

## DICOM Correction Item

Correction Number	<b>Error! Reference source not found.</b>
Log Summary: Clarify Referenced Study Component Sequence	
Type of Modification	Name of Standard
Clarification	PS 3.3 2001
<p>Rationale for Correction</p> <p>The use of Referenced Study Component Sequence (0008,1111) has evolved since the first DICOM publication in 1993. Both novice and more experienced readers of DICOM frequently misinterpret this attribute since it is not consistently described. The use of Performed Procedure Steps and have effectively replaced Study Components within the current DICOM model.</p> <p>Supplement 17 (Modality Performed Procedure Step) introduced the concept of a Performed Procedure Step as a generalization of Study Component. Text was added to Part 4, Annex F to allow a Referenced Study Component Sequence (0008,1111) to reference either a Study Component SOP Instance or an MPPS SOP Instance. While the attribute description in the General Series Module was updated to reflect this duality, other attribute descriptions have not all been similarly updated.</p> <p>Supplement 52 (General-Purpose Worklist) introduced a General-Purpose Performed Procedure Step but did not clarify if Referenced Study Component Sequence (0008,1111) can also reference a General-Purpose Performed Procedure Step SOP Instance.</p> <p>The proposed solution is to avoid confusion and rename the attribute from “Referenced Study Component Sequence” to “Referenced Performed Procedure Step Sequence” and adapt all descriptions and references.</p> <p>This CP originally included changes to Referenced Study Component Sequence (0008,1111) within the Storage Commitment Service Class. However, Supplement 68 (Retire Storage Commitment Pull Model) retires the use of Referenced Study Component Sequence (0008,1111) within Storage Commitment and the changes have therefore been removed from this CP.</p>	
<p>Sections of documents affected</p> <p>PS 3.3 C.4.1, Table C.4-1</p> <p>PS 3.3 C.7.3.1, Table C.7-4</p> <p>PS 3.3 C.8.8.1, Table C.8-33</p> <p>PS 3.3 C.8.11.1, Table C.8-64</p> <p>PS 3.3 C.17.1, Table C.17-1</p> <p>PS 3.3 Annex K</p> <p>PS 3.4 F.3.2.1.1</p> <p>PS 3.4 F.3.5.1</p> <p>PS 3.3, C.4.19 (from Supplement 52)</p> <p>PS 3.3, K.6.2.2.2 (from Supplement 52)</p> <p>PS 3.6, Section 6</p>	
Correction Wording:	

Item 1: Amend PS3.3, C.4.1 Study Relationship Module

Table C.4-1  
STUDY RELATIONSHIP MODULE ATTRIBUTES

Attribute Name	Tag	Attribute Description
...	...	...
<del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b>	(0008,1111)	<del>Uniquely identifies the Study Component SOP Instance to which the Study SOP Instance is related.</del> <b>Uniquely identifies the Performed Procedure Step SOP Instance to which the Study SOP Instance is related (e.g. a Modality or General-Purpose Performed Procedure Step SOP Instance or Study Component SOP Instance).</b>
>Referenced SOP Class UID	(0008,1150)	Uniquely identifies the referenced SOP Class.
>Referenced SOP Instance UID	(0008,1155)	Uniquely identifies the referenced SOP Instance.
...	...	...

Item 2: Amend PS3.3, C.7.3.1 General Series Module

Table C.7-4  
GENERAL SERIES MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
...			
<del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b>	(0008,1111)	3	<del>Uniquely identifies the Study Component SOP Instance or Modality Performed Procedure Step SOP Instance to which the Series is related.</del> <b>Uniquely identifies the Performed Procedure Step SOP Instance to which the Series is related (e.g. a Modality or General-Purpose Performed Procedure Step SOP Instance or Study Component SOP Instance).</b> The Sequence shall have zero or one Items.
>Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if <del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b> (0008,1111) is sent.
>Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if <del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b> (0008,1111) is sent.
...			

- Notes: 1. If the Modality **or General-Purpose** Performed Procedure Step SOP Class is supported as an SCU by a Storage SCU, the SCU is strongly encouraged to support the attribute ~~Referenced Study Component Sequence~~ **Referenced Performed Procedure Step Sequence** (0008,1111). This attribute references the ~~Modality~~ Performed Procedure Step SOP Instance, and extraction of this Attribute from an image may allow retrieval of the ~~Modality~~ Performed Procedure Step SOP Instance.
2. If the Modality does not conform to the Modality **or General-Purpose** Performed Procedure Step SOP Class, it is still advisable to include the attributes Performed Procedure Step Start Date (0040,0244), Performed Procedure Step Start Time (0040,0245) and Performed Procedure Step Description (0040,0254) into the Image IODs.

Item 3: Amend PS 3.3, C.8.8.1 RT Series Module

**Table C.8-33 - RT SERIES MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Attribute Description
...			
<del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b>	(0008,1111)	3	<del>Uniquely identifies the Study Component SOP Instances to which the series is related.</del> <b>Uniquely identifies the Performed Procedure Step SOP Instance to which the Series is related (e.g. a Modality or General-Purpose Performed Procedure Step SOP Instance or Study Component SOP Instance).</b> One or more items may be included in this sequence.
>Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. <del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b> (0008,1111) is sent.
>Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. <del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b> (0008,1111) is sent.

Item 4: Amend PS 3.3, C.8.11.1 DX Series Module

**Table C.8-64  
 DX SERIES MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Attribute Description
...			

<del>Referenced Study Component Sequence-Referenced Performed Procedure Step Sequence</del>	(0008,1111)	1C	<p><del>Uniquely identifies the Study Component SOP Instance or Modality Performed Procedure Step SOP Instance to which the Series is related. <b>Uniquely identifies the Performed Procedure Step SOP Instance to which the Series is related (e.g. a Modality or General-Purpose Performed Procedure Step SOP Instance or Study Component SOP Instance).</b></del> The Sequence shall have one Item.</p> <p><del>Required if Study Component SOP Class or Modality Performed Procedure Step SOP Class is supported. <b>Required if the Modality Performed Procedure Step SOP Class, General-Purpose Performed Procedure Step SOP Class or Study Component SOP Class is supported.</b></del></p>
>Referenced SOP Class UID	(0008,1150)	1C	<p>Uniquely identifies the referenced SOP Class.</p> <p>Required if <del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b> (0008,1111) is sent.</p>
>Referenced SOP Instance UID	(0008,1155)	1C	<p>Uniquely identifies the referenced SOP Instance.</p> <p>Required if <del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b> (0008,1111) is sent.</p>
...			

Item 5: Amend PS 3.3, C.17.1 SR Document Series Module

Table C.17-1  
SR DOCUMENT SERIES MODULE ATTRIBUTES

Attribute Name	Tag	Type	Attribute Description
...			

<del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b>	(0008,1111)	2	Uniquely identifies the Performed Procedure Step SOP Instance for which the Series is created. Only a single Item shall be permitted in this sequence. Notes: 1. The <del>Study Component</del> <b>Performed Procedure Step</b> referred to by this Attribute is the <del>Performed Procedure Step</del> during which this Document is generated. 2. If this Document is generated during the same Modality <b>or General-Purpose</b> Performed Procedure Step as the evidence in the current interpretation procedure, this attribute may contain reference to that Modality <b>or General-Purpose</b> Performed Procedure Step. 3. This Attribute is not used to convey reference to the evidence in the current interpretation procedure. See Current Requested Procedure Evidence Sequence (0040,A375). 4. This Sequence may be sent zero length if the Performed Procedure Step is unknown.
>Referenced SOP Class UID	(0008,1150)	1C	Uniquely identifies the referenced SOP Class. Required if <del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b> (0008,1111) is sent.
> Referenced SOP Instance UID	(0008,1155)	1C	Uniquely identifies the referenced SOP Instance. Required if <del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b> (0008,1111) is sent.

*Item 6: Amend PS 3.3, Annex K*

The following is a simple and non-comprehensive illustration of the encoding of the Informative SR Content Tree Example of Figure C.17.4-1.

SR Tree Depth	Nesting	Attribute	Tag	VR	VL (hex)	Value
		...				
		<del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b>	(0008,1111)	SQ	fffffff	
		...				

*Item 7: Amend PS 3.4, F.3.2.1.1, Table F.3-2*

**F.3.2.1.1 Study IOD Subset Specification**

The Application Entity which claims conformance to this SOP Class as an SCU may choose to interpret the Attributes maintained by the SCP which the SCU receives via the operations and notifications of the SOP Class. The Application Entity which claims conformance as an SCP to the Detached Study Management SOP Class shall support the subset of the Study IOD Attributes specified in Table F.3-2.

**Table F.3-2  
 DETACHED STUDY MANAGEMENT SOP CLASS N-GET ATTRIBUTES**

Attribute name	Tag	Requirement type (SCU/SCP)
...	...	...
<del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b>	(0008,1111)	3/1C (Required if a Referenced Study Component <u>or</u> <b>Performed Procedure Step</b> exists.)
>Referenced SOP Class UID	(0008,1150)	3/1C (Required if sequence is present)
>Referenced SOP Instance UID	(0008,1155)	3/1C (Required if sequence is present)
...	...	...

*Item 8: Amend PS 3.4, F.3.5.1, Table F.3-5*

**F.3.5.1 SCU Conformance**

An implementation which is conformant to this SOP Class as an SCU shall meet conformance requirements for the:

- operations which it invokes
- notifications which it receives

**Table F.3-5  
 STUDY NOTIFICATION EVENT INFORMATION**

Event type name	Event type ID	Attribute	Tag	Req. type SCU/SCP
...	...	...	(0008,0012)	-/1
Study Completed	5	<del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b>	(0008,1111)	-/1
		>Referenced SOP Class UID	(0008,1150)	-/1C (Required if sequence is present)
		>Referenced SOP Instance UID	(0008,1155)	-/1C (Required if sequence is present)
...	...	...	...	...
Study Verified	6	<del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b>	(0008,1111)	-/1
		>Referenced SOP Class UID	(0008,1150)	-/1C (Required if sequence is present)

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...	>Referenced SOP Instance UID	(0008,1155)	-/1C (Required if sequence is present)
...	...	...	...

*Item 9: Amend PS 3.3, C.4.19, Table C.4-19 (from Supplement 52)*

**C.4.19 General Purpose Scheduled Procedure Step Information Module**

**Table C.4-19 General Purpose Scheduled Procedure Step Information Module Attributes**

Attribute Name	Tag	Attribute Description
...	...	...
<del>Referenced Study Component Sequence</del> <b>Referenced Performed Procedure Step Sequence</b>	(0008,1111)	List of any Modality or General Purpose Performed Procedure Steps, or other Study Components, that may be used to perform the procedure step.  This sequence may contain references to performed procedure steps resulting from previous contributions to the performance of the procedure step (e.g. an image processing procedure step interrupted, and completed later).  Zero or more Items may be included in this sequence.
>Referenced SOP Class UID	(0008,1150)	Uniquely identifies the SOP Class.
>Referenced SOP Instance UID	(0008,1155)	Uniquely identifies the SOP Instance.
...	...	...

*Item 10: Amend PS 3.4, K.6.2.2.2, Table K.6-2 (from Supplement 52)*

**K.6.2.2.2 General Purpose Worklist Attributes**

Table K.6-2 defines the Attributes of the General Purpose Worklist Information Model:

**Table K.6-2 Attributes for the General Purpose Worklist Information Model**

Description / Module	Tag	Match- ing Key Type	Return Key Type	Remark / Matching Type
...				
<del>Referenced Study Component Sequence</del> <b><u>Referenced Performed Procedure Step Sequence</u></b>	(0008,1111)	O	2	
>Referenced SOP Class UID	(0008,1150)	O	1	
>Referenced SOP Instance UID	(0008,1155)	O	1	
...				

*Item 11: Amend PS 3.6, Section 6*

Tag	Name	VR	VM
...			
(0008,1111)	<del>Referenced Study Component Sequence</del> <b><u>Referenced Performed Procedure Step Sequence</u></b>	SQ	1
...			