

2016/09/29

The following changes have been made relative to the previously published PS3 2016c release of the standard, by incorporating the changes specified in the supplements and correction items.

The Final Text of all applied Supplements and Correction Proposals is available at <ftp://medical.nema.org/medical/dicom/final/>

Production Notes

The DocBook XML files are the source format, and all other formats are rendered from it.

The PDF format is rendered from the DocBook XML, and remains the "official" (authoritative) form of the standard. The PDF contains hyperlinks to sections, figures and tables both within and between parts (which in the latter case work if you are reading the PDF in a tool that supports linking to other parts).

The two HTML formats are provided for the convenience of those who find them easier to navigate within a browser, and though the appearance and organization is different, the content is the same. One form consists of entire parts in one very large HTML page, and the other consist of chunks of sections with navigation elements. Both forms are hyper-linked within and between parts. The figures in the HTML are SVG, so a browser that supports SVG is required (most contemporary browsers do).

All paragraphs (`<p/>` elements) in the HTML files of this release, are uniquely identified with a hypertext anchor (`<a/>` element), each of which has an `id` attribute (derived from the source DocBook `<para/>` element `xml:id` attribute). These unique identifiers will remain stable in subsequent releases, so they may be reliably used as the persistent targets of hyperlinks relative to the current release base URL, and are more specific than the existing anchors for entire sections or tables. Unlike the section and table anchors, there is no semantic significance to the syntax of the identifiers (i.e., they are UUIDs, rather than being derived from the section or table numbering pattern). Subsequent releases will add new identifiers for new paragraphs and text split out of existing paragraphs into new paragraphs, and will, if possible, empty, rather than entirely remove, existing paragraphs that are retired (in order to avoid dead links).

The DOCX (for Word) and ODT (for OpenOffice or LibreOffice) formats are provided for the convenience of future Supplement and CP editors. Their main claim to fame is that they exist at all, and though they are viewable and editable, they are lacking many features of the Word source of previous release, for example the use of styles for section headings. They do contain embedded hyperlinks, and these are also present in the table of contents, even though the page numbers rendered in the table of contents may be meaningless. To reiterate, the intent of these files is to provide a source to cut and past into new Word documents, and not to be functional documents in their own right. Since Word does not support SVG, all figures embedded in the DOCX files have been rasterized to a fixed resolution and are adequate for position only and are not editable and are not intended to be a substitute for the SVG figures.

The rendering pipeline used to produce these files is available but requires some expertise to use it. It is not supported. To achieve quality rendering, the use of some commercial tools was necessary, to supplement the many open source tools that were also used. Oxygen (commercial) was used as the XML editor since it supports a WYSIWG authoring mode. OpenOffice (open source) was used as the equation editor. The DocBook (open source, version docbook-xsl-ns-1.78.1) style sheets were used to create the HTML and intermediate FO form used to created the PDF and DOCX. MathML equations were converted to SVG using pMML2SVG (open source, version pMML2SVG-0.8.5). RenderX XEP (commercial) was used to produce the PDF, and XMLmind FO-Converter (commercial) was used to produce the DOCX. The difference files were produced using DeltaXML DocBook Compare (commercial).

Some characteristics of the DocBook XML may be of interest to those performing automated processing or extraction:

- Zero width spaces (U+200B) are used in some places to allow long words (such as PS3.6 keywords and UUIDs) to break within table columns and avoid tables becoming too wide to fit on a page. These need to be filtered out before using these words literally.
- Enumerated values and defined terms are formalized in PS3.3 as DocBook `variablelist` elements with a title identifying them as such, to facilitate their automated detection and extraction.
- Template and context group tables in PS 3.16 are preceded by `variablelist` elements defining whether or not they are extensible, etc., again to enable automated extraction.
- Hyperlinks (`xref` and `link` elements) are used extensively but may obscure the identifier of what is being linked to from the perspective of automated extraction. It may be useful to consult the `olink targetdb` files that are included in the package to "look up" the target of such links, rather than reinventing this mechanism, which is used by the DocBook stylesheets for cross-document linking. E.g., one can look up "sect_TID_300" in "output/html/targetdb/PS3_16_target.db" to determine that it has a "number" of "TID 300" and a "ttl" of "Measurement", etc.

Changes to Parts

General Changes

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PS3.1

- Correct missing text specific to SOP Classes in Section 7 not previously incorporated from CP 1528.

PS3.2

- Correct attribute names in Table B.4.2-24
- Sup 121

PS3.3

- Correctly nest attributes within Context Group Identification Sequence and Mapping Resource Identification Sequence in SOP Common Module
- Correct A.73.2 title to be Corneal Topography Map IOD Entity-Relationship Model
- Clean up 7.13 figures from CP1550.
- Correct nesting of subsections of C.8.33.2 Tractography Results Module.
- Correct section reference to Supplemental Palette Color Module in Intravascular OCT A.66.3-1 from C.7.9 to C.7.6.19.
- Correct F.5.45 ASSESSMENT directory record reference in Table F.4-1.
- Correct position of inclusion of Table 10-18 "Issuer of Patient ID Macro Attributes" in Table C.30.4-1 split by application of CP 1492.
- Add Enumerated Values title for Fixation Eye in Table C.8.8.25-1 and Table C.8.8.26-1
- Sup 121
- CP 1418
- CP 1559
- CP 1562
- CP 1563
- CP 1569
- CP 1574
- CP 1575
- CP 1582
- CP 1585
- CP 1586

PS3.4

- Sup 121

PS3.5

- Clean up Annex D figures.
- Correct Pixel Data tag in Section 7.8.2.
- CP 1564
- CP 1565
- CP 1566
- CP 1573

PS3.6

- Correct names of color palette query/retrieve information model SOP Class UIDs.
- Sup 121
- CP 1418
- CP 1585
- CP 1586

PS3.7**PS3.8****PS3.10**

- Add missing "is" in Table 7.1-1 DICM prefix.

PS3.11

- Correct formatting of multiple lines in rows in Table C.3-2.

PS3.12**PS3.14****PS3.15****PS3.16**

- Clean up species and breed defaults in TID 1007 Subject Context, Patient.
- Adding missing SNOMED hyperlinks in CID 7452
- Use PS3.5 Table 6.2-1 VR names in Table F.2.3-1 and remove spurious italics from JSON type
- Sup 121
- CP 1433
- CP 1567
- CP 1575
- CP 1585

PS3.17

- Clean up small animal acquisition context example to match PS3.16 template
- Sup 121

PS3.18

- CP 1568
- CP 1582

PS3.19

PS3.20

Supplements Incorporated

Sup 121 CT Protocol Storage

Correction Items Incorporated

- CP 1418** Add UDI (Universal Device ID) to objects
- CP 1433** RT-specific KOS CIDs
- CP 1559** Reuse reference mechanisms from General Image Module in other contexts
- CP 1562** Correct conditions in Referenced and Derivation Image Macros when legacy converted
- CP 1563** Correct text describing non-zero Image and Frame Type values
- CP 1564** Copying unrecognized VRs
- CP 1565** Clarify Photometric Interpretation after decompression of compressed Transfer Syntaxes
- CP 1566** Explicit Value Representations are encoded as bytes not characters
- CP 1567** Update language code RFC
- CP 1568** Remove arbitrary default value for limit in QIDO result set
- CP 1569** Define CT Reconstruction Diameter more precisely and correct Enhanced CT illustration
- CP 1573** Add definition of Code String
- CP 1574** Streamline Number of Control Points Conditions
- CP 1575** Add Purpose of Reference for Source Instance Sequence
- CP 1582** Add STOW-RS support for consumer media types
- CP 1585** Add Category And Type Codes to Fiducials, Surface Scan Mesh and Point Cloud IODs
- CP 1586** Add Segmented Property Type Modifier Code Sequence to RT ROI Observations Module