DICOM Conformance Statement
ABVS Workplace

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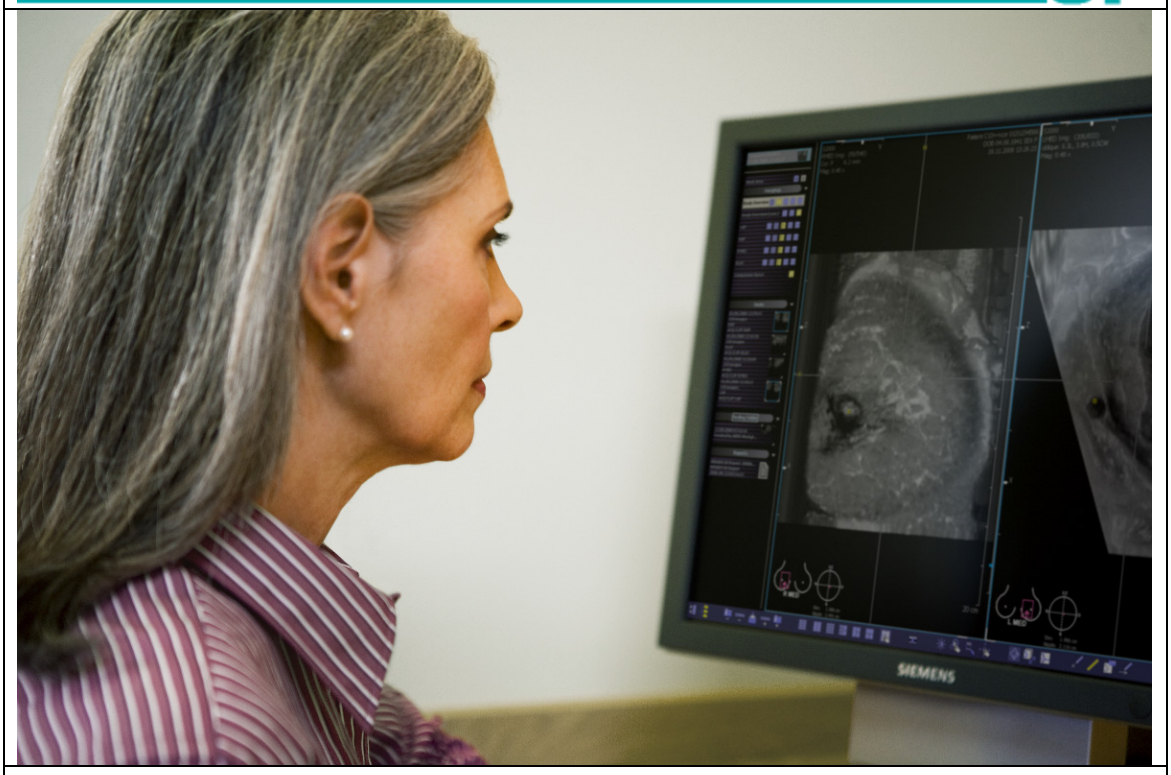

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The DICOM functionalities in the ABVS Workplace are based on the libraries from Offis DICOM Toolkit.

Softcopy reading software by MeVis BreastCare.

Bremen, September 2009

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1 Introduction

This DICOM conformance statement specifies the behavior and functionality of the ABVS Workplace application, version VB11. This software provides the following capabilities:

- Reads and displays uncompressed DICOM images.
- Prints on a remote printer using Basic Grayscale Print Service Class
- Sends and receives DICOM objects via the DICOM Storage Service Class.

1.1 Abbreviations and Acronyms

ASCII American Standard Code for Information Interchange
AE Application Entity
ANSI American National Standards Institute
CR Computed Radiography
CT Computed Tomography
DCMTK OFFIS DICOM Toolkit
DICOM Digital Imaging and Communications in Medicine
ECR European Congress of Radiology
GSPS Grayscale Softcopy Presentation State
HIMSS Healthcare Information and Management Systems Society
IE Information Entity
IHE Integrating the Healthcare Enterprise
IOD Information Object Definition
ISO International Standards Organization
NEMA National Electrical Manufacturers Association
OSI Open Systems Interconnection
PDU Protocol Data Unit
RSNA Radiological Society of North America
SCP Service Class Provider
SCU Service Class User
SOP Service Object Pair
SR Structured Reporting
TCP/IP Transmission Control Protocol / Internet Protocol
TLS Transport Layer Security
UID Unique Identifier
VM Value Multiplicity
VR Value Representation

1.2 Scope

This DICOM Conformance Statement documents the conformance of the ABVS Workplace software with the Digital Imaging and Communications in Medicine (DICOM) standard. This document is essential in order to evaluate whether or not another DICOM compliant device can communicate with this software product. This statement is conformant with the recommended format as described in PS 3.2 of the DICOM standard.

1.3 Reference to Customer Specification

In addition to the content of this document, the ABVS Workplace is compliant to the following parts of the document “Automated Breast Volume Scanner Data Storage

Specification", Revision 0g, issued on 09/04/08 by Siemens Healthcare USA, Ultrasound Division:

- Section 4.5, Table 4
- Section 4.5.1, Table 5,
- Section 4.5.2, Table 6
- Chapter 5, Table 8

1.4 Warning to the reader

If another device matches this Conformance Statement based on the comparison with its own Conformance Statement, there is a chance, but no guarantee that they interoperate. DICOM only deals with communication, it is not a standard which specifies what is needed for certain applications to run on a device.

2 Implementation Model

2.1 Application Data Flow Diagram

ABVS Workplace consists of a set of parallel, communicating but independent processes that deal with the DICOM communication. There is a process that takes care of receiving the images (C-STORE SCP) and storing them in the database, one that sends images out on request (C-STORE SCU), and a spooler process that manages communication with printers, using the Basic Grayscale Print Management Meta SOP Class. From a functional perspective, the processes that implement ABVS Workplace's DICOM network interface can be separated into the application entities:

Print SCU, Store SCP and Store SCU. The application entity titles attached to the different application entities are freely configurable.

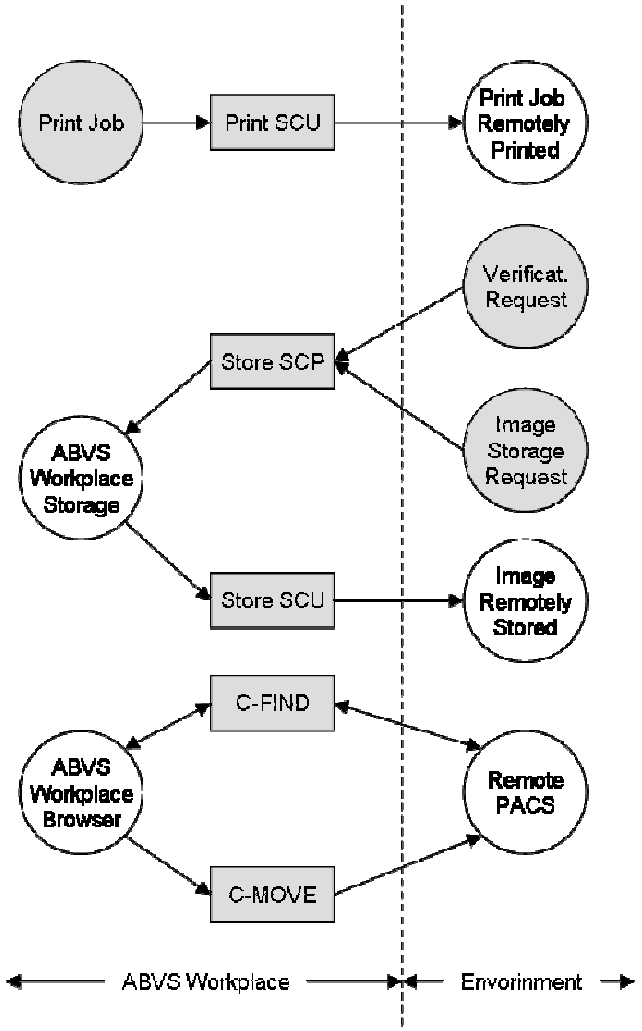

Figure 1: Implementation Model

2.2 Functional Definitions of AEs

2.2.1 Store SCP

Store SCP is an application that implements the DICOM Storage Service Class and the Verification Service Class as SCP. Store SCP is automatically started together with the operating system. Store SCP spawns a new process for each incoming DICOM association request. The association remains open until the remote application entity closes the association or until an error condition occurs that leads to an association abort.

2.2.2 Store SCU

Store SCU is an application that implements the DICOM Storage Service Class as SCU. Store SCU is activated by ABVS Workplace whenever the user requests transmission of one or more objects from the local database to a remote node. When ABVS Workplace is terminated, Store SCU continues to transmit until the transmission is completed or aborted because of a fatal error. For each transmission request a separate Store SCU is spawned. A transmission request may consist of the transmission of a single image, a complete series or study or several studies. All objects comprising one transmission request are transmitted over one association. When transmission is finished, the association is released and Store SCU terminates. If the transmission of an object fails because the peer Store SCP sends back an error code or no valid presentation context for the transmission of the object is available, the association is aborted and Store SCU also terminates.

2.2.3 Print SCU

Print SCU is an application that implements the Basic Grayscale Print Management Meta SOP Class as SCU. One generic spooler process is started together with the workplace. Whenever the user requests a print on a particular printer, the spooler manages the communication to this printer. When ABVS Workplace is terminated, the Print SCUs continue to transmit until the print job is completed or aborted because of a fatal error.

2.2.4 Find SCU

Find SCU is an application that implements the Query/Retrieve Service Class. Find SCU only supports query functionality using the C-FIND message. It sends query keys to an SCP and awaits responses. The application can be used to test SCPs of the Query/Retrieve Service Classes. Find SCU is activated by ABVS Workplace whenever the user queries for objects at a remote node. When ABVS Workplace is terminated, Find SCU will be terminated, as well. A query request starts on patient/study level and then can be refined down to the image level (first get patient and study information, then series, and finally image information). Query requests on series and image level will spawn a findSCU for each study/series.

2.2.5 Move SCU

Move SCU is an application implements both an SCU for the Query/Retrieve Service Class and an SCP for the Storage Service Class. Move SCU supports retrieve functionality using the C-MOVE message. It sends query keys to an SCP and awaits responses. It will accept associations for the purpose of receiving images sent as a result of the C-MOVE request. The application can be used to test SCPs of the Query/Retrieve Service Class. The Move SCU application can initiate the transfer of images to a third party or can retrieve images to itself. Note that the use of the term "move" is a misnomer. The C-MOVE operation actually performs an image copy (no images will be deleted from the SCP). Move SCU is activated by ABVS Workplace when retrieving data from a remote node or when choosing to send data from one remote node to another remote node. When ABVS Workplace terminates, Move SCU continues to transmit until the transmission is completed or aborted because of a fatal error.

3 Application Entity Specifications

3.1 Store SCP

The storescp application supports the following SOP Classes as an SCP:

SOP Class Name	SOP Class ID
*AmbulatoryECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.3
*BasicTextSR	1.2.840.10008.5.1.4.1.1.88.11
*BasicVoiceAudioWaveformStorage	1.2.840.10008.5.1.4.1.1.9.4.1
*BlendingSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.4
*CardiacElectrophysiologyWaveformStorage	1.2.840.10008.5.1.4.1.1.9.3.1
*ChestCADSR	1.2.840.10008.5.1.4.1.1.88.65
*ColorSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.2
*ComprehensiveSR	1.2.840.10008.5.1.4.1.1.88.33
ComputedRadiographyImageStorage	1.2.840.10008.5.1.4.1.1.1
CTImageStorage	1.2.840.10008.5.1.4.1.1.2
DigitalIntraOralXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.3
*DigitalIntraOralXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.3.1
DigitalXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.1
*DigitalXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.1.1
*DRAFT_SRAudioStorage	1.2.840.10008.5.1.4.1.1.88.2
*DRAFT_SRComprehensiveStorage	1.2.840.10008.5.1.4.1.1.88.4
*DRAFT_SRDetailStorage	1.2.840.10008.5.1.4.1.1.88.3
*DRAFT_SRTextStorage	1.2.840.10008.5.1.4.1.1.88.1
*DRAFT_WaveformStorage	1.2.840.10008.5.1.4.1.1.9.1
*EncapsulatedPDFStorage	1.2.840.10008.5.1.4.1.1.104.1
*EnhancedCTImageStorage	1.2.840.10008.5.1.4.1.1.2.1
*EnhancedMRImageStorage	1.2.840.10008.5.1.4.1.1.4.1
*EnhancedSR	1.2.840.10008.5.1.4.1.1.88.22
*EnhancedXAImageStorage	1.2.840.10008.5.1.4.1.1.12.1.1
*EnhancedXRFImageStorage	1.2.840.10008.5.1.4.1.1.12.2.1
*GeneralECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.2
*GrayscaleSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.1
HardcopyColorImageStorage	1.2.840.10008.5.1.1.30
HardcopyGrayscaleImageStorage	1.2.840.10008.5.1.1.29
*HemodynamicWaveformStorage	1.2.840.10008.5.1.4.1.1.9.2.1
*KeyObjectSelectionDocument	1.2.840.10008.5.1.4.1.1.88.59
MRImageStorage	1.2.840.10008.5.1.4.1.1.4
*MRSpectroscopyStorage	1.2.840.10008.5.1.4.1.1.4.2
MultiframeGrayscaleByteSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.2
MultiframeGrayscaleWordSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.3
MultiframeSingleBitSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.1
*MultiframeTrueColorSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.4
NuclearMedicineImageStorage	1.2.840.10008.5.1.4.1.1.20
*OphthalmicPhotography16BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.2
*OphthalmicPhotography8BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.1
*PETCurveStorage	1.2.840.10008.5.1.4.1.1.129
PETImageStorage	1.2.840.10008.5.1.4.1.1.128
*ProcedureLogStorage	1.2.840.10008.5.1.4.1.1.88.40
*PseudoColorSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.3
*RawDataStorage	1.2.840.10008.5.1.4.1.1.66

SOP Class Name	SOP Class ID
*RealWorldValueMappingStorage	1.2.840.10008.5.1.4.1.1.67
RETIRED_NuclearMedicineImageStorage	1.2.840.10008.5.1.4.1.1.5
RETIRED_UltrasoundImageStorage	1.2.840.10008.5.1.4.1.1.6
RETIRED_UltrasoundMultiframeImageStorage	1.2.840.10008.5.1.4.1.1.3
*RETIRED_VLImageStorage	1.2.840.10008.5.1.4.1.1.77.1
*RETIRED_VLMultiFrameImageStorage	1.2.840.10008.5.1.4.1.1.77.2
RETIRED_XRayAngiographicBiPlaneImageStorage	1.2.840.10008.5.1.4.1.1.12.3
*RTBeamsTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.4
*RTBrachyTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.6
*RTDoseStorage	1.2.840.10008.5.1.4.1.1.481.2
*RTImageStorage	1.2.840.10008.5.1.4.1.1.481.1
*RTPlanStorage	1.2.840.10008.5.1.4.1.1.481.5
*RTStructureSetStorage	1.2.840.10008.5.1.4.1.1.481.3
*RTTreatmentSummaryRecordStorage	1.2.840.10008.5.1.4.1.1.481.7
SecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7
*SpatialFiducialsStorage	1.2.840.10008.5.1.4.1.1.66.2
*SpatialRegistrationStorage	1.2.840.10008.5.1.4.1.1.66.1
*StandaloneCurveStorage	1.2.840.10008.5.1.4.1.1.9
*StandaloneModalityLUTStorage	1.2.840.10008.5.1.4.1.1.10
*StandaloneOverlayStorage	1.2.840.10008.5.1.4.1.1.8
*StandaloneVOILUTStorage	1.2.840.10008.5.1.4.1.1.11
*StereometricRelationshipStorage	1.2.840.10008.5.1.4.1.1.77.1.5.3
*StoredPrintStorage	1.2.840.10008.5.1.1.27
*TwelveLeadECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.1
UltrasoundImageStorage	1.2.840.10008.5.1.4.1.1.6.1
UltrasoundMultiframeImageStorage	1.2.840.10008.5.1.4.1.1.3.1
VerificationSOPClass	1.2.840.10008.1.1
*VideoEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1.1
*VideoMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.2.1
*VideoPhotographicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.4.1
VLEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1
VLMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.2
VLPhotographicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.4
*VLSlideCoordinatesMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.3
XRayAngiographicImageStorage	1.2.840.10008.5.1.4.1.1.12.1
*XRayFluoroscopyImageStorage	1.2.840.10008.5.1.4.1.1.12.2
XRayRadiationDoseSR	1.2.840.10008.5.1.4.1.1.88.67

This application entity does not provide standard conformance to any SOP class as SCU. Objects of the service classes marked with an asterisk (*) may not be handled as expected by the ABVS Workplace Application itself, though the handling of the DICOM objects will be successful. See 3.1.3.1.2.1

3.1.1 Association Establishment Policies

3.1.1.1 General

The DICOM standard application context name, which is always proposed, is:

Application context name 1.2.840.10008.3.1.1.1

The maximum PDU length can be configured at installation time in the range 4096..131072 bytes. The default is 16384 bytes.

SOP Class extended negotiation is not supported.

3.1.1.2 Number of Associations
The number of parallel associations is only limited by the resources of the underlying operating system.

3.1.1.3 Asynchronous Nature
Asynchronous mode of operation is not supported.

3.1.1.4 Implementation Identifying Information
The implementation UID of this application is:

OFFIS DCMTK 3.5.4 Implementation Class UID	1.2.276.0.7230010.3.0.3.5.4

3.1.2 Association Initiation by Real-World Activity
This application entity never initiates associations.

3.1.3 Association Acceptance Policy
When Store SCU accepts an association, it will answer a C-ECHO request or receive any images transmitted on that association and store the images on disk. Store SCU requires that the called Application Entity Title (AET) matches the AET configured for the application. It places no limitations on who may connect to it, nor on the number of simultaneous connects it will support.

3.1.3.1 Real-World Activity “Image receipt”
The Store SCP application entity accepts an association when it receives an association request from a remote DICOM Storage. The application accepts incoming association requests on every port number defined in the DICOM configurator, if the called AET matches the respective entry in its DICOM configuration. It accepts any association for which at least one presentation context is accepted. The calling application entity title is ignored. The responding application entity name can be configured in the DICOM configurator.

3.1.3.1.1 Associated Real-World Activity
The associated Real-World Activity associated with the C-STORE operation is the storage of the image on the disk of the system upon which Store SCU is running. The data received is then added to a database and analyzed for proper viewing by processed out of the scope of this document.

3.1.3.1.2 Presentation Context Table
The default behavior of the Store SCP is to accept as SCP for each of the supported SOP classes all presentation contexts containing one or more of the following transfer syntaxes:

Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2

The default behavior can be changed in the configuration file such that only presentation contexts for supported SOP classes containing the Implicit VR Little Endian transfer syntax are accepted.

3.1.3.1.2.1 SOP Specific Conformance for all Storage SOP Classes

The Store SCP will receive any DICOM objects (images and non-image objects) transmitted in the open association provided that the correct presentation context is used. If the objects are received successfully, they are stored and registered in the local database, from where they can be loaded into ABVS Workplace. No integrity checks of the received objects are performed beyond tests of a very basic structural integrity. In particular, the sending system is not prevented from transmitting incomplete or incorrect IODs or objects that are correct but cannot be displayed. Such objects will be visible in the PACS browser, but they cannot be viewed.

Objects are stored in the local database as files in DICOM part 10 format with Explicit VR Little Endian Transfer Syntax. When objects received in Implicit VR contain attributes unknown to this application, they are stored as “Unknown VR” (UN) elements. Certain element values may be changed during storage, i. e. group length values and sequence lengths are re-computed. This behavior can be changed in two ways in the configuration file:

- The support for unknown VR can be disabled. In this case, unknown elements are stored as “OB”.
- The Store SCP can be switched to “bit preserving mode”. In this case, objects are stored without any modification in the transfer syntax in which they are received.

The following error/warning status codes can be sent by the Store SCP in the context of a CSTORE- RSP message:

Code	Name	Severity	Description
a700	refused: out of resources	failure	Application out of memory, file system or database write error (e. g. file system full)
a800	refused: SOP class not supported	failure	Received C-STORE-RQ for non-storage SOP class
a900	error: data set does not match SOP class	failure	SOP class or instance UID in C-STORE-RQ does not match UIDs in the received dataset
c000	error: cannot understand	failure	Received dataset without SOP class or instance UID; received Presentation State that failed syntax check; internal application error

Store SCP never removes, coerces or changes attribute values, except for the special case of group length attributes mentioned above. The duration of storage depends on the user, who can delete objects from the local database at any time and on the configuration of the storage database, that can be configured to auto-delete studies after a given time.

Store SCP implements Level 2 (Full) conformance to the Storage Service Class. Store SCP implements Signature Level 3 conformance since the integrity of incoming Digital Signatures is preserved even if “bit preserving mode” is not activated. However, extended negotiation is not supported.

3.1.3.1.3 Transfer Syntax Selection Policies

The default behavior of the Store SCP is to select for each presentation context containing a supported SOP class the explicit VR transfer syntax with the byte order matching the local machine byte order (i. e. little endian on PC, big endian on Mac OS). If this transfer syntax is not available, the explicit VR transfer syntax with opposite byte order is selected. If this is also unavailable, Implicit VR little endian is selected if available, otherwise the presentation context is rejected.

3.2 Store SCU

The storescu application supports the following Storage SOP Classes as an SCU:

SOP Class Name	SOP Class UID
ComputedRadiographyImageStorage	1.2.840.10008.5.1.4.1.1.1
DigitalXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.1
DigitalXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.1.1
DigitalIntraOralXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.3
DigitalIntraOralXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.3.1
EncapsulatedPDFStorage	1.2.840.10008.5.1.4.1.1.104.1
GrayscaleSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.1
ColorSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.2
PseudoColorSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.3
BlendingSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.4
XRayAngiographicImageStorage	1.2.840.10008.5.1.4.1.1.12.1
EnhancedXAImageStorage	1.2.840.10008.5.1.4.1.1.12.1.1
XRayFluoroscopyImageStorage	1.2.840.10008.5.1.4.1.1.12.2
EnhancedXRFImageStorage	1.2.840.10008.5.1.4.1.1.12.2.1
PETImageStorage	1.2.840.10008.5.1.4.1.1.128
PETCurveStorage	1.2.840.10008.5.1.4.1.1.129
CTImageStorage	1.2.840.10008.5.1.4.1.1.2
EnhancedCTImageStorage	1.2.840.10008.5.1.4.1.1.2.1
NuclearMedicineImageStorage	1.2.840.10008.5.1.4.1.1.20
UltrasoundMultiframeImageStorage	1.2.840.10008.5.1.4.1.1.3.1
MRImageStorage	1.2.840.10008.5.1.4.1.1.4
EnhancedMRImageStorage	1.2.840.10008.5.1.4.1.1.4.1
MRSpectroscopyStorage	1.2.840.10008.5.1.4.1.1.4.2
RTImageStorage	1.2.840.10008.5.1.4.1.1.481.1
RTDoseStorage	1.2.840.10008.5.1.4.1.1.481.2
RTStructureSetStorage	1.2.840.10008.5.1.4.1.1.481.3
RTBeamsTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.4
RTPlanStorage	1.2.840.10008.5.1.4.1.1.481.5
RTBrachyTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.6
RTTreatmentSummaryRecordStorage	1.2.840.10008.5.1.4.1.1.481.7
UltrasoundImageStorage	1.2.840.10008.5.1.4.1.1.6.1
RawDataStorage	1.2.840.10008.5.1.4.1.1.66
SpatialRegistrationStorage	1.2.840.10008.5.1.4.1.1.66.1
SpatialFiducialsStorage	1.2.840.10008.5.1.4.1.1.66.2
RealWorldValueMappingStorage	1.2.840.10008.5.1.4.1.1.67
SecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7
MultiframeSingleBitSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.1
MultiframeGrayscaleByteSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.2
MultiframeGrayscaleWordSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.3
MultiframeTrueColorSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.4

SOP Class Name	SOP Class UID
VLEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1
VLMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.2
VLSlideCoordinatesMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.3
VLPhotographicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.4
OphthalmicPhotography8BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.1
OphthalmicPhotography16BitImageStorage	1.2.840.10008.5.1.4.1.1.77.1.5.2
StereometricRelationshipStorage	1.2.840.10008.5.1.4.1.1.77.1.5.3
BasicTextSR	1.2.840.10008.5.1.4.1.1.88.11
EnhancedSR	1.2.840.10008.5.1.4.1.1.88.22
ComprehensiveSR	1.2.840.10008.5.1.4.1.1.88.33
ProcedureLogStorage	1.2.840.10008.5.1.4.1.1.88.40
KeyObjectSelectionDocument	1.2.840.10008.5.1.4.1.1.88.59
ChestCADSR	1.2.840.10008.5.1.4.1.1.88.65
XRayRadiationDoseSR	1.2.840.10008.5.1.4.1.1.88.67
TwelveLeadECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.1
GeneralECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.2
AmbulatoryECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.3
HemodynamicWaveformStorage	1.2.840.10008.5.1.4.1.1.9.2.1
CardiacElectrophysiologyWaveformStorage	1.2.840.10008.5.1.4.1.1.9.3.1
BasicVoiceAudioWaveformStorage	1.2.840.10008.5.1.4.1.1.9.4.1

This application entity does not provide standard conformance to any SOP class as SCP.

Note: Results generated by the application are stored and sent out as Secondary Capture Images.

3.2.1 Association Establishment Policies

3.2.1.1 General

The DICOM standard application context name, which is always proposed, is:

Application context name 1.2.840.10008.3.1.1.1

The maximum PDU length can be configured at installation time in the range 4096..131072 bytes. The default is 16384 bytes.

SOP Class extended negotiation is not supported.

3.2.1.2 Number of Associations

Store SCU will only propose a single association. However, multiple instances of Store SCU may be running at the same time. The number of parallel instances is only limited by the resources of the underlying operating system.

3.2.1.3 Asynchronous Nature

Asynchronous mode of operation is not supported.

3.2.1.4 Implementation Identifying Information

The implementation UID of this application is:

OFFIS DCMTK 3.5.4 Implementation Class UID 1.2.276.0.7230010.3.0.3.5.4

3.2.2 Association Initiation by Real-World Activity

3.2.2.1 Real-World Activity "Image transmission"

An instance of the Store SCU application entity is started in order to execute a transmission request. The application initiates an association with the selected remote Storage SCP. The calling application entity name can be configured. The called application entity name must be configured together with the related host name or address in the DICOM configurator.

3.2.2.1.1 Associated Real-World Activity

There are two ways to start a file transfer:

- ABVS Workplace Browser: The user selects an object, series or study in the ABVS Workplace browser. He selects the "send" function, chooses a send target and selects "OK".
- Result Storage: The result images or presentation contexts generated within the viewing application can be sent to an arbitrary known C-STORE SCP by the user or are sent to the C-STORE SCP, that is marked as "Default PACS" in the DICOM configuration.

3.2.2.1.2 Proposed Presentation Contexts

The default behavior of the Store SCU is to propose for each of the supported SOP classes a single presentation context containing the following transfer syntaxes:

Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2

The explicit VR transfer syntax with local byte order (i. e. little endian on PC, big endian on Mac OS) will always be the first in the list of the proposed transfer syntaxes, followed by the explicit VR transfer syntax with opposite byte order, followed by the DICOM default transfer syntax.

3.2.2.1.2.1 SOP Specific Conformance for all Storage SOP Classes

Store SCU transmits the selected objects from the local ABVS Workplace data storage and creates a log entry for each C-STORE operation. The log entry shows whether or not the transmission was successful. If the SCP returns a DIMSE error or warning status code for one C-STORE operation, this information is logged, and transmission continues with the next object. Store SCU never attempts to automatically repeat failed transmissions. If transmission of one selected object fails because no appropriate presentation context could be negotiated, Store SCU aborts the association and creates a log entry indicating the unsuccessful termination. Store SCU always transmits all elements contained in an object, independent from their type within the IOD of the corresponding SOP Class.

3.2.3 Association Acceptance Policy

This application does not accept associations.

3.3 Print SCU

This application entity provides a standard conformance to the following DICOM SOP classes as an SCU:

SOP Class Name	SOP Class UID
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9
Basic Annotation Box SOP Class	1.2.840.10008.5.1.1.15
Print Job SOP Class	1.2.840.10008.5.1.1.17

This application entity does not provide standard conformance to any SOP as an SCP.

3.3.1 Association Establishment Policies

3.3.1.1 General

The DICOM standard application context name used is:

Application context name	1.2.840.10008.3.1.1.1

The maximum PDU length is set to 16384 = 16K and cannot be configured.

SOP Class extended negotiation is not supported.

3.3.1.2 Number of Associations

Only one association can be opened and processed, at a time.

3.3.1.3 Asynchronous Nature

The asynchronous mode of operations is not supported.

3.3.1.4 Implementation Identifying Information

The implementation UID of the application is:

OFFIS DCMTK 3.5.4 Implementation Class UID	1.2.276.0.7230010.3.0.3.5.4

3.3.2 Association Initiation by Real-World-Activity

3.3.2.1 Real-World Activity "Print Job"

An instance of the Print SCU application entity is requested to spool a print job, assembled by the user through the DICOM Print dialogue to a particular printer. The application entity initiates an association with that selected Print Management Service Class Provider. The calling and called application entity names, as well as the presentation address to be used are configured when the printer is configured in ABVS Workplace.

3.3.2.1.1 Associated Real-World Activity

After creating results, the user selects the DICOM Print button in ABVS Workplace to open the DICOM Print dialogue. In this dialogue pressing the print button creates the print job.

3.3.2.1.2 Proposed Presentation Contexts

By default the application entity proposes as an SCU for each of the supported SOP classes a single presentation context containing the following transfer syntaxes:

Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2

The transfer syntaxes are sorted in the following order: First the SCU proposes the explicit VR transfer syntax with local byte order (little endian for PC, big endian for Mac OS). After that the explicit VR transfer syntax with opposite byte order is proposed. The last transfer syntax to be proposed is the DICOM default transfer syntax.

3.3.2.1.2.1 SOP Specific Conformance for Printer SOP Class

After a successful association negotiation the Print SCU issues an N-GET request to retrieve the contents of the Printer SOP Instance. For this request the attribute identifier list is kept empty, thus requesting the Print SCP to transmit the contents of all attributes of the Printer SOP Instance. If this request fails the connection with the associated printer is released. The Print SCU is able to accept N-EVENT-REPORT requests from the Printer SOP instance, as well as to respond with an N-EVENT-REPORT response.

3.3.2.1.2.2 SOP Specific Conformance for Basic Film Session SOP Class

After the retrieval of the Printer SOP instance the Print SCU creates a Basic Film Session. The Print SCP responds with the elements for the Basic Film Session known to the printer. If the creation fails, the association with SCP is released. The Basic Film Session is deleted before releasing the association, after the print job has been completed, successfully, using the N-DELETE request. For the Basic Film Session the SCU issues a single N-SET request for each of the following elements:

Attribute Name	Tag	Type	VR	VM	Comment
Number Of Copies	(2000,0010)	U/M	IS	1	Specified by user
Print Priority	(2000,0020)	U/M	CS	1	Specified by user
Medium Type	(2000,0030)	U/M	CS	1	Specified by user
Film Destination	(2000,0040)	U/M	CS	1	Specified by user

No other requests are sent on this level.

3.3.2.1.2.3 SOP Specific Conformance for Basic Film Box SOP Class

If the Basic Film Session SOP instance has been created, successfully, the Print SCU creates a Basic Film Box, using the N-CREATE request, containing the following elements:

Attribute Name	Tag	Type	VR	VM	Comment
Image Display Format	(2010,0010)	M/M	ST	1	Possible values: STANDARD\x,y ROW\x,y,...,z, COL\x,y,...,z SLIDE, SUPERSLIDE CUSTOM-X as defined for the printer
Annotation Display	(2010,0030)	U/U	CS	1	Sent if specified by user and Basic

Attribute Name	Tag	Type	VR	VM	Comment
Format ID					Annotation Box SOP Class was successfully negotiated
Film Orientation	(2010,0040)	U/M	CS	1	Specified by user
Film Size ID	(2010,0050)	U/M	CS	1	Specified by user
Referenced Film Session Sequence	(2010,0500)	M/M	SQ	1	
>Referenced SOP Class UID	(0008,1150)	M/M	UI	1	
>Referenced SOP Instance UID	(0008,1155)	M/M	UI	1	

If the creation fails, the association with the SCP is released. There is only one Basic Film Box in the context of one association. An N-ACTION request is used by the SCU to request the Print SCP to process the print job. After the successful completion of the print job, the Print SCU uses an N-DELETE request to delete the Basic Film Box SOP instance before deleting the Basic Film Session SOP instance and releasing the association.

For the Basic Film Box the Print SCU issues a single N-SET request to set each of the following elements:

Attribute Name	Tag	Type	VR	VM	Comment
Annotation Position	(2030,0010)	M/M	US	1	Set by user
Text String	(2030,0020)	M/M	LO	1	Set by user
Magnification Type	(2010,0060)	U/M	CS	1	Set by user
Border Density	(2010,0100)	U/U	CS	1	Set by user
Empty Image Density	(2010,0110)	U/U	CS	1	Set by user
Min Density	(2010,0120)	U/U	US	1	Set in configuration
Max Density	(2010,0130)	U/M	US	1	Set in configuration
Trim	(2010,0140)	U/U	CS	1	Set by user

No other requests are sent.

3.3.2.1.2.4 SOP Specific Conformance for Basic Grayscale Image Box SOP Class

For each Basic Grayscale Image Box created as part of the Basic Film Box the Print SCU issues a single N-SET request for each image box, as long as an image for the image box is present. The following elements may be set as part of the N-SET request.

Attribute Name	Tag	Type	VC	VM	Comment
Image Position	(2020,0010)	M/M	US	1	
Polarity	(2020,0020)	U/M	CS	1	Set by user
Basic Grayscale Image Sequence	(2020,0110)	M/M	SQ	1	
>Samples per Pixel	(0028,0002)	M/M	US	1	Value is 1
>Photometric Interpretation	(0028,0004)	M/M	CS	1	Value is MONOCHROME2
>Pixel Aspect Ratio	(0228,0034)	MC/M	IS	1	Set if pixel aspect ratio != 1/1
>Rows	(0028,0010)	M/M	US	1	
>Columns	(0028,0011)	M/M	US	1	
>Bits Allocated	(0028,0100)	M/M	US	1	Value is 8
>Bits Stored	(0028,0101)	M/M	US	1	Value is 8
>High Bit	(0028,0102)	M/M	US	1	Value is 7

Attribute Name	Tag	Type	VC	VM	Comment
>Pixel Representation	(0028,0103)	M/M	US	1	Value is 0
>Pixel Data	(7fe0,0010)	M/M	OW	1	See note below

Since support for the Presentation LUT SOP Class has not been negotiated with Print SCP, the Print SCU assumes that the printer uses a display curve related to the DICOM Grayscale Display Standard Function with viewing conditions (illumination and reflection) defined in a proprietary manner outside the print protocol. All images will be sent in P-values, with all Presentation LUTs "burned in" as if Presentation LUT Shape of "IDENTITY" had been negotiated

3.3.2.1.2.5 SOP Specific Conformance for Basic Annotation Box SOP Class

If supported and the Annotation Boxes have been created as part of the Basic Film Box the Print SCU may set a single N-SET request for each annotation box. The following elements may be set:

Attribute Name	Tag	Type	VR	VM	Comment
Annotation Position	(2030,0010)	M/M	US	1	Set by user
Text String	(2030,0020)	U/M	LO	1	Set by user

3.3.3 Association Acceptance Policy

The application entity never accepts associations.

3.4 Find SCU

The findscu application supports the following SOP Classes as an SCU:

SOP Class Name	SOP Class UID
FINDPatientRootQueryRetrieveInformationModel	1.2.840.10008.5.1.4.1.2.1.1
FINDStudyRootQueryRetrieveInformationModel	1.2.840.10008.5.1.4.1.2.2.1
FINDPatientStudyOnlyQueryRetrieveInformationModel	1.2.840.10008.5.1.4.1.2.3.1

3.4.1 Association Establishment Policies

3.4.1.1 General

The DICOM standard application context name, which is always proposed, is:

Application context name 1.2.840.10008.3.1.1.1

The maximum PDU length can be configured at installation time in the range 4096..131072 bytes. The default is 16384 bytes.

SOP Class extended negotiation is not supported.

3.4.1.2 Number of Associations

Find SCU will only propose a single association. However, multiple instances of Find SCU may be running at the same time. The number of parallel instances is limited by the resources of the underlying operating system, the by the resources of the remote node, as well as the configured number of parallel Find SCU processes in ABVS Workplace.

3.4.1.3 Asynchronous Nature

Asynchronous mode of operation is not supported.

3.4.1.4 Implementation Identifying Information

The implementation UID of this application is:

OFFIS DCMTK 3.5.4 Implementation Class UID	1.2.276.0.7230010.3.0.3.5.4

3.4.2 Association Initiation by Real-World Activity

3.4.2.1 Real-World Activity "Image transmission"

An instance of the Find SCU application entity is started in order to execute a query request. The application initiates an association with the selected remote Storage SCP. The calling application entity name can be configured. The called application entity name must be configured together with the related host name or address in the DICOM configurator.

3.4.2.1.1 Associated Real-World Activity

A query request is started within the ABVS Workplace Browser by querying for certain keys. These keys can be set in the Browser.

3.4.2.1.2 Proposed Presentation Contexts

The default behavior of the Store SCU is to propose for each of the supported SOP classes a single presentation context containing the following transfer syntaxes:

Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2

The explicit VR transfer syntax with local byte order (i. e. little endian on PC, big endian on Mac OS) will always be the first in the list of the proposed transfer syntaxes, followed by the explicit VR transfer syntax with opposite byte order, followed by the DICOM default transfer syntax.

3.4.3 Association Acceptance Policy

This application does not accept associations.

3.5 Move SCU

The movescu application supports the following SOP Classes as an SCU:

SOP Class Name	SOP Class UID
MOVEPatientRootQueryRetrieveInformationModel	1.2.840.10008.5.1.4.1.2.1.2
MOVEStudyRootQueryRetrieveInformationModel	1.2.840.10008.5.1.4.1.2.2.2
MOVEPatientStudyOnlyQueryRetrieveInformationModel	1.2.840.10008.5.1.4.1.2.3.2

3.5.1.1 General

The DICOM standard application context name, which is always proposed, is:

Application context name	1.2.840.10008.3.1.1.1

The maximum PDU length can be configured at installation time in the range 4096..131072 bytes. The default is 16384 bytes.

SOP Class extended negotiation is not supported.

3.5.1.2 Number of Associations

Move SCU will only propose a single association. However, multiple instances of Move SCU may be running at the same time. The number of parallel instances is limited by the resources of the underlying operating system. Move SCU processes in ABVS Workplace.

3.5.1.3 Asynchronous Nature

Asynchronous mode of operation is not supported.

3.5.1.4 Implementation Identifying Information

The implementation UID of this application is:

OFFIS DCMTK 3.5.4 Implementation Class UID	1.2.276.0.7230010.3.0.3.5.4

3.5.2 Association Initiation by Real-World Activity

3.5.2.1 Real-World Activity "Image transmission"

An instance of the Move SCU application entity is started in order to execute a transfer request from a remote host to another host, which can either be another remote host or the local host. The application initiates an association with the selected remote Storage SCP. The calling application entity name can be configured. The called application entity name must be configured together with the related host name or address in the DICOM configurator.

3.5.2.1.1 Associated Real-World Activity

There are two ways to start a file transfer from the ABVS Workplace Browser:

- The user selects an object, series, or study from a remote host in the ABVS Workplace browser. He selects the "retrieve" function and selects "OK".
- The user selects an object, series, or study from a remote host in the ABVS Workplace browser. He selects the "send" function, chooses a send target and selects "OK".

3.5.2.1.2 Proposed Presentation Contexts

The default behavior of the Store SCU is to propose for each of the supported SOP classes a single presentation context containing the following transfer syntaxes:

Implicit VR Little Endian	1.2.840.10008.1.2
Explicit VR Little Endian	1.2.840.10008.1.2.1
Explicit VR Big Endian	1.2.840.10008.1.2.2

The explicit VR transfer syntax with local byte order (i. e. little endian on PC, big endian on Mac OS) will always be the first in the list of the proposed transfer syntaxes, followed by the explicit VR transfer syntax with opposite byte order, followed by the DICOM default transfer syntax.

3.5.3 Association Acceptance Policy

This application does not accept associations.

4 COMMUNICATION PROFILES

4.1 Supported Communication Stacks
DICOM Upper Layer over TCP/IP is supported.

4.2 OSI Stack
Not supported.

4.3 TCP/IP Stack
The TCP/IP stack is inherited from the underlying operating system

4.3.1 API
The application makes use of the Berkeley Sockets interface on Unix and of the WinSock interface on Win32 platforms.

4.3.2 Physical Media Support
DICOM is indifferent to the physical medium over which TCP/IP executes.

4.4 Point-to-Point Stack
Not supported.

5 Configuration

5.1 AE Title / Presentation Address Mapping

The mapping of application entity titles to presentation addresses is configurable during runtime in the DICOM Config Editor, see details below.

5.2 Configurable Parameters

5.2.1 Store SCP

For the Store SCP component, the following parameters are configurable:

- Listening IP port numbers
- Application entity title
- Support for explicit VR transfer syntaxes (default: on)

The number of listening application entities is not restricted.

5.2.2 Store SCU

For the Store SCU component, the following parameters are configurable for each send target:

- Presentation address (DNS hostname or IP address)
- IP port number
- Called application entity title
- Calling application entity title

The number of send targets is not restricted.

5.2.3 Print SCU

For the Print SCU the following parameters are configurable

- in the DICOM Config Editor:
  - Presentation address (DNS hostname or IP address)
  - IP port number
  - Called application entity title
  - Calling application entity title
- either in the configuration associated to a printer or in the DICOM print dialogue:
  - number of copies (default: 1)
  - orientation (default: PORTRAIT)
  - priority (default: MED)

  - destination (default: MAGAZINE)
  - optional trim element in Basic Film Box SOP Class (default: OFF)
  - Border Density identifiers (default: 20)
  - Empty Image Density identifiers (default: WHITE)
  - Frame Number (default: 0)
  - optional display of patient data (default: 1)
  - usage of the Basic Annotation Box SOP class (default: - => no annotation box is to be used)
  - Annotation text (default: "")
- in the configuration associated to the printer, only:
  - supported Image Display Formats (STANDARD\c,r, ROW\c1,c2,...,cn, ...)
  - supported Film Size IDs (A4, 8INX10IN, ...)
  - supported Medium Types (BLUEFILEM, PAPER)
  - supported Magnification (default: BILINEAR)
  - supported Max Density (default: 300)
  - supported Min Density (default: 0)
  - supported Overlay Mode (default: THRESHOLDREPLACE)
  - supported Foreground Density (default: 300)
  - supported Threshold Density (default: 200)
  - supported VOI (default: 0)

5.2.4 Find SCU

For the Find SCU component, the following parameters are configurable for each send target:

- Presentation address (DNS hostname or IP address)
- IP port number
- Called application entity title
- Calling application entity title

The number of send targets is not restricted.

5.2.5 Move SCU

For the Move SCU component, the following parameters are configurable for each send target:

- Presentation address (DNS hostname or IP address)

- IP port number
- Called application entity title
- Calling application entity title

The number of send targets is not restricted.

6 SUPPORT OF EXTENDED CHARACTER SETS

This application supports only ISO_IR 100 (ISO 8859-1 Latin 1) as extended character set.

7 INFORMATION OBJECT IMPLEMENTATION

This section specifies the subsets of DICOM Information Object Definitions (IOD) used to represent the information objects produced by this implementation.

7.1 Secondary Capture Module Table

Entity Name	Module	Reference
Patient	Patient	7.2.1.1
Study	General Study	7.2.1.2
	Patient Study	7.2.1.3
	Study Identification Module	7.2.1.4
	Study Classification Module	7.2.1.5
Series	General Series	7.2.1.6
Equipment	General Equipment	7.2.1.7
	SC Equipment	7.2.1.14
Image	General Image	7.2.1.7.1
	Image Pixel	7.2.1.9
	SC Image	7.2.1.15
	Overlay Plane	7.2.1.10
	Modality LUT	7.2.1.11
	VOI LUT	7.2.1.12
	SOP Common	7.2.1.13

7.2 Secondary Capture Module Descriptions

7.2.1.1 Patient Module

Attribute Name	Tag	Type	VR	VM	Comment
Patient's Name	(0010,0010)	2	PN	1	Copied from Original
Patient ID	(0010,0020)	2	LO	1	Copied from Original
Patient's Birth Date	(0010,0030)	2	DA	1	Copied from Original
Patient's Sex	(0010,0040)	2	CS	1	Copied from Original

7.2.1.2 General Study Module

Attribute Name	Tag	Type	VR	VM	Comment
Study Instance UID	(0020,000D)	1	UI	1	Copied from Original
Study Date	(0008,0020)	2	DA	1	Copied from Original
Study Time	(0008,0030)	2	TM	1	Copied from Original
Referring Physician's Name	(0008,0090)	2	PN	1	Copied from Original
Study ID	(0020,0010)	2	SH	1	Copied from Original
Accession Number	(0008,0050)	2	SH	1	Copied from Original
Study Description	(0008,1030)	3	LO	1	Copied from Original

7.2.1.3 Patient Study Module

Attribute Name	Tag	Type	VR	VM	Comment
Patient's Age	(0010,1010)	3	AS	1	Copied from Original
Patient's Size	(0010,1020)	3	DS	1	Copied from Original
Patient's Weight	(0010,1030)	3	DS	1	Copied from Original

7.2.1.4 Study Identification Module

Attribute Name	Tag	Type	VR	VM	Comment
Study ID Issuer	(0032,0012)		LO	1	Copied from Original
Other Study Numbers	(0020,1070)		IS	1-n	Copied from Original

7.2.1.5 Study Classification Module

Attribute Name	Tag	Type	VR	VM	Comment
Study Comments	(0032,4000)		LT	1	Copied from Original

7.2.1.6 General Series Module

Attribute Name	Tag	Type	VR	VM	Comment
Modality	(0008,0060)	1	CS	1	Copied from Original
Series Instance UID	(0020,000E)	1	UI	1	Generated
Series Number	(0020,0011)	2	IS	1	Generated
Laterality	(0020,0060)	2c	CS	1	Copied from Original
Series Description	(0008,103E)	3	LO	1	Copied from Original
Operator's Name	(0008,1070)	3	PN	1-n	<ABVS Workplace user>
Body Part Examined	(0018,0015)	3	CS	1	Copied from Original
Patient Position	(0018,5100)	2c	CS	1	Copied from Original

7.2.1.7 General Equipment Module

Attribute Name	Tag	Type	VR	VM	Comment
Manufacturer	(0008,0070)	2	CS	1	Copied from Original / 'Siemens Corporation' (see 7.2.1.7.1)
Institution Name	(0008,0080)	3	LO	1	Copied from Original
Institution Address	(0008,0081)	3	ST	1	Copied from Original
Station Name	(0008,1010)	3	SH	1	Copied from Original / <local hostname> (see 7.2.1.7.1)
Institutional Department Name	(0008,1040)	3	LO	1	Copied from Original
Manufacturer's Model Name	(0008,1090)	3	LO	1	Copied from Original / 'ABVS Workplace (see 7.2.1.7.1)
Device Serial Number	(0018,1000)	3	LO	1	Copied from Original
Software Versions	(0018,1020)	3	LO	1-n	Copied from Original / <ABVS Workplace version number> (see 7.2.1.7.1)

7.2.1.7.1

The values of these attribute depend on the value of the configuration flag "Results_OverwriteManufacturer". For a value of '0', the original values are copied, for '1', the values mentioned above are used.

7.2.1.8 General Image Module

Attribute Name	Tag	Type	VR	VM	Comment
Instance Number	(0020,0013)	2	IS	1	Generated
Patient Orientation	(0020,0020)	2c	CS	2	Copied from Original
Content Date	(0008,0023)	2c	DA	1	Copied from Original
Content Time	(0008,0033)	2c	TM	1	Copied from Original
Image Type	(0008,0008)	3	CS	1-n	'DERIVED\SECONDARY\OTHER\ABVS Workplace'

7.2.1.9 Image Pixel Module

Attribute Name	Tag	Type	VR	VM	Comment
Samples per Pixel	(0028,0002)	1	US	1	'1' – for gray scale value images '3' – for color images
Photometric Interpretation	(0028,0004)	1	CS	1	'MONOCHROME2' – for gray scale value images 'RGB' – for color images
Rows	(0028,0010)	1	US	1	Depending on the size of the image on screen, but at least 512
Columns	(0028,0011)	1	US	1	Depending on the size of the image on screen, but at least 512
Bits Allocated	(0028,0100)	1	US	1	'8'
Bits Stored	(0028,0101)	1	US	1	'8'
High Bit	(0028,0102)	1	US	1	'7'
Pixel Representation	(0028,0103)	1	US	1	'0'
Pixel Data	(7FE0,0010)	1	OW/ OB	1	Always sent as OW
Planar Configuration	(0028,0006)	1c	US	1	'0' – for color images not present otherwise

7.2.1.10 Overlay Plane Module

This module is not implemented for this IOD.

7.2.1.11 Modality LUT Module

This module is not implemented for this IOD.

7.2.1.12 VOI LUT Module

This module is not implemented for this IOD.

7.2.1.13 SOP Common Module

Attribute Name	Tag	Type	VR	VM	Comment
SOP Class UID	(0008,0016)	1	UI	1	Secondary Capture Image Storage: '1.2.840.10008.5.1.4.1.1.7'
SOP Instance UID	(0008,0018)	1	UI	1	Generated
Specific Character Set	(0008,0005)	1c	CS	1-n	Never sent

7.2.1.14 SC Equipment Module

Attribute Name	Tag	Type	VR	VM	Comment
Conversion Type	(0008,0064)	1	CS	1	'WSD'
Secondary Capture Device Manufacturer	(0018,1016)	3	LO	1	'Siemens Corporation'
Secondary Capture Device Manufacturers Model Name	(0018,1018)	3	LO	1	'ABVS Workplace'
Secondary Capture Device Software Versions	(0018,1019)	3	LO	1	<ABVS Workplace version number>

7.2.1.15 SC Image Module

Attribute Name	Tag	Type	VR	VM	Comment
Date of Secondary	(0008,1012)	3	DA	1	Creation date of Secondary Capture

Capture					object
Time of Secondary Capture	(0018,1014)	3	TM	1	Creation time of Secondary Capture object