# Centricity Enterprise Web 3.0
# DICOM Conformance Memo

**DOC0094970**

**GE Medical Systems**

*Information Technologies*

gemedical.com

# CONTENTS

# 1   Introduction

## 1.1   Scope and Purpose

This document describes the DICOM Conformance for Centricity Enterprise Web 3.0.

The DICOM Conformance of Centricity Enterprise Web 3.0 is fully determined by the DICOM application Centricity Enterprise Web is hosted on:
- Centricity PACS V3.0
- Centricity PACS V2.1
- Centricity RA600 V7.0
- Centricity Archive 3.0 (a.k.a. Centricity Enterprise Archive)

This memo is intended as a substitute for a separate DICOM Conformance Statement. It identifies the sections of the respective conformance statements that either do or do not apply. These DICOM conformance statements can be found on the GE Healthcare website at http://www.gehealthcare.com/usen/interoperability/dicom/index.html.

## 1.2   Intended Audience

The reader of this document is concerned with software design and/or system integration issues.  It is assumed that the reader of this document is familiar with the DICOM Standards and with the terminology and concepts that are used in those Standards.
If readers are unfamiliar with DICOM terminology they should first refer to the DICOM Standard (see the section References), prior to reading this DICOM Conformance Memo document.

## 1.3   Scope and Field of Application

The combination of this Centricity Enterprise Web DICOM Conformance Memo and the DICOM Conformance Statements of the applications Centricity Enterprise Web is hosted on, describe how the Centricity Enterprise Web application collaborates in a DICOM network with other Medical Imaging applications that conform to the DICOM standard.

## 1.4   References

See Digital Imaging and Communications in Medicine (DICOM) 2004, parts 1 through 16.

Other document sources:

| Document ID | Title | Author | Revision |
|---|---|---|---|
| DICOM Conformance statements GEHC | various | various | - |
| DOC0045635 | CWeb 2.1 DICOM Conformance Statement | Stephan Heerkens | 1 |
| DOC0046112 | Centricity Enterprise Archive Version 2.1 CONFORMANCE STATEMENT for DICOM V3.0 | Michael Dubbeldam | 3 |
| DOC0094938 | Centricity Enterprise Archive Version 3.0 CONFORMANCE STATEMENT for DICOM V3.0 | Victor Derks | 1 |
| DOC0054138 | DICOM Conformance Statement for RA600 v7.0 | Jan-Pieter Diender | 2 |
| DCM-1030-001/00-002 | Centricity Radiology RA600 V6.1 Conformance Statement for DICOM V3.0 | Jan-Pieter Diender | 6.1.1 |
| DOC0001464 | Site Quality Plan GEHC IT Zeist | David van Weering | 6 |

## 1.5   Definitions

See Digital Imaging and Communications in Medicine (DICOM) 2004, parts 1 through 16.

## 1.6   Symbols and Abbreviations

See Digital Imaging and Communications in Medicine (DICOM) 2004, parts 1 through 16.

See DICOM Change Proposals. CP-252 (Support for Chinese character sets)

The name **Centricity Archive** used in this document refers to Centricity Archive V3.0 (a.k.a Centricity Enterprise Archive)

The name **Centricity Web** or **Centricity Enterprise Web** used in this document refers to Centricity Enterprise Web 3.0.

The abbreviation **GEHC** is used for General Electric Healthcare.

## 1.7   Revision History

| Revision | Comment |
|---|---|
| **1.0** | First version (updated version of CWeb 2.1 DICOM Conformance Memo) |

## 1.8   Important Considerations for the Reader

This DICOM Conformance Statement by itself is not sufficient to guarantee successful connectivity between Centricity Web, its host applications, and equipment from other vendors.

The following considerations should be made:

- This document describes the conformance of Centricity Enterprise Web 3.0 and is not applicable to earlier releases (or predecessors) of Centricity Enterprise Web.
- The integration of equipment from different vendors (including GEHC) goes beyond the scope of the DICOM standard and the DICOM Conformance Statements from GEHC and other vendors. It is the responsibility of the user (or user's agent) to assess the application requirements and to design a solution that integrates GEHC equipment with equipment from other vendors.
- When the comparison of this DICOM Conformance Statement with a DICOM Conformance Statement from another vendor indicates that connectivity should be possible it is the responsibility of the user (or user's agent) to verify this by carrying out validation tests and to check whether all required functionality is met.
- With regard to the future evolution of the DICOM standard, GEHC-IT Zeist reserves the right to make changes to the Centricity Web architecture described in this document. The user (or user's agent) should ensure that any equipment connected via DICOM to GEHC equipment also follows the future evolution of the DICOM standard. Failure to do so may result in (partial) loss of connectivity.

# 2   Implementation Model

Centricity Web consists of two main applications: a server and a client. This document focus is the server. The Centricity Web server consists of a Centricity Web-specific module (DLL) that runs as part of Microsoft Internet Information Server. This DLL receives all HTTP requests from any Centricity Web client, and processes them. The Centricity Web server communicates with host services mentioned before for database query/retrieve and study file retrieve.

All DICOM communications are handled by the respective services. Centricity Web does not initiate or accept them. For easy reference, the implementation model is depicted below.
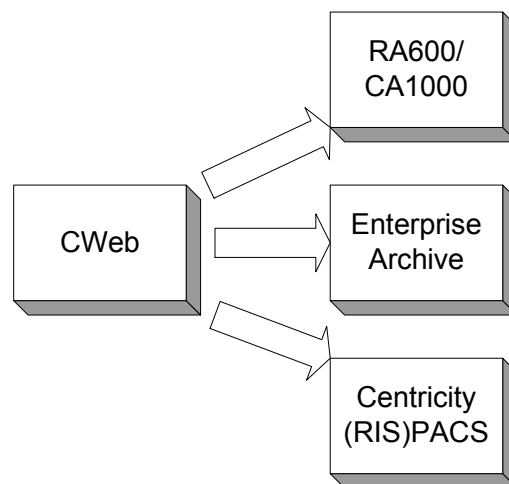
# 3  DICOM Conformance

The Centricity Web server adheres to the DICOM Conformance statement of the backend it is hosted on. This section adds remarks to the various numbered sections of the respective DICOM Conformance Statements. See also:

http://www.gehealthcare.com/usen/interoperability/dicom/index.html

## 3.1  SOP Classes

Although the hosted services may support more SOP Classes, Centricity Web clients are only able to request and display objects belonging to the SOP Classes in the table below.

| Centricity Web Storage SOP classes supported for display ||
| SOP Class Name | SOP Class UID |
| --- | --- |
| CR Image | 1.2.840.10008.5.1.4.1.1.1 |
| DX Image (Presentation) | 1.2.840.10008.5.1.4.1.1.1.1 |
| DX Mammography Image (Presentation) | 1.2.840.10008.5.1.4.1.1.1.2 |
| DX Intra-oral Image (Presentation) | 1.2.840.10008.5.1.4.1.1.1.3 |
| CT Image | 1.2.840.10008.5.1.4.1.1.2 |
| US Multi-frame Image (Retired) | 1.2.840.10008.5.1.4.1.1.3 |
| US Multi-frame Image | 1.2.840.10008.5.1.4.1.1.3.1 |
| MR Image | 1.2.840.10008.5.1.4.1.1.4 |
| NM Image (Retired) | 1.2.840.10008.5.1.4.1.1.5 |
| US Image (Retired) | 1.2.840.10008.5.1.4.1.1.6 |
| US Image | 1.2.840.10008.5.1.4.1.1.6.1 |
| SC Image | 1.2.840.10008.5.1.4.1.1.7 |
| Grayscale Softcopy Presentation State | 1.2.840.10008.5.1.4.1.1.11.1 |
| XA Image | 1.2.840.10008.5.1.4.1.1.12.1 |
| NM Image | 1.2.840.10008.5.1.4.1.1.20 |
| Basic Text Structured Reports | 1.2.840.10008.5.1.4.1.1.88.11 |
| Key Object Selection | 1.2.840.10008.5.1.4.1.1.88.59 |
| PET Image | 1.2.840.10008.5.1.4.1.1.128 |
| RT Image | 1.2.840.10008.5.1.4.1.1.481.1 |

## 3.2   Support for defined terms denoting supported character sets

Centricity Web has support for the following character sets (without/with code extensions):

| Supported Character Sets | |
| --- | --- |
| **Name** | **Value** |
| Default Character repertoire | <none>, ISO 2022 IR 6, |
| Japanese (Katakana/ Romaji) | ISO_IR 13, ISO 2022 IR 13 |
| Multi-byte JIS X 0208 (1983) | ISO_IR 87, ISO 2022 IR 87 |
| Latin – 1 character repertoire | ISO_IR 100, ISO 2022 IR 100 |
| Latin – 2 character repertoire | ISO_IR 101, ISO 2022 IR 101 |
| Latin – 3 character repertoire | ISO_IR 109, ISO 2022 IR 109 |
| Latin – 4 character repertoire | ISO_IR 110, ISO 2022 IR 110 |
| Greek | ISO_IR 126, ISO 2022 IR 126 |
| Arabic | ISO_IR 127, ISO 2022 IR 127 |
| Hebrew | ISO_IR 138, ISO 2022 IR 138 |
| Cyrillic | ISO_IR 144, ISO 2022 IR 144 |
| Latin – 5 character repertoire | ISO_IR 148, ISO 2022 IR 148 |
| Korean | ISO_IR 149, ISO 2022 IR 149 |
| Multi-byte JIS X 212 | ISO_IR 159, ISO 2022 IR 159 |
| Unicode in UTF-8 | ISO_IR 192 |
| GB18030 | GB18030 |

Whether extended character sets are displayed correctly very much depends on the characteristics of the backend system and the validity of the DICOM header contents.

## 3.3   Centricity PACS V3.0 backend

Centricity Web does not directly initiate or accept DICOM associations on the Centricity PACS V3.0 backend. Centricity Web communicates directly with the Image Volumes defined in the Centricity PACS STS configuration.

### 3.3.1   Send to a remote system

Centricity Web clients cannot actively designate studies to be sent to a remote system when connected to Centricity PACS.

### 3.3.2   Query a remote system (C-FIND)

Centricity Web clients cannot actively query other DICOM systems when connected to Centricity PACS.

### 3.3.3   Retrieve from a remote system (C-MOVE)

Centricity Web clients cannot actively retrieve images from other DICOM systems when connected to Centricity PACS.

## 3.4    Centricity RA600 V7.0 backend

### 3.4.1    Send to a remote system

Centricity Web clients cannot actively designate studies to be sent to a remote system. However, automatic routing rules can be configured using the Centricity RA600 functionality.

### 3.4.2    Query a remote system (C-FIND)

If the Centricity Web server is hosted on a Centricity RA600 V7.0 backend, the Centricity Web client can do a remote query, which is relayed by the Centricity Web server as a Study- or Patient Root Query to the Centricity RA600 V7.0 backend, and then to a remote system.

### 3.4.3    Retrieve from a remote system (C-MOVE)

If the Centricity Web server is hosted on a Centricity RA600 V7.0 backend, the Centricity Web client can do an import action for a selection of studies. This will initiate the transfer of images from the remote system to the Centricity RA600 V7.0 database (effectively acting as a cache) on the Centricity Web server. The imported studies thus become available for viewing to the Centricity Web client.

## 3.5    Centricity Archive V3.0 backend

### 3.5.1    Send to a remote system

Centricity Web clients cannot actively designate studies to be sent to a remote system. However, automatic routing rules can be configured using the Centricity Archive 3.0 functionality.

### 3.5.2    Query a remote system (C-FIND)

If the Centricity Web server is hosted on a Centricity Archive 3.0 backend, the Centricity Web client can do a remote query, which is relayed by the Centricity Web server as a Study- or Patient Root Query to the Centricity Archive 3.0 backend, and then to a remote system.

### 3.5.3    Retrieve from a remote system (C-MOVE)

If the Centricity Web server is hosted on a Centricity Archive 3.0 backend, the Centricity Web client can do an import / fetch action for a selection of studies. This will initiate the transfer of images from the remote system to the Centricity Archive 3.0 database (effectively acting as a cache) on the Centricity Web server. The imported / fetched studies thus become available for viewing to the Centricity Web client.