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*MINUTES*

###### DICOM STANDARDS COMMITTEE (DSC)

**March 19, 2013**

Bangalore, India

**Members Present – Manufacturers Represented by**

GE Healthcare Harry Solomon

Philips Healthcare Jeroen Medema

Siemens Healthcare Helmut Koenig

For Nikolaus Wirsz

Toshiba Medical Research Institute USA Kevin O’Donnell

Varian Medical Systems Ulrich Busch

**Members Present – Users Represented by**

American Dental Association Trishul Allareddy

**Members Present – General Interest Represented by**

JAHIS (Japan) Takashi Nakashima

JIRA (Japan) Yukio Ito

Medical Imaging & Technology Alliance Stephen Vastagh

**Alternate Voting Member Representatives, Observers and Others Present**

Anarwal, Tapesh MEDIFF Technologies

Anavali, B. University of Iowa

Ruf, Reinhard Siemens Healthcare

Schou, Michael Syddanmark, Denmark

Suzuki, Makoto JIRA

Vium, R Syddanmark, Denmark

Wintell, Mikael Vastra Gotalandsregionen

**Members Not Represented –Manufacturers Voting Representative**

\*Agfa Healthcare Geert Claeys

\*Boston Scientific Tan-Jin Teo

\*Carestream Health Jonathan Belanger

\*Carl Zeiss Meditec Tobias Kurzke

Pixel Med Publishing David Clunie

\*Corista Eric Wirch

\*DeJarnette Research Systems Charles Stockham

Fujifilm Medical Systems Masao Murata

Hologic Janet Keyes

\*Konica Minolta Medical & Graphic Michael Laconti

McKesson Medical Imaging Group David Heaney

\*MEDIS Medical Imaging Robert Goedhart

\*Merge Healthcare North America Ronald Cowan

Panasonic Masayuki Takahashi

\*Sony Corp. Yuji Kohga

\*SuperSonic Imagine Jacques Souquet

**Members Not Represented –Users Voting Representative**

American Academy of Oral and Maxillofacial Allan Farman

Radiology

\*American College of Cardiology Thomas Gerber

American College of Radiology John Carrino

\*American College of Veterinary Radiology Dennis Ballance

Brazilian College of Radiology Alair Sarmet. Santos

\*College of American Pathologists Ron Ranauro

\*European Society of Cardiology Nico Bruining

\*Medical Image Standards Assn. of Taiwan Jenn-Lung Su

\*Society for Imaging Informatics in Medicine Paul Nagy

\*Spanish Health Informatics Society Marcial Garcia Rojo

**Members Not Represented-General Interest Voting Representative**

\*Brazil Nat’l Inst. of Science&Technology Richard Schafer-De-Martini

\*Canada Health Infoway Attila Farkas

\*FDA Center for Devices and Radiological Health Kish Chakrabarti

\*India Centre for Development of Adv. J.S. Bhatia

Computing

\*Korean PACS Standards Committee Hee-Joung Kim

\*National Cancer Institute C. Carl Jaffe

\*Web3D Consortium Nicholas Polys

\* = Does not count toward a quorum at this meeting.

^ = Has not submitted Patent Agreement.

**Presiding Officers:** K. O’Donnell, Co-chair

1. **Preliminary Events**

The meeting was called to order at 9:00 am. The Secretary reviewed the antitrust rules. The Agenda for this meeting was approved.

1. **Administrative Matters**The Secretary reported that the dues for DSC membership will increase in 2013. The non MITA/COCIR/JIRA -member dues will increase to $7,500 and the non-Member dues to $1,500. He reported that there has not been a dues increase for the last 12-15 years. The DSC dues will be billed around June.

The Secretary also reported that approximately 2/3 of the cost of the administration of DICOM is taken from the dues of MITA member companies.

In the course of the dues discussion it was noted by the Chair that the DICOM Standard must remain available free of charge to remove the barrier to implementation. The latter is in the interest of the MITA/COCIR/JIRA members.

1. **Election of New Members**

There were no applications to join the DSC.

1. **Requests to Join Working Groups as voting members**

There were no applications to join the WGs.

1. **New Work Item Proposals**

There were no Proposals submitted.

1. **WG-06 (Base Standard) Report**

The detailed report of the Chair, Bas Revet was reviewed; it is attached as Exhibit A. The Committee thanked B. Revet for the comprehensive report and thanked WG-06 for its work. The DSC noted that there is no ongoing Joint Standard Development effort with other SDO’s. This item should be removed from report’s scope description.

It was also noted that the last modality specific RDSR for dentistry, is now an approved work item.

1. **Reports from the Working Groups**

The Committee received written reports from WG-01, -02, -06, -15, -16, -20, -21, and -22. The WG-Co-Chairs present and the Secretary provided verbal updates, as well. The Committee discussed the working groups’ activities.

WG-01

See written report.

There are 2 approved Work Items but no human resource to work on them.

WG-02

See written report

July 2013 meeting in Munich would be good for Christof of WG-07 to join for the trusted frame of reference discussion.

WG-03

Work on Sup 159 continues. Next: enhanced object for SPECT.

WG-05

All media covered, no activity.

WG-07

Main focus is Sup 147. Can produce 1st gen objects with 2nd gen products but not vice versa. Expect the newcomers to push. Need to write down the technical issues of the strategy. Overall reason is to be more precise with beam descriptions.

Discussed possible workshop to educate manufacturers. Target: demonstration, IHE-RO.

The question was asked: is there intent to retire 1st generation objects? Response not available at this time.

Product mgrs. Must be engaged to review before standard is finalized.

WG-08

H Solomon reported working on Sup 155. CDA implementation Guide. Leverag the current Consolidated CDA structures. (7 CDA templates.) Focusing on the top level structure of radiology reports. RSNA has a 180 reporting templates (text based). WG-08 wants to insert the text in the proper field of the CDA and work on additional mapping. It will be primarily narrative with only few critical items in the coded SR that impact further treatment and external processing. Some opined that RSNA is having a hard time with defining the key coded fields and suggested that DICOM may be helpful in defining what is “Type-1”. H Solomon noted that IHE Radiology’s managing reports profile. The dose summary module of Sup 150 will be included in this supplement. CDA is inter-institutional.

K ODonnell noted that SR is image related data. RDSR data can be extracted from SR and to put it in e.g. California’s dose regulatory report. The EMR would also expect some dose data.

Sup150 is a small subset of dose data required in Europe

It was described that physicist receives/has access to a lot of dose-related data. The radiologist receives part of the dose data and the radiologist passes on a smaller portion of that data.

Furthe it was noted that certain clinical info is included in Sup 150 CDA. It can be communicated to EMR to track accumulated dose.

H Solomon further reported that DICOM will move forward with revised wording for Part 16 to use numeric values.

WG-09

New Supplement at April meeting. Corneal Topography Mapping. Lots of interest during this

Occular Imaging Challenge. <http://www.health2con.com/devchallenge/ocular-imaging-challenge/> Discussed that Dental could be also suitable.

VA requires all imaging in DICOM. ADA endorses DICOM.

WG-11

The work on Sup 156, MDPS, continues.

WG-12

Found that the DICOM for US has no uniform boundary on pre and post coordination. It is so because the required post coordination needs too many levels of structure for post coordination.

Many vendors have custom methods; they wanted the freedom to store custom measurements. This placed the burden on the consumers to sort out the data. However, consumer systems rejected some or all. Flattening the template seems to be the solution..

Using ASE as reference for best practice and DICOM will tighten-up the encoding.

WG-13

Upcoming Color Summit is anticipated.

WG-14

No current Work Item.

WG-15

See written report.

WG-20

See written report

FHIR – you want to have uniform access, part of FHIR is a navigation structure , access data in all domains the same way. For FHIR DICOM will not define the patient resource; metadata for DICOM image will be defined by DICOM the metadata for the jpeg picture is defined by FHIR.

WG-21

See written report

WI will be proposed in August. Sup 121 for PC in June or August.

WG-22

Visible light Annex – is it to standardize the image acquisition or standardize the metadata. Use case profile for visible light images for dentistry.

WG-23

Have an active work Item and a CP to define conformance. WI is driven by DClunie. Telerad Tech wanted to add services such as printing. Application to request specific studies. (See poster in India.) L Tarbox encouraged submitting a change proposal and describe the intent.

WG-26

Want to implement Sup 145. Described the changing requirement for fees for patent licensing. The issue is under discussion.

WG-27

QIDO introduces JSON, another new technology. Reported on rapid progress with supplements.

WG-28

Have work item for a patient dose object (as opposed to scanner output.) KOD emphasized Dental could learn from CR-DR.

M Suzuki reported on the WG-28 meeting at ECR. WG-28 wants to coordinate with WG-21 on refining dose data for CT.

PT dose SR: discussing the development of a patient model.

1. **Updates of Strategic Statements**

The Committee received an update from WG-16.

1. **XML Encoding of the DICOM Standard**

The Secretary reported that plans are formulated for a 2013 conversion. More discussion will be needed when a more detailed proposal is available. It was noted however that Pts 3 and 16 are available in XML form, now.

1. **User Organization Reports – DICOM Related Activities**

The following reports were received:

* ACR – Dose Index registry in full swing, over 2 million data sets with 600 sites and growing rapidly. Fees are based on size of facilities.
* RSNA – WG-08, Radlex and Radlex playbook-
	+ Radlex Playbook – radiology orders. Encoded using LOINC code and using the Radlex procedure description. LOINC is based on input from users; it included VA radiology procedure codes.
* IHE -
	+ IHE Dentistry - permanent status domain achieved, first Secure Exchange of Dental Information (SCDI) profile approved
		- IHE Radiology – several new profiles have been approved for public comments: 1st Invoke Image Display (use web call to launch a web viewer inside an HER. Limited to invocation
		- How to push and pull reports on work stations – helps WS interact with the radiologist. (Report content is in the scope of WG-08)
		- Scheduled Workflow (Valid HL7 2.5 only.)
		- Stereotactic Breast Imaging
		- White paper on mapping Radlex and scheduled workflow.

These IHE profiles are posted on [www.ihe.net](http://www.ihe.net) > get involved > scroll to radiology

Next meeting: resolution of public comments: 2013-04-23-26.

* + IHE International – IHE USA introduced a certification program and implemented it. There was a negative reaction and a committee is now reviewing.
	+ IHE-RO Radiation Oncology-Close cooperation with DICOM WG-07 – Chair reported briefly.
	+ IHE Cardiology – Change to include Intravascular OCT
	+ IHE Laboratory – profile in trials implementation: LIWF management of lab result data in systems other than in LIS directly.
	+ IHE Eyecare – - no profile in the works
	+ IHE Europe – Connectathon in Istanbul April 15-19, 2013 – expected good turnout. Will co-host an IHE World Summit (to coordinate national committee activities.)
	+ IHE Japan – M. Suzuki reported on the activities. Five Workshops. Reported on Connectathon-J 2012. (Oct. 29 – Nov. 2 in Tokyo, 42 companies, 76 systems.) K. O’Donnell suggested to contact the IHE Testing and Tools Committee to coordinate.) ( See complete presentation in the meeting file.) U. Busch asked about the RT related tests.
	+ IHE North America – Connectathon, Chicago, Jan 28-Feb. 1, 2013
		- Similar size as in previous years. One extra day of testing for HIMSS interoperability connectathon.
		- Passing connectathon does not indicate availability in commercial products. Connectathon yield info about companies, not products. K O’Donnell explained the process and the meaning of connectathon results. 1st benefit of connectathons is to stress test a company’s products in a more real life situation (than own simulators) with real products of other companies . The 2nd benefit is to customers to verify the conformance statements of actual products, i.e. the certification of the engineering department of manufacturers. It verifies the company’s understanding and interpretation of the DICOM standard. In other words, the connectathon results are not certifying the specific products; there is no simplistic plug and play in healthcare. Integration is climbing a mountain and IHE gets one started to the top from 2/3 up the mountain.

IHE India – report on Testathon 2012

1. **Reports on Related Standards Development Organizations (SDOs)**
* HL7 – Helmut Koenig/Harry Solomon
	1. April 1, 2013 – most of HL7 IP will be free to use
	2. FHIR connectathon on May 4, 2013 in Atlanta
	3. FHIR will be balloted in August 2013
	4. A lot of work on US realm implementation guides
	5. Upcoming Work Item for how to use GS-1 (Global Service relationship Number) as a Patient ID or a Provider ID. Hospitals are issued a UID-type (18 digit) number.
		1. Joint Initiative Council
		2. Does DICOM wish to join?
		3. History: when first formed 5 years ago DICOM decided to monitor.
		4. Requirements are listed on web site – DICOM meets all the criteria.

Discussion: is there a payload on balloting?

each organization follows own procedures.

when a joint development project is underway the joint procedures apply.

it appears that there is no requirement to use GS-1 which is a for fee license arrangement.

Conclusion: the recommendation may be prepared for DICOM to join. Greg Zeller will attend and announce that DICOM is considering joining .

* ISO/TC 215 – DICOM reached the end of the maintenance period. The wrapper has come up for review. The request has been made to renew.
	+ Charles Parisot will revise the cover.
1. **Country Reports - DICOM-Related Activities around the World**
* Canada – Dr. Koff’s presentation in India on regional PACS
* Japan –Update provided on
	+ Translation of the DICOM Standard
	+ JIRA Publication-educational piece on RDSR
		- New JIRA Voting Member Ito-san, Suzuki-san Alt voting. Imokawa-san to be removed from roster.
	+ JAHIS Standardization
		- Pathology – created a Whole Slide Imaging .dcm file. It was discussed that several parties have been looking for a dcm file sample to test viewers being developed.
		- Endoscopy – WG-13
1. **DICOM Conference-2013- 20 Year Anniversary**

The Conference was discussed in WG-10 as follows:

The International Conference, just completed, was discussed

* + A record 267 registrants listened to and/or reviewed the work of over 50 speakers, panelists, and poster authors.
	+ The purpose of the international conferences was reviewed and affirmed: to take the conference to areas where DICOM implementation is starting and offer basic education for Day 1-2 and identify local issues on Day 3.
	+ Some of the audience was very experienced, others were the beginning of their DICOM learning curve.
	+ Local companies participate that appeared to gain information useful to expand to global markets.
	+ The feedback was positive, there was something for everyone

ACTION: The Group recommended that the Organizing Committee develop and send a follow-up survey to the participants in a Survey Monkey or similar format.

* Future site candidates were discussed:

 Russia, South Africa, Saudi Arabia/Gulf States, Middle East, Turkey, China (Shanghai or Beijing), Lucknow, India (Prof. Mishra), Singapore/Malaysia, Egypt

It was suggested to send a day-long educational workshop to the next target conference site to confirm interest (similar to the one-day mini conference in Singapore, prior to the Conference in Budapest .)

* HELPFUL/VITAL to have a local organization pulling the conference, e.g. Gold DISC/CIMISC
* Start thinking about transitioning the organizing of the conferences to external local groups that would submit proposals to DSC for scheduling a Conference. DSC to provide the technical assistance.
* WHO is starting up activity on standards and interoperability – the representative was present at this seminar. It was proposed to this representative to have WHO organize such events, invite attendees, with DICOM to provide expert speakers.
1. **Publications about DICOM, Promoting DICOM**

K. O’Donnell reported on the contact with the WHO representatives. Clarified the possibilities for implementing DICOM with open source software.

1. **New Business**

No new business was proposed.

1. **Time and Place of Future Meetings**

Tuesday, August 20, 2013, hosted by RaySearch in Stockholm.

Thursday, Dec. 5, 2013, RSNA, Chicago, IL, USA

1. **Adjournment**

The meeting was adjourned at 4:30 p.m.

Submitted by Stephen Vastagh, Secretary

Reviewed by counsel:CRS

EXHIBIT A

**DICOM Working Group 6 (Base Standard)**

**Status Report**

# March 4, 2013

## Scope of WG6 work

WG6 maintains the overall consistence of the DICOM standard. It provides technical guidance to all DICOM working groups and serves as the technical coordination point. It also develops extensions (Supplements) to DICOM typically related to overall systems enhancements. Some of the responsibilities include:

* Executing the DICOM Maintenance Process (Correction Proposals). The process is used to make “corrections and minor changes” to the current versions of the Standard. Any corrections made are processed using the normal Letter Ballot procedures as defined by NEMA.
* Provision of technical coordination and guidance for all WGs. This includes review and official approval before the Public Comment, Letter Ballot, and Final Text draft releases of all supplements.
* Development of Supplements to the standard related to Print, Image Management, Workflow Management, etc.
* Tracking the progress of workitems and supplement and report stalled items (no activity over a period of three years) to the DICOM Standards Committee.
* Coordination of joint development efforts with ASTM, CEN, ISO, JIRA, and Medis DC.
* Coordination with NEMA for the publication of DICOM.

## Meetings Held Since Last Report

4 – 8 February 2013 Washington DC, MITA

## Schedule and Quality Issues

The workload of WG-06 is decreasing because the number of supplements in progress is substantial reduced. However, a number of the remaining supplement requires substantial review effort because the complexity and missing experience of the editors (e.g., Sup 148 Second Generation RT and Sup 124 Display Parameters).

We still make use of t-cons to resolve routine review and use the face-to-face meetings for more substantial reviews and discussion, but the frequency is lower by the reduced workload:

* A regular CP teleconference one week in advance of the face to face meeting to clear simple CP activity has worked well. This is replacing about 2hrs of meeting time with a 2hr t-con.
* We continue using t-cons for supplements that appear to have no technical issues, complex edits, or other demands for face to face discussions. This worked well for Supplementsthat are in the stage of the review progress that require a line-by-line review. All new activity is being forced to obtain a work item before discussion at WG-06. All the current supplement activity has an approved work item.

The meeting agendas and attendance issues are improving with the use of a two stage agenda setting. We first distribute a candidate list of meeting times and allow self-selection of removal from groups that are going to be busy, unavailable, or willing to wait. This has improved the productivity of the meeting time.

For first reads and minor reviews we have started using web display to reduce the travel burden on presenters.

Much of the WG-06 face to face meeting time is spent dealing with clarity, precision, and consistency. This is dealt with somewhat during public comment, and extensively in the final text and letter ballot discussions.

## Specific Deliverables

*DICOM Maintenance Process*

* In the February meeting since last report, 15 CPs are added to the standard (CPack 69) and 16 new CPs were processed.

*Supplements Currently Being Developed by WG6*

* Supplement 115: Evidence SOP Class. In early draft. **Discussed in a t-con to reactivate the progress.**
* Supplement 121: Modality Procedure Plan and Protocol Storage. **Reviewed in the February meeting.** **Planned for the April 2013 meeting.**
* Supplement 157: Multi-Frame Converted Legacy Images. **Reviewed in the February meeting. Planned for a t-con and the April 2013 meeting.**
* Supplement 162: Comprehensive 3D SR. **Reviewed in the February meeting. Approved as Final Text.**
* Whitepapers on change management and long term consistency is finished. **A new workitem proposal is on hold, due to the lack of a new champion.**
* Application profiles. Discussed in the January 2010 meeting. A white paper to describe the process of specifying application profiles in conjunction with the IHE Radiology Technical Committee is in preparation. **No need to continue this activity.**

*Review and Approval of Supplements Developed by Other WGs*

* Supplement 124: Communication of Display Parameters. **Reviewed in the February meeting.** **Planned for the April 2013 meeting.**
* Supplement 129: Electrophysiology SR and Procedure Log. No progress over the last 3 years.
* Supplement 138: Crestal Implant Storage. Not reviewed.
* Supplement 147: Second Generation Radiotherapy. **Reviewed in the February meeting.** **Planned for the April 2013 meeting.**
* Supplement 155: Templates for Imaging Procedure Reports encoded in CDA. No progress.
* Supplement 156: Multi-Dimensional Presentation State. **Planned for the June meeting.**
* Supplement 159: Radiopharmaceutical Administration Radiation Dose Reporting. **Reviewed in the February meeting Approved for public comment.**
* Supplement 160: Second Generation Radiotherapy Patient Positioning and Workflow. No progress
* Supplement 161: WADO Restful Services. **Reviewed in the February meeting.** **Approved as Final Text.**
* Supplement 163: STore Over the Web by RESTful Services (STOW-RS). **Reviewed in February meeting. Approved for Public Comment.**
* Supplement 164: Contrast Agent Administration SR Storage. **Reviewed in the February meeting.** **Planned for the April meeting.**
* Supplement 165: Breast Projection X-Ray Image Storage SOP Class. **Planned for June meeting.**
* Supplement 166: Query based on ID for DICOM Objects by RESTful Services (QIDO-RS). **Planned for April meeting.**

Currently 15 supplements have been assigned a number and are in progress (draft, public comment, frozen or letter ballot).

*Miscellaneous*

* WG6 will meet at the following dates and places 2013:
* April 8 –12, 2013 at MITA
* June 17 – 21, 2013 at MITA
* August 12 – 16, 2013 at Stockholm, Sweden
* October 14 - 18, 2013 at MITA

*DICOM Publication*

* Some progress is being made on the DICOM in XML effort. This will be reported separately.

Respectfully submitted by:

Bas Revet

Chairman, DICOM WG6