

Overview of 1997 RSNA DICOM Demonstration

Radiological Society of North America (RSNA)
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This document makes liberal use of previous and current documents from the NEMA ADHoc Committee for RSNA DICOM Demonstration.

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1 Introduction

The 1997 RSNA DICOM demonstration is based on progress achieved through the 1992 and 1993 RSNA DICOM demonstrations. Among the key concepts carried forward from the first two demonstrations are Central Test Nodes (CTNs) and Demonstration Nodes (DNs). Central Test Nodes are computers and software supplied by RSNA which implement aspects of the DICOM 3.0 Standard. This implementation serves as a foil to allow participants (vendors and university groups) to demonstrate that they can communicate with an independent implementation of the DICOM 3.0 Standard. Demonstration Nodes can be either commercially available products from vendors or prototype nodes. This document will not distinguish between those types of nodes and will use DN as a generic term.

The 1997 RSNA DICOM demonstration will not include a separate *infoRAD* area. Vendor participation will be confined to exhibitor booths on the commercial floor. Since there is no centralized demonstration area, there are no restrictions on vendor to vendor communication.

RSNA has selected the Electronic Radiology Laboratory at the Mallinckrodt Institute of Radiology (MIR) to provide CTN software. The 1997 CTN software will be made available to participants to allow them to perform tests before RSNA meeting. The software will also be released on one or more ftp servers at the same time. There will be no lag between vendor availability and public availability as in some previous years.

The 1997 demonstration will also make use of the OFFIS DICOM toolkit to support Modality Worklists. The OFFIS software and documentation is provided for vendors who want to demonstrate Modality Worklists and run tests before the RSNA meeting.

1.1 Abbreviations

The following abbreviations are use throughout this document:

- SCU Service class user
- SCP Service class provider
- SOP Service Object Pair
- DN Demonstration Node. A node brought to the RSNA meeting for demonstration by a participant. DNs may be commercially available equipment or prototype implementations.
- CTN Central Test Node. A node provided by RSNA to allow participants to demonstrate DICOM connectivity. The CTN provides an implementation of the DICOM standard that can communicate with DNs.

2 DICOM Image Transfer

RSNA 1993 successfully demonstrated the ability to remotely store images and perform store/query/retrieve functions across a standard network. In 1997, RSNA will provide one or more DICOM Central Test Node Image Servers. This is a logical step as the corresponding parts of the standard are now mature and well understood by vendors.

The goal for the images on the server is to have a large set of medically interesting studies. MIR reviewed a number of studies submitted in 1995 and chose approximately 40 studies for the 1995 demonstration. After that demonstration, several studies were withdrawn from the set at the request of the vendors. We will use the remaining studies as the image set for the 1997 demonstration. These images will be loaded on the image server before the conference begins and will remain static throughout the week. Unlike previous years, participants will not be able to send (C-STORE) images to the CTN image server during the conference.

A second set of non-medical images will also be stored on the image servers to generate attendee interest. RSNA will provide several workstations with video cameras which will be used to capture photographs of attendees. These "photo IDs" will be stored on the image servers as secondary capture images. The patient identifier for the photo ID will be the attendee's badge number. The attendee (patient) name will be stored by the CTN image server and will be supported for query/retrieve by the image server. It is anticipated that attendees will have their picture taken and will visit vendor booths and ask them to retrieve their picture from the image server. It is hoped that the ability to query by patient ID or patient name will be a standard offering from a vendor and would be something they would choose to demonstrate. It is also anticipated that vendors will have the ability to display secondary capture images as part of standard product offering.

Figure 2-1 shows the general capabilities offered by the CTN. The CTN will implement query/retrieve including C-FIND and C-MOVE. Note that the CTN will not provide a terminal interface as in previous years to list studies and to send images to participants. This is logically done using query/retrieve. The CTN software will contain a basic DICOM query/retrieve application that can be used as a model or "as is".

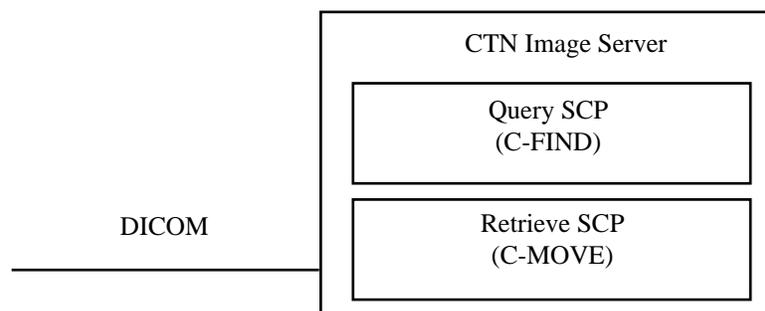


Figure 2-1 Functions of the CTN Image Server

3 DICOM Modality Worklist

The CTN will support DICOM Modality Worklists using the OFFIS DICOM toolkit. The CTN will support this class as an SCP. The DN SCU will establish connections with the CTN and send queries to retrieve entries in the worklist.

Figure 3-1 shows the model of the worklist system. The participant manages worklist entries by using a web browser. This web browser communicates with the worklist database using a custom protocol. Once the database has been established, the participant can make DICOM connections to the worklist SCP and query the server.

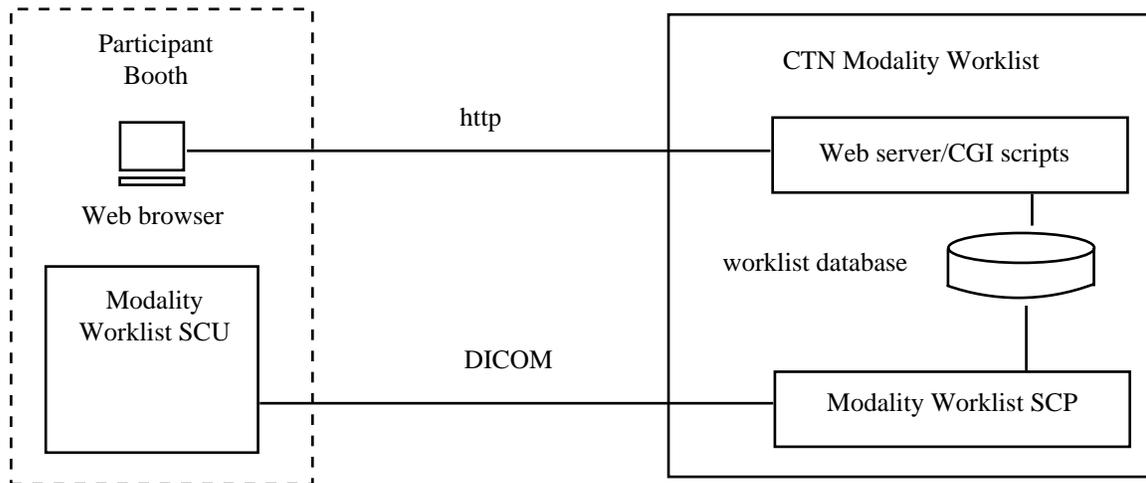


Figure 3-1 Block Diagram of CTN Print Client and Participant Print Server

4 Network and Computer Hardware

RSNA will specify and implement a communications network to be used throughout the Convention Center. This network will support the DICOM Standard using the TCP/IP communications stack. RSNA will provide other documentation to participants which will indicate how vendors will connect to the network and what charges are appropriate.

RSNA will supply computer equipment to be used as CTNs and will determine how CTNs will be deployed. Participants will communicate with CTNs using the network supplied by RSNA. Participants will not have physical access to CTNs.