



Vasculink DICOM Conformance Statement

Disclaimer:

These specifications are subject to change.

Unetixs Vascular Inc. reserves the right to change these specifications without prior notice.

1. Document History

Rev	Date	Author	Comments
1.0	06/20/09	A. Castillo	Created

2. Introduction

This document defines the DICOM conformance of Unetixs Vascular Inc. MultiLab Revo equipped with DICOM. This DICOM Conformance Statement is not intended as a complete product specification.

2.1. Source of Information

ACR-NEMA Digital Imaging and Communications in Medicine, DICOM V3.0, 2001

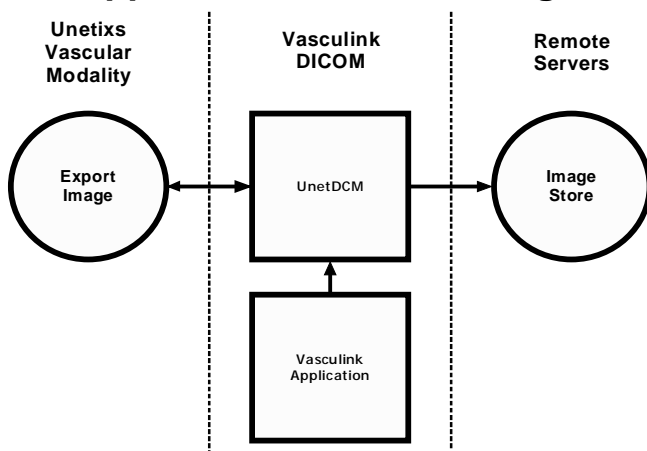
2.2. Acronyms and Abbreviations

ACR	American College of Radiology
AE	Application Entity
ANSI	American National Standards Institute
DICOM	Digital Imaging and Communication in Medicine
NEMA	National Electrical Manufacturers Association
PDU	Protocol Data Unit
SCP	Service Class Provider (server)
SCU	Service Class User (client)
TCP/IP	Transmission Control Protocol/Internet Protocol
SOP	Service Object Pair
UID	Unique Identification

3. Implementation Model

The DICOM system consists of two executable applications – one to configure system settings, and another to handle image transfers.

3.1. Application Data Flow Diagram



3.2. Functional Definitions of AE

3.2.1. Network Storage AE

The Series II software sends images to the host via the UNETDCM application.

The Vasculink Dicom configuration application is used to configure network options. Options include the SCPs AE title, IP address, and port number. A more complete description of these configurable items is defined in Section 8 of this document.

Transfer is initiated from the Vasculink software Export screen by selecting “Send”. Each Image is transmitted using the C-STORE standard. UNETDCM provides feedback to the user indicating image status. Feedback will indicate a successful image transfer or error message. The local patient information generating the images is not deleted by UNETDCM. It is the responsibility of the user to archive studies after the image transfer is complete.

3.2. Sequencing of Real World Activities

The system is configured with SCP and SCU information.

Study(s) are completed, using manually entered patient information prior to transfer initiation.

Image(s) are transferred to the SCP. Transfer syntaxes are negotiated each time an image is transferred.

A study may be transmitted or re-transmitted to the SCP as needed. Once the study is archived it is no longer available for transfer.

4. Network Transfer Specifications

4.1 AE Specification

The Network Storage AE conforms to DICOM V3.0 SOP Classes as an SCU.

SOP Class Name	SOP Class UID	Role
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	SCU

4.2. Association Establishment Policies

4.2.1. General

PDU size is 16k.

4.2.2. Number of Associations

Image transfer utilizes one association (for each SCP and each image) at a time for network storage.

4.2.3. Asynchronous Nature

Outstanding transactions are not supported. Image transfer failures are addressed by the user and may be re-sent at any time before the study is archived.

4.3. Association Initiation Policy

Implementation attempts to establish an association only when the user initiates an image transfer.

4.3.1 Configure Network

The configuration application does not require associations. The local TCP stack is handled by the resident Windows OS.

4.3.1. Proposed Presentation Context

Abstract Syntax		Transfer Syntax	
Name	UID	Name List	UID List
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Explicit VR Little Endian: Baseline JPEG encoding of pixel data	1.2.840.10008.1.2.4.50

UNETDCM attempts to establish a connection with the SCP until the time-out has expired. If successful, an association for the Image SOP Classes established and the SCP the transfer begins.

4.3.2. SOP Specific Conformance of SCU

For each image requested to be sent, when a C-STORE response fails, any other SCPs are tried for that image. Any C-STORE failure alerts the user after all SCPs and all images are tried. The study files needed to generate the image are not deleted and all images are available for re-send if necessary. No extended negotiation is attempted.

4.3.2.2 Storage SOP Class: Photometric Interpretation

Photometric Interpretation, i.e., color mode of the pixel image data, is not a negotiable parameter in DICOM 3.0. This implementation lets the user configure the images to be exported as grayscale or color images through settings for Photometric Interpretation and Reduction.

Image Color	Image size	Photometric Interpretation	Bits/pixel
Color	All sizes	RGB	24
Color	All sizes	YBR_FULL_422	24

4.4. Association Acceptance Policy

No associations are accepted by the Network Storage AE.

4.5. Communication Profile

This implementation uses the TCP/IP Protocol stack of the underlying Windows operating system and thus is independent of the physical interface.

5. Removable Media Interchange Specifications

This implementation does not support any removable media.

6. Unique Identification Information

UNETDCM supports the creation of Study Instance UID, Series Instance UID and SOP Instance UID DICOM

elements (0020, 000D), (0020, 000E) and (0008, 0018) in the IOD.

7. Extensions, Specializations and Privatizations

None are applicable, but there is the ability to customize the inputs and outputs of the systems through the editing of configuration text files.

8. Configuration

The Vasculink Dicom configuration application is a simple text file interface which sets parameters for remote and local DICOM Application Entities. The parameters are:

Local AE Title (for DICOM SCU)

Local IP address (for DICOM SCU)

Called AE Title (for a remote SCP)

TCP port number (for a remote SCP)

IP address (for a remote host where the remote SCP resides)

9. Support of Extended Character Sets

Additional character sets are not supported.