

DICOM Correction Proposal

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|---------------------|-----------------|
| STATUS | Letter Ballot |
| Date of Last Update | 2023/03/23 |
| Person Assigned | Kevin O'Donnell |
| Submitter Name | Kevin O'Donnell |
| Submission Date | 2022/04/08 |

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|---------------------------|--|
| Correction Number | CP-2258 |
| Log Summary: | Add manufacture date and installation date to Device and Equipment Identification |
| Name of Standard | PS3.3 |
| Rationale for Correction: | <p>Processes such as image quality assessment sometimes find it useful to know how old a device (probe, tube, etc.) was at the time the image was acquired.</p> <p>The Device Identification Macro is modified to support such information. Since such information might be of interest for the equipment as a whole, the tags are also added to the Equipment Module (and via inclusion the Enhanced Equipment Module), and the Contributing Equipment Sequence in the SOP Common Module.</p> |
| Correction Wording: | |

Modify PS3.3 Table 10.36-1 as shown:

Table 10.36-1. Device Identification Macro Attributes

| Attribute Name | Tag | Type | Attribute Description |
|---|---------------------------|-----------------|--|
| Device Type Code Sequence | (3010,002E) | 1 | The type of the device. Only a single Item shall be included in this Sequence. |
| >Include Table 8.8-1 "Code Sequence Macro Attributes" | | | CID may be defined in the Macro invocation. |
| Device Label | (3010,002D) | 1 | User-defined label for this device. |
| Long Device Description | (0050,0021) | 3 | User-defined description for this device. |
| Device Serial Number | (0018,1000) | 2 | Manufacturer's serial number of the device. |
| Software Versions | (0018,1020) | 2 | Manufacturer's designation of software version of the equipment. |
| <u>Date of Manufacture</u> | <u>(xxxx,yyy1)</u> | <u>3</u> | <u>The date the device was originally manufactured or re-manufactured (as opposed to refurbished).</u> |
| <u>Date of Installation</u> | <u>(xxxx,yyy2)</u> | <u>3</u> | <u>The date the device was installed in its current location. The device may or may not have been used prior to installation in its current location.</u> |
| UDI Sequence | (0018,100A) | 3 | Unique Device Identifier (UDI) of the device. One or more Items are permitted in this Sequence. <i>Note</i> |

| Attribute Name | Tag | Type | Attribute Description |
|---|-----|------|--|
| | | | <i>Multiple Items may be present if the entire equipment has UDIs issued by different Issuing Authorities.</i> |
| >Include Table 10.29-1 "UDI Macro Attributes" | | | |
| ... | | | |

Add new attributes to PS3.3 Equipment Module as shown:

C.7.5.1 General Equipment Module

Table C.7-8 specifies the Attributes of the General Equipment Module, which identify and describe the piece of equipment that produced Composite Instances.

Table C.7-8. General Equipment Module Attributes

| Attribute Name | Tag | Type | Attribute Description |
|---|-------------|------|--|
| Manufacturer | (0008,0070) | 2 | Manufacturer of the equipment that produced the Composite Instances. |
| Institution Name | (0008,0080) | 3 | Institution where the equipment that produced the Composite Instances is located. |
| Institution Address | (0008,0081) | 3 | Mailing address of the institution where the equipment that produced the Composite Instances is located. |
| Station Name | (0008,1010) | 3 | User defined name identifying the machine that produced the Composite Instances. |
| Institutional Department Name | (0008,1040) | 3 | Department in the institution where the equipment that produced the Composite Instances is located. |
| Institutional Department Type Code Sequence | (0008,1041) | 3 | <p>A coded description of the type of Department or Service within the healthcare facility.</p> <p>Note</p> <p>This might be obtained from a corresponding HL7v2 message containing PV1:10 Hospital Service.</p> <p>Only a single Item is permitted in this Sequence.</p> |
| >Include Table 8.8-1 "Code Sequence Macro Attributes" | | | BCID 7030 "Institutional Department/Unit/Service". |
| Manufacturer's Model Name | (0008,1090) | 3 | Manufacturer's model name of the equipment that produced the Composite Instances. |
| Manufacturer's Device Class UID | (0018,100B) | 3 | <p>Manufacturer's Unique Identifier (UID) for the class of the device.</p> <p>A class is a manufacturer-specific grouping concept with no DICOM-defined scope or criteria. A class is independent from a marketing-defined make, model or version.</p> <p>A class allows grouping of devices with a similar set of capabilities.</p> <p>This Attribute may be multi-valued if this device is a member of</p> |

| Attribute Name | Tag | Type | Attribute Description |
|---|---------------------------|-----------------|--|
| | | | more than one class. |
| Device Serial Number | (0018,1000) | 3 | <p>Manufacturer's serial number of the equipment that produced the Composite Instances.</p> <p>Note</p> <p>This identifier corresponds to the device that actually created the images, such as a CR plate reader or a CT console, and may not be sufficient to identify all of the equipment in the imaging chain, such as the generator or gantry or plate.</p> |
| Software Versions | (0018,1020) | 3 | Manufacturer's designation of software version of the equipment that produced the Composite Instances. See Section C.7.5.1.1.3. |
| Gantry ID | (0018,1008) | 3 | Identifier of the gantry or positioner. |
| UDI Sequence | (0018,100A) | 3 | <p>Unique Device Identifier (UDI) of the entire equipment. For example, the entire CT Scanner.</p> <p>Note</p> <ol style="list-style-type: none"> Multiple Items may be present if the entire equipment has UDIs issued by different Issuing Authorities. Multiple Items may be present if multiple pieces of equipment were involved in the creation of this Instance, e.g., the DR plate and the DR reader. This is not intended to contain the UDIs of the components of the equipment, such as the X-Ray tube of the CT scanner. Such information is stored elsewhere and accessible using the UDI of the entire equipment and a date. <p>One or more Items are permitted in this Sequence.</p> |
| >Include Table 10.29-1 "UDI Macro Attributes" | | | |
| Device UID | (0018,1002) | 3 | <p>Unique identifier of the equipment that produced the Composite Instances.</p> <p>Note</p> <ol style="list-style-type: none"> If present in an SR object, the value is expected to be the same as the (121012, DCM, "Device Observer UID") in TID 1004 "Device Observer Identifying Attributes". There is no requirement that the Device UID (0018,1002) be the same as the Instance Creator UID (0008,0014) in the SOP Common Module, though they may be. |
| Spatial Resolution | (0018,1050) | 3 | The inherent limiting resolution in mm of the acquisition equipment for high contrast objects for the data gathering and reconstruction technique chosen. If variable across the images of the Series, the value at the image center. |
| <u>Date of Manufacture</u> | <u>(xxxx,yyy1)</u> | <u>3</u> | <u>The date the device was originally manufactured or re-manufactured (as opposed to refurbished).</u> |

| Attribute Name | Tag | Type | Attribute Description |
|------------------------------------|---------------------------|-----------------|---|
| <u>Date of Installation</u> | <u>(xxxx,yyy2)</u> | <u>3</u> | <u>The date the equipment was installed in its current location. The equipment may or may not have been used prior to installation in its current location.</u> |
| Date of Last Calibration | (0018,1200) | 3 | Date when the image acquisition device calibration was last changed in any way. Multiple entries may be used for additional calibrations at other times. See Section C.7.5.1.1.1 for further explanation. |
| Time of Last Calibration | (0018,1201) | 3 | Time when the image acquisition device calibration was last changed in any way. Multiple entries may be used. See Section C.7.5.1.1.1 for further explanation. |
| ... | | | |

Add new attributes to PS3.3 Contributing Equipment Sequence in SOP Common Module as shown:

Table C.12-1. SOP Common Module Attributes

| Attribute Name | Tag | Type | Attribute Description |
|--|-------------|------|---|
| ... | ... | ... | ... |
| Contributing Equipment Sequence | (0018,A001) | 3 | Sequence of Items containing descriptive Attributes of related equipment that has contributed to the acquisition, creation or modification of the Composite Instance. One or more Items are permitted in this Sequence. See Section C.12.1.1.5 for further explanation. |
| >Purpose of Reference Code Sequence | (0040,A170) | 1 | Describes the purpose for which the related equipment is being referenced. Only a single Item shall be included in this Sequence. See Section C.12.1.1.5 for further explanation. |
| >>Include Table 8.8-1 "Code Sequence Macro Attributes" | | | DCID 7005 "Contributing Equipment Purpose of Reference". |
| >Manufacturer | (0008,0070) | 1 | Manufacturer of the equipment that contributed to the Composite Instance. |
| >Institution Name | (0008,0080) | 3 | Institution where the equipment that contributed to the Composite Instance is located. |
| >Institution Address | (0008,0081) | 3 | Address of the institution where the equipment that contributed to the Composite Instance is located. |

| Attribute Name | Tag | Type | Attribute Description |
|---|-------------|------|---|
| >Station Name | (0008,1010) | 3 | User defined name identifying the machine that contributed to the Composite Instance. |
| >Institutional Department Name | (0008,1040) | 3 | Department in the institution where the equipment that contributed to the Composite Instance is located. |
| >Institutional Department Type Code Sequence | (0008,1041) | 3 | A coded description of the type of Department or Service within the healthcare facility. Only a single Item is permitted in this Sequence. |
| >>Include Table 8.8-1 "Code Sequence Macro Attributes" | | | BCID 7030 "Institutional Department/Unit/Service". |
| >Operators' Name | (0008,1070) | 3 | Name(s) of the operator(s) of the contributing equipment. |
| >Operator Identification Sequence | (0008,1072) | 3 | Identification of the operator(s) of the contributing equipment. One or more Items are permitted in this Sequence. The number and order of Items shall correspond to the number and order of values of Operators' Name (0008,1070), if present. |
| >>Include Table 10-1 "Person Identification Macro Attributes" | | | |
| >Manufacturer's Model Name | (0008,1090) | 3 | Manufacturer's model name of the equipment that contributed to the Composite Instance. |
| >Device Serial Number | (0018,1000) | 3 | Manufacturer's serial number of the equipment that contributed to the Composite Instance. |
| >Software Versions | (0018,1020) | 3 | Manufacturer's designation of the software version of the equipment that contributed to the Composite Instance. See Section C.7.5.1.1.3. |
| >Device UID | (0018,1002) | 3 | Unique identifier of the contributing equipment. Note There is no requirement that this Device UID (0018,1002) be the same as the Instance Creator UID (0008,0014) in the SOP Common Module, though it may be. |
| >UDI Sequence | (0018,100A) | 3 | Unique Device Identifier (UDI) of the contributing equipment. |

| Attribute Name | Tag | Type | Attribute Description |
|--|--------------------|----------|---|
| | | | <p>One or more Items are permitted in this Sequence.</p> <p>Note</p> <ol style="list-style-type: none"> 1. This is the UDI that corresponds to the entire contributing equipment as described by the other attributes in the Contributing Equipment Sequence Item. This is not intended to contain the UDIs of sub-components of the contributing equipment. 2. Multiple Items may be present if the contributing equipment has UDIs issued by different Issuing Authorities. |
| >>Include Table 10.29-1 "UDI Macro Attributes" | | | |
| >Spatial Resolution | (0018,1050) | 3 | The inherent limiting resolution in mm of the acquisition equipment for high contrast objects for the data gathering and reconstruction technique chosen. If variable across the images of the Series, the value at the image center. |
| <u>>Date of Manufacture</u> | <u>(xxxx,yyy1)</u> | <u>3</u> | <u>The date the device was originally manufactured or re-manufactured (as opposed to refurbished).</u> |
| <u>>Date of Installation</u> | <u>(xxxx,yyy2)</u> | <u>3</u> | <u>The date the equipment was installed in its current location. The equipment may or may not have been used prior to installation in its current location.</u> |
| >Date of Last Calibration | (0018,1200) | 3 | Date when the image acquisition device calibration was last changed in any way. Multiple entries may be used for additional calibrations at other times. See Section C.7.5.1.1.1 for further explanation. |
| >Time of Last Calibration | (0018,1201) | 3 | Time when the image acquisition device calibration was last changed in any way. Multiple entries may be used. See Section C.7.5.1.1.1 for further explanation. |
| >Contribution DateTime | (0018,A002) | 3 | The Date & Time when the equipment contributed to the Composite Instance. |
| >Contribution Description | (0018,A003) | 3 | Description of the contribution the equipment made to the Composite Instance. |
| ... | ... | ... | ... |

Add new attributes to PS3.6 as shown:

Table 6-1. Registry of DICOM Data Elements

| Tag | Name | Keyword | VR | VM | |
|-------------|-----------------------------|---------------------------|-----------|----|--|
| (xxxx.yyy1) | <u>Date of Manufacture</u> | <u>DateOfManufacture</u> | <u>DA</u> | 1 | |
| (xxxx.yyy2) | <u>Date of Installation</u> | <u>DateOfInstallation</u> | <u>DA</u> | 1 | |