

2014/06/27

The following changes have been made relative to the published PS 3 2013 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/>

In addition to the changes highlight below, various editorial changes were made during the Word to DocBook XML conversion to accommodate the different capabilities of DocBook, particularly to harmonize titles and organization for indexing, cross-referencing and extraction.

The figures were also redrawn in SVG format and changes in style were made to improve the appearance without changing the meaning.

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 large 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).

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 exists 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, and to achieve quality rendering the use of some commercial tools was required 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.

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) 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

PS3.1

- CP 1310

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PS3.2

- Sup 159

- Sup 165

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PS3.3

- Sup 124

- Sup 159

- Sup 165

-

- CP 1203

- CP 1282

- CP 1285

- CP 1287

- CP 1290

- CP 1291

- CP 1294

- CP 1304

- CP 1309

- CP 1313

- CP 1314

- CP 1315 (was already done)

- CP 1316

- CP 1325 (used mmol rather than mM per UCUM)

- CP 1326

- CP 1327

- CP 1328 (used different section number because of pre-existing change)

- CP 1329

- CP 1330

- CP 1331
- CP 1332
- CP 1335
- CP 1337
- CP 1343
- CP 1346
- CP 1347
-

PS3.4

- Sup 124
- Sup 159
- Sup 165
-
- CP 1304
- CP 1311
- CP 1334
- CP 1343
- CP 1344
-

PS3.5

- CP 1304
-

PS3.6

- Clean up UID CID references, hyperlinking to PS3.16, removing CIDs 4053, 4054 and 12256 that were assigned but never used in final text, and italicizing all retired CIDs
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- Sup 124
- Sup 159
- Sup 165
-
- CP 1203
- CP 1282
- CP 1285

- CP 1287
- CP 1291
- CP 1292
- CP 1294
- CP 1297
- CP 1325
- CP 1326
- CP 1331
- CP 1343
- CP 1347

-

PS3.7

-

PS3.8

-

PS3.10

- CP 1297

-

PS3.11

-

PS3.12

-

PS3.14

-

PS3.15

- Sup 165

-

- CP 1307

- CP 1339

- CP 1343

-

PS3.16

- Move TID 2010 further down so templates are sorted numerically

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- Sup 124

- Sup 159

-

- CP 1291

- CP 1292

- CP 1294

- CP 1308

- CP 1312

- CP 1317

- CP 1318

- CP 1336

- CP 1338

- CP 1340

- CP 1341

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PS3.17

- Sup 124

- Sup 159

-

- CP 1304

-

PS3.18

- CP 1351

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PS3.19

-

PS3.20

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Supplements Incorporated

Sup 124 Communication of Display Parameters

Sup 159 Radiopharmaceutical Radiation Dose Reporting

Sup 165 Breast Projection X-Ray Image Storage SOP Class

Correction Items Incorporated

CP 1203 PDR Pulse Details in RT Brachy Session Record

CP 1282 Value Multiplicity of Positioner Increments in 3D X-Ray and Breast Tomo

CP 1285 Add Irradiation Event UID to X-Ray 3D IODs

CP 1287 Add Structure Classification Code to RT Structure Set

CP 1290 Correct ROI Physical Property Value for Elemental Composition

CP 1291 Additional Derivation Codes For Dose Composition

CP 1292 Concept Code For Beam Delivery Instruction

CP 1294 Add Water Reference and Echo Top Position to the Enhanced Spectroscopy object

CP 1297 Add Receiving AE Title to File Meta Information

CP 1304 Various corrections related to MPEG-4 AVC/H.264 Transfer Syntax

CP 1307 MR rescaling known safe private elements

CP 1308 Correct code meaning of Density in Mammography CAD SR

CP 1309 Correct references to other standards

CP 1310 Provide succinct definition of DICOM

CP 1311 Describe matching of wildcard characters encoded in string VRs

CP 1312 Add Report Titles to CID 7000

CP 1313 Wrong reference in KOS Document

CP 1314 Add Category Code Sequence to RT Structure Set

CP 1315 Common Instance Reference Module is mandatory in VL Whole Slide Microscopy IOD

CP 1316 Clarify exact windowing function

CP 1317 Refactor Accumulated Projection X-Ray Dose Templates

CP 1318 RDSR From MPPS Without Exposure Dose Sequence for Projection Radiography

CP 1325 Add Contrast Relaxivity (MR) information to Enhanced Contrast/Bolus module

CP 1326 Volume to Transducer Mapping transformation may not be constant

CP 1327 Correct Type of Wedge Position Sequence

CP 1328 Range of Angular Values using IEC Geometry Definitions

CP 1329 Add Indication For Dose Of Delivery

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- CP 1330** RT Image Attribute Completion
 - CP 1331** Treatment Time in RT Plan
 - CP 1332** Standardization of DIXON Image and Frame Types
 - CP 1334** Clarify worklist extended negotiation after Sup 157
 - CP 1335** Clarify SR Frame of Reference for SCOORD3D and TCOORD IODs
 - CP 1336** Use LOINC code for Key Image in Template
 - CP 1337** Add Isocenter Position to MR/PET/Enhanced CT/MR/PET and RT Equipment Correlation to Enhanced CT
 - CP 1338** Move Body Substance from Type to Category for Segmentation
 - CP 1339** Add various new dates, times, serial numbers and UIDs for de-identification
 - CP 1340** Add For Litigation KOS Reason
 - CP 1341** Add Series Purposes of Reference
 - CP 1343** Add Patient Photo to Patient Identification Modules
 - CP 1344** Clarify Type Requirements In Unified Worklist
 - CP 1346** Add Table Information to X-Ray 3D IODs
 - CP 1347** Add a new attribute to describe the direction of a scan relative to the patient
 - CP 1351** Add JSON support to WADO-RS RetrieveMetadata and STOW-RS services