DICOM Secretariat/MITA
1300 North 17th Street, Suite 900
Arlington, VA 22209, USA
+1-703-475-9217
http://www.dicomstandard.org/
dicom@dicomstandard.org

# Minutes

**MEETING NAME** 09-WG33: WG-33 Data Archive and Management

**MEETING PLACE/DIAL IN**

**DATE & TIME** Wednesday, August 19, 2020 | 11:00 am – 12:30 pm US ET

**PRESIDING OFFICERS** Matthew Bishop, UnityPoint Health
Keith Eklund, Healthcare Tech Solutions

**VOTING MEMBERS PRESENT**

| | |
|---|---|
| AAPM | Bevins, Nicholas |
| Ambra Health | Ostrow, Daniel |
| Argentix Informatix | Silver, Elliot |
| Canon Medical Research USA | O'Donnell, Kevin |
| DesAcc EMEA | King, Graham |
| GE Healthcare | Numan, Jouke |
| Grafimedia | Georgiadis, Pantelis |
| Healthcare Tech Solutions | Eklund, Keith |
| Laitek, Inc. | Brown, Barry |
| Laitek, Inc. | Costea-Barlutiu, Razvan |
| Laitek, Inc. | Solomon, Harry |
| Mayo Clinic Rochester | Persons, Kenneth |
| PixelMed Publishing | Clunie, David |
| Society for Imaging Informatics In Medicine | Bishop, Matthew |
| Society for Imaging Informatics In Medicine | Carey, Cheryl |

**OTHERS**

| | |
|---|---|
| Citius Tech Healthcare Technology | Mahalle, Prashant |
| DeJarnette Research Systems | Wineke, Steve |
| Hyland Software | Ullrich, Mike |
| Mega Informatica Ltd | Fauquex, Jacques |

| | | |
|---|---|---|
| | MITA | Hull, Carolyn |
| | Ochsner Health System | Hayes, Matt |
| **VOTING MEMBERS ABSENT** | AAPM | Knazik, Shayna |
| | Canon/Vital Images | Dawson, Tim |
| | Canon/Vital Images | Whitby, Jonathan |
| | Change Healthcare | Ho, Kinson |
| | European Society of Radiology | Mildenberger, Peter |
| | GE Healthcare | Nichols, Steven |
| | Laitek, Inc. | Sluis, Douglas |
| | Mach7 Technologies | Ulanov, Alexey |
| | Society for Imaging Informatics In Medicine | Henson, Kyle |
| | Varian Medical Systems, Inc. | Schwere, Thomas |
| **DICOM SECRETARIAT** | Anna Zawacki, SIIM | |

## 1 CALL TO ORDER AND REVIEW OF ANTI-TRUST RULES AND DICOM PATENT POLICY (Co-Chairs, Secretariat)

The meeting was called to order. Guidelines for Conducting NEMA Meetings were read and attendance was recorded.

## 2 REVIEW AND APPROVE AGENDA (Co-Chairs)

The agenda was reviewed and approved.

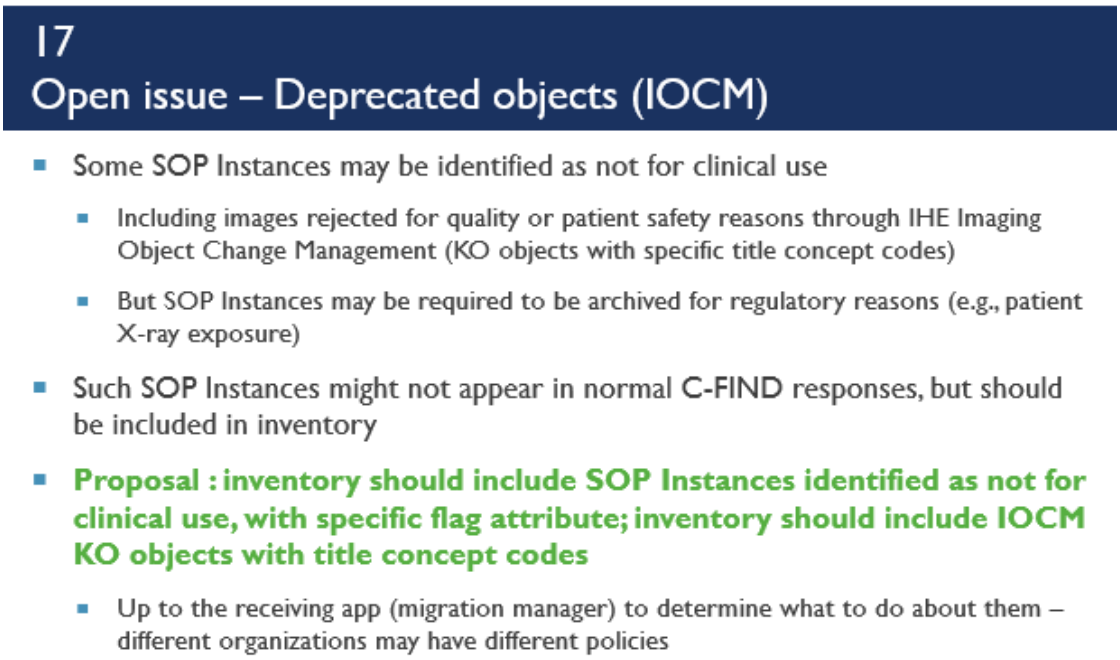
## 3 REVIEW MINUTES (Co-Chairs)

The minutes of the previous meeting were reviewed and approved.

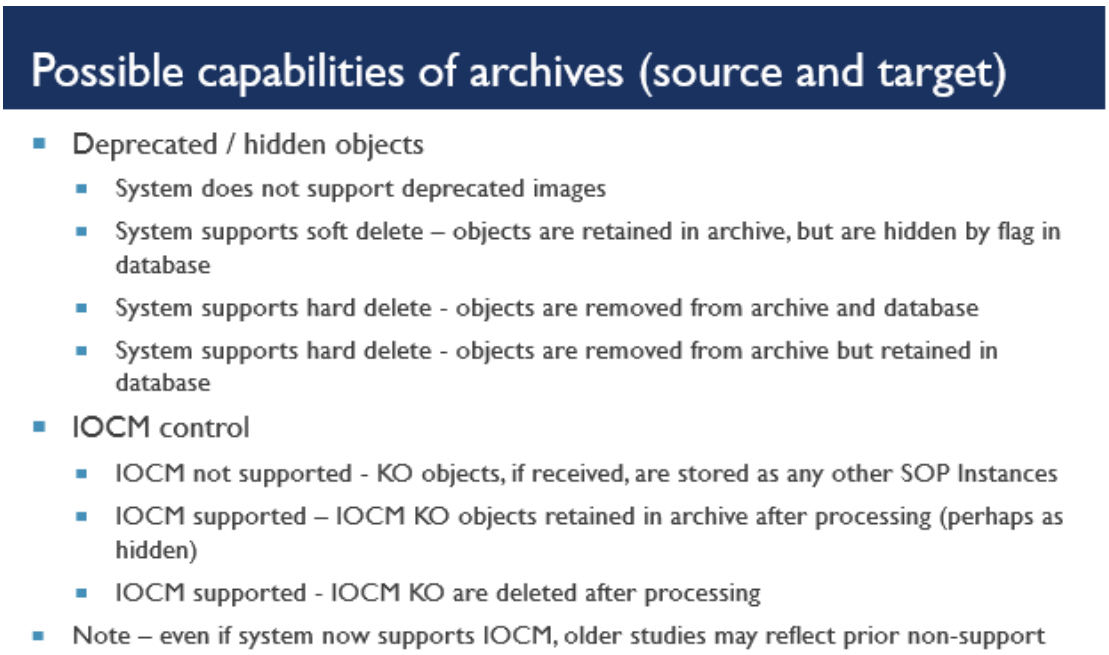
## 4 TOPIC ITEMS TO BE DISCUSSED (All)

Resume reviewing open issues to be addressed in the Supplement at #17

ftp://d9-workgrps@medical.nema.org/MEDICAL/Private/Dicom/WORKGRPS/WG33/2020/2020-08-05/Consensus_Positions_and_Open_Issues-20200805.pptx




Need to think about the possible functionality in respect to deprecated images.



System does not support deprecated images = system does not support any deleted images

For migration think about – do I want deleted objects? What do I want to see when migration is complete? When it's been rejected and processed, I will not carry them over. Or can I make a decision that I will carry over the log/audit trail, but not the images.

Any migration of large volumes of data is going to involve some specific tailoring of data enroute.

Don't want to make it a standard for how you do a migration. This is a standard for what we need in DICOM to support migration. However, that source system has handled it, it merely reports what it has and what it has done.

Up to the receiving system what it wants to do with what it has received.

## Proposal

- Source system merely reports what it has
  - If objects are in the archive (even if soft deleted), they are included in the inventory
  - Soft deleted / hidden objects are flagged in inventory (optionally with IOCM reason code)
  - If IOCM KO objects are in the archive, they are included in the inventory
    - If the processing has been applied to the referenced objects, they may be marked as hidden
  - If hard deleted objects are identified in database, the record is included in the inventory with flag for hard delete (object not available)
- The target system (or its proxy) decides out what to do with whatever is presented in the inventory (in accordance with local institutional policy)

Inventory, as closely as possible, has to be a close representation on what's on disc.

Quality assurance types of processes that should be applied in general in PACS.

Ownership is on the receiving system.

Inventory accurately reflects what the source system knows.

So, the proposal is: Inventory should include SOP Instances identified as not for clinical use, with specific flag attribute; inventory should include IOCM KO objects with title concept codes.

Inventory must include the IOCM KO objects and should include SOP instances

IOCM is not part of DICOM

DICOM does define KO codes that are used in IOCM, but does not specify behavior

In the archive that you are migrating from there are objects of any type: they could be KO, they could be a CT image exam, GSPS – that were rejected. How do you communicate any object that was rejected?

Same as the flag in the proposed language.

2 use cases to test how this would work.

1. We have a PACS system that would flag every rejected image and that info would stay in the system, but the DICOM interaction with the system wouldn't present any of them, if you did an export or migration, you wouldn't get any of these rejected instances. If you were an admin and looked for the though, you'd find them.
2. Used IOCM KO, system processed the KO, rejected the instances but kept them, then rejected the KO but kept it.

What would the mechanism be on the inventory to communicate back those 2 use cases?

In the first use case – system reports what it has. These objects are there but they have been rejected with a flag, we convey the flag in the inventory.

2nd case – objects are still in the database and storage, even if not seen through normal clinical queries, the inventory is always what the database really knows is in the storage, it's not what gets presented clinically.

Regardless of whether study/series has been rejected, they will appear in the manifest the same way, they will be flagged as rejected.
The inventory reflects the database of the PACS.
Encoding of the manifest is not going to depend on/need IOCM or KO. Manifest will provide an alternative way of indicating that things are bad.

What to do with the KOs themselves?

If the inventory is one true way of stating what's been deprecated, should the KO be removed from the whole inventory?
If the PACS keeps them around, it puts them in the inventory.

All KOS objects are just files like any other files and database may or may not them flag as being special.
Inventory has to be able to convey this status.

## 18
## Open Issue – IOD Name

- Functionally equivalent (+/-) to Basic Directory IOD used in DICOMDIR file
  - Inventory of all SOP Instances in file set
  - Basic metadata attributes
  - Filename pointer to Part10 files
- **Option 1: "Enhanced Directory IOD"**
  - Places it in context of second generation "enhanced" IODs
- **Option 2: "Inventory IOD"**

What do we call this thing?
Don't like "Enhanced Directory IOD" – overused concept of enhanced
Inventory IOD – preferred, better fit for what we are trying to do here, for migration
Avoid the use of word manifest
Inventory of what? Inventory is quite generic

## 19
## Open Issue – directory for media exchange

- Inventory is functionally equivalent (+/-) to Basic Directory IOD used in DICOMDIR for media exchange
- Possible use as next generation directory for media exchange (other than PACS/VNA data migration)
  - Basic Directory IOD is functional, but kludgy
  - But alternate format may introduce confusion, and not provide significant benefit; media exchange may eventually go away
- **Option 1: allow use of inventory as DICOMDIR in future media exchange application profiles**
- **Option 2: future media exchange is out of scope**

Do we want to use it in future media exchange? No – out of scope

## 20
## Open issue – alignment with FHIR

- Inventory is functionally equivalent (+/-) to FHIR ImagingStudy resources exported using FHIR Bulk Data Access Standard
- If the target application use for the inventory is purely in the imaging space, developers should be familiar with DICOM, and DICOM native protocols and encoding is appropriate
- However, if the target is in the general healthcare IT space, where developers are more familiar with FHIR, FHIR protocols might be more appropriate
- **Proposal : inventory shall be specified with a DICOM IOD, and interactions specified with DICOM protocols.**
- **? Consideration should be given to providing an equivalent FHIR representation or transcoding.**

Do we want to use the FHIR imaging study and FHIR encoding?
Not there.
Target audience – people familiar with DICOM.
We are doing this as a DICOM IOD, everything is specified with DICOM protocols, we might provide equivalent FHIR representation or transcoding.

Metadata updates – need to be specified in a very DICOMish way.

Agreed to keep as DICOM.

## 21
## Open issue – security

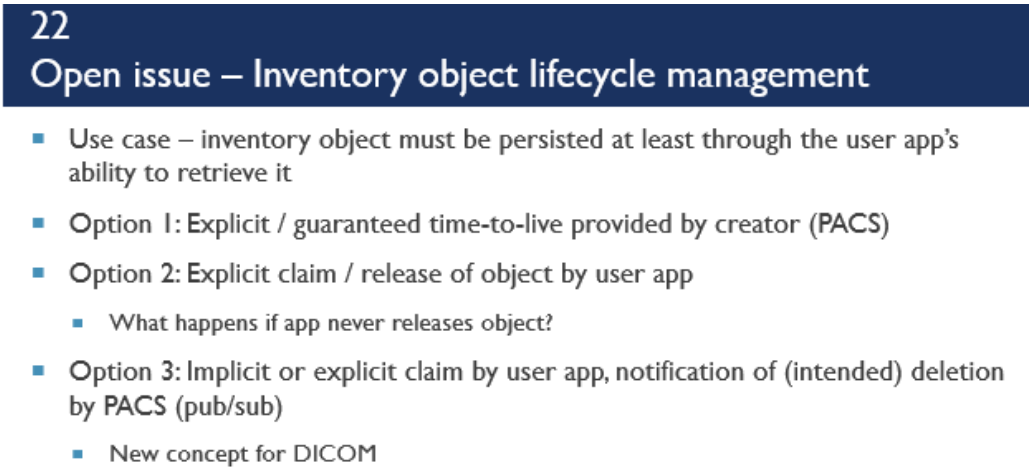
- Use case – security of "data at rest" in archive
- No current DICOM specification of user identity / permissions / context
  - Has generally been left to implementation and local configuration, potentially layered on TLS (e.g., IHE ATNA)
- DICOM specifies methods to encrypt Part10 files (Part 10 Section 7.4 and Part 15 Annex D)
  - But no specification of key management
- **Option 1: standardized profile(s) of security features for archived objects**
- **Option 2: out of scope - let WG-14 address in separate Change Proposal**

Why are we concerned about this? It's always been out of scope.
Security has become an issue since DICOM was started, particularly in the past couple of years.

Old PACS, no security then you can access the file system without too many restrictions, static parameters that will allow you to do that.
Future PACS, may require things at the transport level – certificates, or things at application level, such as tokens. If we want to use those, do we need to specify particular profiles of the off the shelf mechanisms?

What's out of scope?
We have to have a security consideration section. We can just say, this is addressed in Part 15 or Part 10 to refer to.

How reliable does the inventory have to be? Do we need to sign in – need for digital signature?




Large objects, if a client requests something and never retrieves it, the server should have the ability to get rid of them at some point and say – re-request.
Creator decides when it wants to delete it.
Part 4 talks about image retention.
How much time does the using app have to retrieve it if it wants to retrieve it?
Potentially take a longer time to retrieve – TTL from completion not from request.
Need to communicate when ready.
Just say – in the notification that request is ready for pickup. Do we want to allow the systems to communicate TTL? That's Option 1
Keep it simple for the first round, let the creator give a TTL if it wants to do that, otherwise it's undefined

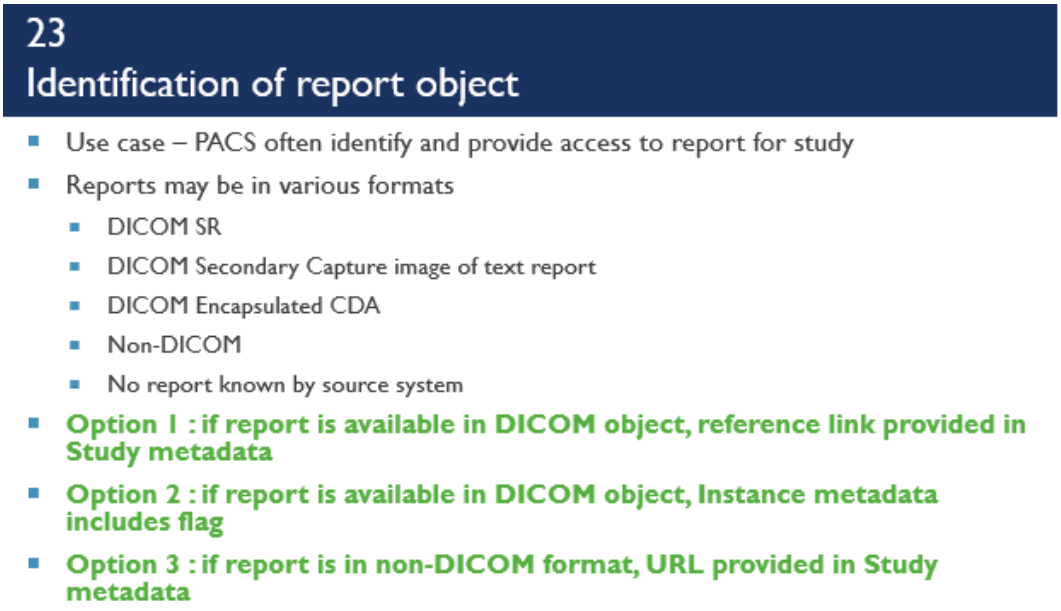
Inventory is always a snapshot in time, it's very fluid, once you have it captured, you can't stop the natural process of exams being deleted or rejected, just because you have given an inventory to somebody
Something you have to reconcile after the migration is done. How long should the inventory list be kept. How long will I be able to access that inventory?

I want to know what the delta is. Should the PACS be able to provide either a delta inventory that is referenced to the baseline inventory. Or should it be able to give some sort of indication – you don't have to request another inventory because nothing has changed or not much has changed.

How long the inventory itself is useful for?
How long the source system should hold on to the bits on disc?

Keep it until I need the disc space, which may be unpredictable
Inventory scope is defined by return keys
Inventory object includes description of scope of subset

Consensus – leave it up to the creator to decide how long they will keep it around, optionally they may want to provide a TTL




Many things linked to the PACS that are not reports. Getting carried away.
Reports are special to the extent they can be stored as a DICOM object.
If it's not a DICOM object, it does not belong to the inventory.

If it's a DICOM object and it is a report – is that a privileged item of some sort that requires a special notification? To accomplish the ability of the receiving/new PACS to be able to display a prior study and bring up a report for it and not have to go search around/ask EMR.
Is there non DICOM metadata in the database related to the reports that happen to be DICOM object that is needed by the receiver during migration?

PACS will often have a mechanism to display when a rad pulls up a prior study, they will also pull up a report prior rad report on that study, that prior report typically they have to go to the EMR to find it. That report may actually be in the PACS because it's stored as DICOM SR text object. Do we want to be able to provide that reference in the study level metadata to the report object?
Hint – if available

Skip this for now. It's not broad enough, have not run into this issue enough that it needs a special case. Out of scope.

Finished all open issues. Next thing - we'll start to look at draft material.

## 5 OLD BUSINESS

## 6 NEW BUSINESS

## 7 DATE AND TIME OF NEXT MEETINGS (Secretariat)

- Continue T-con meetings bi-weekly for the time being (at least until the New Work Item Proposal is submitted to DSC)
- Next call is September 2, 2020 between 11:00 am and 12:30 pm ET

| | |
|---|---|
| **NEMALINK CODE** | 09-WG33 |
| **SUBMITTED BY** | Hull, Carolyn |
| **SUBMITTED ON** | 9/4/2020 |
| **LEGAL REVIEW** | 9/9/2020 |
| **UPLOAD LOCATION** | Enter upload location. |