DICOM Correction Proposal

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| STATUS | Draft Final Text |
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| Submission Date | 2021/06/17 |

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| --- |
| Correction Number CP-2163 |
| Log Summary: Add term to represent the local client copy buffer to CID 405 for Data Export |
| Name of Standard  PS3.16, PS3.17 2022a |
| Rationale for Correction:  PS3.15, [*Table A.5.3.4-1. Audit Message for Data Export*](http://dicom.nema.org/medical/dicom/current/output/chtml/part15/sect_A.5.3.4.html), the row, Active Participant: Media (1), Media Type reference values selected from D[CID 405 “Media Type Code”](http://dicom.nema.org/medical/dicom/current/output/chtml/part16/sect_CID_405.html).  PS3.15 and PS3.17 do not include options that address the use case of exporting media to a client, such as exporting data to the client desktop or copying data into the clipboard buffer.  *Issue: Generalize “media” to be any kind of import/export source/destination (option 1) or add a category of “application” (option 2) that encompasses the blurry gap between network endpoints and physical media. The clipboard manager is one such example. Depending on details of implementation and configuration that may be unknowable to the reporting system, a clipboard manager might transfer clipboard contents to another network device, and it might record a history of past clipboard entries for a long time. The reporting system might have knowledge of this or might not.*  *Another potential example is an S3 bucket that is mounted as a virtual local disk. The reporting system might think this is physical removable media due to virtualization. It might know it is virtualized.*  *DECISION: WG-14 has chosen option 2.*  Destination Media is intended to represent persistent media storage devices that have an identity of their own and that could potentially be transferred across security domain boundaries. We could generalize this (avoiding the challenge of defining terminology for all these grey zone situations), invent a fuzzy boundary term, or invent many terms.  The term “Clipboard Manager” reflects the terminology in general use today. Windows, Linux, MacOS, IOS, and Android all offer the potential to install a “clipboard manager” from at least 10 different vendors. From the perspective of the user these all provide at least “cut and paste” in a GUI environment with a variety of additional vendor specific features.  *[Comment. Canon. Agree that "Clipboard" is not well described by "persistent or transient storage media". By that token, it seems like Email and many/most URI don't fit that well either. Should Email also be application? Would "server" or "database" be appropriate RoleIDCodes? Fixed.]* |
| Correction Wording:  Modify PS15 A.5.3.4-1 to allow RoleID “Application” this is to avoid conflict with the definition of “Destination Media”, which refers to persistent media.  Add “Clipboard” terminology to Parts 15, 16 and 17. Clarify definition of “Destination Media” to include persistence.  Create Part 17 examples that suit both use cases. |

*Modify PS3.15 Table A.5.3.4-1 Audit Message for Data Export as follows*

**Table A.5.3.4-1. Audit Message for Data Export**

|  |  |  |  |
| --- | --- | --- | --- |
| … | | | |
| Active Participant:  Media (1) | UserID | M | See [Section A.5.2.3](http://dicom.nema.org/medical/dicom/current/output/html/part15.html#sect_A.5.2.3) |
| AlternativeUserID | U | See [Section A.5.2.4](http://dicom.nema.org/medical/dicom/current/output/html/part15.html#sect_A.5.2.4) |
| UserName | U | not specialized |
| UserIsRequestor | M | Shall be FALSE |
| RoleIDCode | M | **~~EV~~** [**~~(110154, DCM, "Destination Media")~~**](http://dicom.nema.org/medical/dicom/current/output/html/part16.html#DCM_110154) **See Section A.5.3.4.2** |
| NetworkAccessPointTypeCode | MC | Required if being exported to other than physical media, e.g., to a network destination rather than to film, paper or CD. May be present otherwise. |
| NetworkAccessPointID | MC | Required if Net Access Point Type Code is present. May be present otherwise. |
| MediaIdentifier | MC | Volume ID, URI, or other identifier for media.  Required if digital media. May be present otherwise. |
| MediaType | M | **~~Values selected from D~~**[**~~CID 405 “Media Type Code”~~**](http://dicom.nema.org/medical/dicom/current/output/html/part16.html#sect_CID_405)  **See Section A.5.3.4.2** |
| … | | | |

*Add PS3.15 Section* *A.5.3.4.2 RoleIDCode as follows*

##### A.5.3.4.2 RoleIDCode

It is up to the generating application to decide the whether the RoleIDCode is best represented by (110154, DCM, "Destination Media") and Media Type values selected from DCID 405, or (110150, DCM, “Application”) and Media Type values selected from DCID XXX.

In many circumstances, the data recipient is physical storage media, and (110154, DCM, "Destination Media") is appropriate. Media is usually an entity that has a distinct identity, and that can be transported across security domain boundaries without loss of that identity. However in cases where the destination is a software application, such as the Clipboard Manager, application URI, or Email user agent, (110150, DCM, “Application”) may be more suitable. But,

Email is especially ambiguous because the difference between the email body (which might even be stored on another media for physical transport), the email transfer agent, and the email user agent is often subtle and an aspect of the specific device design.

*Add the following to PS3.16 Chapter B Table CID 405. Media Type Code*

**Table CID 405. Media Type Code**

| **Coding Scheme Designator** | **Code Value** | **Code Meaning** |
| --- | --- | --- |
| DCM | [110030](http://dicom.nema.org/medical/dicom/current/output/chtml/part16/chapter_D.html#DCM_110030) | USB Disk Emulation |
| DCM | [110031](http://dicom.nema.org/medical/dicom/current/output/chtml/part16/chapter_D.html#DCM_110031) | Email |
| DCM | [110032](http://dicom.nema.org/medical/dicom/current/output/chtml/part16/chapter_D.html#DCM_110032) | CD |
| DCM | [110033](http://dicom.nema.org/medical/dicom/current/output/chtml/part16/chapter_D.html#DCM_110033) | DVD |
| DCM | [110034](http://dicom.nema.org/medical/dicom/current/output/chtml/part16/chapter_D.html#DCM_110034) | Compact Flash |
| DCM | [110035](http://dicom.nema.org/medical/dicom/current/output/chtml/part16/chapter_D.html#DCM_110035) | Multi-media Card |
| DCM | [110036](http://dicom.nema.org/medical/dicom/current/output/chtml/part16/chapter_D.html#DCM_110036) | Secure Digital Card |
| DCM | [110037](http://dicom.nema.org/medical/dicom/current/output/chtml/part16/chapter_D.html#DCM_110037) | URI |
| DCM | [110010](http://dicom.nema.org/medical/dicom/current/output/chtml/part16/chapter_D.html#DCM_110010) | Film |
| DCM | [110038](http://dicom.nema.org/medical/dicom/current/output/chtml/part16/chapter_D.html#DCM_110038) | Paper Document |

*Add a new Context Group to PS3.16 Chapter B as follows*

## CID xxx application Type Code

**Resources:**

**HTML | FHIR JSON | FHIR XML | IHE SVS XML**

**Keyword:**

**MediaTypeCode**

**FHIR Keyword:**

**dicom-cid-xxx-ApplicationTypeCode**

**Type:**

**Extensible**

**Version:**

**202xxxxx**

**UID:**

**1.2.840.10008.6.1.xxx**

**Table CID xxx. Application Type Code**

| **Coding Scheme Designator** | **Code Value** | **Code Meaning** |
| --- | --- | --- |
| DCM | dcmxx | Clipboard |
| DCM | 110031 | Email |
| DCM | [110037](http://dicom.nema.org/medical/dicom/current/output/chtml/part16/chapter_D.html#DCM_110037) | URI |

*Add the following to PS3.16 Chapter D Table D-1.* ***DICOM Controlled Terminology Definitions (Coding Scheme Designator "DCM" Coding Scheme Version "01")***

**Table D-1. DICOM Controlled Terminology Definitions (Coding Scheme Designator "DCM" Coding Scheme Version "01")**

| **Code Value** | **Code Meaning** | **Definition** | **Notes** |
| --- | --- | --- | --- |
| … | | | |
| 110154 | Destination Media | Audit participant role ID of **persistent or transient storage** media receiving data during an export. |  |
| … |  |  |  |
| **dcmxxx** | **Clipboard Manager** | **A buffer (e.g.. paste buffer) provided by the operating environment for temporary storage and transfer within and between application programs.** |  |
| … | | | |

*Add the following to PS3.17 Chapter WW Audit Messages (Informative)*

**WW.X Data Export of Media to Web Client Desktop Example**

An example of the Media Active Participant and the Participant Object for an Audit Message in the case of a user exporting data from a browser-based image display to a client desktop is shown in Example WW.X-1. See [Table A.5.3.4-1. Audit Message for Data Export in PS3.15.](http://dicom.nema.org/medical/dicom/current/output/html/part03.html#sect_C.11.23.1)

**Example WW.X-1. Sample Data Export Event Report**

<ActiveParticipant

UserID="smitty@readingroom.hospital.org"

UserIsRequestor="true"

NetworkAccessPointID="DOMAIN\COMPUTER"

NetworkAccessPointTypeCode="1">

<RoleIDCode

csd-code="110153"

codeSystemName="DCM"

originalText="Source Role ID"/>

</ActiveParticipant>

<ActiveParticipant

UserID="file://C:\Users\smitty\Desktop\image.jpg"

AlternativeUserID="NTFS"

UserIsRequestor="false">

<RoleIDCode

csd-code="110154"

codeSystemName="DCM"

originalText="Destination Media"/>

<MediaIdentifier>

<MediaType

csd-code="110037"

codeSystemName="DCM"

originalText="URI"/>

</MediaIdentifier>

</ActiveParticipant>

**WW.Y Data Export to Clipboard Example**

An example of the Active Process Participant and the Media Active Participant for an Audit Message in the case of a user copying an image from a client application to the client clipboard is shown in Example WW.X-1.

For brevity, only the Media Active Participant is shown.

Note

It is difficult (or impossible) to detect copy buffer activity from an application server. It is expected that the client application would notify the server of clipboard buffer activity through integrated clipboard functionality or screenshot detection.

See [Table A.5.3.4-1. Audit Message for Data Export in PS3.15.](http://dicom.nema.org/medical/dicom/current/output/html/part03.html#sect_C.11.23.1)

**Example WW.Y-1. Sample Data Export Event Report**

<ActiveParticipant

UserID="PID 3532"

AlternativeUserID="Clipboard User Service"

UserIsRequestor="false">

<RoleIDCode

csd-code="110150"

codeSystemName="DCM"

originalText="Application"/>

<MediaIdentifier>

<MediaType

csd-code="dcmxxx"

codeSystemName="DCM"

originalText="Clipboard Manager"/>

</MediaIdentifier>

</ActiveParticipant>

**WW.Z Data Export to Email Example**

Two examples of Email. One as the email body shown in Example WW.Z-1, and one as the Simple Network Management Protocol agent is shown in Example WW.Z-2. Note that the email body is identified by the Message-ID in accordance with RFC2822 and RFC5321. These RFCs distinguish the body (section 3.6.4 of RFC2822) from the headers and routing information.

For brevity, only the Media Active Participant is shown.

See [Table A.5.3.4-1. Audit Message for Data Export in PS3.15.](http://dicom.nema.org/medical/dicom/current/output/html/part03.html#sect_C.11.23.1)

**Example WW.Z-1. Sample Data Export Event Report**

<ActiveParticipant

UserID="Message-ID: <5678.21-Nov-1997@example.com>"

UserIsRequestor="false">

<RoleIDCode

csd-code="110154"

codeSystemName="DCM"

originalText="Destination Media"/>

<MediaIdentifier>

<MediaType

csd-code="110031"

codeSystemName="DCM"

originalText="Email"/>

</MediaIdentifier>

</ActiveParticipant>

**Example WW.Z-2. Sample Data Export Event Report**

<ActiveParticipant

UserID="mailto://person@example.com"

UserIsRequestor="false">

<RoleIDCode

csd-code="110150"

codeSystemName="DCM"

originalText="Application"/>

<MediaIdentifier>

<MediaType

csd-code="110037"

codeSystemName="DCM"

originalText="URI"/>

</MediaIdentifier>

</ActiveParticipant>