name
(0008,1052)	Performing Physicians' Identification Sequence
(0008,1060)	Name of Physician(s) Reading Study
(0008,1062)	Physician Reading Study Identification Sequence
(0008,1070)	Operators' Name
(0008,1072)	Operators' Identification Sequence
(0008,1080)	Admitting Diagnoses Description
(0008,1084)	Admitting Diagnoses Code Sequence
(0008,1110)	Referenced Study Sequence
(0008,1111)	Referenced Performed Procedure Step Sequence
(0008,1120)	Referenced Patient Sequence
(0008,1140)	Referenced Image Sequence
(0008,1155)	Referenced SOP Instance UID
(0008,1195)	Transaction UID
(0008,2111)	Derivation Description
(0008,2112)	Source Image Sequence
(0008,3010)	Irradiation Event UID
(0008,4000)	Identifying Comments
(0008,9123)	Creator Version UID
(0010,0010)	Patient's Name
(0010,0020)	Patient ID
(0010,0021)	Issuer of Patient ID
(0010,0030)	Patient's Birth Date
(0010,0032)	Patient's Birth Time
(0010,0040)	Patient's Sex
(0010,0050)	Patient's Insurance Plan Code Sequence
(0010,0101)	Patient's Primary Language Code Sequence
(0010,0102)	Patient's Primary Language Modifier Code Sequence
(0010,1000)	Other Patient IDs

DICOM Tag	Attribute Name
(0010,1001)	Other Patient Names
(0010,1002)	Other Patient IDs Sequence
(0010,1005)	Patient's Birth Name
(0010,1010)	Patient's Age
(0010,1020)	Patient's Size
(0010,1030)	Patient's Weight
(0010,1040)	Patient Address
(0010,1050)	Insurance Plan Identification
(0010,1060)	Patient's Mother's Birth Name
(0010,1080)	Military Rank
(0010,1081)	Branch of Service
(0010,1090)	Medical Record Locator
(0010,1100)	Referenced Patient Photo Sequence
(0010,2000)	Medical Alerts
(0010,2110)	Allergies
(0010,2150)	Country of Residence
(0010,2152)	Region of Residence
(0010,2154)	Patient's Telephone Number
(0010,2160)	Ethnic Group
(0010,2180)	Occupation
(0010,21A0)	Smoking Status
(0010,21B0)	Additional Patient's History
(0010,21C0)	Pregnancy Status
(0010,21D0)	Last Menstrual Date
(0010,21F0)	Patient's Religious Preference
(0010,2203)	Patient Sex Neutered
(0010,2297)	Responsible Person
(0010,2299)	Responsible Organization
(0010,4000)	Patient Comments
(0018,0010)	Contrast Bolus Agent
(0018,1002)	Device UID
(0018,1004)	Plate ID
(0018,1005)	Generator ID
(0018,1007)	Cassette ID
(0018,1008)	Gantry ID
(0018,1030)	Protocol Name
(0018,1400)	Acquisition Device Processing Description

DICOM Tag	Attribute Name
(0018,2042)	Target UID
(0018,4000)	Acquisition Comments
(0018,700A)	Detector ID
(0018,9424)	Acquisition Protocol Description
(0018,9516)	Start Acquisition DateTime
(0018,9517)	End Acquisition DateTime
(0018,A003)	Contribution Description
(0020,000D)	Study Instance UID
(0020,000E)	Series Instance UID
(0020,0010)	Study ID
(0020,0052)	Frame of Reference UID
(0020,0200)	Synchronization Frame of Reference UID
(0020,3401)	Modifying Device ID
(0020,3404)	Modifying Device Manufacturer
(0020,3406)	Modified Image Description
(0020,4000)	Image Comments
(0020,9158)	Frame Comments
(0020,9161)	Concatenation UID
(0020,9164)	Dimension Organization UID
(0028,1199)	Palette Color Lookup Table UID
(0028,1214)	Large Palette Color Lookup Table UID
(0028,4000)	Image Presentation Comments
(0032,0012)	Study ID Issuer
(0032,1020)	Scheduled Study Location
(0032,1021)	Scheduled Study Location AE Title
(0032,1030)	Reason for Study
(0032,1032)	Requesting Physician
(0032,1033)	Requesting Service
(0032,1060)	Requested Procedure Description
(0032,1070)	Requested Contrast Agent
(0032,4000)	Study Comments
(0038,0004)	Referenced Patient Alias Sequence
(0038,0010)	Admission ID
(0038,0011)	Issuer of Admission ID
(0038,001E)	Scheduled Patient Institution Residence
(0038,0020)	Admitting Date
(0038,0021)	Admitting Time

DICOM Tag	Attribute Name
(0038,0040)	Discharge Diagnosis Description
(0038,0050)	Special Needs
(0038,0060)	Service Episode ID
(0038,0061)	Issuer of Service Episode ID
(0038,0062)	Service Episode Description
(0038,0300)	Current Patient Location
(0038,0400)	Patient's Institution Residence
(0038,0500)	Patient State
(0038,4000)	Visit Comments
(0040,0001)	Scheduled Station AE Title
(0040,0002)	Scheduled Procedure Step Start Date
(0040,0003)	Scheduled Procedure Step Start Time
(0040,0004)	Scheduled Procedure Step End Date
(0040,0005)	Scheduled Procedure Step End Time
(0040,0006)	Scheduled Performing Physician Name
(0040,0007)	Scheduled Procedure Step Description
(0040,000B)	Scheduled Performing Physician Identification Sequence
(0040,0010)	Scheduled Station Name
(0040,0011)	Scheduled Procedure Step Location
(0040,0012)	Pre-Medication
(0040,0241)	Performed Station AE Title
(0040,0242)	Performed Station Name
(0040,0243)	Performed Location
(0040,0244)	Performed Procedure Step Start Date
(0040,0245)	Performed Procedure Step Start Time
(0040,0250)	Performed Procedure Step End Date
(0040,0251)	Performed Procedure Step End Time
(0040,0253)	Performed Procedure Step ID
(0040,0254)	Performed Procedure Step Description
(0040,0275)	Request Attributes Sequence
(0040,0280)	Comments on Performed Procedure Step
(0040,0555)	Acquisition Context Sequence
(0040,1001)	Requested Procedure ID
(0040,1004)	Patient Transport Arrangements
(0040,1005)	Requested Procedure Location
(0040,1010)	Names of Intended Recipient of Results
(0040,1011)	Intended Recipients of Results Identification Sequence

DICOM Tag	Attribute Name
(0040,1101)	Person Identification Code Sequence
(0040,1102)	Person Address
(0040,1103)	Person Telephone Numbers
(0040,1400)	Requested Procedure Comments
(0040,2001)	Reason for Imaging Service Request
(0040,2008)	Order Entered By
(0040,2009)	Order Enterer Location
(0040,2010)	Order Callback Phone Number
(0040,2016)	Placer Order Number of Imaging Service Request
(0040,2017)	Filler Order Number of Imaging Service Request
(0040,2400)	Imaging Service Request Comments
(0040,3001)	Confidentiality Constraint on Patient Data Description
(0040,4005)	Scheduled Procedure Step Start DateTime
(0040,4010)	Scheduled Procedure Step Modification DateTime
(0040,4011)	Expected Completion Date Time
(0040,4023)	Referenced General Purpose Scheduled Procedure Step Transaction UID
(0040,4025)	Scheduled Station Name Code Sequence
(0040,4027)	Scheduled Station Geographic Location Code Sequence
(0040,4028)	Performed Station Name Code Sequence
(0040,4030)	Performed Station Geographic Location Code Sequence
(0040,4034)	Scheduled Human Performers Sequence
(0040,4035)	Actual Human Performers Sequence
(0040,4036)	Human Performers Organization
(0040,4037)	Human Performers Name
(0040,4050)	Performed Procedure Step Start DateTime
(0040,4051)	Performed Procedure Step End DateTime
(0040,4052)	Procedure Step Cancellation DateTime
(0040,A027)	Verifying Organization
(0040,A073)	Verifying Observer Sequence
(0040,A075)	Verifying Observer Name
(0040,A078)	Author Observer Sequence
(0040,A07A)	Participant Sequence
(0040,A07C)	Custodial Organization Sequence
(0040,A088)	Verifying Observer Identification Code Sequence
(0040,A123)	Person Name
(0040,A124)	UID
(0040,A171)	Observation UID

DICOM Tag	Attribute Name
(0040,A172)	Referenced Observation UID (Trial)
(0040,A192)	Observation Date (Trial)
(0040,A193)	Observation Time (Trial)
(0040,A307)	Current Observer (Trial)
(0040,A352)	Verbal Source (Trial)
(0040,A353)	Address (Trial)
(0040,A354)	Telephone Number (Trial)
(0040,A358)	Verbal Source Identifier Code Sequence (Trial)
(0040,A402)	Observation Subject UID (Trial)
(0040,A730)	Content Sequence
(0040,DB0C)	Template Extension Organization UID
(0040,DB0D)	Template Extension Creator UID
(0070,0001)	Graphic Annotation Sequence
(0070,0086)	Content Creator's Identification Code Sequence
(0070,031A)	Fiducial UID
(0088,0140)	Storage Media Fileset UID
(0088,0200)	Icon Image Sequence
(0088,0904)	Topic Title
(0088,0906)	Topic Subject
(0088,0910)	Topic Author
(0088,0912)	Topic Keywords
(0400,0100)	Digital Signature UID
(0400,0402)	Referenced Digital Signature Sequence
(0400,0403)	Referenced SOP Instance MAC Sequence
(0400,0404)	MAC
(0400,0550)	Modified Attributes Sequence
(0400,0561)	Original Attributes Sequence
(2030,0020)	Text String
(3006,0024)	Referenced Frame of Reference UID
(3006,00C2)	Related Frame of Reference UID
(3008,0105)	Source Serial Number
(300A,0013)	Dose Reference UID
(300E,0008)	Reviewer Name
(4000,0010)	Arbitrary
(4000,4000)	Text Comments
(4008,0042)	Results ID Issuer
(4008,0102)	Interpretation Recorder

DICOM Tag	Attribute Name
(4008,010A)	Interpretation Transcriber
(4008,010B)	Interpretation Text
(4008,010C)	Interpretation Author
(4008,0111)	Interpretation Approver Sequence
(4008,0114)	Physician Approving Interpretation
(4008,0115)	Interpretation Diagnosis Description
(4008,0118)	Results Distribution List Sequence
(4008,0119)	Distribution Name
(4008,011A)	Distribution Address
(4008,0202)	Interpretation ID Issuer
(4008,0300)	Impressions
(4008,4000)	Results Comments
(50xx,xxxx)	Curve Data
(60xx,0100)	Overlay Bits Allocated
(60xx,0102)	Overlay Bit Position
(60xx,3000)	Overlay Data
(60xx,4000)	Overlay Comments
(FFFA,FFFA)	Digital Signatures Sequence
(FFFC,FFFC)	Data Set Trailing Padding

8 Security

8.1 Introduction

The security section describes security features implemented by this product. It includes description of non-DICOM network protocols, information to configure firewalls and application whitelists, list of supported DICOM security profiles as well as Web Security features. Additionally, secured media storage, VPN, etc. are also specified in this security section.

8.2 External Network Requirements

Table 47: describes additional non-DICOM network protocols that are used by syngo.via View&Go.

Table 47: External Network Requirements

Profile	Actor	Transaction	Protocol Used	RFCs	Security Support	Reference
Basic Time Synchronization	NTP Server	Maintain Time	NTP	RFC5905; *<<RFC5906 RFC8633>>*	N	C.1.1
		Find NTP Servers	NTP	RFC5905; *<<RFC5906 RFC8633>>*	N	C.1.1
	NTP Client	Maintain Time	NTP	RFC5905; *<<RFC5906 RFC8633>>*	N	C.1.1
		Find NTP Servers	NTP	RFC5905; *<<RFC5906 RFC8633>>*	N	C.1.1
	SNTP Client	Maintain Time	SNTP	RFC2030	N	C.1.1
	DHCP Server	Find NTP Servers	DHCP	RFC2131; RFC2132; RFC2563	N	C.1.1
	DHCP Client	Find NTP Servers	DHCP	RFC2131; RFC2132; RFC2563	Y	C.1.1
Basic Network Address Management	DHCP Server	Configure DHCP Server	-	-	N	C.1.2
		Find and Use DHCP Server	DHCP	RFC2131; RFC2132; RFC2563	N	C.1.2
		Maintain Lease	DCP	RFC2131; RFC2132	N	C.1.2
		Resolve Hostname	DNS	RFC1035; RFC2181	N	C.1.2
		DDNS Coordination	DNS	RFC2136	N	C.1.2

Profile	Actor	Transaction	Protocol Used	RFCs	Security Support	Reference
	DHCP Client	Find and Use DHCP Server	DHCP	RFC2131; RFC2132; RFC2563	Y	C.1.2
		Maintain Lease	DHCP	RFC2131; RFC2132	Y	C.1.2
	DNS Server	DNS Coordination	DNS	RFC2136; *<<RFC4033 RFC4034 RFC4035>>*	N	C.1.2
		Resolve Hostname	DNS	RFC1035; RFC2181; *<<RFC4033 RFC4034 RFC4035>>*	N	C.1.2
	DNS Client	Resolve Hostname	DNS	RFC1035; RFC2181; *<<RFC4033 RFC4034 RFC4035>>*	Y	C.1.2
Application Configuration Management	LDAP Server	Query LDAP Server	LDAP	RFC2251	N	0
		Update LDAP Server	LDAP	RFC2251	N	0
		Maintain LDAP Server	LDAP	RFC2849	N	0
	LDAP Client	Find LDAP Server	LDAP	RFC2181; RFC2219; RFC2782	Y	0
		Query LDAP Server	LDAP	RFC2251	Y	0
		Update LDAP Server	LDAP	RFC2251	Y	0
	DNS Server	Find LDAP Server	LDAP	RFC2181; RFC2219; RFC2782	N	0
DNS Service Discovery	DNS Server	Find DICOM Service	DNS	RFC2136; RFC2181; RFC2219; RFC2782; RFC6762; RFC6763; RFC8553; *<<RFC4033 RFC4034*	N	C.1.4

Profile	Actor	Transaction	Protocol Used	RFCs	Security Support	Reference
				RFC4035>>		
	DNS Client	Find DICOM Service	DNS	RFC2136; RFC2181; RFC2219; RFC2782; RFC6762; RFC6763; RFC8553; *<<RFC4033 RFC4034 RFC4035>>*	Y	C.1.4

Please do note, that the supported profiles (DHCP, DNS and LDAP) are all supported using the APIs of the Operation System.

8.3 TCP Port Configuration

Firewall rules (inbound and outbound) for the standard DICOM ports 104 and 2762 for secure communication are set up automatically on installation. If any other port is used, the rules must be updated accordingly.

The default secure DICOM port is 2762 (can be reconfigured in the configuration panel).

8.4 DICOM Security Profiles Support

8.4.1 Secure Transport Connection Profiles

Basic TLS Secure Transport Connection Profile supports TLS version 1.2 and 1.3 protocols. Table 48: Secure Transport Connection Profilesdescribes the Secure Transport Connection Profiles supported by the product. Accepted cipher suites are described in the section listed in the “Reference” column.

Table 48: Secure Transport Connection Profiles

Profile	Secured AE	Sender	Receiver	Reference
BCP195 TLS Secure Transport Connection	ALL *	Y	Y	C.2.5
Extended BCP195 TLS Secure Transport Connection	NONE	N	N	C.2.5

8.4.2 Attribute Confidentiality Profiles

De-Identification, as specified in the DICOM Standard, is not supported by syngo.via View&Go. As an alternative the syngo.via View&Go provides a Data Minimization feature, which can only be used in Media Export operations.

Data Minimization (see Chapter Data Minimization) has three profiles: High Privacy, Reduced Privacy and Low Privacy.

Tags, that are not mentioned in the configuration for the Data Minimization profiles (explicitly or using a wildcard-type matching) will be ignored.

8.5 Time synchronization Profiles

Time Synchronization Profiles: The ***syngo*.via View&*GO*** acts as an NTP Client in the Maintain Time Transaction.

8.6 Association Level Security

It is possible to configure whether the SCP will only answer to known AETs or to any AET.

8.7 Application Level Security

syngo.via View&Go does not have user-based login access control. The login control is at the responsibility of the Operating System which is not part of the product. At the Operating System Level:

- User must login with own password
- For configuration and Maintenance, Service Technician must login with a separate password.

8.8 Data Minimization

The syngo.via View&GO application can minimize the data exported to Media. Three different levels of data minimization are supported:

- High Privacy
- Reduced Privacy
- Low Privacy

The user needs to select the appropriate data minimization level during export.

Handling public attributes during data minimization:

- Attributes listed in Table 49: Data Minimization Profiles will be affected by the data minimization as specified for the different levels. Attributes not listed in the table are not PII / PHI relevant and will not be affected by the data minimization. The list of the Tags affected by the above-mentioned Profiles can be modified in runtime by the Service User. Tags can be identified explicitly using the full Tag Number or using a wildcard-type pattern.

Handling private attributes during data minimization:

- Hight Privacy: private attributes are not included.
- Reduced Privacy: private attributes are not included except for the Tags excluded from the Data Minimization (see Table 50: Removal of private DICOM Attributes in the Data Minimization Process). Tags excluded from the Data Minimization will appear in the resulting Data Set.
- Low Privacy: all private attributes are included except for the Tags, which are meant to be included by configuration (see Table 50: Removal of private DICOM Attributes in the Data Minimization Process).

Table 49: Data Minimization Profiles

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0000,1000)	Affected SOP Instance UID	Y	Y	N
(0000,1001)	Requested SOP Instance UID	Y	Y	N
(0002,0003)	Media Storage SOP Instance UID	Y	Y	N
(0004,1511)	Referenced SOP Instance UID in File	Y	Y	N
(0008,0014)	Instance Creator UID	Y	Y	N
(0008,0015)	Instance Coercion DateTime	Y	N	N
(0008,0018)	SOP Instance UID	Y	Y	N
(0008,0020)	Study Date	Y	N	N
(0008,0021)	Series Date	Y	N	N
(0008,0022)	Acquisition Date	Y	N	N
(0008,0023)	Content Date	Y	N	N
(0008,0024)	Overlay Date	Y	N	N

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0008,0025)	Curve Date	Y	N	N
(0008,002A)	Acquisition DateTime	Y	N	N
(0008,0030)	Study Time	Y	N	N
(0008,0031)	Series Time	Y	N	N
(0008,0032)	Acquisition Time	Y	N	N
(0008,0033)	Content Time	Y	N	N
(0008,0034)	Overlay Time	Y	N	N
(0008,0035)	Curve Time	Y	N	N
(0008,0050)	Accession Number	Y	Y	N
(0008,0054)	Retrieve AE Title	Y	Y	N
(0008,0055)	Station AE Title	Y	Y	N
(0008,0058)	Failed SOP Instance UID List	Y	Y	N
(0008,0080)	Institution Name	Y	Y	Y
(0008,0081)	Institution Address	Y	Y	Y
(0008,0082)	Institution Code Sequence	Y	Y	N
(0008,0090)	Referring Physician's Name	Y	Y	Y
(0008,0092)	Referring Physician's Address	Y	Y	Y
(0008,0094)	Referring Physician's Telephone Numbers	Y	Y	Y
(0008,0096)	Referring Physician's Identification Sequence	Y	Y	N
(0008,010D)	Context Group Extension Creator UID	Y	Y	N
(0008,0201)	Time zone Offset From UTC	Y	N	N
(0008,1000)	Network ID	Y	Y	N
(0008,1010)	Station Name	Y	Y	Y
(0008,1030)	Study Description	Y	Y	N
(0008,103E)	Series Description	Y	Y	N
(0008,1040)	Institutional Department Name	Y	Y	Y
(0008,1048)	Physician(s) of Record	Y	Y	Y
(0008,1049)	Physician(s) of Record Identification Sequence	Y	Y	N
(0008,1050)	Performing Physicians' Name	Y	Y	Y
(0008,1052)	Performing Physicians' Identification Sequence	Y	Y	N
(0008,1060)	Name of Physician(s) Reading Study	Y	Y	Y
(0008,1062)	Physician Reading Study Identification Sequence	Y	Y	N
(0008,1070)	Operators' Name	Y	Y	Y
(0008,1072)	Operators' Identification Sequence	Y	Y	N
(0008,1080)	Admitting Diagnoses Description	Y	Y	N
(0008,1084)	Admitting Diagnoses Code Sequence	Y	Y	N
(0008,1110)	Referenced Study Sequence	Y	N	N
(0008,1111)	Referenced Performed Procedure Step Sequence	Y	N	N
(0008,1120)	Referenced Patient Sequence	Y	Y	N
(0008,1140)	Referenced Image Sequence	Y	N	N

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0008,1155)	Referenced SOP Instance UID	Y	Y	N
(0008,1195)	Transaction UID	Y	Y	N
(0008,2111)	Derivation Description	Y	N	N
(0008,2112)	Source Image Sequence	Y	N	N
(0008,3010)	Irradiation Event UID	Y	Y	N
(0008,4000)	Identifying Comments	Y	Y	N
(0008,9123)	Creator Version UID	Y	Y	N
(0010,0010)	Patient's Name	Y	Y	Y
(0010,0020)	Patient ID	Y	Y	Y
(0010,0021)	Issuer of Patient ID	Y	Y	N
(0010,0030)	Patient's Birth Date	Y	Y	Y
(0010,0032)	Patient's Birth Time	Y	Y	N
(0010,0040)	Patient's Sex	Y	N	N
(0010,0050)	Patient's Insurance Plan Code Sequence	Y	Y	Y
(0010,0101)	Patient's Primary Language Code Sequence	Y	Y	Y
(0010,0102)	Patient's Primary Language Modifier Code Sequence	Y	Y	Y
(0010,1000)	Other Patient IDs	Y	Y	Y
(0010,1001)	Other Patient Names	Y	Y	Y
(0010,1002)	Other Patient IDs Sequence	Y	Y	Y
(0010,1005)	Patient's Birth Name	Y	Y	Y
(0010,1010)	Patient's Age	Y	N	N
(0010,1020)	Patient's Size	Y	N	N
(0010,1030)	Patient's Weight	Y	N	N
(0010,1040)	Patient Address	Y	Y	Y
(0010,1050)	Insurance Plan Identification	Y	Y	N
(0010,1060)	Patient's Mother's Birth Name	Y	Y	Y
(0010,1080)	Military Rank	Y	Y	N
(0010,1081)	Branch of Service	Y	Y	N
(0010,1090)	Medical Record Locator	Y	Y	N
(0010,1100)	Referenced Patient Photo Sequence	Y	Y	N
(0010,2000)	Medical Alerts	Y	Y	N
(0010,2110)	Allergies	Y	Y	N
(0010,2150)	Country of Residence	Y	Y	N
(0010,2152)	Region of Residence	Y	Y	N
(0010,2154)	Patient's Telephone Number	Y	Y	Y
(0010,2160)	Ethnic Group	Y	N	N
(0010,2180)	Occupation	Y	Y	N
(0010,21A0)	Smoking Status	Y	N	N
(0010,21B0)	Additional Patient's History	Y	Y	Y
(0010,21C0)	Pregnancy Status	Y	N	N

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0010,21D0)	Last Menstrual Date	Y	N	N
(0010,21F0)	Patient's Religious Preference	Y	Y	N
(0010,2203)	Patient Sex Neutered	Y	N	N
(0010,2297)	Responsible Person	Y	Y	N
(0010,2299)	Responsible Organization	Y	Y	N
(0010,4000)	Patient Comments	Y	Y	Y
(0018,0010)	Contrast Bolus Agent	Y	Y	N
(0018,1000)	Device Serial Number	Y	Y	N
(0018,1002)	Device UID	Y	Y	N
(0018,1004)	Plate ID	Y	Y	N
(0018,1005)	Generator ID	Y	Y	N
(0018,1007)	Cassette ID	Y	Y	N
(0018,1008)	Gantry ID	Y	Y	N
(0018,1030)	Protocol Name	Y	Y	N
(0018,1400)	Acquisition Device Processing Description	Y	Y	N
(0018,2042)	Target UID	Y	Y	N
(0018,4000)	Acquisition Comments	Y	Y	N
(0018,700A)	Detector ID	Y	Y	N
(0018,9424)	Acquisition Protocol Description	Y	Y	N
(0018,9516)	Start Acquisition DateTime	Y	N	N
(0018,9517)	End Acquisition DateTime	Y	N	N
(0018,A003)	Contribution Description	Y	Y	Y
(0020,000D)	Study Instance UID	Y	Y	N
(0020,000E)	Series Instance UID	Y	Y	N
(0020,0010)	Study ID	Y	Y	N
(0020,0052)	Frame of Reference UID	Y	Y	N
(0020,0200)	Synchronization Frame of Reference UID	Y	Y	N
(0020,3401)	Modifying Device ID	Y	Y	N
(0020,3404)	Modifying Device Manufacturer	Y	Y	N
(0020,3406)	Modified Image Description	Y	Y	N
(0020,4000)	Image Comments	Y	Y	N
(0020,9158)	Frame Comments	Y	Y	N
(0020,9161)	Concatenation UID	Y	Y	N
(0020,9164)	Dimension Organization UID	Y	N	N
(0028,1199)	Palette Color Lookup Table UID	Y	Y	N
(0028,1214)	Large Palette Color Lookup Table UID	Y	Y	N
(0028,4000)	Image Presentation Comments	Y	Y	N
(0032,0012)	Study ID Issuer	Y	Y	N
(0032,1020)	Scheduled Study Location	Y	Y	N
(0032,1021)	Scheduled Study Location AE Title	Y	Y	N

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0032,1030)	Reason for Study	Y	Y	N
(0032,1032)	Requesting Physician	Y	Y	N
(0032,1033)	Requesting Service	Y	Y	N
(0032,1060)	Requested Procedure Description	Y	Y	N
(0032,1070)	Requested Contrast Agent	Y	Y	N
(0032,4000)	Study Comments	Y	Y	N
(0038,0004)	Referenced Patient Alias Sequence	Y	Y	N
(0038,0010)	Admission ID	Y	Y	N
(0038,0011)	Issuer of Admission ID	Y	Y	N
(0038,001E)	Scheduled Patient Institution Residence	Y	Y	N
(0038,0020)	Admitting Date	Y	N	N
(0038,0021)	Admitting Time	Y	N	N
(0038,0040)	Discharge Diagnosis Description	Y	Y	N
(0038,0050)	Special Needs	Y	Y	N
(0038,0060)	Service Episode ID	Y	Y	N
(0038,0061)	Issuer of Service Episode ID	Y	Y	N
(0038,0062)	Service Episode Description	Y	Y	N
(0038,0300)	Current Patient Location	Y	Y	N
(0038,0400)	Patient's Institution Residence	Y	Y	N
(0038,0500)	Patient State	Y	Y	N
(0038,4000)	Visit Comments	Y	Y	N
(0040,0001)	Scheduled Station AE Title	Y	Y	N
(0040,0002)	Scheduled Procedure Step Start Date	Y	N	N
(0040,0003)	Scheduled Procedure Step Start Time	Y	N	N
(0040,0004)	Scheduled Procedure Step End Date	Y	N	N
(0040,0005)	Scheduled Procedure Step End Time	Y	N	N
(0040,0006)	Scheduled Performing Physician Name	Y	Y	N
(0040,0007)	Scheduled Procedure Step Description	Y	Y	N
(0040,000B)	Scheduled Performing Physician Identification Sequence	Y	Y	N
(0040,0010)	Scheduled Station Name	Y	Y	N
(0040,0011)	Scheduled Procedure Step Location	Y	Y	N
(0040,0012)	Pre-Medication	Y	Y	N
(0040,0241)	Performed Station AE Title	Y	Y	N
(0040,0242)	Performed Station Name	Y	Y	N
(0040,0243)	Performed Location	Y	Y	N
(0040,0244)	Performed Procedure Step Start Date	Y	N	N
(0040,0245)	Performed Procedure Step Start Time	Y	N	N
(0040,0250)	Performed Procedure Step End Date	Y	N	N
(0040,0251)	Performed Procedure Step End Time	Y	N	N
(0040,0253)	Performed Procedure Step ID	Y	Y	N

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0040,0254)	Performed Procedure Step Description	Y	Y	N
(0040,0275)	Request Attributes Sequence	Y	Y	N
(0040,0280)	Comments on Performed Procedure Step	Y	Y	N
(0040,0555)	Acquisition Context Sequence	Y	Y	N
(0040,1001)	Requested Procedure ID	Y	Y	N
(0040,1004)	Patient Transport Arrangements	Y	Y	N
(0040,1005)	Requested Procedure Location	Y	Y	N
(0040,1010)	Names of Intended Recipient of Results	Y	Y	N
(0040,1011)	Intended Recipients of Results Identification Sequence	Y	Y	N
(0040,1101)	Person Identification Code Sequence	Y	Y	N
(0040,1102)	Person Address	Y	Y	N
(0040,1103)	Person Telephone Numbers	Y	Y	N
(0040,1400)	Requested Procedure Comments	Y	Y	N
(0040,2001)	Reason for Imaging Service Request	Y	Y	N
(0040,2008)	Order Entered By	Y	Y	N
(0040,2009)	Order Enterer Location	Y	Y	N
(0040,2010)	Order Callback Phone Number	Y	Y	N
(0040,2016)	Placer Order Number of Imaging Service Request	Y	Y	N
(0040,2017)	Filler Order Number of Imaging Service Request	Y	Y	N
(0040,2400)	Imaging Service Request Comments	Y	Y	N
(0040,3001)	Confidentiality Constraint on Patient Data Description	Y	Y	N
(0040,4005)	Scheduled Procedure Step Start DateTime	Y	N	N
(0040,4010)	Scheduled Procedure Step Modification DateTime	Y	N	N
(0040,4011)	Expected Completion Date Time	Y	N	N
(0040,4023)	Referenced General Purpose Scheduled Procedure Step Transaction UID	Y	N	N
(0040,4025)	Scheduled Station Name Code Sequence	Y	Y	N
(0040,4027)	Scheduled Station Geographic Location Code Sequence	Y	Y	N
(0040,4028)	Performed Station Name Code Sequence	Y	Y	N
(0040,4030)	Performed Station Geographic Location Code Sequence	Y	Y	N
(0040,4034)	Scheduled Human Performers Sequence	Y	Y	N
(0040,4035)	Actual Human Performers Sequence	Y	Y	N
(0040,4036)	Human Performers Organization	Y	Y	N
(0040,4037)	Human Performers Name	Y	Y	N
(0040,4050)	Performed Procedure Step Start DateTime	Y	N	N
(0040,4051)	Performed Procedure Step End DateTime	Y	N	N
(0040,4052)	Procedure Step Cancellation DateTime	Y	N	N
(0040,A027)	Verifying Organization	Y	Y	N
(0040,A073)	Verifying Observer Sequence	Y	Y	N
(0040,A075)	Verifying Observer Name	Y	Y	N

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0040,A078)	Author Observer Sequence	Y	Y	N
(0040,A07A)	Participant Sequence	Y	Y	N
(0040,A07C)	Custodial Organization Sequence	Y	Y	N
(0040,A088)	Verifying Observer Identification Code Sequence	Y	Y	N
(0040,A123)	Person Name	Y	Y	N
(0040,A124)	UID	Y	Y	N
(0040,A171)	Observation UID	Y	Y	N
(0040,A172)	Referenced Observation UID (Trial)	Y	Y	N
(0040,A192)	Observation Date (Trial)	Y	N	N
(0040,A193)	Observation Time (Trial)	Y	N	N
(0040,A307)	Current Observer (Trial)	Y	Y	N
(0040,A352)	Verbal Source (Trial)	Y	Y	N
(0040,A353)	Address (Trial)	Y	Y	N
(0040,A354)	Telephone Number (Trial)	Y	Y	Y
(0040,A358)	Verbal Source Identifier Code Sequence (Trial)	Y	Y	N
(0040,A402)	Observation Subject UID (Trial)	Y	Y	N
(0040,A730)	Content Sequence	Y	Y	N
(0040,DB0C)	Template Extension Organization UID	Y	Y	N
(0040,DB0D)	Template Extension Creator UID	Y	Y	N
(0070,0001)	Graphic Annotation Sequence	Y	Y	N
(0070,0084)	Content Creator's Name	Y	Y	N
(0070,0086)	Content Creator's Identification Code Sequence	Y	Y	N
(0070,031A)	Fiducial UID	Y	Y	N
(0072,005E)	Selector AE Value	Y	Y	N
(0074,1234)	Receiving AE	Y	Y	N
(0074,1236)	Requesting AE	Y	Y	N
(0088,0140)	Storage Media Fileset UID	Y	Y	N
(0088,0200)	Icon Image Sequence	Y	Y	N
(0088,0904)	Topic Title	Y	Y	N
(0088,0906)	Topic Subject	Y	Y	N
(0088,0910)	Topic Author	Y	Y	N
(0088,0912)	Topic Keywords	Y	Y	N
(0400,0100)	Digital Signature UID	Y	Y	N
(0400,0402)	Referenced Digital Signature Sequence	Y	Y	N
(0400,0403)	Referenced SOP Instance MAC Sequence	Y	Y	N
(0400,0404)	MAC	Y	Y	N
(0400,0550)	Modified Attributes Sequence	Y	Y	N
(0400,0561)	Original Attributes Sequence	Y	Y	Y
(2030,0020)	Text String	Y	Y	N
(2100,0070)	Originator	Y	Y	N

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(2100,0140)	Destination AE	Y	Y	N
(3006,0024)	Referenced Frame of Reference UID	Y	N	N
(3006,00C2)	Related Frame of Reference UID	Y	N	N
(3008,0105)	Source Serial Number	Y	N	N
(300A,0013)	Dose Reference UID	Y	N	N
(300E,0008)	Reviewer Name	Y	Y	N
(4000,0010)	Arbitrary	Y	Y	N
(4000,4000)	Text Comments	Y	Y	N
(4008,0042)	Results ID Issuer	Y	Y	N
(4008,0102)	Interpretation Recorder	Y	Y	N
(4008,010A)	Interpretation Transcriber	Y	Y	N
(4008,010B)	Interpretation Text	Y	Y	N
(4008,010C)	Interpretation Author	Y	Y	N
(4008,0111)	Interpretation Approver Sequence	Y	Y	N
(4008,0114)	Physician Approving Interpretation	Y	Y	N
(4008,0115)	Interpretation Diagnosis Description	Y	Y	N
(4008,0118)	Results Distribution List Sequence	Y	Y	N
(4008,0119)	Distribution Name	Y	Y	N
(4008,011A)	Distribution Address	Y	Y	N
(4008,0202)	Interpretation ID Issuer	Y	Y	N
(4008,0300)	Impressions	Y	Y	N
(4008,4000)	Results Comments	Y	Y	N
(50**,****)	Curve Data	Y	Y	N
(60**,0100)	Overlay Bits Allocated	Y	Y	N
(60**,0102)	Overlay Bit Position	Y	Y	N
(60**,3000)	Overlay Data	Y	Y	N
(60**,4000)	Overlay Comments	Y	Y	N
(FFFA,FFFA)	Digital Signatures Sequence	Y	Y	Y
(FFFC,FFFC)	Data Set Trailing Padding	Y	Y	Y

The * stands for any digit.

Table 50: Removal of private DICOM Attributes in the Data Minimization Process

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0019,0005)	Multiphase UID	Yes	Yes	Yes
(0019, SIEMENS CT VA0 COAD, 90)	Osteo offset	Yes	No	No
(0019, SIEMENS CT VA0 COAD, 92)	Osteo Regression Line Slope	Yes	No	No

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0019, SIEMENS CT VA0 COAD, 93)	Osteo Regression Line Intercept	Yes	No	No
(0019, SIEMENS CT VA0 COAD, 96)	Osteo Phantom Number	Yes	No	No
(0019, SIEMENS MED NM, 93)	Phase start time	Yes	No	No
(0019, SIEMENS MED NM, A1)	Number of Phases	Yes	No	No
(0019, SIEMENS MED NM, A5)	Number of repeats / phases	Yes	No	No
(0019, SIEMENS MED NM, A6)	Cycles Per Repeat	Yes	No	No
(0019, SIEMENS MED NM, A7)	Repeat Start time	Yes	No	No
(0019, SIEMENS MED NM, A8)	Repeat Stop time	Yes	No	No
(0019, SIEMENS MED NM, A9)	Effective Repeat Time	Yes	No	No
(0019, SIEMENS MED NM, AA)	Acquired Cycles Per Repeat	Yes	No	No
(0033, SIEMENS MED NM, 29)	Crystal Thickness	Yes	No	No
(0033, SIEMENS MED NM, 30)	Preset Name Used for Acquisition	Yes	No	No
(0033, SIEMENS MED NM, 38)	Pixel Scale factor	Yes	No	No
(0035, SIEMENS MED NM, 00)	Specialized TOMO Type	Yes	No	No
(0035, SIEMENS MED NM, 04)	Repeat ID	Yes	No	No
(0035, SIEMENS MED NM, 05)	Phase ID	Yes	No	No
(0041, SIEMENS MED NM, 01)	WholeBody Tomo Position Index	Yes	No	No
(0041, SIEMENS MED NM, 02)	WholeBody Tomo Number of Positions	Yes	No	No
(0041, SIEMENS MED NM, 10)	Effective Emission Energy	Yes	No	No
(0057, SIEMENS MED NM, 03)	NM Pixel Units	Yes	No	No
(0061, SIEMENS MED NM, 62)	Recon Output Type	Yes	No	No
(0061, SIEMENS MED NM, 70)	NM Reconstruction Algorithm	Yes	No	No
(0061, SIEMENS MED NM, 8D)	QSPECT Flag	Yes	No	No
(0065, SIEMENS MED NM, 01)	Original Detector Index	Yes	No	No
(0065, SIEMENS MED NM, 02)	Siemens Planar Data Organization	Yes	No	No
(7FE3, SIEMENS MED NM, 14)	Minimum pixel value in frame	Yes	No	No
(7FE3, SIEMENS MED NM, 15)	Maximum pixel value in frame	Yes	No	No

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(7FE3, SIEMENS MED NM, 29)	Number of Rwaves in a frame	Yes	No	No
(0021, SIEMENS MR SDS 01, 19)	MR Phoenix Protocol	Yes	No	No
(0029, SIEMENS CT EXAM IMAGE,49)	Metal Artifact Reduction Type	Yes	No	No
(0029, SIEMENS CSA ENVELOPE, 10)	Syngo Report Data	Yes	No	No
(0029, SIEMENS CSA ENVELOPE, 11)	Syngo Report Presentation	Yes	No	No
(0029, SIEMENS CSA HEADER, 08)	Modality Image Header Type	Yes	No	No
(0029, SIEMENS CSA HEADER, 09)	Modality Image Header Version	Yes	No	No
(0029, SIEMENS CSA HEADER, 10)	Modality Image Header Info	Yes	No	No
(0029, SIEMENS CSA HEADER, 18)	Modality Series Header Type	Yes	No	No
(0029, SIEMENS CSA HEADER, 19)	Modality Series Header Version	Yes	No	No
(0029, SIEMENS CSA HEADER, 20)	Modality Series Header Info	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 40)	Application Header Sequence	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 41)	Application Header Type	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 42)	Application Header ID	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 43)	Application Header Version	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 44)	Application Header Info	Yes	No	No
(0029, SIEMENS CT APPL DATASET, 00)	Dual Energy Algorithm Parameters	Yes	No	No
(0029, SIEMENS CT APPL ALG PARAMS, 20)	Perfusion Result Set Id	Yes	No	No
(0029, SIEMENS CSA REPORT, 08)	*syngo* Report Type	Yes	No	No
(0029, SIEMENS CSA REPORT, 09)	*syngo* Report Version	Yes	No	No
(0029, SIEMENS CSA REPORT, 15)	SR Variant	Yes	No	No

DICOM Tag	Attribute Name	High Privacy	Reduced Privacy	Low Privacy
(0029, SIEMENS CSA REPORT, 17)	SC SOP Instance UID	Yes	No	No
(0043, GEMS_PARM_01, 1E)	GE Delta Start Time	Yes	No	No
(0049, SIEMENS CT SPP HEADER, 10)	Raw Data Container	Yes	No	No
(0067, SIEMENS MED MI, 02)	Scanner Console Generation	Yes	No	No
(0067, SIEMENS MED MI, 03)	Recon Parameters	Yes	No	No
(0067, SIEMENS MED MI, 05)	Device IVK	Yes	No	No
(0067, SIEMENS MED MI, 14)	Raw Data Description	Yes	No	No
(0067, SIEMENS MED MI, 16)	Raw Data Series Instance UIDs	Yes	No	No
(0067, SIEMENS MED MI, 17)	Raw Data Referenced Series Instance UIDs	Yes	No	No
(0067, SIEMENS MED MI, 18)	Raw Data Blob Sequence	Yes	No	No
(0071, SIEMENS MED PT, 22)	Decay Correction DateTime	Yes	No	No
(0071, SIEMENS MED PT, 23)	Registration Matrix	Yes	No	No
(0071, SIEMENS MED PT, 24)	Table Motion	Yes	No	No
(0071, SIEMENS MED PT, 25)	Lumped Constant	Yes	No	No
(0071, SIEMENS MED PT, 26)	Histogramming Method	Yes	No	No
(0071, SIEMENS MED PT MU MAP, 01)	SOP Class of Source	Yes	No	No
(0071, SIEMENS MED PT MU MAP, 02)	Related Mu Map Series	Yes	No	No

In the above table for attributes marked with:

- ‘Yes’ - affected by data minimization.
- ‘No’ - not affected by data minimization.

9 Annexes

9.1 Created SOP Instance(s)

The applications from ***syngo*.via View&*GO*** create objects of the following SOP Classes during Transferring, Post-Processing and Reading:

Table 51: List of created SOP Classes

SOP Classes	SOP Class UID	User of Service (SCU)		Provider of Service (SCP)	
		Create	Send	Store	Display
CR Image Storage Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1	No	No	No	Yes
CT Image Storage XP Reprocessing tool 3D object	1.2.840.10008.5.1.4.1.1.2	No	No	No	Yes
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	No	No	No	Yes
Surface Segmentation IOD	1.2.840.10008.5.1.4.1.1.66.5	No	No	No	Yes
Raw Data IOD	1.2.840.10008.5.1.4.1.1.66	No	No	No	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	No	No	No	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	No	No	No	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	No	No	Yes

9.2 IOD Contents

9.2.1 CT Derived object for LungCAD findings generated by *syngo*.via View&*GO*

Table 52: CT Derived object for LungCAD

Attribute	Tag	Type	Description
Specific Character Set	(0008, 0005)	1C	Copied from Input Image
Image Type	(0008,0008)	1	DERIVED/SECONDARY/AXIAL/AlgorithmName_AlgorithmVersion_DO
Instance Creation Date	(0008,0012)	3	DO[1] instance creation date
Instance Creation Time	(0008,0013)	3	DO[1] instance creation time
SOP Class UID	(0008,0016)	1	1.2.840.10008.5.1.4.1.1.2
SOP Instance UID	(0008,0018)	1	1.3.12.2.1107.5.8.20.UID[1]
Study Date	(0008,0020)	2	Copied from Input Image
Series Date	(0008,0021)	3	Creation Date of the DO[2] in <YYYYMMDD> format
Acquisition Date	(0008,0022)	3	Copied from Input Image

[1] UID generated by ***syngo*.via View&*GO***

Attribute	Tag	Type	Description
Study Time	(0008,0030)	2	Copied from Input Image
Series Time	(0008,0031)	3	Creation Time of the DO[1] in <HHMMSS> format
Acquisition Time	(0008,0032)	3	Copied from Input Image
Accession Number	(0008,0050)	2	Copied from Input Image
Modality	(0008,0060)	1	Copied from Input Image
Manufacturer	(0008,0070)	2	Copied from Input Image
Institution Name	(0008,0080)	3	Copied from Input Image
Referring Physician's Name	(0008,0090)	2	Copied from Input Image
Study Description	(0008,1030)	3	Copied from Input Image
Series Description	(0008,103E)	3	Series description as configured by the application
Name Of Physician(s) Reading Study	(0008,1060)	3	Copied from Input Image
Manufacturer's Model Name	(0008,1090)	3	Copied from Input Image
Derivation description	(0008,2111)	3	Set AlgorithmName_AlgorithmVersion_DO value. For example: LUNGCAD_VD10C_DO)
Source Image Sequence	(0008,2112)	3	Set input image SOP class UID and input image SOP instance UID from original image
>Reference SOP Class UID	(0008,1150)		From original image's SOP Class UID
>Reference SOP Instance UID	(0008.1155)		From original image's SOP Instance UID
Patient Name	(0010,0010)	2	Copied from Input Image
Patient ID	(0010,0020)	2	Copied from Input Image
Patient's Birth Date	(0010,0030)	2	Copied from Input Image
Patient's Sex	(0010,0040)	2	Copied from Input Image
Patient's Size	(0010,1020)	3	Copied from Input Image
Patient's Weight	(0010,1030)	3	Copied from Input Image
Pregnancy Status	(0010,21C0)	3	Copied from Input Image
Imager Pixel Spacing	(0018,1164)	3	Copied from Input Image
Patient Position	(0018,5100)	2C	Copied from Input Image
View Position	(0018,5101)	3	Copied from Input Image
Detector Element Physical Size	(0018,7020)	3	Copied from Input Image
Detector Element Spacing	(0018,7022)	3	Copied from Input Image
Study Instance UID	(0020,000D)	1	Copied from Input Image
Series Instance UID	(0020,000E)	1	1.3.12.2.1107.5.8.20.UID[2]
Study ID	(0020,0010)	2	Copied from Input Image
Series Number	(0020,0011)	2	Series Number as configured by the user
Patient Orientation	(0020,0020)	2	Copied from Input Image
Image Laterality	(0020,0062)	1	Copied from Input Image

[1] Derived Object

[2] UID generated by ***syngo*.via View&*GO***

Attribute	Tag	Type	Description
Samples PerPixel	(0028,0002)	1	Copied from input image
Photometric Interpretation	(0028,0004)	1	Copied from input image
Rows	(0028,0010)	1	Copied from input image
Columns	(0028,0011)	1	Copied from input image
Pixel Spacing	(0028,0030)	1	Copied from input image
Bits Allocated	(0028,0100)	1	Copied from input image
Bits Stored	(0028,0101)	1	Copied from input image
High Bit	(0028,0102)	1	Copied from input image
Pixel Representation	(0028,0103)	1	Copied from input image
Window Center	(0028,1050)	1	Copied from Input Image
Window Width	(0028,1051)	1	Copied from Input Image
Rescale Intercept	(0028,1052)	1	Copied from input image
Rescale Slope	(0028,1053)	1	Copied from input image
Rescale Type	(0028,1054)	1	Copied from input image
Study Comments	(0032,4000)	3	Copied from input image
Pixel Data	(7FE0,0010)	1	Sets the Derived Pixel data

1 – Derived Object

2 – UID generated by **syngo.via View&*GO***

9.2.2 XP Reprocessing tool 2D and 3D object

Table 53: XP Reprocessing tool 2D object

Attribute	Tag	Type	Description
Specific Character Set	(0008,0005)	1C	Copied from Input Image, if not present “ISO_IR 100” is used.
Image Type	(0008,0008)	1	“ORIGINAL\PRIMARY\TRUE2SCALE”
SOP Class UID	(0008,0016)	1	1.2.840.10008.5.1.4.1.1.1
SOP Instance UID	(0008,0018)	1C	1.3.12.2.1107.5.8.20.UID[1]
Study Date	(0008,0020)	2	Copied from Input Image
Series Date	(0008,0021)	3	Date, when the first object in this series was created.
Acquisition Date	(0008,0022)	3	Copied from Input Image
Content Date	(0008,0023)	2	Time, when the pixel data or content was created.
Study Time	(0008,0030)	2	Copied from Input Image
Series Time	(0008,0031)	3	Time, when the first object in this series was created.
Acquisition Time	(0008,0032)	3	Copied from Input Image
Content Time	(0008,0033)	2	Copied from Input Image
Accession Number	(0008,0050)	2	Copied from Input Image

[1] UID generated by ***syngo*.via View&*GO***

Attribute	Tag	Type	Description
Modality	(0008,0060)	1	"CR"
Manufacturer	(0008,0070)	2	"Siemens Healthineers"
Institution Name	(0008,0080)	3	Copied from Input Image
Institution Address	(0008,0081)	3	Copied from Input Image
Referring Physician's Name	(0008,0090)	2	Copied from Input Image
Station Name	(0008,1010)	3	The station name where reprocessing has been performed
Study Description	(0008,1030)	3	Copied from Input Image
Series Description	(0008,103E)	3	Copied from Input Image + reprocessed name (e.g. smooth, sharp, ...)
Institutional Department Name	(0008,1040)	3	Copied from Input Image
Physician(s) of Record	(0008,1048)	3	Copied from Input Image
Manufacturer's Model Name	(0008,1090)	1	Product name where reprocessing has been performed
Derivation Description	(0008,2111)	3	Copied from Input Image
Source Image Sequence	(0008,2112)	3	A Sequence which identifies the set of Image SOP Class/Instance pairs of the RawData which were used to reprocess this data set. Zero or more Items may be included in this Sequence. Encoded as sequence of items: (0008,1150) and (0008,1155).
Patient's Name	(0010,0010)	2	Copied from Input Image
Patient ID	(0010,0020)	2	Copied from Input Image
Patient's Birth Date	(0010,0030)	2	Copied from Input Image
Patient's Sex	(0010,0040)	2	Copied from Input Image
Patient's Age	(0010,1010)	3	Copied from Input Image
Patient's Size	(0010,1020)	3	Copied from Input Image
Patient's Weight	(0010,1030)	3	Copied from Input Image
Medical Alerts	(0010,2000)	3	Copied from Input Image
Contrast Allergies	(0010,2110)	3	Copied from Input Image
Body Part Examined	(0018,0015)	2	Copied from Input Image
KVP	(0018,0060)	3	Copied from Input Image
Device Serial Number	(0018,1000)	3	The device serial number where reprocessing has been performed
Software Version(s)	(0018,1020)	1C	The software versions used for reprocessing. Each value consists of the name and the version of the corresponding system separated by ":". The first value corresponds to this product, the second one to the image system and the third one to the overall system, e.g. "syngo.ViewAndGo:VA46\Fluorospot Compact FD:VI17B-11\System:VF11A".
Protocol Name	(0018,1030)	3	Copied from Input Image
Image and Fluoroscopy Area Dose Product	(0018,115E)	3	Copied from Input Image

Attribute	Tag	Type	Description
Patient Position	(0018,5100)	3	Copied from Input Image
View Position	(0018,5101)	2	Copied from Input Image
Study Instance UID	(0020,000D)	1	Copied from Input Image
Series Instance UID	(0020,000E)	1	Generated
Study ID	(0020,0010)	2	Copied from Input Image
Series Number	(0020,0011)	2	Copied from Input Image
Acquisition Number	(0020,0012)	2	Copied from Input Image
Instance Number	(0020,0013)	2	Current number of the image in creation order within a series, e.g. 1,2,3… Next series again starts with 1.
Patient Orientation	(0020,0020)	2C	Based upon source data and the specific reprocessing configuration
Laterality	(0020,0060)	2C	Copied from Input Image if present.
Image Laterality	(0020,0062)	1	Copied from Input Image
Samples Per Pixel	(0028,0002)	1	1
Photometric Interpretation	(0028,0004)	1	“MONOCHROME2”
Rows	(0028,0010)	1	Based upon source data and the specific reprocessing configuration
Columns	(0028,0011)	1	Based upon source data and the specific reprocessing configuration
Pixel Spacing	(0028,0030)	1	Based upon source data and the specific reprocessing configuration
Bits Allocated	(0028,0100)	1	16
Bits Stored	(0028,0101)	1	16
High Bit	(0028,0102)	1	15
Pixel Representation	(0028,0103)	1	0
Smallest Image Pixel Value	(0028,0106)	3	Based upon source data and the specific reprocessing configuration
Largest Image Pixel Value	(0028,0107)	3	Based upon source data and the specific reprocessing configuration
Pixel Padding Value	(0028,0120)	1C	Copied from Input Image
Window Center	(0028,1050)	1C	Based upon source data and the specific reprocessing configuration
Window Width	(0028,1051)	1C	Based upon source data and the specific reprocessing configuration
Rescale Intercept	(0028,1052)	1	Based upon source data and the specific reprocessing configuration
Rescale Slope	(0028,1053)	1	Based upon source data and the specific reprocessing configuration
Rescale Type	(0028,1054)	1	"US"
Pixel Data	(7FE0,0010)	1	Based upon source data and the specific reprocessing configuration

Table 54: XP Reprocessing tool 3D object

Attribute	Tag	Type	Description
Specific Character Set	(0008,0005)	1C	Copied from Input Image, if not present "ISO_IR 100" is used.
Image Type	(0008,0008)	1	"ORIGINAL\PRIMARY\AXIAL\REAL3D"
SOP Class UID	(0008,0016)	1	1.2.840.10008.5.1.4.1.1.2
SOP Instance UID	(0008,0018)	1C	1.3.12.2.1107.5.8.20.UID[1]
Study Date	(0008,0020)	2	Copied from Input Image
Series Date	(0008,0021)	3	Date, when the first object in this series was created.
Acquisition Date	(0008,0022)	3	Copied from Input Image
Content Date	(0008,0023)	2	Date, when the pixel data or content was created.
Study Time	(0008,0030)	2	Copied from Input Image
Series Time	(0008,0031)	3	Time, when the first object in this series was created.
Acquisition Time	(0008,0032)	3	Copied from Input Image
Content Time	(0008,0033)	2	Time, when the pixel data or content was created.
Accession Number	(0008,0050)	2	Copied from Input Image
Modality	(0008,0060)	1	"CT"
Manufacturer	(0008,0070)	2	"Siemens Healthineers"
Institution Name	(0008,0080)	3	Copied from Input Image
Referring Physician's Name	(0008,0090)	2	Copied from Input Image
Station Name	(0008,1010)	3	The station name where reprocessing has been performed
Study Description	(0008,1030)	3	Copied from Input Image
Series Description	(0008,103E)	3	Copied from Input Image + reprocessed name (e.g. smooth, sharp, ...)
Institutional Department Name	(0008,1040)	3	Copied from Input Image
Physician(s) of Record	(0008,1048)	3	Copied from Input Image
Manufacturer's Model Name	(0008,1090)	1	Product name where reprocessing has been performed
Derivation Description	(0008,2111)	3	Copied from Input Image
Patient's Name	(0010,0010)	2	Copied from Input Image
Patient ID	(0010,0020)	2	Copied from Input Image
Patient's Birth Date	(0010,0030)	2	Copied from Input Image
Patient's Sex	(0010,0040)	2	Copied from Input Image
Patient's Age	(0010,1010)	3	Copied from Input Image
Patient's Size	(0010,1020)	3	Copied from Input Image

[1] UID generated by ***syngo*.via View&*GO***

Attribute	Tag	Type	Description
Patient's Weight	(0010,1030)	3	Copied from Input Image
Medical Alerts	(0010,2000)	3	Copied from Input Image
Contrast Allergies	(0010,2110)	3	Copied from Input Image
Source Image Sequence	(0008,2112)	3	A Sequence which identifies the set of Image SOP Class/Instance pairs of the RawData which were used to reprocess this data set. Zero or more Items may be included in this Sequence. Encoded as sequence of items: (0008,1150) and (0008,1155).
Body Part Examined	(0018,0015)	2	Copied from Input Image
Slice Thickness	(0018,0050)	2	Based upon source data and the specific reprocessing configuration
KVP	(0018,0060)	3	Copied from Input Image
Device Serial Number	(0018,1000)	3	The device serial number where reprocessing has been performed
Software Version(s)	(0018,1020)	1C	The software versions used for reprocessing. Each value consists of the name and the version of the corresponding system separated by ":". The first value corresponds to this product, the second one to the image system and the third one to the overall system, e.g. "syngo.ViewAndGo:VA46\Fluorospot Compact FD:VI17B-11\System:VF11A".
Protocol Name	(0018,1030)	3	Copied from Input Image
Reconstruction Diameter	(0018,1100)	3	Based upon source data and the specific reprocessing configuration
Image and Fluoroscopy Area Dose Product	(0018,115E)	3	Copied from Input Image
Convolution Kernel	(0018,1210)	3	Reprocessed name (e.g. smooth, sharp, ...)
Patient Position	(0018,5100)	3	Copied from Input Image
CTDIvol	(0018,9345)	3	Copied from Input Image
CTDI Phantom Type Code Sequence	(0018,9346)	3	Based upon source data and the specific reprocessing configuration
Study Instance UID	(0020,000D)	1	Copied from Input Image
Series Instance UID	(0020,000E)	1	Generated
Study ID	(0020,0010)	2	Copied from Input Image
Series Number	(0020,0011)	2	Copied from Input Image
Acquisition Number	(0020,0012)	2	Copied from Input Image
Instance Number	(0020,0013)	2	Current number of the image in creation order within a series, e.g. 1,2,3… Next series again starts with 1.
Image Position (Patient)	(0020,0032)	1	Based upon source data and the specific reprocessing configuration

Attribute	Tag	Type	Description
Image Orientation (Patient)	(0020,0037)	1	Based upon source data and the specific reprocessing configuration
Laterality	(0020,0060)	2C	Copied from Input Image if present.
Image Laterality	(0020,0062)	1	Copied from Input Image
Samples Per Pixel	(0028,0002)	1	1
Photometric Interpretation	(0028,0004)	1	"MONOCHROME2"
Rows	(0028,0010)	1	Based upon source data and the specific reprocessing configuration
Columns	(0028,0011)	1	Based upon source data and the specific reprocessing configuration
Pixel Spacing	(0028,0030)	1	Based upon source data and the specific reprocessing configuration
Bits Allocated	(0028,0100)	1	16
Bits Stored	(0028,0101)	1	16
High Bit	(0028,0102)	1	15
Pixel Representation	(0028,0103)	1	0
Smallest Image Pixel Value	(0028,0106)	3	Based upon source data and the specific reprocessing configuration
Largest Image Pixel Value	(0028,0107)	3	Based upon source data and the specific reprocessing configuration
Window Center	(0028,1050)	1C	Based upon source data and the specific reprocessing configuration
Window Width	(0028,1051)	1C	Based upon source data and the specific reprocessing configuration
Rescale Intercept	(0028,1052)	1	Based upon source data and the specific reprocessing configuration
Rescale Slope	(0028,1053)	1	Based upon source data and the specific reprocessing configuration
Rescale Type	(0028,1054)	1	"HU"
Pixel Data	(7FE0,0010)	1	Based upon source data and the specific reprocessing configuration

9.2.3 myAblation Guide

9.2.3.1 Surface Segmentation IOD Sop Class

The Surface Segmentation IOD SOP class 1.2.840.10008.5.1.4.1.1.66.5 is extended by the following attributes.

Table 55: Surface Segmentation IOD SOP class

Attribute	Tag	Type	Description
Specific Character Set	(0008, 0005)	1C	Copied from Input Image
Image Type	(0008,0008)	1	DERIVED/PRIMARY/SURFACE
SOP Class UID	(0008,0016)	1	1.2.840.10008.5.1.4.1.1.66.5
SOP Instance UID	(0008,0018)	1	1.3.12.2.1107.5.99.3. serial number. object_unique_identifier[2]
Study Date	(0008,0020)	2	Copied from Input Image
Series Date	(0008,0021)	3	Creation Date of the SSO in <YYYYMMDD> format
Study Time	(0008,0030)	2	Copied from Input Image
Series Time	(0008,0031)	3	Creation Time of the SSO in <HHMMSS> format
Accession Number	(0008,0050)	2	Copied from Input Image
Modality	(0008,0060)	1	"SEG"
Manufacturer	(0008,0070)	1	"SIEMENS"
Institution Name	(0008,0080)	3	As configured by the system
Referring Physician's Name	(0008,0090)	2	Copied from Input Image
Study Description	(0008,1030)	3	Copied from Input Image
Series Description	(0008,103E)	3	Series description as configured by the application
Name Of Physician(s) Reading Study	(0008,1060)	3	Copied from Input Image
Manufacturer's Model Name	(0008,1090)	1	As configured by the system
Patient Name	(0010,0010)	2	Copied from Input Image
Patient ID	(0010,0020)	2	Copied from Input Image
Patient's Birth Date	(0010,0030)	2	Copied from Input Image
Patient's Sex	(0010,0040)	2	Copied from Input Image
Patient Position	(0018,5100)	2C	Copied from Input Image
Study Instance UID	(0020,000D)	1	Copied from Input Image
Series Instance UID	(0020,000E)	1	1.3.12.2.1107.5.99.3.99. UID[1]
Study ID	(0020,0010)	2	Copied from Input Image
Series Number	(0020,0011)	1	Copied from input image
Patient Orientation	(0020,0020)	2	Copied from Input Image
Operators' Name	(0008,1070)	3	Copied from input image
Body Part Examined	(0018,0015)	3	Copied from input image
Frame of Reference UID	(0020,0052)	1	Copied from input image
Position Reference Indicator	(0020,1040)	2	Copied from input image
Device Serial Number	(0018,1000)	1	As configured by the system
Software Version	(0018,1020)	1	As configured by the system
Content Date	(0008,0023)	1	Creation Date of the SSO in <YYYYMMDD> format
Content Time	(0008,0033)	1	Creation Time of the SSO in <HHMMSS> format

Attribute	Tag	Type	Description
Instance Number	(0020,0013)	1	Number that identifies the SSO instance
Segment Sequence	(0062,0002)	1	Describes the segments that are contained within the data.
> Segment Number	(0062,0004)	1	Identification number of the segment
> Segment Label	(0062,0005)	1	User-defined label identifying this segment
> Segment Algorithm Type	(0062,0008)	1	Type of algorithm used to generate the segment
> Segmented Property Category Code Sequence	(0062,0003)	1	Sequence defining the general category of the property the segment represents
>> Code Value	(0008,0100)	1C	The identifier of the Coded Entry
>>Coding Scheme Designator	(0008,0102)	1C	The identifier of the coding scheme in which the Coded Entry is defined
>> Code Meaning	(0008,0104)	1	Text that conveys the meaning of the Coded Entry
> Surface Count	(0066,002A)	1	The number of surfaces that comprise this segment. Shall be greater than zero
> Segmented Property Type Code Sequence	(0062,000F)	1	Sequence defining the specific property the segment represents
>> Code Value	(0008,0100)	1C	The identifier of the Coded Entry
>> Coding Scheme Designator	(0008,0102)	1C	The identifier of the coding scheme in which the Coded Entry is defined
>> Code Meaning	(0008,0104)	1	Text that conveys the meaning of the Coded Entry
> Referenced Surface Sequence	(0066,002B)	1	Sequence referencing the surfaces composed to construct this segment
>> Referenced Surface Number	(0066,002C)	1	Identifies the Surface Number (0066,0003) within the Surface Sequence (0066,0002) to which this reference applies
>> Segment Surface Generation Algorithm Identification Sequence Attribute	(0066,002D)	1	A description of how this segment surface was derived
>>> Algorithm Family Code Sequence	(0066,002F)	1	The family of algorithm(s) that best describes the software algorithm used
>>>> Code Value	(0008,0100)	1C	The identifier of the Coded Entry
>>>> Coding Scheme Designator	(0008,0102)	1C	The identifier of the coding scheme in which the Coded Entry is defined
>>>> Code Meaning	(0008,0104)	1	Text that conveys the meaning of the Coded Entry
>>> Algorithm Version	(0066,0031)	1	The software version identifier assigned by a manufacturer to a specific software algorithm
>>> Algorithm Name	(0066,0036)	1	“NeedleGuidance”
>> Segment Surface Source Instance Sequence	(0066,002E)	2	A Sequence that identifies the set of Instances by their SOP Class/Instance pair that were used to derive this segment surface
>>> Referenced SOP Class UID	(0008,1150)	1	From original image’s SOP Class UID

Attribute	Tag	Type	Description
>>> Referenced SOP Instance UID	(000f8,1155)	1	From original image's SOP Instance UID
Content Label	(0070,0080)	1	A label that is used to identify this SOP Instance.
Content Description	(0070,0081)	2	A description of the content of the SOP Instance
Content Creator Name	(0070,0084)	2	Name of operator (such as a technologist or physician) creating the content of the SOP Instance.
Number Of Surfaces	(0066,0001)	1	Number of surfaces contained in the Instance
Surface Sequence	(0066,0002)	1	The surfaces that are described within the data
>Recommended Display Grayscale Value	(0062,000C)	1	A default single gray unsigned value in which it is recommended that the maximum pixel value in this surface be rendered on a monochrome display. The units are specified in P-Values from a minimum of 0000H (black) up to a maximum of FFFFH (white)
>Recommended Display CIELab Value	(0062,000D)	1	A default triplet value in which it is recommended that the surface be rendered on a color display.
>Surface Number	(0066,0003)	1	Identification number of the surface
>Surface Comments	(0066,0004)	3	"needle geometry"
>Surface Processing	(0066,0009)	2	Specifies whether the surface has been modified subsequent to the original generation of the surface
>Recommended Presentation Opacity	(0066,000C)	1	1.0
>Recommended Presentation Type	(0066,000D)	1	WIREFRAME
>Finite Volume	(0066,000E)	1	NO
>Manifold	(0066,0010)	1	NO
>Surface Points Sequence	(0066,0011)	1	The point positions representing vertices of the surface
>>Number Of Surface Points	(0066,0015)	1	Specifies the number of points in the point set
>>Point Coordinates Data	(0066,0016)	1	When referencing individual points the index of the first point shall be 1
>Surface Points Normals Sequence	(0066,0012)	2	The normals on the surface for each point
>Surface Mesh Primitives Sequence	(0066,0013)	1	
>>Line Sequence	(0066,0028)	2	All Lines in this Surface
>>>Long Primitive Point Index List	(0066,0040)	1	A list of point indices
Private creator	(0067,0010)	1	SIEMENS SMS-AX Surface Segmentation Extensions
AX SSO SURFACE SEGMENTATION SEQUENCE	(0067,1048)	1	
> AX SSO SURFACE TYPE	(0067,1000)	1	NEEDLE
> AX SSO SURFACE VERSION NUMBER	(0067,1039)	1	1
> AX SSO SURFACE GUID	(0067,1042)	1	Global unique ID for the Object (=Segment).
> AX SSO REFERENCED SEG GROUP GUID	(0067,1051)	1	Guid
> Recommended Display CIELab Value	(0062,000D)	1	A default triplet value in which it is recommended that the surface be rendered on a color display
> Recommended Presentation Opacity	(0066,000C)	1	1.0

Attribute	Tag	Type	Description
AX SSO SEG GROUP SEQUENCE	(0067,1047)	1	
> AX SSO SEG GROUP NAME	(0067,1049)	1	Needle Objects
> AX SSO SEGMENT GROUP GUID	(0067,1043)	1	Guid
AX SSO VERSION NUMBER	(0067,1004)	1	1
AX SSO GUID	(0067,1044)	1	Guid

*1 – UID generated by **syngo.via View&GO***

9.2.3.2 Raw Data IOD Sop Class

The Raw Data IOD SOP class 1.2.840.10008.5.1.4.1.1.66 is extended by the following attributes.

Table 56: Raw Data IOD SOP class

Attribute	Tag	Type	Description
Specific Character Set	(0008, 0005)	1C	Copied from Input Image
Image Type	(0008, 0008)	1	DERIVED\PRIMARY\RAW
SOP Class UID	(0008,0016)	1	1.2.840.10008.5.1.4.1.1.66
SOP Instance UID	(0008,0018)	1	1.3.12.2.1107.5.99.3. serial number. object_unique_identifier[2]
Study Date	(0008,0020)	2	Copied from Input Image
Series Date	(0008,0021)	3	Creation Date of the Raw Data in <YYYYMMDD> format
Study Time	(0008,0030)	2	Copied from Input Image
Series Time	(0008,0031)	3	Creation Time of the Raw Data in <HHMMSS> format
Accession Number	(0008,0050)	2	Copied from Input Image
Modality	(0008,0060)	1	“OT”
Manufacturer	(0008,0070)	1	“SIEMENS”
Institution Name	(0008,0080)	3	As configured by the system
Referring Physician's Name	(0008,0090)	2	Copied from Input Image
Study Description	(0008,1030)	3	Copied from Input Image
Series Description	(0008,103E)	3	Series description of the Raw Data in <NeedleData_NeedleCount_ "yyyyMMdd_HHmmss > format
Name Of Physician(s) Reading Study	(0008,1060)	3	Copied from Input Image
Manufacturer's Model Name	(0008,1090)	1	As configured by the system
Patient Name	(0010,0010)	2	Copied from Input Image
Patient ID	(0010,0020)	2	Copied from Input Image
Patient’s Birth Date	(0010,0030)	2	Copied from Input Image
Patient's Sex	(0010,0040)	2	Copied from Input Image

Attribute	Tag	Type	Description
Patient Position	(0018,5100)	2C	Copied from Input Image
Study Instance UID	(0020,000D)	1	Copied from Input Image
Series Instance UID	(0020,000E)	1	1.3.12.2.1107.5.99.3.99. UID[2]
Study ID	(0020,0010)	2	Copied from Input Image
Series Number	(0020,0011)	1	Copied from input image
Patient Orientation	(0020,0020)	2	Copied from Input Image
Operators' Name	(0008,1070)	3	Copied from input image
Body Part Examined	(0018,0015)	3	Copied from input image
Frame of Reference UID	(0020,0052)	1	Copied from input image
Position Reference Indicator	(0020,1040)	2	Copied from input image
Software Version	(0018,1020)	1	As configured by the system
Content Date	(0008,0023)	1	Creation Date of the Raw Data in <YYYYMMDD> format
Content Time	(0008,0033)	1	Creation Time of the Raw Data in <HHMMSS> format
Instance Number	(0020,0013)	1	Number that identifies the Raw Data instance
Creator Version Uid	(0008,9123)	1	Unique identification of the equipment and version of the software that has created the Raw Data information
Acquisition Context Sequence	(0040,0555)	2	A Sequence of Items that describes the conditions present during the acquisition of the data of the SOP Instance
Private Creator	(0067,0010)	1	SIEMENS SMS-CTH NeedleData
CTH NEEDLE DATA	(0067,0052)	1	Holds needle data like needle geometry, needle path, color , name information

9.3 Data Dictionary of Private Attributes

Table 57: Private Data Element Dictionary lists all private attributes created by **syngo**.**via View&*GO*** which may be included in the generated instances. These private attributes may be deprecated or replaced with standard attributes in the future.

Table 57: Private Data Element Dictionary

DICOM Tag	Name	VR	VM
(0027,SIEMENS SYNGO ENHANCED IDATASET API,01)	Business Unit Code	CS	1
(0027,SIEMENS SYNGO ENHANCED IDATASET API,02)	Application Type	LO	1
(0027,SIEMENS SYNGO ENHANCED IDATASET API,03)	Application Attributes Sequence	SQ	1
(0029,SIEMENS SYNGO FUNCTION ASSIGNMENT,01)	Data Reference	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,20)	Object Insertion Date	DA	1
(0009,SIEMENS SYNGO INDEX SERVICE,A0)	Sender System Device Name	LO	1
(0029,SIEMENS SYNGO VOLUME,12)	Slices	US	1
(0029,SIEMENS SYNGO VOLUME,14)	Volume Histogram	OB	1

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO VOLUME,18)	Volume Level	IS	1
(0029,SIEMENS SYNGO VOLUME,30)	Voxel Spacing	DS	3
(0029,SIEMENS SYNGO VOLUME,32)	Volume Position (Patient)	DS	3
(0029,SIEMENS SYNGO VOLUME,37)	Volume Orientation (Patient)	DS	9
(0029,SIEMENS SYNGO VOLUME,40)	Resampling Flag	CS	1
(0029,SIEMENS SYNGO VOLUME,42)	Normalization Flag	CS	1
(0029,SIEMENS SYNGO VOLUME,44)	SubVolume Sequence	SQ	1-n
(0071,SIEMENS SYNGO REGISTRATION,20)	Registered Image Sequence	SQ	1
(0071,SIEMENS SYNGO REGISTRATION,21)	Registration Is Validated Flag	CS	1
(0071,SIEMENS SYNGO REGISTRATION,20)	Registered Image Sequence	SQ	1
(0071,SIEMENS SYNGO REGISTRATION,21)	Registration Is Validated Flag	CS	1
(7FDF,SIEMENS SYNGO DATA PADDING,FC)	Pixel Data Leading Padding	OB	1
(0009,SIEMENS SYNGO INDEX SERVICE,10)	Sender System Device Name	LO	1
(0009, SIEMENS SYNGO INDEX SERVICE,41A)	N	CS	1
(0029,SIEMENS CT APPL TEMP DATAMODEL,10)	CT Task Common DataModel	LO	1
(0029,CT Task Common DataModel, 3E8)	CT Task Common DataModel	OB	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,11)		LO	1
(0029, SIEMENS SYNGO ADVANCED PRESENTATION, 491)	Volume Hash Code	ST	1
(0029, SIEMENS SYNGO ADVANCED PRESENTATION,10)		LO	1
(0029, SIEMENS SYNGO ADVANCED PRESENTATION, 42D)	Volume Hash Code	ST	1
(0029, SIEMENS SYNGO ADVANCED PRESENTATION ,106a)	Segmentation Version Identifier	LO	1
(0029, SIEMENS SYNGO ADVANCED PRESENTATION,106b)	Segmentation Lock Mode	LO	1
(0029, SIEMENS SYNGO ADVANCED PRESENTATION ,42E)	Segmentation Volume Size	DS	1
(0029, SIEMENS SYNGO ADVANCED PRESENTATION ,107A)	Segmentation Volume StorageDataType	DS	1
(0029, SIEMENS SYNGO ADVANCED PRESENTATION ,107B)	Segmentation Volume Model Matrix	FL	1
(0029, SIEMENS SYNGO ADVANCED PRESENTATION,11)	Segmentation UID	LO	1
(0029, SIEMENS SYNGO ADVANCED PRESENTATION ,456)	ImageText Reduced	ST	1
(0029, SIEMENS SYNGO ADVANCED PRESENTATION ,457)	ImageText Minimal	ST	1

Interpretation of the DICOM Tags from the above table:

(gggg, pp,ee) -> (gggg, ppee)
gggg - odd group number
pp - private creator identification code
ee - private element

9.3.1 Usage of Attributes from received IODs

N/A

9.3.2 Attribute mapping

There is currently no mapping from attributes received in DICOM Modality Worklist to other attributes.

9.3.3 Coerced / Modified fields

N/A

9.4 Coded Terminology and Templates

See application specific annexes.

9.4.1 Context Groups

See application specific annexes.

9.4.2 Template Specifications

See application specific annexes.

9.4.3 Private Code definitions

See application specific annexes.

9.5 Grayscale Image Consistency

N/A

9.6 Standard Extended / Specialized / Private SOP Classes

N/A

9.7 DICOM Print SCU – detailed status displays

The following tables document the behavior of the ***syngo*.via View&*GO*** DICOM Print AE in response to messages received for the printer SOP class and the print job SOP class.

Definitions of camera symbols:

- Idle: Camera is installed and ready; idle icon is displayed.
- Interact: The user has to react in near future, but not immediately.

  Example: A camera was low in 8x10 clear sheets: LOW 8x10 CLR was sent by N-EVENT-REPORT.
- Queue Stopped: The user has to react immediately. Either the camera needs immediate interaction or a job has been aborted.

  Example: A camera is out of 8x10 clear sheets, or camera is down, or a film job is aborted.

Note: different camera symbols are displayed according to the Printer Status Info.

9.7.1 Common Status Information

Table 58: Common Printer Status Information

Printer Status Info / Execution Status Info	Description	Message string visible in 'Status Bar'	Other action for UI / 'camera symbol'
NORMAL	Camera is ready	Camera is ready	<None>/idle

Printer Status Info / Execution Status Info	Description	Message string visible in 'Status Bar'	Other action for UI / 'camera symbol'
BAD RECEIVE MGZ	There is a problem with the film receive magazine. Films from the printer cannot be transported into the magazine.	Problem with receive magazine.	<None>/interact
BAD SUPPLY MGZ	There is a problem with the film supply magazine. Films from this magazine cannot be transported into the printer.	Problem with supply magazine.	<None>/interact
CALIBRATING	Printer is performing self-calibration, it is expected to be available for normal operation shortly.	Self-calibration. Please wait.	<None>/idle
CALIBRATION ERR	An error in the printer calibration has been detected, quality of processed films may not be optimal.	Problem in calibration. Film quality may not be optimal.	<None>/interact
CHECK CHEMISTRY	A problem with the processor chemicals has been detected, quality of processed films may not be optimal.	Problem with chemistry. Film quality may not be optimal.	<None>/interact
CHECK SORTER	There is an error in the film sorter	Error in film sorter.	<None>/interact
CHEMICALS EMPTY	There are no processing chemicals in the processor, films will not be printed and processed until the processor is back to normal.	Camera chemistry empty. Please check.	<None>/interact
CHEMICALS LOW	The chemical level in the processor is low, if not corrected, it will probably shut down soon.	Camera chemistry low. Please check.	<None>/interact
COVER OPEN	One or more printer or processor covers, drawers, doors are open.	Camera cover, drawer or door open.	<None>/interact
ELEC CONFIG ERR	Printer configured improperly for this job.	Camera configured improperly for this job. Queue stopped.	**Queue for this camera will be STOPPED/ Queue stopped**
ELEC DOWN	Printer is not operating due to some unspecified electrical hardware problem.	Camera electrical hardware Problem.	<None>/interact
ELEC SW ERROR	Printer not operating for some unspecified software error.	Camera software problem. Queue stopped.	**Queue for this camera will be STOPPED/ Queue stopped**
EMPTY 8X10	The 8x10 inch film supply magazine is empty.	8x10 film supply empty.	<None>/interact
EMPTY 8X10 BLUE	The 8x10 inch blue film supply magazine is empty.	8x10 blue film supply empty.	<None>/interact
EMPTY 8X10 CLR	The 8x10 inch clear film supply magazine is empty.	8x10 clear film supply empty.	<None>/interact
EMPTY 8X10 PAPR	The 8x10 inch paper supply magazine is empty.	8x10 paper supply empty.	<None>/interact
EMPTY 10X12	The 10x12 inch film supply magazine is empty.	10x12 film supply empty.	<None>/interact

Printer Status Info / Execution Status Info	Description	Message string visible in 'Status Bar'	Other action for UI / 'camera symbol'
EMPTY 10X12 BLUE	The 10x12 inch blue film supply magazine is empty.	10x12 blue film supply empty.	<None>/interact
EMPTY 10X12 CLR	The 10x12 inch clear film supply magazine is empty.	10x12 clear film supply empty.	<None>/interact
EMPTY 10X12 PAPR	The 10x12 inch paper supply magazine is empty.	10x12 paper supply empty.	<None>/interact
EMPTY 10X14	The 10x14 inch film supply magazine is empty.	10x14 film supply empty.	<None>/interact
EMPTY 10X14 BLUE	The 10x14 inch blue film supply magazine is empty.	10x14 blue film supply empty.	<None>/interact
EMPTY 10X14 CLR	The 10x14 inch clear film supply magazine is empty.	10x14 clear film supply empty.	<None>/interact
EMPTY 10X14 PAPR	The 10x14 inch paper supply magazine is empty.	10x14 paper supply empty.	<None>/interact
EMPTY 11X14	The 11x14 inch film supply magazine is empty.	11x14 film supply empty.	<None>/interact
EMPTY 11X14 BLUE	The 11x14 inch blue film supply magazine is empty.	11x14 blue film supply empty.	<None>/interact
EMPTY 11X14 CLR	The 11x14 inch clear film supply magazine is empty.	11x14 clear film supply empty.	<None>/interact
EMPTY 11X14 PAPR	The 11x14 inch paper supply magazine is empty.	11x14 paper supply empty.	<None>/interact
EMPTY 14X14	The 14x14 inch film supply magazine is empty.	14x14 film supply empty.	<None>/interact
EMPTY 14X14 BLUE	The 14x14 inch blue film supply magazine is empty.	14x14 blue film supply empty.	<None>/interact
EMPTY 14X14 CLR	The 14x14 inch clear film supply magazine is empty.	14x14 clear film supply empty.	<None>/interact
EMPTY 14X14 PAPR	The 14x14 inch paper supply magazine is empty.	14x14 paper supply empty.	<None>/interact
EMPTY 14X17	The 14x17 inch film supply magazine is empty.	14x17 film supply empty.	<None>/interact
EMPTY 14X17 BLUE	The 14x17 inch blue film supply magazine is empty.	14x17 blue film supply empty.	<None>/interact
EMPTY 14X17 CLR	The 14x17 inch clear film supply magazine is empty.	14x17 clear film supply empty.	<None>/interact
EMPTY 14X17 PAPR	The 14x17 inch paper supply magazine is empty.	14x17 paper supply empty.	<None>/interact
EMPTY 24X24	The 24x24 inch film supply magazine is empty.	24x24 film supply empty.	<None>/interact
EMPTY 24X24 BLUE	The 24x24 inch blue film supply magazine is empty.	24x24 blue film supply empty.	<None>/interact
EMPTY 24X24 CLR	The 24x24 inch clear film supply magazine is empty.	24x24 clear film supply empty.	<None>/interact

Printer Status Info / Execution Status Info	Description	Message string visible in 'Status Bar'	Other action for UI / 'camera symbol'
EMPTY 24X24 PAPR	The 24x24 inch paper supply magazine is empty.	24x24 paper supply empty	<None>/interact
EMPTY 24X30	The 24x30 inch film supply magazine is empty.	24x30 film supply empty.	<None>/interact
EMPTY 24X30 BLUE	The 24x30 inch blue film supply magazine is empty.	24x30 blue film supply empty.	<None>/interact
EMPTY 24X30 CLR	The 24x30 inch clear film supply magazine is empty.	24x30 clear film supply empty.	<None>/interact
EMPTY 24X30 PAPR	The 24x30 inch paper supply magazine is empty.	24x30 paper supply empty.	<None>/interact
EMPTY A4 PAPR	The A4 paper supply magazine is empty.	A4 paper supply empty	<None>/interact
EMPTY A4 TRANS	The A4 transparency supply magazine is empty.	A4 transparency supply empty.	<None>/interact
EXPOSURE FAILURE	The exposure device has failed due to some unspecified reason.	Exposure device has failed.	<None>/interact
FILM JAM	A film transport error has occurred, and a film is jammed in the printer or processor.	Film jam.	<None>/interact
FILM TRANSP ERR	There is a malfunction with the film transport, there may or may not be a film jam.	Film transport problem.	<None>/interact
FINISHER EMPTY	The finisher is empty.	Finisher is empty.	<None>/interact
FINISHER ERROR	The finisher is not operating due to some unspecified reason	Finisher problem.	<None>/interact
FINISHER LOW	The finisher is low on supplies.	Finisher low.	<None>/interact
LOW 8X10	The 8x10 inch film supply magazine is low.	8x10 film supply low.	<None>/interact
LOW 8X10 BLUE	The 8x10 inch blue film supply magazine is low.	8x10 blue film supply low.	<None>/interact
LOW 8X10 CLR	The 8x10 inch clear film supply magazine is low.	8x10 clear film supply low.	<None>/interact
LOW 8X10 PAPR	The 8x10 inch paper supply magazine is low.	8x10 paper supply low.	<None>/interact
LOW 10X12	The 10x12 inch film supply magazine is low.	10x12 film supply low.	<None>/interact
LOW 10X12 BLUE	The 10x12 inch blue film supply magazine is low.	10x12 blue film supply low.	<None>/interact
LOW 10X12 CLR	The 10x12 inch clear film supply magazine is low.	10x12 clear film supply low.	<None>/interact
LOW 10X12 PAPR	The 10x12 inch paper supply magazine is low.	10x12 paper supply low.	<None>/interact
LOW 10X14	The 10x14 inch film supply magazine is low.	10x14 film supply low.	<None>/interact
LOW 10X14 BLUE	The 10x14 inch blue film supply magazine is low.	10x14 blue film supply low.	<None>/interact
LOW 10X14 CLR	The 10x14 inch clear film supply magazine is low.	10x14 clear film supply low.	<None>/interact
LOW 10X14 PAPR	The 10x14 inch paper supply magazine is low.	10x14 paper supply low.	<None>/interact

Printer Status Info / Execution Status Info	Description	Message string visible in 'Status Bar'	Other action for UI / 'camera symbol'
LOW 11X14	The 11x14 inch film supply magazine is low.	11x14 film supply low.	<None>/interact
LOW 11X14 BLUE	The 11x14 inch blue film supply magazine is low.	11x14 blue film supply low.	<None>/interact
LOW 11X14 CLR	The 11x14 inch clear film supply magazine is low.	11x14 clear film supply low.	<None>/interact
LOW 11X14 PAPR	The 11x14 inch paper supply magazine is low.	11x14 paper supply low.	<None>/interact
LOW 14X14	The 14x14 inch film supply magazine is low.	14x14 film supply low.	<None>/interact
LOW 14X14 BLUE	The 14x14 inch blue film supply magazine is low.	14x14 blue film supply low.	<None>/interact
LOW 14X14 CLR	The 14x14 inch clear film supply magazine is low.	14x14 clear film supply low.	<None>/interact
LOW 14X14 PAPR	The 14x14 inch paper supply magazine is low.	14x14 paper supply low.	<None>/interact
LOW 14X17	The 14x17 inch film supply magazine is low.	14x17 film supply low.	<None>/interact
LOW 14X17 BLUE	The 14x17 inch blue film supply magazine is low.	14x17 blue film supply low.	<None>/interact
LOW 14X17 CLR	The 14x17 inch clear film supply magazine is low.	14x17 clear film supply low.	<None>/interact
LOW 14X17 PAPR	The 14x17 inch paper supply magazine is low.	14x17 paper supply low.	<None>/interact
LOW 24X24	The 24x24 inch film supply magazine is low.	24x24 film supply low.	<None>/interact
LOW 24X24 BLUE	The 24x24 inch blue film supply magazine is low.	24x24 blue film supply low.	<None>/interact
LOW 24X24 CLR	The 24x24 inch clear film supply magazine is low.	24x24 clear film supply low.	<None>/interact
LOW 24X24 PAPR	The 24x24 inch paper supply magazine is low.	24x24 paper supply low.	<None>/interact
LOW 24X30	The 24x30 inch film supply magazine is low.	24x30 film supply low.	<None>/interact
LOW 24X30 BLUE	The 24x30 inch blue film supply magazine is low.	24x30 blue film supply low.	<None>/interact
LOW 24X30 CLR	The 24x30 inch clear film supply magazine is low.	24x30 clear film supply low.	<None>/interact
LOW 24X30 PAPR	The 24x30 inch paper supply magazine is low.	24x30 paper supply low.	<None>/interact
LOW A4 PAPR	The A4 paper supply magazine is low.	A4 paper supply low.	<None>/interact
LOW A4 TRANS	The A4 transparency supply magazine is low.	A4 transparency supply low.	<None>/interact
NO RECEIVE MGZ	The film receive magazine is not available.	Film receiver not available.	<None>/interact
NO RIBBON	The ribbon cartridge needs to be replaced.	Replace ribbon cartridge.	<None>/interact
NO SUPPLY MGZ	The film supply magazine is not available.	Film supply not available.	<None>/interact
CHECK PRINTER	The printer is not ready at this time, operator intervention is required to make the printer available.	Check camera.	<None>/interact

Printer Status Info / Execution Status Info	Description	Message string visible in 'Status Bar'	Other action for UI / 'camera symbol'
CHECK PROC	The processor is not ready at this time, operator intervention is required to make the printer available.	Check processor.	<None>/interact
PRINTER DOWN	The printer is not operating due to some unspecified reason.	Camera down.	<None>/interact
PRINTER INIT	The printer is not ready at this time, it is expected to become available without intervention. For example, it may be in a normal warm-up state.	Camera initializing.	<None>/Idle
PRINTER OFFLINE	The printer has been disabled by an operator or service person.	Camera off-line.	<None>/interact
PROC DOWN	The processor is not operating due to some unspecified reason.	Processor down.	<None>/interact
PROC INIT	The processor is not ready at this time, it is expected to become available without intervention. For example, it may be in a normal warm-up state.	Processor initializing.	<None>/Idle
PROC OVERFLOW FL	Processor chemicals are approaching the overflow full mark.	Processor chemicals near overflow.	<None>/interact
PROC OVERFLOW HI	Processor chemicals have reached the overflow full mark.	Processor chemicals overflow.	<None>/interact
QUEUED	Print job in Queue	--	<None>/Idle
RECEIVER FULL	The film receive magazine is full.	Receiver full.	<None>/interact
REQ MED NOT INST	The requested film, paper, or other media supply magazine is installed in the printer but may be available with operator intervention.	Install media supply.	<None>/interact
REQ MED NOT AVAI	The requested film, paper, or other media requested is not available on this printer.	Media supply not available on this camera. Queue stopped. Change camera.	Queue for this camera will be STOPPED/ Queue stopped
RIBBON ERROR	There is an unspecified problem with the print ribbon.	Error with print ribbon.	<None>/interact
SUPPLY EMPTY	The printer is out of film.	Camera out of film.	<None>/interact
SUPPLY LOW	The film supply is low.	Film supply low.	<None>/interact
UNKNOWN	There is an unspecified problem.	Unspecified problem with camera.	<None>/interact

9.7.2 Common Status Information

Printer Status Info and Execution Status Info are defined terms and can therefore be extended or reduced by camera manufacturers. Therefore ***syngo*.via View&*GO*** shall be flexible.

If any other printer status info or execution status info is received (as described in Table 58 ***syngo*.via View&*GO*** will react as shown in the following table:

Table 59: Additional Printer Status Information

Printer Status / Execution	Printer / Execution Status Info	Description	Message string visible in the Job status bar	Other action for syngo / camera symbol
WARNING	<any other>	<not defined status info>	Camera info: <status info>	<None>/Interact
FAILURE	<any other>	<not defined status info>	Camera info: <status info> Queue stopped.	Queue for this camera will be STOPPED/ Queue stopped

Annex A: CT Plugin Applications

Standard Extensions of RAW Data Storage SOP Class

The following table lists the standard extensions for RAW Data Storage SOP Class.

Attribute Name	Tag	Value
Referenced Series Sequence	(0008,1115)	Private stored information about used algorithms.

Annex B: Index of Tables

Annex C: Table of Figures

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