

## DICOM Correction Proposal

Correction Number CP-335	
Log Summary: Reorganize Part 3 Section C.17.3	
Type of Modification	Name of Standard
Editorial	PS 3.3
Rationale for Correction	
<p>The organization of Part 3 Section C.17.3 SR Document Content Module differs radically from other module definition sections, making it very confusing. (SR is confusing enough as it is!) Usually there is a short introduction, the table of the Module definition, then subsections explaining the Module definition. In C.17.3, in contrast, there is a long discussion of Content Trees, Value Types, and Relationships before those have been introduced in a Module definition. Finding the actual Module Definition Table, which should be the primary topic of the Section, is nigh impossible.</p> <p>It is proposed to move the Module Definition Table and its Macro Tables to the front of the Section, and to reorganize the rest of the content around a description of the content tree, and description of the content items and their attributes. Moreover, the Document Content Macro is placed before the Document Relationship Macro so that in reading through the module definition you see the root content item before the link to its subsidiary content items.</p>	
Sections of documents affected	
PS 3.3 Sections A.35 and C.17.3	
Correction Wording:	

### ***Update Table references in Section A.35***

#### **A.35.1.3.1.1 Value Type**

Value Type (0040,A040) in the Content Sequence (0040,A730) of the SR Document Content Module is constrained to the following Enumerated Values (see Table C.17-3-4-7 for Value Type definitions):

...

#### **A.35.1.3.1.2 Relationship Constraints**

Relationships between Content Items in the content of this IOD shall be conveyed in the by-value mode. See Table C.17-3-2-8 for Relationship Type definitions.

...

#### **A.35.2.3.1.1 Value Type**

Value Type (0040,A040) in the Content Sequence (0040,A730) of the SR Document Content Module is constrained to the following Enumerated Values (see Table C.17-3-4-7 for Value Type definitions):

...

#### **A.35.2.3.1.2 Relationship Constraints**

Relationships between Content Items in the content of this IOD shall be conveyed in the by-value mode. See Table C.17-3-2-8 for Relationship Type definitions.

...

#### **A.35.3.3.1.1 Value Type**

Value Type (0040,A040) in the Content Sequence (0040,A730) of the SR Document Content Module is constrained to the following Enumerated Values (see Table C.17-3-4-7 for Value Type definitions):

...

#### **A.35.3.3.1.2 Relationship Constraints**

Relationships between content items in the content of this IOD may be conveyed either by-value or by-reference. Table A.35.3-2 specifies the relationship constraints of this IOD. See Table C.17.3-2-8 for Relationship Type definitions.

...

#### **A.35.4.3.1.1 Value Type**

Value Type (0040,A040) in the Content Sequence (0040,A730) of the SR Document Content Module is constrained to the following Enumerated Values (see Table C.17.3-4-7 for Value Type definitions):

...

#### **A.35.4.3.1.2 Relationship Constraints**

Relationships between Content Items in the content of this IOD shall be conveyed in the by-value mode. See Table C.17.3-2-8 for Relationship Type definitions.

...

#### **A.35.5.3.1.2 Value Type**

Value Type (0040,A040) in the Content Sequence (0040,A730) of the SR Document Content Module is constrained to the following Enumerated Values (see Table C.17.3-4-7 for Value Type definitions):

...

#### **A.35.5.3.1.3 Relationship Constraints**

The Mammography CAD SR IOD makes extensive use of by-reference INFERRED FROM and by-reference SELECTED FROM relationships. Other relationships by-reference are forbidden. Table A.35.5-2 specifies the relationship constraints of this IOD. See Table C.17.3-2-8 for Relationship Type definitions.

...

#### **A.35.6.3.1.2 Value Type**

Value Type (0040,A040) in the Content Sequence (0040,A730) of the SR Document Content Module is constrained to the following Enumerated Values (see Table C.17.3-4-7 for Value Type definitions):

...

#### **A.35.6.3.1.3 Relationship Constraints**

The Chest CAD SR IOD makes use of by-reference INFERRED FROM, by-reference SELECTED FROM, and by-reference HAS PROPERTIES relationships. Other relationships by-reference are forbidden. Table A.35.6-2 specifies the relationship constraints of this IOD. See Table C.17.3-2-8 for Relationship Type definitions.

...

**Reorganize PS 3.3 Section C.17.3 as follows, adding sub-titles and minor wording changes. (Note: some table cells blanked to improve structural clarity)**

**C.17.3 SR Document Content Module**

This section specifies the Attributes contained in the SR Document Content Module. The Attributes in this Module convey the content of an SR Document.

**Table C.17.3-3-4  
 SR DOCUMENT CONTENT MODULE ATTRIBUTES**

Attribute Name	Tag	Type	Attribute Description
			<i>Include Document Content Macro Table C.17.3-5 with a Value Type (0040,A040) of CONTAINER</i>
			<i>Include Document Relationship Macro Table C.17.3-4-6</i>

**Table C.17.3-5  
 DOCUMENT CONTENT MACRO ATTRIBUTES**

Attribute Name	Tag	Type	Attribute Description
Value Type	(0040,A040)	1	... <b>See C.17.3.2.1 for further explanation.</b>
Concept Name Code Sequence	(0040,A043)	1C	... See C.17.3.2.2 for further explanation.
<i>&gt;Include 'Code Sequence Macro' Table 8.8-1</i>			<b><u>No Baseline Context ID</u></b> <i>Defined Context IDs to convey the Purpose of Reference are:</i> <i>99 "Purpose of Reference"</i> <i>178 "Spatial Extent of Finding"</i>
Continuity of Content	(0040,A050)	1C	... See C.17.3.2.3 for further explanation.
Text Value	(0040,A160)	1C	...
DateTime	(0040,A120)	1C	...
Date	(0040,A121)	1C	...
Time	(0040,A122)	1C	...
Person Name	(0040,A123)	1C	...
UID	(0040,A124)	1C	...
<i>Include 'Numeric Measurement Macro' Table C.18.1-1 if and only if Value Type (0040,A040) is NUM.</i>			
<i>Include 'Code Macro' Table C.18.2-1 if and only if Value Type (0040,A040) is CODE.</i>			
<i>Include 'Composite Object Reference Macro' Table C.18.3-1 if and only if Value Type (0040,A040) is COMPOSITE.</i>			
<i>Include 'Image Reference Macro' Table C.18.4-1 if and only if Value Type (0040,A040) is IMAGE.</i>			
<i>Include 'Waveform Reference Macro' Table C.18.5-1 if and only if Value Type (0040,A040) is WAVEFORM.</i>			
<i>Include 'Spatial Coordinates Macro' Table C.18.6-1 if and only if Value Type (0040,A040) is SCOOD.</i>			
<i>Include 'Temporal Coordinates Macro' Table C.18.7-1 if and only if Value Type (0040,A040) is TCOORD.</i>			

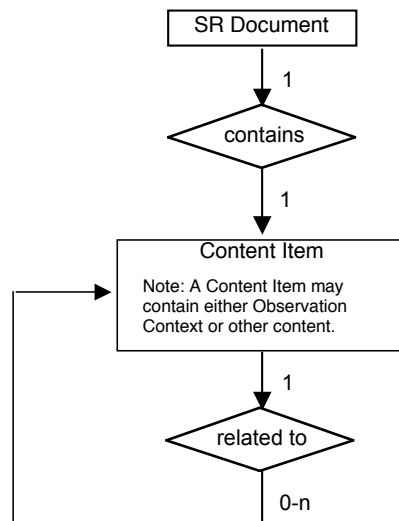
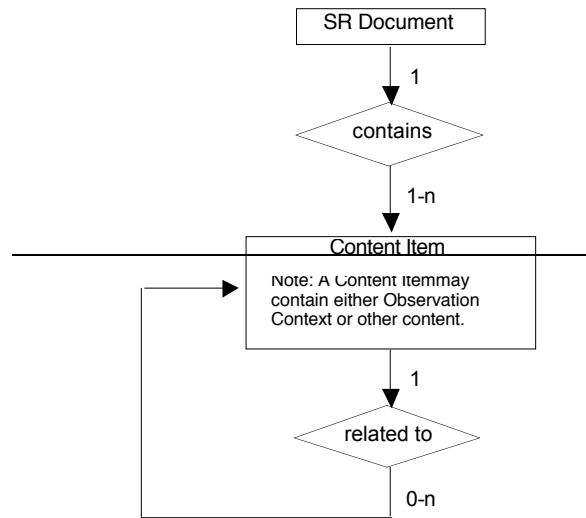
**Table C.17.3-4-6  
 DOCUMENT RELATIONSHIP MACRO ATTRIBUTES**

<b>Attribute Name</b>	<b>Tag</b>	<b>Type</b>	<b>Attribute Description</b>
Observation DateTime	(0040,A032)	1C	...
Content Template Sequence	(0040,A504)	1C	...
<i>&gt;Include 'Template Identification Macro' Table 9-1</i>		<i>No Baseline Template ID is defined.</i>	
Content Sequence	(0040,A730)	1C	... <b>See C.17.3.2.4 for further explanation.</b>
>Relationship Type	(0040,A010)	1	... <b>See C.17.3.2.4 for further explanation.</b>
<i>&gt;Include Document Content Macro Table C.17.3-5 if the Target Content Item is included by-value in the Source Content Item. The Macro shall not be present if the relationship is by-reference.</i>			
<i>&gt;Include Document Relationship Macro Table C.17.3-4-6 if the Target Content Item is included by-value in the Source Content Item. The Macro shall not be present if the relationship is by-reference.</i>			
>Referenced Content Item Identifier	(0040,DB73)	1C	... Note: 1. See <del>example in note below table</del> <b>C.17.3.2.5.</b> 2. ... ...

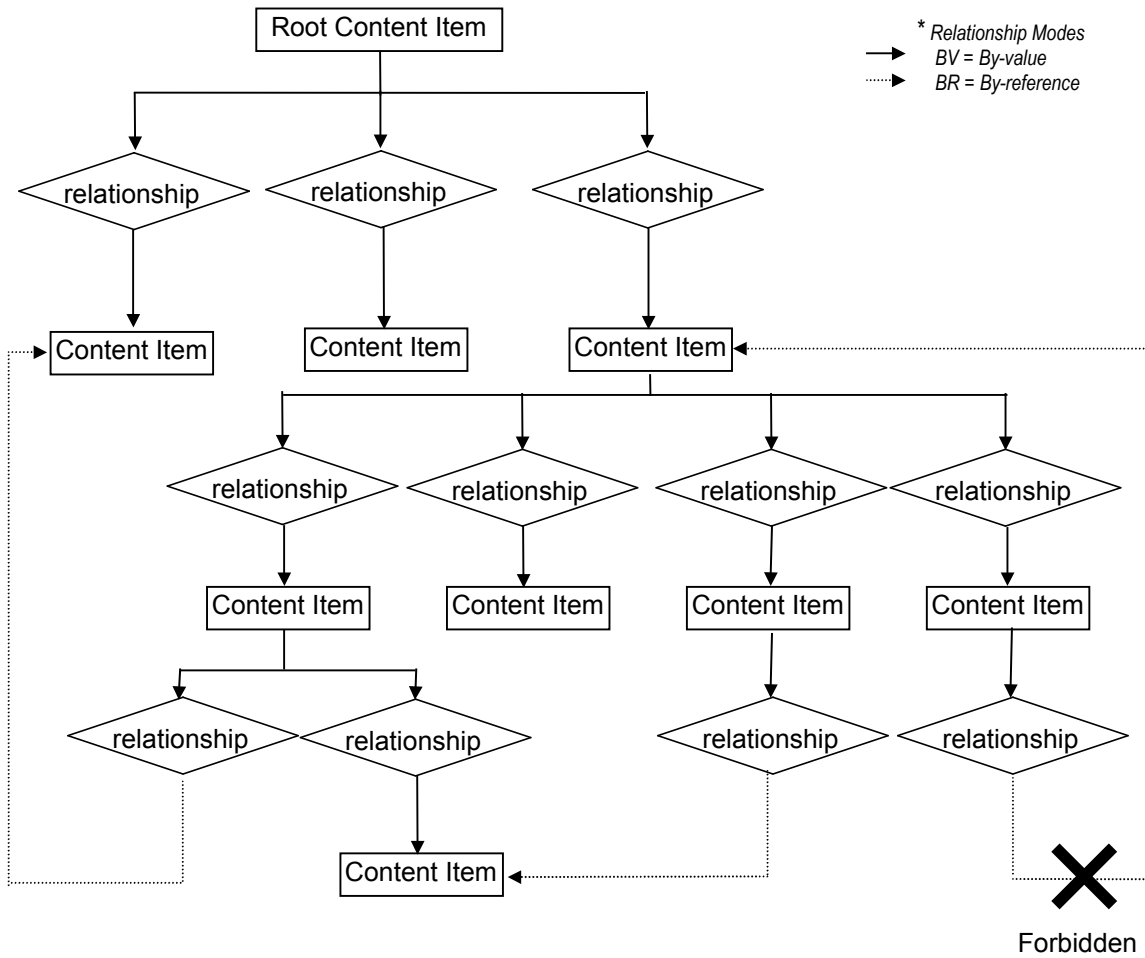
**C.17.3.1 SR Document Content Tree**

The Module consists of a single root Content Item that is the root of the SR Document tree. The root Content Item is of type CONTAINER, and its Content Sequence conveys either directly or indirectly through further nested Content Sequences, all of the other Content Items in the document. This root Content Item shall have a heading in the Concept Name Code Sequence (0040,A043) that conveys the title of the SR Document, i.e. the Document Title.

Figure C.17.3-1 depicts the relationship of SR Documents to Content Items and the relationships of Content Items to other Content Items and to Observation Context.



**Figure C.17.3-1**  
**SR Information Model**



Note: Whether or not relationships by-reference are allowed to ancestor Content Items, is specified in the IOD.

**Figure C.17.3-2 – Example of an SR Content Tree (Informative)**

**C.17.3.2 Content Item Attributes**

Each Content Item contains:

- name/value pair, consisting of
  - a single Concept Name Code Sequence (0040,A043) that is the name of a name/value pair or a heading,
  - a value (text, codes, etc.),
- references to images, waveforms or other composite objects, with or without coordinates,
- relationships to other Items, either
  - by-value through nested Content Sequences, or
  - by-reference.

**C.17.3.2.1 Value Type**

The value of the name/value pair is encoded with one of the Value Types defined in Table C.17.3-4-7 (the choice of which may be constrained by the IOD in which this Module is contained). **The Value Type (0040,A040) attribute explicitly conveys the type of Content Item value encoding.**

Table C.17.3-1 describes Value Types defined for Content Items.

**Table C.17.3-1-7  
 VALUE TYPE DEFINITIONS**

Value Type	Concept Name	Concept Value	Description
TEXT	...	...	...
NUM	...	...	...
CODE	...	...	...
DATETIME	...	...	...
DATE	...	...	...
TIME	...	...	...
UIDREF	...	...	...
PNAME	...	...	...
COMPOSITE	...	...	...
IMAGE	...	...	...
WAVEFORM	...	...	...
SCoord	...	...	...
TCoord	...	...	...
CONTAINER	...	...	...

Note: It is recommended that drawings and sketches, sometimes used in reports, be represented by IMAGE Content Items **that reference separate SOP Instances (e.g., 8-bit, MONOCHROME2, Secondary Capture, or Multi-frame Single Bit Secondary Capture)** or COMPOSITE Content Items (Stand-Alone Overlay).

**C.17.3.1.2.2 Concept Name Code Sequence**

The Concept Name Code Sequence (0040,A043) conveys the name of the concept whose value is expressed by the value attribute or set of attributes. Depending on the Value Type (0040,A040), the meaning of the Concept Name Code Sequence may reflect specifics of the use of the particular data type (see Table C.17.3-4-7).

**C.17.3.2.3 Continuity of Content**

Continuity of Content (0040,A050) specifies whether or not all the Content Items contained in a CONTAINER are logically linked in a continuous textual flow, or are separate entities. It only applies to the children contained in the container, and not their children (which if containers themselves, will have the attribute specified explicitly).

Note: This allows the interspersing of measurements, codes, and image references, amongst text. For example, the following: "A mass of diameter = 3 cm was detected." can be represented by the following Content Items in a CONTAINER with a Continuity of Content (0040,A050) of CONTINUOUS:

TEXT "A mass of"  
 NUM "Diameter"="3" "cm"  
 TEXT "was detected."

**C.17.3.2.4 Content Sequence and Relationship Type**

**The Content Sequence (0040,A730) provides the hierarchical structuring of the Content Tree (see C.17.3.1) by recursively nesting Content Items. A parent (or source) Content Item has an explicit relationship to each child (or target) Content Item, conveyed by the Relationship Type (0040,A010) attribute.**

Table C.17-3-2-8 describes the Relationship Types between Source Content Items and the Target Content Items.

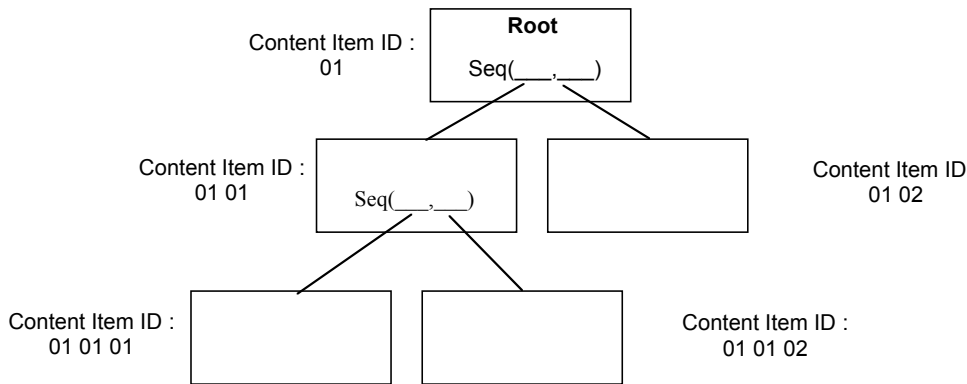
**Table C.17-3-2-8**  
**RELATIONSHIP TYPE DEFINITIONS**

Relationship Type	Description	Definition and Example
CONTAINS	...	...
HAS OBS CONTEXT	...	...
HAS CONCEPT MOD	...	...
HAS PROPERTIES	...	...
HAS ACQ CONTEXT	...	...
INFERRED FROM	...	...
SELECTED FROM	...	...

**C.17.3.2.5 Referenced Content Item Identifier**

Content Items are identified by their position in the Content Item tree. They have an implicit order as defined by the order of the Sequence Items. See the definition of **When a Content Item is the target of a by-reference relationship, its position is specified in the** Referenced Content Item Identifier (0040,DB73) **in a Content Sequence Item subsidiary to the source Content Item.**

Note: This example **Figure C.17.3-3** illustrates an SR content tree and identifiers associated with each Content Item.



**Figure C.17.3-3 Use of Position as SR Content Item Identifier (Informative)**