

DICOM Conformance Statement

**MagicView 300
Version VA30C**

Revision 9.0

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DICOM Conformance Statement

MagicView 300 Version VA30C

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Conformance-Statement

Introduction

0.1 Purpose

This DICOM Conformance Statement is written according to part PS 3.2 of [1].

This conformance statement describes the DICOM Interface of the SIEMENS implementation of a Medical Imaging Viewing Station (SIENET MagicView 300) running Software Version VA30C.

0.2 Definitions, Acronyms and Abbreviations

ACR	A merican C ollege of R adiology
AE	DICOM A pplication E ntity
DBP	DICOM B asic P rint U ser
DQRY	DICOM Q uery
DQUS	DICOM Q uery U ser
IOD	DICOM I nformation O bject D efinition
MV300	M agic V iew 300 , a SIENET Viewing Station
NEMA	N ational E lectrical M anufacturers A ssociation
NI	N etwork I nterface of the SIENET MagicView 300
PDU	P rotocol D ata U nit
SCU	DICOM S ervice C lass U ser (client using this DICOM service)
SCP	DICOM S ervice C lass P rovider (server providing this service)
SOP	S ervice/ O bject P air
UID	U nique I Dentifier, string unique in the whole network

0.3 References

- [1] Digital Imaging and Communications in Medicine (DICOM),
NEMA PS 3.1-9, 1993

1 *Implementation Model*

Siemens MagicView 300 DICOM Interface is implemented to support DICOM Application Entities (AE) as SCP which receive associations from remote Application Entities.

Siemens MagicView 300 DICOM Interface originates associations for Storage of DICOM Composite Information Objects in Remote Application Entities.

Siemens MagicView 300 DICOM Interface originates associations for Query and Retrieve of DICOM Composite Information Objects stored in Remote Application Entities.

Siemens MagicView 300 DICOM Interface originates associations for Query of Worklists stored in remote Application Entities.

Siemens MagicView 300 DICOM Interface originates associations for Print using Normalized classes. These Normalized Service Classes can work on objects and can create, delete, update or take action upon these objects.

1.1 *Application Data Flow Diagram*

The Network Interface (NI) handles the DICOM communication for SIENET MagicView 300.

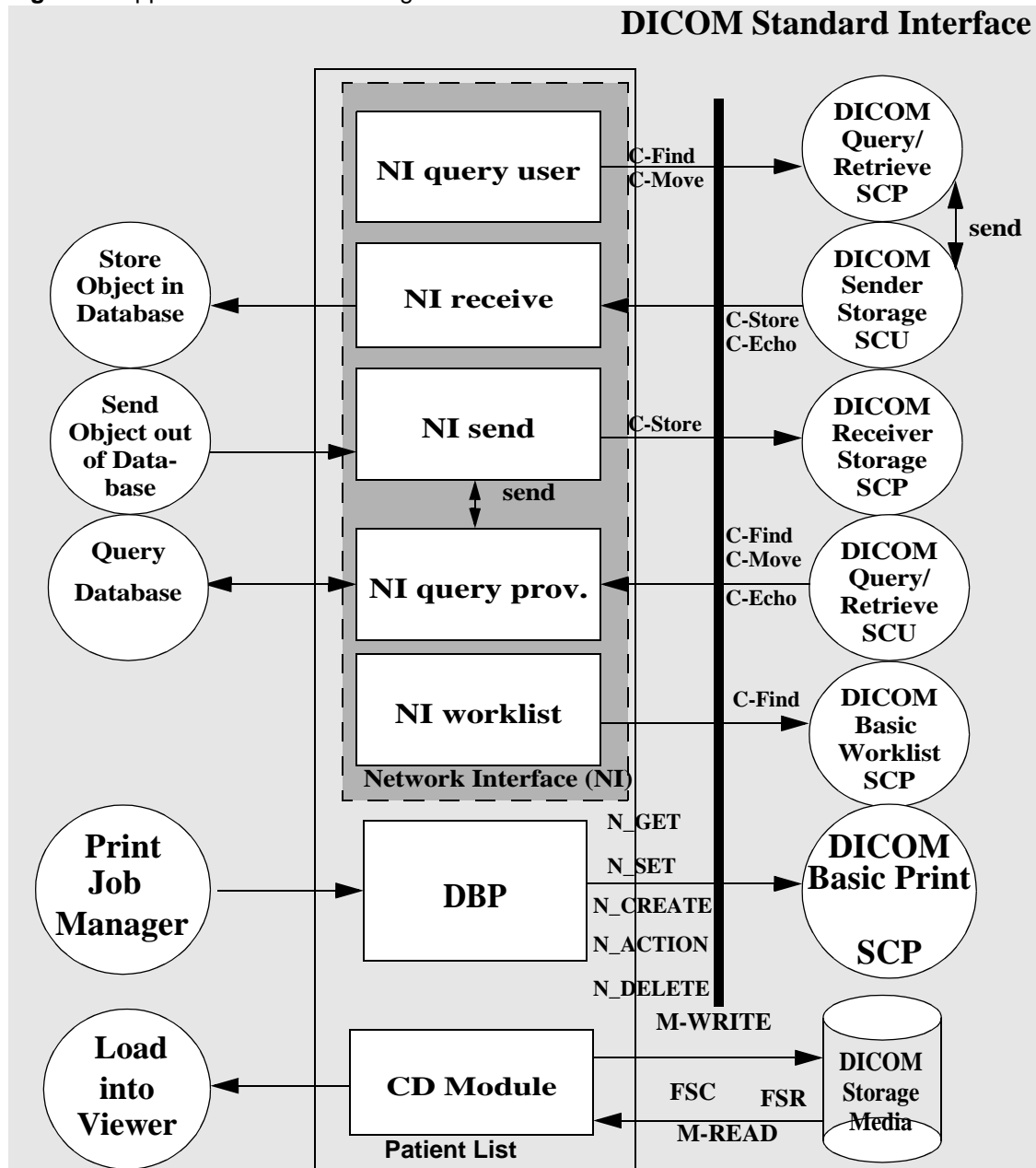
This Interface starts automatically and will be invoked automatically via the integrated SIENET MagicView 300 user-interface.

- o A remote Application Entity (AE) initiates an association for the DICOM Storage Service Class to the AE of NI. Upon acceptance of the association by NI the remote AE transmits the DICOM Information Objects to the NI receiver. After an object is received, NI initiates the transfer of the DICOM objects to the MagicView 300 image database.

-
- o A remote AE initiates an association for the DICOM Query/Retrieve Service Class to the AE of NI. Upon acceptance of the association by NI the remote AE transmits DICOM Query/Retrieve Requests to the NI query provider.
 - In case of a C-Find Request the NI query provider queries the database of MagicView 300 and generates a response for each match. The responses are sent back to the remote AE via DICOM query responses.
 - In case of a C-Move Request the NI query Provider queries the database of MagicView 300 and initiates a Storage request for each match. A final Retrieve Response is sent back to the remote AE.*
 - o NI initiates associations for DICOM Storage Service Class to remote AEs. For each remote DICOM node a new association to the corresponding remote DICOM AE is initiated. The DICOM objects are sent by NI sender via that open association.
 - o NI initiates associations for DICOM Query / Retrieve Service Class to remote AEs.
 - o NI initiates associations for DICOM Basic Worklist Service Class to remote AEs.*
 - o DBP initiates association for Siemens MagicView 300 DICOM Basic Print to remote AEs.*
 - o CD Module reads DICOM Media Storage (FSR) and loads SOP Instance files into viewer (STD-GEN-CD Profile)
CD Module writes DICOM Media Storage (FSC) in a most recent write session.*

* Query SCP, Worklist SCU, Print SCU and Media Storage are available only with some Licensed Applications.

Figure 1: Application Data Flow Diagram



1.2 *Functional Definitions of Application Entities*

All components of the Siemens NI DICOM Interface DBP Print Interface are operating as background threads. They start, when the machine is powered on and wait for tasks.

NI receive acting as a SCP is waiting for association requests from a remote DICOM client. The Application Entity Title the SCP is listening on is taken from the local configuration. The Port Number is 104.

NI query provider acting as a SCP is waiting for association requests from a remote DICOM client. The Application Entity Title the SCP is listening on is taken from the local configuration. The Port Number is 104.

NI send acting as a SCU is waiting for requests from the Application. When a request is received, NI send initiates an association with a remote Application Entity.

NI query user acting as a SCU is waiting for requests from the User. When a request is started, NI query user initiates an association with a remote Application Entity.

NI worklist acting as a SCU is waiting for requests from the application. When a request is received, NI worklist initiates an association with a remote Application Entity.

DBP acting as a SCU waits for print requests from the workstation's user. DBP initiates an association with a remote Application Entity and sends DICOM Basic Print Requests.

1.3 *Sequencing of Real World Activities*

not applicable.

2 *Application Entity Specifications*

2.1 *AE Specification*

MagicView 300 Network Interface provides one Application Entity.

The Siemens MagicView 300 provides Standard Conformance to the following DICOM Storage SOP Classes as an SCU and SCP:

Storage SOP Classes as an SCU and SCP

- o CR (Computed Radiography) Image Storage
- o CT Image Storage
- o Ultrasound Image Storage Retired
- o Ultrasound Image Storage
- o Ultrasound Multiframe Image Storage
- o Ultrasound Multiframe Image Storage retired
- o MR Image Storage
- o SC Image Storage
- o X-Ray Angiographic Image Storage
- o X-Ray Radiofluoroscopic Image Storage
- o Nuclear Medicine Image Storage
- o Positron Emission Tomography Image Storage
- o Radio Therapy Image Storage
- o Digital X-Ray Image Storage - For Presentation
- o Digital Mammography X-Ray Image Storage - For Presentation
- o Digital Intra-Oral X-Ray Image Storage - For Presentation

The Siemens MagicView 300 provides Standard Conformance to the following DICOM Query/Retrieve SOP Classes as an SCU and SCP:

Query/Retrieve SOP Classes as SCU and SCP

- o Patient Root Query/Retrieve Information Model - FIND
- o Patient Root Query/Retrieve Information Model - MOVE
- o Patient Study Only Query/Retrieve Information Model - FIND
- o Patient Study Only Query/Retrieve Information Model - MOVE
- o Study Root Query/Retrieve Information Model - FIND
- o Study Root Query/Retrieve Information Model - MOVE

The Siemens MagicView 300 provides Standard Conformance to the following DICOM Modality Worklist SOP Class as an SCU:

Modality Worklist SOP Class as SCU

- o Modality Worklist Information Model - FIND

Print Management SOP Class as SCU

- o Basic Grayscale Print Management

Media Storage Service Class as FSR and FSC

- o General Purpose CD-R Image Interchange Profile with Basic Directory and Composite Image & Standalone Storage
– or configurable:
- o Ultrasound Application Profile for Image Display with Single or Multiframe images with Basic Directory and Composite Image & Standalone Storage

2.1.1 Association Establishment Policies

2.1.1.1 General

The configuration of the Siemens MagicView 300 defines the Application Entity Title, the port numbers and the host name and net address.

2.1.1.2 Number of Associations

NI send initiates only one association at a time.

NI receive accepts multiple associations from different remote DICOM AEs at a time. There may be several concurrent associations active and processed in parallel. The maximum of open associations are 10.

NI query user initiates up to 25 associations at a time for C-Find and may initiate up to 10 associations at a time for C-Move.

NI query Provider accepts multiple associations from different remote DICOM AEs at a time. There may be several concurrent associations active and processed in parallel. The maximum of open associations are 10.

NI worklist initiates only one association at a time.

DBP initiates one association at a time for DICOM Basic Print. Each Print job in the queue opens a fresh association and the association is closed after the job is done.

2.1.1.3 Asynchronous Nature

This version of the software does not support asynchronous communication (multiple outstanding transactions over a single association).

2.1.1.4 Implementation Identifying Information

The Siemens MagicView 300 provides an Implementation Class UID of

- o "1.3.12.2.1107.5.8.2"

and an Implementation Version Name of

- o "SHS_MV300_VA30A".

2.1.2 Association Initiation Policy

The Siemens MagicView attempts to initiate a new association for

- o DIMSE-C-STORE
- o DIMSE-C-FIND
- o DIMSE-C-MOVE

service operations.

2.1.2.1 Real-World Activity - Send Image Objects to a Remote Node

2.1.2.1.1 Associated Real-World Activity - Send Image Objects to a Remote Node

The associated Real-World activity is a C-Store request initiated by the user of the Viewing station. If NI send successfully establishes an association to a remote Application Entity, it transfers each image of the study or series one after another via the open association. If the C-Store Response from the remote Application contains a status other than Success, the association is aborted. After a configurable time period, the transfer of the folder is started again. If the Retry fails several times, the foldername will be logged on a history queue with status Failed.

The DICOM targets are configured at configuration time.

2.1.2.1.2 Proposed Presentation Contexts

The Siemens MagicView will propose Presentation Contexts as shown in the following tables.

Table 1: Send SCU Presentation Contexts of MagicView 300

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	DICOM Implicit VR Little Endian Transfer Syntax,	1.2.840.10008.1.2	SCU	None
		DICOM Explicit VR Big Endian Transfer Syntax,	1.2.840.10008.1.2.2		
		DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1) Lossy ¹	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 und 4) Lossy ²	1.2.840.10008.1.2.4.51		
		JPEG Lossless, Non-Hierarchical (Process 14) ³	1.2.840.10008.1.2.4.70		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	DICOM Implicit VR Little Endian Transfer Syntax,	1.2.840.10008.1.2	SCU	None
		DICOM Explicit VR Big Endian Transfer Syntax,	1.2.840.10008.1.2.2		
		DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1		
		JPEG Extended (Process 2 und 4) Lossy ²	1.2.840.10008.1.2.4.51		
		JPEG Lossless, Non-Hierarchical (Process 14) ³	1.2.840.10008.1.2.4.70		

<p>MR Image Storage</p>	<p>1.2.840.10008.5.1.4.1.1.4</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>
<p>Ultrasound Image Storage Retired</p>	<p>1.2.840.10008.5.1.4.1.1.6</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>
<p>Ultrasound Multi-frame Image Storage Retired</p>	<p>1.2.840.10008.5.1.4.1.1.3</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>

<p>SC Image Storage</p>	<p>1.2.840.10008.5.1.4.1.1.7</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>
<p>X-Ray Angiographic Image Storage</p>	<p>1.2.840.10008.5.1.4.1.1.12.1</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>
<p>X-Ray Radiofluoroscopic Image Storage</p>	<p>1.2.840.10008.5.1.4.1.1.12.2</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>

<p>Nuclear Medicine Image Storage</p>	<p>1.2.840.10008.5 1.4.1.1.20</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>
<p>Ultrasound Image Storage</p>	<p>1.2.840.10008.5. 1.4.1.1.6.1</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>
<p>Ultrasound Multi-frame Image Storage</p>	<p>1.2.840.10008.5. 1.4.1.1.3.1</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>

<p>Positron Emission Tomography Image Storage</p>	<p>1.2.840.10008.5.1.4.1.1.128</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>
<p>Radio Therapy Image Storage</p>	<p>1.2.840.10008.5.1.4.1.1.481.1</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>
<p>Digital X-Ray Image Storage - For Presentation</p>	<p>1.2.840.10008.5.1.4.1.1.1.1</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>

<p>Digital Mammography X-Ray Image Storage - For Presentation</p>	<p>1.2.840.10008.5.1.4.1.1.1.2</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>
<p>Digital Intra-Oral X-Ray Image Storage - For Presentation</p>	<p>1.2.840.10008.5.1.4.1.1.1.3</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy¹ JPEG Extended (Process 2 und 4) Lossy² JPEG Lossless, Non-Hierarchical (Process 14)³</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCU</p>	<p>None</p>

1. If Lossy JPEG is selected at Send Dialog of the Application (8 bit images)
2. If Lossy JPEG is selected at Send Dialog of the Application
3. If Lossless JPEG is selected at Send Dialog of the Application

The default proposed transfer syntax is DICOM Implicit VR Little Endian Transfer Syntax.

2.1.2.1.3 *SOP Specific Conformance Statement*

The DICOM images sent by the Siemens MagicView 300 conform to the DICOM IOD definitions (Standard extended IODs).

2.1.2.2 Real-World Activity - Query the Image Database of a Remote Node

2.1.2.2.1 Associated Real-World Activity - Query the Image Database of a Remote Node

The associated Real-World activity is a C-Find request initiated by the user of the Viewing station. The user specifies some attributes, the remote Application should use to query the database. If NI query user successfully establishes an association to the remote Application Entity, it will send one C-Find requests (according to the query model) and will then return the results to the Application of the MagicView 300.

2.1.2.2.2 Proposed Presentation Contexts

The Siemens MagicView 300 will propose Presentation Contexts as shown in the following tables.

Table 2: Query SCU Presentation Contexts of MagicView 300

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	DICOM Implicit VR Little Endian Transfer Syntax DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCU	None
Patient Study Only Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1	DICOM Implicit VR Little Endian Transfer Syntax DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCU	None
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	DICOM Implicit VR Little Endian Transfer Syntax DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCU	None

The default proposed transfer syntax is DICOM Implicit VR Little Endian Transfer Syntax. The default SOP Class UID is Patient Root Query/Retrieve Information Model.

2.1.2.2.3 *SOP Specific Conformance Statement*

NI query user uses hierarchical queries with retrieve level patient or study.

NI query user checks for the following status codes in the Query/Retrieve provider's response to the C-Find request:

- o SUCCESS (0000): Matching is complete
- o PENDING (FF00): Matches are continuing
- o PENDING (FF01): Matches are continuing, no optional key support
- o REFUSED (A700): Out of Resources
- o CANCEL (FE00)

NI query user queries the following attributes:

Table 3: Supported attributes at Patient Level

Description	Tag
Patient's Name	(0010,0010)
Patient ID	(0010,0020)
Patient's Birth Date	(0010,0030)

Table 4: Supported attributes at Study Level

Description	Tag
Study Date	(0008,0020)
Study Time	(0008,0030)
Accession Number	(0008,0050)
Referring Physician's Name	(0008,0090)
Study Description	(0008,1030)
Body Part Examined	(0018,0015)
Study Instance UID	(0020,000D)
Number of Study Related Images	(0020,1208)
Storage Media File Set ID	(0088,0130)

Table 5: Supported Attributes at Series level:

Description	Tag
Modality	(0008,0060)
Series Description	(0008,103E)
Requested Procedure ID	(0040,1001)

The Tag (0088,0130) is used with SIEMENS MagicStore to display Folder Status: "INSTORE", "NEARLINE" and "OFFLINE". The Tag (0018,0015) is used with SIEMENS MagicStore to display Organ Names. It is possible to switch off the use of this Tag.

The Requested Procedure ID is not encoded in the Request Attributes Sequence.



On Study Level the Patient Name contains always a value.

The Maximum of Query Responses is configured to 20 entries, to limit the Query Time. A message gives information, that more entries are available, but not displayed because of the Query criteria. The Maximum value can be changed by Configuration up to 100.

2.1.2.3 *Real-World Activity - Retrieve Image Objects from a Remote Node*

2.1.2.3.1 *Associated Real-World Activity - Retrieve Image Objects from a Remote Node*

The associated Real-World activity is a C-Move request initiated by the user of the Viewing Station. The user selects one study from a list generated as a result of the previous C-Find operation. If the query user successfully establishes an association to the remote Application Entity, it will cause the calling application via a C-Move request to transfer the images to the local Application Entity. The transfer of the images will be done by a subsequent C-Store and will return the results of the store operation to the calling application.

2.1.2.3.2 Proposed Presentation Contexts

The Siemens MagicView 300 will propose Presentation Contexts as shown in the following tables.

Table 6: C-Move SCU Presentation Contexts of MagicView 300

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	DICOM Implicit VR Little Endian Transfer Syntax DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCU	None
Patient Study Only Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2	DICOM Implicit VR Little Endian Transfer Syntax DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCU	None
Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.2	DICOM Implicit VR Little Endian Transfer Syntax DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCU	None

The default proposed transfer syntax is DICOM Implicit VR Little Endian Transfer Syntax.

2.1.2.3.3 *SOP Specific Conformance Statement*

The MagicView 300 Query/Retrieve SCU checks for the following status codes in the provider's response to a C-Move request:

- o SUCCESS (0000): Matching is complete
- o WARNING (B000): One or more Failures occurred
- o PENDING (FF00): Matches are continuing
- o CANCEL (FE00)

2.1.2.4 *Real-World Activity - Query Worklist of a Remote Node*

2.1.2.4.1 *Associated Real-World Activity - Query Worklist of a Remote Node*

The associated Real-World activity is a C-Find request initiated by the user of the Viewing Station. The user specifies some attributes the remote Application should use to query its worklist database. If the worklist successfully establishes an association to the remote Application Entity, it will send the C-Find request and will then return the results to the application of the MagicView 300.

2.1.2.4.2 *Proposed Presentation Contexts*

The Siemens MagicView 300 will propose Presentation Contexts as shown in the following table.

Table 7: Basic Worklist SCU Presentation Contexts of MagicView 300

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCU	None
		DICOM Explicit VR Big Endian Transfer Syntax,	1.2.840.10008.1.2.2		
		DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1		

The default proposed transfer syntax is DICOM Implicit VR Little Endian Transfer Syntax.

2.1.2.4.3 SOP Specific Conformance Statement

The following DICOM Tags are sent to the Worklist Provider by the MagicView 300:

R = Required, O = Optional

Table 8: Supported search key attributes

Description	Tag	Type
Accession Number	(0008,0050)	O
Modality	(0008,0060)	R
Referring Physician's Name	(0008,0090)	R
Patient's Name	(0010,0010)	R
Patient's Birth Date	(0010,0030)	O
Patient ID	(0010,0020)	R
Patient's Sex	(0010,0040)	O
Study Instance UID	(0020,000D)	O
Scheduled Station AE Title	(0040,0001)	R
Scheduled Procedure Step Start Date	(0040,0002)	R
Scheduled Procedure Step Start Time	(0040,0003)	R
Scheduled Performing Physician's Name	(0040,0006)	R



Description	Tag	Type
Scheduled Procedure Step ID	(0040,0009)	O
Scheduled Procedure Step Sequence	(0040,0100)	R
Requested Procedure ID	(0040,1001)	O

The following attributes are passed to the worklist provider as part of a sequence: Scheduled Performing Physician's Name, Scheduled Station AE Title, Modality, Requested Procedure ID, Scheduled Procedure Step Start Date, Scheduled Procedure Step Start Time, Scheduled Procedure Step ID.

The following DICOM Tags are read from the Worklist Provider's response message:

R = Required, O = Optional

Table 9: Supported return key attributes

Description	Tag	Type
Accession Number	(0008,0050)	O
Modality	(0008,0060)	R
Referring Physician's Name	(0008,0090)	R
Series Description	(0008,103E)	O
Study Description	(0008,1030)	O
Patient's Name	(0010,0010)	R
Patient's Birth Date	(0010,0030)	O
Patient ID	(0010,0020)	R
Patient's Sex	(0010,0040)	O
Study Instance UID	(0020,000D)	O
Series Instance UID	(0020,000E)	O
Study ID	(0020,0010)	O
Series Number	(0020,0011)	O
Study Comments	(0032,4000)	O
Scheduled Station AE Title	(0040,0001)	R



Description	Tag	Type
Scheduled Procedure Step Start Date	(0040,0002)	R
Scheduled Procedure Step Start Time	(0040,0003)	R
Scheduled Performing Physician's Name	(0040,0006)	R
Scheduled Procedure Step ID	(0040,0009)	O
Scheduled Procedure Step Sequence	(0040,0100)	R
Requested Procedure ID	(0040,1001)	O

The following attributes are expected to be part of a sequence: Scheduled Performing Physician's Name, Scheduled Station AE Title, Modality, Scheduled Procedure Step Start Date, Scheduled Procedure Step Start Time, Scheduled Procedure Step ID, Study ID, Study Description.

The MagicView 300 Basic Worklist SCU checks for the following status codes in the provider's response to the C-Find request:

- o SUCCESS (0000): Matching is complete
- o PENDING (FF00): Matches are continuing

- o PENDING (FF01): Matches are continuing, no optional key support
- o CANCEL (FE00)

2.1.2.5 Real-World Activity - Send Print Request to a Remote Node

Associated Real-World Activity - Send Print Request to a Remote Node

The associated Real-World activity is a folder print request initiated by the user of the workstation.

If the DBP successfully establishes an association to the remote-printer Application Entity, it will send N_GET, N_CREATE, N_SET, N_ACTION and N_DELETE requests to the remote printer.

The Print Job SOP Class accepts is monitoring the printer status.

The Siemens MagicView 300 will propose Presentation Contexts as shown in the following tables.

Table 10: *MagicView 300 Print Management SCU Presentation Contexts of*

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Basic Grayscale Print Management	1.2.840.10008.5.1.1.9	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCU	None



Siemens MagicView supports the following mandatory SOP Classes as defined by the Basic Grayscale Print Management Meta Class:

SOP Class Name	SOP Class UID
Basic Film Session SOP Class	1.2.840.10008.5.1.1.1
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4
Printer SOP Class	1.2.840.10008.5.1.1.16
Print Job	1.2.840.10008.5.1.1.14

DBP does not support any optional SOP Classes.

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 a hardcopy printer.

Table 11: Used DIMSE services

DIMSE Service Element	Usage SCU/SCP
N-CREATE	M/M
N-DELETE	U/M

Table 12: Supported N_CREATE attributes

Attribute name	Tag	Usage SCU/SCP	Supported Values
Number of Copies	2000,0010	U/M	>0
Print Priority	2000,0020	U/M	HIGH MED LOW
Medium Type	2000,0030	U/M	CLEAR FILM BLUE FILM
Film Destination	2000,0040	U/M	PROCESSOR
Film Session Label	2000,0050	U/M	

After use the Basic Film Session is closed with N_DELETE.

Table 13: Status handling

Service Status	Meaning	Protocol Codes
Success	Film Session successfully created	0000
Warning	Memory allocation not supported	B600
Warning	Attribute Value Out of Range	0116
Warning	Film session printing (collation) is not supported	B601
Warning	Film session SOP Instance hierarchy does not contain Image Box SOP Instance (empty page)	B602
Warning	Image size is larger than image box size, the image has been demagnified.	B604
Failure	Missing attribute value	0121
Failure	Unable to create print job, print queue is full (Film Session)	C601
Failure	Image size is larger than image box size	C603
Failure	Insufficient memory in printer to store the image	C605
Failure	More than one VOI LUT Box contained in image	C606
Failure	No such argument	0114
Failure	Processing Failure	0110
Failure	Unrecognized Operation	0211

Basic Film Box SOP Class

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

Table 14: Used DIMSE services

DIMSE Service Element	Usage SCU/SCP
N-CREATE	M/M
N-ACTION	M/M

Table 15: Mandatory Film Box N-Create attributes

Attribute name	Tag	Usage SCU/SCP	Supported Values
Image Display Format	2010,0010	M/M	STANDARD\1,1 STANDARD\2,1 STANDARD\1,2 STANDARD\2,2 STANDARD\2,3 STANDARD\3,3 STANDARD\3,4 STANDARD\4,4 STANDARD\4,5 STANDARD\5,6 ROW\2,3,3,3 ROW\3,4,4,4,4
Referenced Film Session Sequence	2010,0500	M/M	

Table 15: Mandatory Film Box N-Create attributes

Attribute name	Tag	Usage SCU/SCP	Supported Values
>Referenced SOP Class UID	0008,1150	M/M	
>Referenced SOP Instance UID	0008,1155	M/M	
Referenced Image Box Sequence	2010,0510	-/M	
>Referenced SOP Class UID	0008,1150	-/M	
>Referenced SOP Instance UID	0008,1155	-/M	
Film Orientation	2010,0040	M/M	PORTRAIT, LANDSCAPE
Film Size ID	2010,0050	M/M	8INX10IN 8_5INX11IN 10INX12IN 10INX14IN 11INX14IN 11INX17IN 14INX14IN 14INX17IN 24CMX24CM 24CMX30CM
Magnification Type	2010,0060	M/M	REPLICATE BILINEAR CUBIC NONE

Table 15: Mandatory Film Box N-Create attributes

Attribute name	Tag	Usage SCU/SCP	Supported Values
Smoothing Type	2010,0080	M/M	Further specifies the type of the interpolation function.??? Values are defined in Conformance Statement. Only valid for Magnification Type (2010,0060) = CUBIC
Border Density	2010,0100	M/M	BLACK WHITE
Empty Image Density	2010,0110	M/M	BLACK WHITE
Min Density	2010,0120	M/M	>=0
Max Density	2010,0130	M/M	>0
Trim	2010,0140	M/M	YES NO
Configuration Information	2010,0150	M/M	CS000-CS999

N_ACTION is used to start printing.

Table 16: Status handling

Service Status	Meaning	Protocol Codes
Success	Film Box successfully created	0000
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
Warning	Film box does not contain image box (empty page) box (empty page)	B603
Warning	Image size is larger than image box size, the image has been demagnified.	B604
Failure	Invalid attribute value	0106
Failure	Unable to create print job SOP Instance, print queue is full (Film Box)	C602
Failure	Image size is larger than image box size	C603
Failure	Resource limitation	0213
Failed	Unrecognized Operation	0211

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 description describes the presentation parameters and image pixel data which apply to a single image of a sheet of film.

Table 17: Used DIMSE services

DIMSE Service Element	Usage SCU/SCP
N-SET	M/M

Table 18: Supported *N_SET* attributes

Attribute name	Tag	Usage SCU/SCP	Supported Values
Image Position	2020,0010	M/M	Dependent on Display Format
Basic Grayscale Image Sequence	0020,0110	M/M	
>Sample Per Pixel	0028,0002	M/M	1
>Photometric Interpretation	0028,0004	M/M	MONOCHROME2
>Rows	0028,0010	M/M	256 to 4096
>Columns	0028,0011	M/M	256 to 4096
>Pixel Aspect Ratio	0028,0034	M/M	
>Bits Allocated	0028,0100	M/M	8
>Bits Stored	0028,0101	M/M	8

Table 18: Supported N_SET attributes

Attribute name	Tag	Usage SCU/SCP	Supported Values
>High Bit	0028,0102	M/M	7
>Pixel Representation	0028,0103	M/M	0
>Pixel Data	7FE0,0010	M/M	

Printer SOP Class

The Printer SOP Class provides the possibility to monitor the status of the hardcopy printer in a synchronous way.

Table 19: Used DIMSE services

DIMSE Service Element	Usage SCU/SCP
N-GET	U/M

The MagicView 300 writes all warning and failure messages into alog file.

Table 20: Mandatory Printer N-GET attributes.

Attribute name	Tag	Usage SCU/SCP
Printer Status	2110,0010	U/M
Printer Status Info	2110,0020	U/M

SOP Specific Conformance Statement

Only one association will be processed at a time.

In case of a failure return status of the Print SCP, the current job will be suspended.

:

Table 21: Default values for timing demands

Definition	Registry Entry Default	Default Value
No. of retries on Print Error	PrintRetryNumber	5
Retry starts after a specified time interval	PrintRetryTimeDelay	180 sec.
Timeout on Printing	PrintReadMessageTimeout	300 sec.
Timeout of not closed association	AssocTimeout	10 Min.

2.1.3 Association Acceptance Policy

The Siemens MagicView 300 accepts a new association for

- o DIMSE-C-Echo
 - o DIMSE-C-Store
 - o DIMSE-C-Find
 - o DIMSE-C-Move
- service operation.

2.1.3.1 Real-World Activity - Receive Echo

2.1.3.1.1 Associated Real-World Activity - respond to echo request

The associated Real-World activity is a C-Echo response by NI receive and NI query provider.

2.1.3.1.2 Proposed Presentation Contexts

The Siemens MagicView will accept Presentation Contexts as shown in the following table.

Table 22: Echo SCP Presentation Contexts of MagicView 300

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification Service Class	1.2.840.10008.1.1	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCP	None
		DICOM Explicit VR Big Endian Transfer Syntax	1.2.840.10008.1.2.2		
		DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1		

2.1.3.1.3 SOP Specific Conformance to the Verification SOP Class

The DICOM MagicView provides standard conformance to the DICOM Verification Service Class.

2.1.3.2 *Real-World Activity - Receive Image Objects from a Remote Node*

2.1.3.2.1 *Associated Real-World Activity -Receive Image Objects from a Remote Node*

The associated Real-World activity is a C-Store request received by NI receive. After accepting an association from a remote DICOM AE, the NI receive thread receives the images via the open association.

After the association is closed by the sender, NI receive initiates the transfer of the images into the MagicView's database. If the transfer fails, NI returns an error status.

2.1.3.2.2 *Proposed Presentation Contexts*

The Siemens MagicViews will accept Presentation Contexts as shown in the following tables.

Table 23: Receive SCP Presentation Contexts of MagicView 300

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	DICOM Implicit VR Little Endian Transfer Syntax,	1.2.840.10008.1.2	SCP	None
		DICOM Explicit VR Big Endian Transfer Syntax,	1.2.840.10008.1.2.2		
		DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1) Lossy	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 und 4) Lossy	1.2.840.10008.1.2.4.51		
		JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.70		
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	DICOM Implicit VR Little Endian Transfer Syntax,	1.2.840.10008.1.2	SCP	None
		DICOM Explicit VR Big Endian Transfer Syntax,	1.2.840.10008.1.2.2		
		DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1		
		JPEG Extended (Process 2 und 4) Lossy	1.2.840.10008.1.2.4.51		
		JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.70		
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	DICOM Implicit VR Little Endian Transfer Syntax,	1.2.840.10008.1.2	SCP	None
		DICOM Explicit VR Big Endian Transfer Syntax,	1.2.840.10008.1.2.2		
		DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1		
		JPEG Extended (Process 2 und 4) Lossy	1.2.840.10008.1.2.4.51		
		JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.70		

<p>Ultrasound Image Storage Retired</p>	<p>1.2.840.10008.5.1.4.1.1.6</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy JPEG Extended (Process 2 und 4) Lossy JPEG Lossless, Non-Hierarchical (Process 14)</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCP</p>	<p>None</p>
<p>Ultrasound Multi-frame Image Storage Retired</p>	<p>1.2.840.10008.5.1.4.1.1.3</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy JPEG Extended (Process 2 und 4) Lossy JPEG Lossless, Non-Hierarchical (Process 14)</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCP</p>	<p>None</p>
<p>Ultrasound Image Storage</p>	<p>1.2.840.10008.5.1.4.1.1.6.1</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy JPEG Extended (Process 2 und 4) Lossy JPEG Lossless, Non-Hierarchical (Process 14)</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCP</p>	<p>None</p>

<p>Ultrasound Multiframe Image Storage</p>	<p>1.2.840.10008.5. 1.4.1.1.3.1</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy JPEG Extended (Process 2 und 4) Lossy JPEG Lossless, Non-Hierarchical (Process 14)</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCP</p>	<p>None</p>
<p>SC Image Storage</p>	<p>1.2.840.10008.5. 1.4.1.1.7</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy JPEG Extended (Process 2 und 4) Lossy JPEG Lossless, Non-Hierarchical (Process 14)</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCP</p>	<p>None</p>
<p>X-Ray Angiographic Image Storage</p>	<p>1.2.840.10008.5 1.4.1.1.12.1</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy JPEG Extended (Process 2 und 4) Lossy JPEG Lossless, Non-Hierarchical (Process 14)</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCP</p>	<p>None</p>

<p>X-Ray Radiofluoroscopic Image Storage</p>	<p>1.2.840.10008.5 1.4.1.1.12.2</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy JPEG Extended (Process 2 und 4) Lossy JPEG Lossless, Non-Hierarchical (Process 14)</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCP</p>	<p>None</p>
<p>Nuclear Medicine Image Storage</p>	<p>1.2.840.10008.5 1.4.1.1.20</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy JPEG Extended (Process 2 und 4) Lossy JPEG Lossless, Non-Hierarchical (Process 14)</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCP</p>	<p>None</p>
<p>Positron Emission Tomography Image Storage</p>	<p>1.2.840.10008.5. 1.4.1.1.128</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy JPEG Extended (Process 2 und 4) Lossy JPEG Lossless, Non-Hierarchical (Process 14)</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCP</p>	<p>None</p>

<p>Radio Therapy Image Storage</p>	<p>1.2.840.10008.5.1.4.1.1.481.1</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy JPEG Extended (Process 2 und 4) Lossy JPEG Lossless, Non-Hierarchical (Process 14)</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCP</p>	<p>None</p>
<p>Digital X-Ray Image Storage - For Presentation</p>	<p>1.2.840.10008.5.1.4.1.1.1.1</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy JPEG Extended (Process 2 und 4) Lossy JPEG Lossless, Non-Hierarchical (Process 14)</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCP</p>	<p>None</p>
<p>Digital Mammography X-Ray Image Storage - For Presentation</p>	<p>1.2.840.10008.5.1.4.1.1.1.2</p>	<p>DICOM Implicit VR Little Endian Transfer Syntax, DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax JPEG Baseline (Process 1) Lossy JPEG Extended (Process 2 und 4) Lossy JPEG Lossless, Non-Hierarchical (Process 14)</p>	<p>1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.4.51 1.2.840.10008.1.2.4.70</p>	<p>SCP</p>	<p>None</p>



Digital Intra-Oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	DICOM Implicit VR Little Endian Transfer Syntax,	1.2.840.10008.1.2	SCP	None
		DICOM Explicit VR Big Endian Transfer Syntax,	1.2.840.10008.1.2.2		
		DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1		
		JPEG Baseline (Process 1) Lossy	1.2.840.10008.1.2.4.50		
		JPEG Extended (Process 2 und 4) Lossy	1.2.840.10008.1.2.4.51		
		JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.70		

2.1.3.2.3 SOP Specific Conformance Statement

2.1.3.3 Real World Activity - Receive Query Request from a Remote Node

2.1.3.3.1 Associated Real World Activity - Respond to Find Request

The associated Real-World activity is a C-Find request received by the NI query provider. After accepting an association from a remote DICOM AE the NI query provider receives the query requests via the open association and queries the database. For each match a result message is sent to the requesting remote node.

2.1.3.3.2 Accepted Presentation Contexts

The Siemens MagicViews will accept Presentation Contexts as shown in the following tables.

Table 24: Query SCP Presentation Contexts of MagicView 300

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.1.1	DICOM Implicit VR Little Endian Transfer Syntax DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
Patient Study Only Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.3.1	DICOM Implicit VR Little Endian Transfer Syntax DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
Study Root Query/Retrieve Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	DICOM Implicit VR Little Endian Transfer Syntax DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None

2.1.3.3.3 SOP Specific Conformance Statement

- o Relational queries are not supported.
- o The query matching is case insensitive.
- o The DICOM MagicView 300 Query Provider returns one of the following status codes:
 - Success (0000): Matching is complete
 - Pending (FF00): Matches are continuing
 - Failed (A900): Invalid Parameters

- Refused (A700): Out of Resources
- Cancel (FE00)

2.1.3.3.3.1 Patient Root C-Find SOP Class Specific Conformance Statement

R = Required, U = Unique, O = Optional

Table 25: Supported Patient Level Attributes

Description	Tag	Type
Patient's Name	(0010,0010)	R
PatientID	(0010,0020)	O
Patient's Birth Date	(0010,0030)	O
Patient's Sex	(0010,0040)	O



Table 26: Supported Study Level Attributes

Description	Tag	Type
Study Date	(0008,0020)	R
Study Time	(0008,0030)	R
Accession Number	(0008,0050)	R
Referring Physician's Name	(0008,0090)	O
Study Description	(0008,1030)	O
Study ID	(0020,0010)	R
Study Instance UID	(0020,000D)	U
Number of Study related Images	(0020,1208)	O

Table 27: Supported Series Level Attributes

Description	Tag	Type
Modality	(0008,0060)	R
Series Description	(0008,103E)	O
Body Part Examined	(0018,0015)	O
Series Instance UID	(0020,000E)	U
Series Number	(0020,0011)	R
Requested Procedure ID	(0040,1001)	O
Number of Series Related Images	(0020,1209)	O
Storage Media File Set ID	(0088,0130)	O

2.1.3.3.3.2 Study Root C-Find SOP Class Specific Conformance Statement

Table 28: Supported Study Level attributes

Description	Tag	Type
Study Date	(0008,0020)	R
Study Time	(0008,0030)	R
Accession Number	(0008,0050)	R



Description	Tag	Type
Referring Physician's Name	(0008,0090)	O
Study Description	(0008,1030)	O
Patient's Name	(0010,0010)	R
Patient's Birth Date	(0010,0030)	O
Patient ID	(0010,0020)	O
Patient's Sex	(0010,0040)	O
Study Instance UID	(0020,000D)	U
Study ID	(0020,0010)	R
Number of Study related Images	(0020,1208)	O

- o The same Series level attributes as in the Patient Root C-Find SOP Class are supported.
- o The Requested Procedure ID is not expected to be part of a sequence.

2.1.3.3.3 Patient/Study Only C-Find SOP Class Specific Conformance Statement

- o The same Patient level attributes as in the Patient Root C-Find SOP Class are supported.
- o The same Study level attributes as in the Patient Root C-Find SOP Class are supported.

2.1.3.4 Real-World Activity - Receive Transfer Request from a Remote Node

2.1.3.4.1 Associated Real-World Activity - Initiate Image Transfer

The associated Real-World activity is a C-Move request received by the NI query provider. After accepting an association from a remote DICOM AE, the NI query provider receives the move request via the open association and queries the database. The requested images are sent to the requested remote node.

2.1.3.4.2 Accepted Presentation Contexts

The Siemens MagicView 300 will accept Presentation Contexts as shown in the following table.

Table 29: Retrieve SCP Presentation Contexts of MagicView 300

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	DICOM Implicit VR Little Endian Transfer Syntax DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None
Patient Study Only Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.4.1.2.3.2	DICOM Implicit VR Little Endian Transfer Syntax DICOM Explicit VR Big Endian Transfer Syntax, DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2 1.2.840.10008.1.2.2 1.2.840.10008.1.2.1	SCP	None



Study Root Query/Retrieve Information Model - MOVE	1.2.840.10008.5.1.	DICOM Implicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2	SCP	None
	4.1.2.2.2	DICOM Explicit VR Big Endian Transfer Syntax,	1.2.840.10008.1.2.2		
		DICOM Explicit VR Little Endian Transfer Syntax	1.2.840.10008.1.2.1		

2.1.3.4.3 *SOP Specific Conformance Statement*

The NI query provider sends one of the following status codes to the Query/Retrieve SCU in response to a C-Move request:

- o SUCCESS (0000): Matching is complete
- o PENDING (FF00): Matches are continuing
- o FAILED (A900): Invalid parameters
- o FAILED (C001): Unable to process
- o REFUSED (A801): Destination unknown
- o CANCEL (FE00)

2.1.3.4.3.1 *SOP Specific Conformance Statement for SOP Class C-Store*

The NI query provider initiates C-Store sub-operations using the Presentation Contexts listed in 2.1.3.2.2.

2.1.4 *Transfer Syntax Selection*

The Siemens MagicView 300 currently supports the Implicit Little Endian, Explicit Big Endian, Explicit Little Endian, JPEG Base-line(Process 1) Lossy, JPEG Extended (Process 2 und 4) Lossy and JPEG Lossless Transfersyntaxes (detailed description see presentation context tables).

For Storage Service Class Provider, the Siemens MagicView 300 has following syntax priority Order:

JPEG Baseline(Process 1) Lossy, JPEG Extended (Process 2 und 4) Lossy, JPEG Lossless, Non-Hierarchical (Process 14), Implicit Little Endian, Explicit Big Endian, Explicit Little Endian.

The transfer syntax priority order for the Query/Retrieve Provider is: Implicit VR Little Endian, Explicit VR Little Endian and Explicit VR Big Endian.

On Verification SOP Class: Implicit Little Endian, Explicit Big Endian, Explicit Little Endian.

2.1.5 File Meta Information for FSR,FSC

The Siemens MagicView 300 stores in the FileSetID the ID "MAGIC VIEW 300".

Impl. Version Name is: SHS_MV300_VA30A.

2.1.5.1 Real World Activity

Interchange Option with Directory Information - FSR

2.1.5.1.1 Media Storage Application Profile

The supported Storage Application Profile im MagicView 300 FSR is General Purpose CD-R Image Interchange Profile or configurable the US Application Profile Image Display Single/Multiframe with Augmentation wich stores retired US formats.

2.1.5.1.1.1 General purpose Profile

STD-GEN-CD

IOD	SOP Class UID	Transfer Syntax	Role
Basic Directory	1.2.840.10008.1.3.10	1.2.840.10008.1.2.1	FSR
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	1.2.840.10008.1.2.1	FSR
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	1.2.840.10008.1.2.1	FSR
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	1.2.840.10008.1.2.1	FSR
US Image Storage retired	1.2.840.10008.5.1.4.1.1.6	1.2.840.10008.1.2.1	FSR
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	1.2.840.10008.1.2.1	FSR
SC Image Storage	1.2.840.10008.5.1.4.1.1.7	1.2.840.10008.1.2.1	FSR
XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1	1.2.840.10008.1.2.1	FSR

IOD	SOP Class UID	Transfer Syntax	Role
RF Image Storage	1.2.840.10008.5.1.4.1.1.12.2	1.2.840.10008.1.2.1	FSR
NM Image Storage	1.2.840.10008.5.1.4.1.1.20	1.2.840.10008.1.2.1	FSR
US Multiframe Image Storage retired	1.2.840.10008.5.1.4.1.1.3	1.2.840.10008.1.2.1	FSR
US Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1	1.2.840.10008.1.2.1	FSR
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	1.2.840.10008.1.2.1	FSR
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	1.2.840.10008.1.2.1	FSR
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	1.2.840.10008.1.2.1	FSR
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	1.2.840.10008.1.2.1	FSR
Digital Intra-Oral X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	1.2.840.10008.1.2.1	FSR

2.1.5.1.1.2 US Application Profile

STD-US-ID-MF-CDR

IOD	SOP Class UID	Transfer Syntax	Role
Basic Directory	1.2.840.10008.1.3.10	1.2.840.10008.1.2.1	FSR
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.5	FSR

IOD	SOP Class UID	Transfer Syntax	Role
US Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1	1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.5	FSR

For FSR all from PS 3.11 defined Media and Photometric Interpretations are supported.

2.1.5.1.1.3 Augmentation

AUG-US-ID-MF-CDR

The Augmentation adds the Retired US formats to the Standard US Application profile:-

IOD	SOP Class UID	Transfer Syntax	Role
US Image Storage retired	1.2.840.10008.5.1.4.1.1.6	1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.5	FSR
US Multiframe Image Storage retired	1.2.840.10008.5.1.4.1.1.3	1.2.840.10008.1.2.1 1.2.840.10008.1.2.4.50 1.2.840.10008.1.2.5	FSR

2.1.5.2 Real World Activity - Interchange Option with Directory Information - FSC

2.1.5.2.1 Media Storage Application Profile

The only supported Profile in MagicView 300 FSC is General Purpose CD-R-Image Interchange Profile or configurable the US Application Profile Image Display Single/Multiframe.

2.1.5.2.1.1 General purpose Profile

STD-GEN-CD

IOD	SOP Class UID	Transfer Syntax	Role
Basic Directory	1.2.840.10008.1.3.10	1.2.840.10008.1.2.1	FSC
CR Image Storage	1.2.840.10008.5.1.4.1.1.1	1.2.840.10008.1.2.1	FSC
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	1.2.840.10008.1.2.1	FSC
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	1.2.840.10008.1.2.1	FSC
US Image Storage retired	1.2.840.10008.5.1.4.1.1.6	1.2.840.10008.1.2.1	FSC
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	1.2.840.10008.1.2.1	FSC
SC Image Storage	1.2.840.10008.5.1.4.1.1.7	1.2.840.10008.1.2.1	FSC
XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1	1.2.840.10008.1.2.1	FSC
RF Image Storage	1.2.840.10008.5.1.4.1.1.12.2	1.2.840.10008.1.2.1	FSC
NM Image Storage	1.2.840.10008.5.1.4.1.1.20	1.2.840.10008.1.2.1	FSC
US Multiframe Image Storage retired	1.2.840.10008.5.1.4.1.1.3	1.2.840.10008.1.2.1	FSC
US Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1	1.2.840.10008.1.2.1	FSC
PET Image Storage	1.2.840.10008.5.1.4.1.1.128	1.2.840.10008.1.2.1	FSC
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	1.2.840.10008.1.2.1	FSC
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	1.2.840.10008.1.2.1	FSC
Digital Mammography X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.2	1.2.840.10008.1.2.1	FSC

IOD	SOP Class UID	Transfer Syntax	Role
Digital Intra-Oral Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.3	1.2.840.10008.1.2.1	FSC

The Application stores the physical image at one write, multi session is not supported.

2.1.5.2.1.2 US Application Profile

STD-US-ID-MF

IOD	SOP Class UID	Transfer Syntax	Role
Basic Directory	1.2.840.10008.1.3.10	1.2.840.10008.1.2.1	FSC
US Image Storage	1.2.840.10008.5.1.4.1.1.6.1	1.2.840.10008.1.2.1	FSC
US Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1	1.2.840.10008.1.2.1	FSC

The Application stores the physical image at one write, multi session is not supported.

For FSC as Media only CDR is supported,all Photometric Interpretations are supported.

2.1.5.2.1.3 Augmentation

AUG-US-ID-MF-CDR

The Augmentation adds the Retired US formats to the Standard US Application profile:-

IOD	SOP Class UID	Transfer Syntax	Role
US Image Storage retired	1.2.840.10008.5.1.4.1.1.6	1.2.840.10008.1.2.1	FSC



IOD	SOP Class UID	Transfer Syntax	Role
US Multiframe Image Storage retired	1.2.840.10008.5.1.4.1.1.3	1.2.840.10008.1.2.1	FSC

3 *Communication Profiles*

3.1 *Supported Communication Stacks*

Siemens MagicView 300 provides DICOM TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

3.1.1 *TCP/IP Stack*

Siemens MagicView 300 uses the TCP/IP stack from the Windows 98/NT system upon which it executes.

3.1.1.1 *Physical Media Support*

Siemens MagicView 300 is independent of the physical medium over which TCP/IP executes.

4 Extensions/Privatizations/ Specializations

4.1 Standard Extended/ Specialized/Private SOPs

None.

4.2 Private Transfer Syntaxes

None.

5 Configuration

5.1 AE Title / Presentation Address Mapping

The Siemens MagicView 300 maps Application Entity Titles to host name and port number via an internal configuration method. The IP address for the host name is determined using standard system calls.

For each DICOM MagicView 300 **default** unique Application Entity Titles are assigned using the following mechanism:

Each Application Entity Title starts with "MV300_" and has added the Serial Number, eg. "MV300_0032" for MagicView 300.

The AE Titles can be changed with the configuration, the Port No. for the Storage SCP and the Query/Retrieve SCP is 104.

5.2 *Configurable Parameters*

- o The Application Entity Titles, host names and port numbers.
- o PDU size is set to 16384
- o time-out for accepting/rejecting an association request: 300 sec
- o time-out for responding to an association open/close request: 300 sec
- o time-out for accepting a message over the network: 300 sec
 - All this Timeout values can be changed via Configuration
- o Number of max. accepted Query Matches

6 Support of Extended Character Sets

The Siemens DICOM application supports the ISO 8859 Latin 1 (ISO-IR 100) character set.

Appendix: Requirements for Viewing of DICOM Images

Scope

This section of the MagicView 300 Conformance Statement document the required DICOM Tags for the Viewing application.

Requirements for Display and Simple Evaluation

- o Tags (0028,1050),(0028,1051) Window Center and Width and Tags (0028,1052),(0028,1053) Rescale Slope and Intercept must have values, which allow the image to be displayed on another station.
- o Following Pixel Representations are supported by the Viewer:

Attribute Name	DICOM Tag	16-bit unsigned	16-bit signed	15-bit	14-bit	13-bit	12-bit	10-bit	8-bit	8-bit
Bits allocated	(0028, 0100)	16	16	16	16	16	16	16	16	8
Bits stored	(0028, 0101)	16	16	15	14	13	12	10	8	8
High bit	(0028, 0102)	15	15	14	13	14	11	9	7	7
Pixel Representation	(0028,0103)	0	1	0	0	0	0	0	0	0

Note: If storing changed images, all 16-bit images are stored as 12 bit.

- o Following Photometric Interpretations are supported by the Viewer:

Photometric Interpretation (0028,0004)	Planar Configuration (0028,0006)	Support Read	Support Store
RGB	0	Y	Y



Photometric Interpretation (0028,0004)	Planar Configuration (0028,0006)	Support Read	Support Store
RGB	1	Y	N
MONOCHROME1	n.a.	Y	Y
MONOCHROME2	n.a.	Y	Y
PALETTE COLOR	n.a.	Y	N
YBR_FULL	1	Y	N
YBR_FULL_422	0	Y	N
YBR_PARTIAL_422	0	Y	N

All color images other than Default (1. Line) are converted to Default at storage time.

Maximum Image Size: 10000 Rows and 10000 Columns. Bigger images cannot be loaded to Viewer.

Maximum No. of Frames for Multiframe: 1000.

These are the requirements for Display and Simple Evaluations of the Viewing station. The Storage of images do not follow the current restrictions.



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