

DICOM Change Proposal

STATUS	Assigned
Date of Last Update	2025-01-21
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Submission Date	2025-01-03

Change Number	CP-2495
Log Summary:	Add missing references to retired definitions
Name of Standard	PS3.3
Rationale for Change:	Some retired sections in PS3.3 are missing a reference to the "old definition" in a previous release of the DICOM Standard. It is proposed to add these missing references and to harmonize the wording. Editorial changes: • The wording "They are now retired." should be replaced by "They have been retired." in PS3.3. • The wording "It is now retired". should be replaced by "It has been retired." in PS3.3.
Change Wording:	

Modify PS3.3 Section A.5.3 as indicated

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

A.5.3 Nuclear Medicine Image IOD Module Table (Retired)

~~This Section was defined in a previous release of the DICOM Standard. The Section is now r~~Retired. See PS3.3-1993.

Modify PS3.3 Section A.6.3 as indicated

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

A.6.3 Ultrasound Image IOD Module Table (Retired)

~~This Section was defined in a previous release of the DICOM Standard. The Section is now r~~Retired. See PS3.3-1993.

Modify PS3.3 Section A.7.3 as indicated

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

A.7.3 Ultrasound Multi-frame Image IOD Module Table (Retired)

~~This Section was defined in a previous release of the DICOM Standard. The Section is now r~~Retired. See PS3.3-1993.

Modify PS3.3 Section B.9.2 as indicated

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

B.9.2 IOD Modules

Table B.9-1. Basic Image Box IOD Modules

Module	Reference	Module Description
SOP Common	C.12.1	Contains SOP Common information
Image Box Pixel Presentation	C.13.5	Contains Image Box presentation information

Note

The Image Box Relationship Module (Retired) was previously defined in DICOM. It ~~is now~~has been retired.
See PS3.3-1998.

Modify PS3.3 Sections B.13 and B.14 as indicated

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

B.13 VOI LUT Box IOD (Retired)

Retired. See -PS3.3-1998-.

B.14 Image Overlay Box IOD (Retired)

Retired. See -PS3.3-1998-.

Modify PS3.3 Sections C.4.11 to C.4.13 as indicated

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

C.4.11 Requested Procedure Module

[...]

Note

Placer Order Number / Procedure (0040,1006) and Filler Order Number / Procedure (0040,1007) were previously defined in DICOM. They are now retired, ~~(sSee -PS3.3-1998-).~~

C.4.12 Imaging Service Request Module

[...]

Note

1. Placer Order Number / Imaging Service Request (0040,2016) and Filler Order Number / Imaging Service Request (0040,2017) are intended to convey the corresponding order numbers as defined in HL7, in the case where interoperability with an HL7 environment is the objective.
2. Attributes (0040,2001), (0040,2006) and (0040,2007) were previously defined in DICOM. They are now retired, ~~(sSee -PS3.3-1998-).~~

3. Both Requesting Service (0032,1033) and Requesting Service Code Sequence (0032,1034) are defined in this table; the latter is preferred, but the former may be copied from an HL7 message whether or not there is also the ability to map it to a coded form (e.g., with only ORC-17 component 1 valued).

C.4.13 Performed Procedure Step Relationship Module

Table C.4-13 specifies the Attributes of the Performed Procedure Step Relationship Module, which are used to reference other SOP Classes and other Information Entities of the DICOM real-world model as defined in Section 7.3.1.6.

[...]

Note

1. The Patient information is included in order to relate the Modality Performed Procedure Step SOP Instance to the Study Management SOP Instance and other associated IODs in case the SCU (the modality) is unable to obtain or use the Study Instance UID created by the Information System.
2. Placer Order Number / Imaging Service Request (0040,2016) and Filler Order Number / Imaging Service Request (0040,2017) are intended to convey the corresponding order numbers as defined in HL7, in the case where interoperability with an HL7 environment is the objective.
3. Attributes (0040,2006) and (0040,2007) were previously defined in DICOM. They are now retired. ~~(See PS3.3-1998).~~
4. Placer Order Number / Procedure (0040,1006) and Filler Order Number / Procedure (0040,1007) were previously defined in DICOM. They are now retired. ~~(See PS3.3-1998).~~

Modify PS3.3 Section C.7.6.3.1.2 as indicated

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

C.7.6.3.1.2 Photometric Interpretation

The value of Photometric Interpretation (0028,0004) specifies the intended interpretation of the image pixel data.

See PS3.5 for additional restrictions imposed by compressed Transfer Syntaxes.

See Section 8.2.13 in PS3.5 for constraints that apply when using DICOM Real-Time Video.

The following values are defined. Other values are permitted if supported by the Transfer Syntax but the meaning is not defined by this Standard.

Defined Terms:

MONOCHROME1 Pixel data represent a single monochrome image plane. The minimum sample value is intended to be displayed as white after any VOI gray scale transformations have been performed. See PS3.4. This value may be used only when Samples per Pixel (0028,0002) has a value of 1. May be used for pixel data in a Native (uncompressed) or Encapsulated (compressed) format; see Section 8.2 in PS3.5.

MONOCHROME2 Pixel data represent a single monochrome image plane. The minimum sample value is intended to be displayed as black after any VOI gray scale transformations have been performed. See PS3.4. This value may be used only when Samples per Pixel (0028,0002) has a value of 1. May be used for pixel data in a Native (uncompressed) or Encapsulated (compressed) format; see Section 8.2 in PS3.5.

PALETTE COLOR Pixel data describe a color image with a single sample per pixel (single image plane). The pixel value is used as an index into each of the Red, Blue, and Green Palette Color Lookup Tables (0028,1101-1103) **and (0028,1201-1203)**. This value may be used only when Samples per Pixel (0028,0002) has a value of 1. May be used for pixel data in a Native (uncompressed) or Encapsulated (compressed) format; see Section 8.2 in PS3.5. When the Photometric Interpretation is Palette Color; Red, Blue, and Green Palette Color Lookup Tables shall be present.

105 **RGB** Pixel data represent a color image described by red, green, and blue image planes. The minimum sample value for each color plane represents minimum intensity of the color. This value may be used only when Samples per Pixel (0028,0002) has a value of 3. Planar Configuration (0028,0006) may be 0 or 1. May be used for pixel data in a Native (uncompressed) or Encapsulated (compressed) format; see Section 8.2 in PS3.5.

110 **HSV** Retired. See PS3.3-2001.

110 **ARGB** Retired. See PS3.3-2001.

110 **CMYK** Retired. See PS3.3-2001.

[...]

Commented [JR1]: Remove italics.

Commented [JR2]: Remove italics.

Commented [JR3]: Remove italics.

115 **Modify PS3.3 Sections C.8.4.1 to C.8.4.5 as indicated**
(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

C.8.4.1 NM Series Module (Retired)
~~This Section was defined in a previous release of the DICOM Standard. The Section is now r~~Retired. See PS3.3-1993.

C.8.4.2 NM Equipment Module (Retired)
~~This Section was defined in a previous release of the DICOM Standard. The Section is now r~~Retired. See PS3.3-1993.

C.8.4.3 NM Image Module (Retired)
~~This Section was defined in a previous release of the DICOM Standard. The Section is now r~~Retired. See PS3.3-1993.

125 **C.8.4.4 NM Spect Acquisition Image Module (Retired)**
~~This Section was defined in a previous release of the DICOM Standard. The Section is now r~~Retired. See PS3.3-1993.

C.8.4.5 NM Multi-gated Acquisition Image Module (Retired)
~~This Section was defined in a previous release of the DICOM Standard. The Section is now r~~Retired. See PS3.3-1993.

130 ~~This Section was defined in a previous release of the DICOM Standard. The Section is now r~~Retired. See PS3.3-1993.

For reference PS3.3 Sections C.8.5.1 to C.8.5.3 (unchanged)

C.8.5.1 US Frame of Reference Module (Retired)
Retired. See PS3.3-2003.

135 **C.8.5.2 US Region Calibration (Retired)**
Retired. See PS3.3-2003.

C.8.5.3 US Image Module (Retired)
Retired. See PS3.3-2003.

140 **Modify PS3.3 Section C.8.5.4 as indicated**
(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

C.8.5.4 US Frame of Reference Module (Retired)

Retired. See PS3.3-2003.

Modify PS3.3 Section C.8.5.6.1.9 as indicated

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

C.8.5.6.1.9 Image Transformation Matrix and Image Translation Vector (Retired)

~~This section was defined in a previous release of the DICOM Standard. The Section is now r~~Retired. See PS3.3-2003.

Modify PS3.3 Section C.8.8.13 as indicated

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

C.8.8.13 RT Fraction Scheme Module

The RT Fraction Scheme Module contains Attributes that describe a single or multiple scheme of dose descriptions. Each Sequence Item contains dose specification information, fractionation patterns, and either beam or brachytherapy application setup specifications. The design of the RT Fraction Scheme Module allows a beam or brachytherapy application setup to be used in multiple fraction schemes.

[...]

Note

1. An RT Dose IOD referenced within the Referenced Dose Sequence (300C,0080) can be used for storing grid-based (pixel) data, isodose curves, and/or individual dose points (with optional dose point names) for the current Fraction Group.
2. The fractionation pattern does not indicate the actual start of treatment, or the order or timing of fraction delivery. If treatment does not commence as outlined in the pattern, it is the application's responsibility to make any necessary adjustments.

Examples of Fractionation Pattern Schemes:

- a. 1 fraction group, 1 fraction per day (Monday to Friday):
 - Number of Fraction Pattern Digits per Day = 1, Repeat Fraction Cycle Length = 1, Fraction Pattern = 11111100
- b. 2 fraction groups, 1 fraction per day, first fraction group Monday, Wednesday, and Friday, second fraction group Tuesday and Thursday:
 - Fraction Group 1: Number of Fraction Pattern Digits Per Day = 1, Repeat Fraction Cycle Length = 1, Fraction Pattern = 1010100
 - Fraction Group 2: Number of Fraction Pattern Digits Per Day = 1, Repeat Fraction Cycle Length = 1, Fraction Pattern = 0101000
- c. 2 fraction groups, 1 fraction per day, alternating fraction groups every day of treatment (Monday to Friday):
 - Fraction Group 1: Number of Fraction Pattern Digits Per Day = 1, Repeat Fraction Cycle Length = 2, Fraction Pattern = 10101000101000
 - Fraction Group 2: Number of Fraction Pattern Digits Per Day = 1, Repeat Fraction Cycle Length = 2, Fraction Pattern = 01010001010100
- d. 1 fraction group, 2 fractions per day (Monday to Friday):
 - Fraction Group 1: Number of Fraction Pattern Digits Per Day = 2, Repeat Fraction Cycle Length = 1, Fraction Pattern = 11111111110000

- 185 e. 2 fraction groups, 2 fractions per day, alternating fraction groups every treatment (Monday to Friday):
- Fraction Group 1: Number of Fraction Pattern Digits Per Day = 1, Repeat Fraction Cycle Length = 1, Fraction Pattern = 1111100
 - Fraction Group 2: Number of Fraction Pattern Digits Per Day = 2, Repeat Fraction Cycle Length = 1, Fraction Pattern = 1111111110000
- 190 3. The Brachy Application Setup Dose Specification Point (300A,00A2) contains the coordinates of the single point used for dose normalization. This point is distinct from the Brachy Referenced Dose Reference Sequence (300C,0055) in the RT Brachy Application Setups Module, which are used for plan evaluation and dose tracking.
- 195 4. The Meterset at a given Control Point (see RT Beams Module) is equal to Beam Meterset (300A,0086) multiplied by the Cumulative Meterset Weight (300A,0134) for the Control Point, divided by the Final Cumulative Meterset Weight (300A,010E).
- 200 5. Attribute Referenced Patient Setup Number (300C,006A) was previously defined. Its use in this Module is now retired. (See PS3.3-2004).
- 205 6. Attributes Beam Dose Point Depth, Beam Dose Point Equivalent Depth and Beam Dose Point SSD were previously included in this Module as optional Attributes but have been retired. See PS3.3-2011.
- 210 7. The Beam Delivery Duration Limit (300A,00C5) is the maximum time span allowed to deliver a single fraction of a beam to prevent significant over-treatments. Treatment is expected to be terminated upon reaching the Beam Delivery Duration Limit independent of the Meterset. This limit represents the expected time span including some increase by a factor greater than 1 to accommodate normal variations in delivery.
- 215 8. The Beam Dose Verification Control Point Sequence was previously included and has been retired. See PS3.3-2017c. The information is now described in the Referenced Dose Reference Sequence (300C,0050) in the Section C.8.8.14 RT Beams Module.
9. The Beam Dose Specification Point (300A,0082) was previously included in this module as a means to specify a single point at which dose contributions of different beams could be specified. This Attribute has been retired as it no longer reflects clinical practice. Along with this, the semantics of the Beam Dose (300A,0084) and Alternate Beam Dose (300A,0091) have been adapted to reflect the absence of the Beam Dose Specification Point. In order to refer to an Item in the Dose Reference Sequence (300A,0010) it is recommended to utilize the Referenced Dose Reference UID (300A,0083) and the Dose Reference UID (300A,0013) respectively.

Modify PS3.3 Section C.8.8.25 as indicated

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

C.8.8.25 RT Ion Beams Module

- 220 The RT Ion Beams Module contains information defining equipment parameters for delivery of external Ion radiation beams.

Table C.8.8.25-1. RT Ion Beams Module Attributes

Attribute Name	Tag	Type	Attribute Description
...			
>Modulated Scan Mode Type	(300A,0309)	1C	Defines the specialization of a modulated scan mode. Defined Terms: STATIONARY The Meterset is delivered while the beam spot is at the specified position. The beam is always turned off when the position changes.

Attribute Name	Tag	Type	Attribute Description
			LEAPING The Meterset is mainly delivered at the specified spot position, while some of the Meterset is delivered while the spot is moved from the prior spot position. This mode also supports turning off the beam between spot positions. LINEAR The Meterset is delivered uniformly while the beam spot position changes. This mode also supports turning off the beam between line segments. Note The Defined Term MIXED was previously defined. It is now<u>has been</u> retired. <u>See PS3.3-2020b.</u> Required if Scan Mode (300A,0308) is MODULATED_SPEC. See Section C.8.8.25.8.
...			

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Modify PS3.3 Section C.8.8.26 as indicated
(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

C.8.8.26 RT Ion Beams Session Record Module

Table C.8.8.26-1 specifies the Attributes of the RT Ion Beams Session Record Module, which describe the measured and recorded settings acquired during Ion Radiation Treatments.

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Table C.8.8.26-1. RT Ion Beams Session Record Module Attributes

Attribute Name	Tag	Type	Attribute Description
...			
>Modulated Scan Mode Type	(300A,0309)	1C	Defines the specialization of a modulated scan mode. Defined Terms: STATIONARY The Meterset is delivered while the beam spot is at the specified position. The beam is always turned off when the position changes. LEAPING The Meterset is mainly delivered at the specified spot position, while some of the Meterset is delivered while the spot is moved from the prior spot position. This mode also supports turning off the beam between spot positions. LINEAR The Meterset is delivered uniformly while the beam spot position changes. This mode also supports turning off the beam between line segments. Note The Defined Term MIXED was previously defined. It is now<u>has been</u> retired. <u>See PS3.3-2020b.</u>

Attribute Name	Tag	Type	Attribute Description
			Required if Scan Mode (300A,0308) is MODULATED_SPEC. See Section C.8.8.25.8.
...			

Modify PS3.3 Section C.13.6 as indicated

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

235 **C.13.6 Image Box Relationship Module (Retired)**

Retired. See -PS3.3-1998-.

Modify PS3.3 Sections C.13.10 and C.13.11 as indicated

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

240 **C.13.10 Image Overlay Box Presentation Module (Retired)**

Retired. See -PS3.3-1998-.

C.13.11 Image Overlay Box Relationship Module (Retired)

Retired. See -PS3.3-1998-.

245 **Modify PS3.3 Section F.4 as indicated**

(changes to existing text are bold and underlined for additions and bold and struckthrough for removals):

F.4 Basic Directory IOD Information Model

250 The Basic Directory IOD Information Model defines the relationship between the various types of Directory Records that may be used in constructing DICOM Directories. This model is based on the DICOM Application Model defined in this part of the DICOM Standard. Entities in this Model correspond to Directory Records (DR). These are shown as rectangular boxes. Each Directory Record in this model is part of a Directory Entity (not shown except for the Root Entity) that is referenced by a Directory Record of a higher-level Directory Entity (e.g., a Study Directory Record references a Directory Entity that includes Directory Records describing the content of the Study).

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Note

1. Directory Record Types PRINT QUEUE, FILM SESSION, FILM BOX, and IMAGE BOX were previously defined. They have been retired. See -PS3.3-1998-.
2. Directory Record Types OVERLAY, MODALITY LUT, VOI LUT, CURVE, TOPIC, VISIT, RESULTS, INTERPRETATION, STUDY COMPONENT, STORED PRINT and MRDR were previously defined. They have been retired. See PS3.3-2004.
3. Directory Record Type HL7 STRUC DOC was previously defined. It has been retired. See PS3.3-2018b.

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