

PROGRAM



2008

INTERNATIONAL

CONFERENCE

AND SEMINAR

April 8 – 10, 2008

Crowne Plaza Hotel
Chengdu, China

**THE DICOM STANDARDS COMMITTEE
EXPRESSES ITS APPRECIATION TO**

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April 8, 2008
Seminar: Introduction to DICOM

0810	Welcome to Chengdu	Prof. Shoubin ZOU President, University of Electronic Science & Technology of China
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0830	Overview & Basic DICOM Concepts	Kevin O'DONNELL
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This session is intended to make it easier to understand the rest of the sessions.

The DICOM standard is built from several conceptual elements. The abstraction provided by those elements provides valuable structure to DICOM but can make it seem initially impenetrable to the newcomer.

These building blocks will be explained; including attributes, tags, macros, modules, services, IODS, SOP Classes and UIDS. Topics including the types of functionality covered by DICOM, how to access the standard, the relationship of DICOM to other standards and the use of DICOM Conformance Statements to communicate product capabilities are also briefly introduced.

0900	Exchanging Imaging Data	Herman OOSTERWIJK
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DICOM consists of both data specifications and protocol definitions.

This presentation describes the data specification for the main Classes of DICOM Objects: Images, Presentation States, SRs, and Encapsulated Objects.

It explains the protocols for Pushing Objects, Pulling Objects, Finding Objects, Retrieving Objects, and the Negotiation protocol for two systems trying to communicate.

The relationship of the DICOM data specifications to the Protocols, File Formats and product Internal Data Representations is explained in addition to the use of Media (CDs, Memory Sticks), Email and WADO (Web Access to DICOM Objects).

0945	Managing Acquisition Workflow	Nikolaus WIRSZ
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Several DICOM Service Classes will be reviewed which are designed to optimize the workflow associated with data entry, scheduling, image acquisition, post-processing, reporting and billing.

- Modality Worklist – communicates patient demographics and order information from a scheduling system (RIS) to an imaging modality, reducing errors and effort.
- Modality Performed Procedure Step – communicates the status of requested procedures (scheduled, in progress, completed, cancelled) and details of performed procedures (examination type, number of images, materials used).
- Storage Commitment – permits confirmation of image receipt, improving the reliability of transfer from modalities to image management systems (PACS).
- Instance Availability Notification – communicates availability of image objects, e.g. from a PACS to a RIS to enhance reporting workflow.

These Service Classes significantly improve the efficiency, reliability and interoperability of imaging equipment.

1050	Consistent Presentation of Images	Lawrence TARBOX
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Grayscale Standard Display Function
Grayscale Softcopy Presentation State
Print Presentation LUT
(Color/Blended Presentation State)(Hanging Protocols?)

1130	Applications of DICOM SR	Andrei LEONTIEV
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This session reviews the main concepts of DICOM Structured Reports including document templates, Content Items and their relationships, data types, coding schemes and coded vocabularies.

Specific applications of SR, as a type of non-image document, include

- listing images and other objects (such as for study content manifests or Key Image Notes);
 - procedure reports
 - collecting measurements, results of CAD operations;
 - simple diagnostic reports with sections and paragraphs, and
 - coded reports that describe precisely, using coded vocabularies, diagnostic findings and the evidence from which the findings have been derived.
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1215	Q & A Panel / Discussion
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1230	LUNCH
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1330	DICOM Fields of Use	Allan FARMAN
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Following the introduction of DICOM in the early 1990s (as version 3 of the ACR-NEMA work of the 1980s), the DICOM Standards Committee has expanded steadily and membership now includes representatives from user organizations and vendors that represent a wide variety of the health sciences. The DICOM specification has even been applied beyond health sciences to the area of Non-Destructive Testing (DICONDE).

DICOM objects have been defined for many applications. Maintenance and new development continues in DICOM Working Groups representing specific imaging modalities or distinct DICOM fields of use.

Examples include: cardiology (WG 1), dentistry (WG 22), dermatology (WG 19), ophthalmology (WG 9), pathology (WG 26), radiotherapy (WG 7), surgery (WG 24) and veterinary medicine (WG 25).

This seminar presents use cases from selected fields to demonstrate general and specific applications of the DICOM Standard.

1400	Tools for DICOM Implementation	David CLUNIE
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Toolkits and Sample/Reference Code

Validators, Test Tools and Sample Data

IHE as Implementation Guide and Testing Venue for some features

1440	Product Experiences	Cor LOEF
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This seminar presents a viable common sense approach vendors may use for the creation of healthcare products that use the DICOM Standard for the communication of medical information in order to achieve interoperability with the connected products in the healthcare enterprise.

When a vendor wants to create a medical product that supports communication of diagnostic images, they are faced with the challenge to correctly implement parts of the DICOM Standard.

The product needs to be positioned well in the clinical environment where it will be used. One needs to determine the staff working in this environment, how the work is coordinated, what tasks need to be performed, which clinical applications are used to support these tasks, and finally, what information is communicated between the systems that host the clinical applications. Application Profiles specify what needs to be in an image for the clinical application to work well.

Next, software design takes place. Based on the intended use of the product a small selection out of the overwhelming DICOM Standard has to be selected and recorded in a DICOM Conformance Statement. Good design rules can avoid

common implementation mistakes due to limited understanding by the software development engineers of the real intent and practical use of the DICOM Services.

For instance, an important design rule needed for an interoperable product in the various deployment environments is to be tolerant of defective input information, but on the other hand create and send rich information with full adherence to the DICOM standard. Multiple configuration options will be needed to create sufficient flexibility to adapt to the various clinical environments, workflows and supporting systems.

Finally the DICOM functionality in the product will need to be verified and validated, in order to comply with worldwide quality and safety regulations.

1530	Security & Networking	Eric PAN
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DICOM over secure channels

Media Security

Confidentiality Profile

Audit Trails

(Configuration Management)

1605	Deploying DICOM in a Hospital/Clinic	Don VAN SYCKLE
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DICOM is the standard used to facilitate medical imaging solutions in your hospital/clinic. It supports many features and as a hospital/clinic you need to understand the important questions to ask vendors when integrating DICOM.

This is first accomplished by relating the DICOM key features (SOP Classes) to the workflow needed for your system, in terms understandable by users (i.e. help decide what parts of DICOM are right for you).

You will also learn how to evaluate each vendor's DICOM choices by reading a DICOM Conformance Statement. Finally, it highlights some issues beyond DICOM but important for a successful integration, such as HIS/RIS integration, network management, integration services, etc.

1645	Keeping up with DICOM	Kevin O'DONNELL
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DICOM is not static. To meet the expanding needs of medical imaging, it is maintained and extended on an on-going basis.

This presentation will explain the process DICOM uses to expand while maintaining stability, explain how you can monitor newly released updates, how you can participate in reviewing proposed changes and how to participate in the DICOM committees themselves.

Some specific recent additions to DICOM will be reviewed that address Image Segmentation, Registration, Enhanced Objects, Dose Reporting, and Radiotherapy.

1715	Q & A Panel / Discussion
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1730	Adjourn
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1830	Reception
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April 9, 2008
Contributed Papers

0830 – 1000	Session 1: Clinical Domains	
0830	Beckwith	Pathology in DICOM – Progress from Working Group 26 and IHE
0850	Gundarao	Implementing a Unified DICOM Broker for Cardiology – An Experience
0910	Gessat	Work Item Implants: Current State and Outlook
0930	Lemke	Model-guided therapy and the role of DICOM in Surgery
0950		Panel discussion

1000 – 1030	Break	
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1030 – 1200	Session 2: Application Hosting and WADO	
1030	Tarbox	Application hosting
1050	Mayoral	A DICOM mechanism for multicast streaming
1110	Weisfeiler	Combining JPIP with WADO within an XDS-I framework for efficient, standard-compliant streaming of EHR imagery
1130	Cordonnier	WADO and beyond
1150		Panel discussion

1200 – 1315	Lunch	
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1315 – 1445	Session 3: Applications I	
1315	Lyshkow	Advantages of Providing DICOM Encapsulated PDF Support (DICOM 3.0 Supplement 104) Directly within Adobe Acrobat
1335	Oosterwijk	DICOM in Ophthalmology, an Example of a New Enhanced Multiframe Object
1355	Verduin	Enhanced MR objects address multi-vendor interoperability issues in clinical radiology
1415	Sureda	Application cases using the Enhanced XA SOP Class
1435		Panel discussion

1445 – 1515	Break	
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1515 – 1645	Session 4: Applications II	
1515	Thakar	DICOM from a Preclinical perspective
1535	Sun	Identity and Trust Management Platform in DICOM
1555	Guo	Medical Image Quality Assurance with Automated Constraint Validation
1615	Koenig	Use and transformation of DICOM SR and CDA Release 2 diagnostic imaging reports
1635		Panel discussion

1645 – 1700	Wrap-up and Announcements	
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1830 – 2030	Banquet & Presentation	Mr. Kequn RAO Director of Information Commission Ministry of Health, China, P.R.
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April 10, 2008

TELEMEDICINE

Challenges & Opportunities for DICOM

Three distinguished, invited lecturers will discuss their work and their view of the Challenges & Opportunities for DICOM in Telemedicine. These speakers include:

- **Dr. Alexander Schanner**, a biomedical engineer who works as a program manager in the Task Force on Electronic Health Record (ARGE ELGA), which is responsible in Austria for setting up a system to exchange medical information and DICOM Images between healthcare providers. He will present the project from Austria, discuss its impact on other countries (e.g., European Community), and explain how Austria and his organization, ARGE ELGA, can help other countries in the world.
- **Dr. David Koff**, Chief/Chair at McMaster University will discuss “The Canadian Electronic Health Records Strategy for Better Care Delivery.” In this presentation, Dr. Koff will explain the EHR project, the role of Canada’s Health Infoway, and its different components – Drug Information Systems, Laboratory, Diagnostic Imaging, Public Health and Telehealth. He will mention the use of standards and the Infoway initiative on this front. Finally, Dr. Koff will include a few slides on the use of image compression and the Canadian evaluation study. He reports, “Teleradiology has been used for a while in Canada, but we have expanded the concept to the regional PACS, where a number of hospitals are on a same PACS, with very successful examples in Alberta.”
- **Dr. Xinghai ZHAI**, Director of PLA Telemedicine Administration Center, will discuss how imaging information exchange in telemedicine is handled today in China and identify areas for further development in the future.

Finally, **Dr. Jiwu ZHANG** will brief participants on the role and activities of IHE China.

April 8 – 10, 2008

POSTER PRESENTATIONS

Anggara	Integrating Ultrasound Measurements to PACS and Other Imaging Informatics Modalities
Arun	Application Hosting: Supporting Applications on Different Systems Manufactured by the Same Vendor
Arun	Dynamic IOD Conversion: A Practical Approach to Drive New IOD Adoption?
Arun	Experiences in Providing DICOM Extended Character Set Support for an Acquisition System
Avraham	IHE for Product Planners
Avraham	IHE Changing the Way Healthcare Connects in Hospitals
Guo	Using Model Driven Software Development (MDSO) Methodology to Implement the Digital Imaging and Communications in Medicine (DICOM) Standard
Liu	A Discussion about Schemes to Realize Chinese Support in DICOM
Matthijsen	From Connectivity to Interoperability – More than 10 years DICOM Experience at Philips MRI
Mohan	Experiences in Implementing DICOM SR in Ultrasound Modality
Moorthy	DICOM Configuration in Mobile Modalities – an Experience Sharing
Sivaji	ABO Compression for Medical Imaging in DICOM
Stahl	Next-Generation DICOM RT Objects
Thieme	WG-02: Recent, Current, and Future Activities
Trommer	Toward a Guideline to Avoid Arbitrariness between Structured Reports and Information Object Definitions
Yang	Integration of a Teaching File System into a PACS Environment – Experiences from the User's Perspective
Zhang	Introduction to IHE China Activity