

DICOM Correction Proposal

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Person Assigned	Ulrich Busch (ulrich.busch@varian.com)
Submitter Name	Ulrich Busch (ulrich.busch@varian.com)
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Correction Number	cp-1611
Log Summary:	Add Selected Value To RT Treatment Overrides
Name of Standard	PS 3.3 2016c
Rationale for Correction:	<p>The Override Sequence (3008,0060) contains an attribute to indicate which parameter was overridden. However, it is not possible to indicate the specific value being overridden when this attribute is a multi-valued attribute. The change proposal introduces an identifier to specify this value.</p> <p>A representative example is the following: The recorded positions of a Collimator are contained in Leaf/Jaw Positions (300A,011C). For a Collimator in X-direction, this attribute contains two values: X1 and X2. Currently it is only possible to annotate, that the X-Collimator in total has been overridden. It is not possible to declare, which of these values (X1 or X2) was affected, when only one of the values has been overridden.</p> <p>The change proposal adds the capability to select a specific value from a set of values.</p>
Correction Wording:	

In PS 3.6, C.8.8.21 RT Beams Session Record Module, add the following new attribute:

C.8.8.21 RT Beams Session Record Module

Table C.8-57. RT Beams Session Record Module Attributes

Attribute Name	Tag	Type	Attribute Description
...			
>Number of Control Points	(300A,0110)	1	Number of control points delivered.
>Control Point Delivery Sequence	(3008,0040)	1	Sequence of beam control points for current treatment beam. One or more Items shall be included in this Sequence. See Section C.8.8.21.1.
>>Referenced Control Point Index	(300C,00F0)	3	Uniquely identifies Control Point specified by Control Point Index (300A,0112) within Beam referenced by Referenced Beam Number (300C,0006).

Attribute Name	Tag	Type	Attribute Description
>>Treatment Control Point Date	(3008,0024)	1	Date when the delivery of radiation at this control point began. For the final control point this shall be the Date when the previous control point ended.
>>Treatment Control Point Time	(3008,0025)	1	Time when the delivery of radiation at this control point began. For the final control point this shall be the Time when the previous control point ended.
>>Specified Meterset	(3008,0042)	2	Desired machine setting for current control point. See Section C.8.8.21.2.
>>Delivered Meterset	(3008,0044)	1	Machine setting actually delivered at current control point. See Section C.8.8.21.2.
>>Dose Rate Set	(300A,0115)	2	Dose Rate set on treatment machine for segment beginning at current control point (Meterset/min).
>>Dose Rate Delivered	(3008,0048)	2	Dose Rate actually delivered for segment beginning at current control point (Meterset/min).
>>Nominal Beam Energy	(300A,0114)	3	Nominal Beam Energy at control point.
>>Nominal Beam Energy Unit	(300A,0015)	1C	Units used for Nominal Beam Energy (300A,0114). Required if Nominal Beam Energy (300A,0114) is sent. Defined Terms: MV Megavolt MEV Mega electron-Volt If Radiation Type (300A,00C6) is PHOTON, Nominal Beam Energy Unit (300A,0015) shall be MV. If Radiation Type (300A,00C6) is ELECTRON, Nominal Beam Energy Unit (300A,0015) shall be MEV.
>>Wedge Position Sequence	(300A,0116)	3	Sequence of Wedge positions for current control point. One or more Items are permitted in this Sequence.
>>>Referenced Wedge Number	(300C,00C0)	1	Uniquely identifies wedge specified by Wedge Number (300A,00D2) within the Recorded Wedge Sequence (3008,00B0).
>>>Wedge Position	(300A,0118)	1	Position of Wedge at current control point. Enumerated Values: IN OUT
>>Beam Limiting Device Position Sequence	(300A,011A)	1C	Sequence of beam limiting device (collimator) jaw or leaf (element) positions. One or more Items shall be included in this Sequence. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if beam limiting device (collimator) changes during beam administration.
>>>RT Beam Limiting Device Type	(300A,00B8)	1	Type of beam limiting device. The value of this attribute shall correspond to RT Beam Limiting Device Type (300A,00B8)

Attribute Name	Tag	Type	Attribute Description
			<p>defined in an element of Beam Limiting Device Leaf Pairs Sequence (3008,00A0).</p> <p>Enumerated Values:</p> <p>X symmetric jaw pair in IEC X direction Y symmetric jaw pair in IEC Y direction ASYMX asymmetric jaw pair in IEC X direction ASYMY asymmetric pair in IEC Y direction MLCX multileaf (multi-element) jaw pair in IEC X direction MLCY multileaf (multi-element) jaw pair in IEC Y direction</p>
>>>Leaf/Jaw Positions	(300A,011C)	1	<p>Positions of beam limiting device (collimator) leaf (element) or jaw pairs (mm) in IEC BEAM LIMITING DEVICE coordinate axis appropriate to RT Beam Limiting Device Type (300A,00B8), e.g., X-axis for MLCX, Y-axis for MLCY. Contains 2N values, where N is the Number of Leaf/Jaw Pairs (300A,00BC) defined in element of Beam Limiting Device Leaf Pairs Sequence (3008,00A0). Values shall be in IEC leaf subscript order 101, 102, ... 1N, 201, 202 ... 2N.</p>
>>Gantry Angle	(300A,011E)	1C	<p>Treatment machine gantry angle, i.e., orientation of IEC GANTRY coordinate system with respect to IEC FIXED REFERENCE coordinate system (degrees). Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Gantry Angle changes during beam administration.</p>
>>Gantry Rotation Direction	(300A,011F)	1C	<p>Direction of Gantry Rotation when viewing gantry from isocenter, for segment beginning at current Control Point. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040), or if Gantry Rotation Direction changes during beam administration.</p> <p>Enumerated Values:</p> <p>CW clockwise CC counter-clockwise NONE no rotation</p>
>>Gantry Pitch Angle	(300A,014A)	3	<p>Gantry Pitch Angle. i.e., the rotation of the IEC GANTRY coordinate system about the X-axis of the IEC GANTRY coordinate system (degrees). If used, must be present for first item of Control Point Sequence, or if used and Gantry Pitch Rotation Angle changes during Beam, must be present. See Section C.8.8.25.6.5.</p>
>>Gantry Pitch Rotation Direction	(300A,014C)	3	<p>Direction of Gantry Pitch Angle when viewing along the positive X-axis of the IEC GANTRY coordinate system, for segment following Control Point. If used, must be present for first item of Control Point Sequence, or if used and Gantry Pitch Rotation Direction changes during Beam, must be present. See Section C.8.8.14.8 and Section C.8.8.25.6.5.</p> <p>Enumerated Values:</p> <p>CW clockwise CC counter-clockwise NONE no rotation</p>
>>Beam Stopper Position	(3008,0230)	3	<p>Position of Beam Stopper during beam administration.</p> <p>Enumerated Values:</p> <p>EXTENDED Beam Stopper extended RETRACTED Beam Stopper retracted UNKNOWN Position unknown</p>

Attribute Name	Tag	Type	Attribute Description
>>Beam Limiting Device Angle	(300A,0120)	1C	Beam Limiting Device (collimator) angle, i.e., orientation of IEC BEAM LIMITING DEVICE coordinate system with respect to IEC GANTRY coordinate system (degrees). Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if beam limiting device (collimator) angle changes during beam delivery.
>>Beam Limiting Device Rotation Direction	(300A,0121)	1C	Direction of Beam Limiting Device Rotation when viewing beam limiting device (collimator) from radiation source, for segment beginning at current Control Point. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Beam Limiting Device Rotation Direction changes during beam administration. Enumerated Values: CW clockwise CC counter-clockwise NONE no rotation
>>Patient Support Angle	(300A,0122)	1C	Patient Supporting angle, i.e., orientation of IEC PATIENT SUPPORT (turntable) coordinate system with respect to IEC FIXED REFERENCE coordinate system (degrees). Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Patient Support Angle changes during beam administration.
>>Patient Support Rotation Direction	(300A,0123)	1C	Direction of Patient Support Rotation when viewing table from above, for segment beginning at current Control Point. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040), or if Patient Support Rotation Direction changes during beam administration. Enumerated Values: CW clockwise CC counter-clockwise NONE no rotation
>>Table Top Eccentric Axis Distance	(300A,0124)	3	Distance (positive) from the IEC PATIENT SUPPORT vertical axis to the IEC TABLE TOP ECCENTRIC vertical axis (mm).
>>Table Top Eccentric Angle	(300A,0125)	1C	Table Top (non-isocentric) angle, i.e., orientation of IEC TABLE TOP ECCENTRIC coordinate system with respect to IEC PATIENT SUPPORT coordinate system (degrees). Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Table Top Eccentric Angle changes during beam administration.
>>Table Top Eccentric Rotation Direction	(300A,0126)	1C	Direction of Table Top Eccentric Rotation when viewing table from above, for segment beginning at current Control Point. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Table Top Eccentric Rotation Direction changes during beam administration. Enumerated Values: CW clockwise CC counter-clockwise NONE no rotation
>>Table Top Pitch Angle	(300A,0140)	1C	Table Top Pitch Angle, i.e., the rotation of the IEC TABLE TOP coordinate system about the X-axis of the IEC TABLE TOP coordinate system (degrees). If required by treatment delivery device, shall be present for first item of Control Point Sequence.

Attribute Name	Tag	Type	Attribute Description
			If required by treatment delivery device and if Table Top Pitch Angle changes during Beam, shall be present in all subsequent items of Control Point Sequence. See Section C.8.8.25.6.2.
>>Table Top Pitch Rotation Direction	(300A,0142)	1C	<p>Direction of Table Top Pitch Rotation when viewing the table along the positive X-axis of the IEC TABLE TOP coordinate system, for segment following Control Point. If required by treatment delivery device, shall be present for first item of Control Point Sequence. If required by treatment delivery device and if Table Top Pitch Rotation Direction changes during Beam, shall be present in all subsequent items of Control Point Sequence. See Section C.8.8.14.8 and Section C.8.8.25.6.2.</p> <p>Enumerated Values:</p> <p>CW clockwise CC counter-clockwise NONE no rotation</p>
>>Table Top Roll Angle	(300A,0144)	1C	Table Top Roll Angle, i.e., the rotation of the IEC TABLE TOP coordinate system about the IEC Y-axis of the IEC TABLE TOP coordinate system (degrees). If required by treatment delivery device, shall be present for first item of Control Point Sequence. If required by treatment delivery device and if Table Top Roll Angle changes during Beam, shall be present in all subsequent items of Control Point Sequence. See Section C.8.8.25.6.2.
>>Table Top Roll Rotation Direction	(300A,0146)	1C	<p>Direction of Table Top Roll Rotation when viewing the table along the positive Y-axis of the IEC TABLE TOP coordinate system, for segment following Control Point. If required by treatment delivery device, shall be present for first item of Control Point Sequence. If required by treatment delivery device and if Table Top Roll Rotation Direction changes during Beam, shall be present in all subsequent items of Control Point Sequence. See Section C.8.8.14.8 and Section C.8.8.25.6.2.</p> <p>Enumerated Values:</p> <p>CW clockwise CC counter-clockwise NONE no rotation</p>
>>Table Top Vertical Position	(300A,0128)	2C	Table Top Vertical position in IEC TABLE TOP coordinate system (mm). This value is interpreted as an absolute, rather than relative, Table setting. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Table Top Vertical Position changes during beam administration.
>>Table Top Longitudinal Position	(300A,0129)	2C	Table Top Longitudinal position in IEC TABLE TOP coordinate system (mm). This value is interpreted as an absolute, rather than relative, Table setting. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Table Top Longitudinal Position changes during beam administration.
>>Table Top Lateral Position	(300A,012A)	2C	Table Top Lateral position in IEC TABLE TOP coordinate system (mm). This value is interpreted as an absolute, rather than relative, Table setting. Required for Control Point 0 of Control Point Delivery Sequence (3008,0040) or if Table Top Lateral Position changes during beam administration.
>>Corrected Parameter Sequence	(3008,0068)	3	<p>Introduces a sequence of items describing any corrections made to any attributes prior to delivery of the next control point.</p> <p>One or more Items are permitted in this Sequence.</p>

Attribute Name	Tag	Type	Attribute Description
>>>Parameter Sequence Pointer	(3008,0061)	1	Contains the Data Element Tag of the parent sequence containing the attribute that was corrected. The value is limited in scope to the Treatment Session Beam Sequence (3008,0020) and all nested sequences therein.
>>>Parameter Item Index	(3008,0063)	1	Contains the sequence item index (starting at 1) of the corrected attribute within its parent sequence.
>>>Parameter Pointer	(3008,0065)	1	Contains the Data Element Tag of the attribute that was corrected.
>>>Correction Value	(3008,006A)	1	The value applied to the attribute that was referenced by the Parameter Sequence Pointer (3008,0061), Parameter Item Index (3008,0063) and Parameter Pointer (3008,0065).
>>Override Sequence	(3008,0060)	3	Sequence of parameters that were overridden during the administration of the beam segment immediately prior to the current control point. One or more Items are permitted in this Sequence.
>>>Override Parameter Pointer	(3008,0062)	2	Contains the Data Element Tag of the attribute that was overridden.
>>>Parameter Sequence Pointer	(3008,0061)	3	Contains the Data Element Tag of the parent sequence containing the attribute that was overridden. The value is limited in scope to the Treatment Session Beam Sequence (3008,0020) and all nested sequences therein.
>>>Parameter Item Index	(3008,0063)	3	Contains the sequence item index (monotonically increasing from 1) of the overridden attributes within its parent sequence. The value is limited in scope to the Treatment Session Beam Sequence (3008,0020) and all nested sequences therein.
<u>>>>Parameter Value Number</u>	<u>(xxxx,yyyy)</u>	<u>3</u>	<u>Positive integer identifying which value of a multi-valued attribute identified by Override Parameter Pointer (3008,0062) is referenced. The value 1 identifies the first value.</u>
>>>Operators' Name	(0008,1070)	2	Name of operator who authorized override.
>>>Operator Identification Sequence	(0008,1072)	3	Identification of the operator who authorized override. Only a single Item is permitted in this sequence.
<i>>>>>Include Table 10-1 "Person Identification Macro Attributes Description"</i>			
>>>Override Reason	(3008,0066)	3	User-defined description of reason for override of parameter specified by Override Parameter Pointer (3008,0062).

In PS 3.6, Section 6, add the following new attributes:

(xxxx,yyyy) **Parameter Value Number**

ParameterValueNumber

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