

DICOM Correction Item

Correction Number	CP-275
Log Summary: Revise Definition of Enumerated and Defined Templates and Context Groups	
Type of Modification	Name of Standard
Clarification	PS3.3, PS3.6, PS 3.16
Rationale for Correction <p>The transitive properties of the Enumerated or Defined classification on recursively included Templates is not clearly defined. For example, TID 1001 invokes TID 1002 as an ETID; this means that invoked template shall not be extended. However, TID 1002 invokes other templates (1003 and 1004) as DTIDs. Does that mean the "no extension" rule of the invocation from TID 1001 is carried through to 1002 and hence to 1003 and 1004?</p> <p>Indeed, the Baseline, Defined, and Enumerated classifications of included Templates conflate two independent concepts. First is a property of the invoking Template specifying whether in a particular context a specific Template must be used, and second is a property of the target Template specifying whether it is extensible. It is improper for an invoking Template to determine whether a target Template is extensible; an invoking Template may choose to include either an extensible or a non-extensible target Template, but extensibility is properly an attribute of the target, not the invocation.</p> <p>Disambiguating the concepts of invocation and extensibility will clarify the properties desired during recursiveTemplate inclusion. It also simplifies the creation of applications to check the validity of SR SOP Instances created using a template.</p> <p>Part of the problem is terminological. The current names were intended to extend the terms "Enumerated Values" and "Defined Terms" used in earlier editions of the DICOM Standard with respect to value sets for attributes of Value Representation CS. This terminology has proven to be more obfuscatory than illuminating, since these terms apply to the extensibility property of the list, but are used during the invocation.</p> <p>The invocation terminology could more properly be "Suggested" and "Required" templates; however, due to established usage the terms "Baseline" and "Defined" will continue to be used.</p> <p>This Change Proposal therefore revises or establishes the definitions for Baseline and Defined Templates, and for Extensible and Non-extensible (formerly Enumerated) templates.</p>	

Another issue is confusion between the non-extensibility property, and the ability of the DICOM Standards Committee to change the template. Extensibility/Non-extensibility is a property that applies to an application's use of the template, not to the ability for the standard to evolve. In fact, as terminology codes are refined/retired/replaced by the coding scheme authority, the DICOM standard *must* be able to be corrected or updated in its template definitions under DSC procedures of Change Proposals and Supplements. In particular, the revision process allows the substitution of new codes for the same concept in a template, which is expressly forbidden in application template extension.

Consideration of the use of templates within the Standard leads to the conclusion that they need not be version-identified. Templates in effect follow the model of IOD Module definitions; in fact, they are an extension of the SR Document Module definition. The same rules that the DICOM procedures apply to revising module definitions apply to template revision. Since revisions are forward and backward compatible, all SOP Instances based on any version of a template are compatible under the "Standard Extended SOP Class" rules. And just as modules are not version-identified, either in the standard or in SOP Instances, templates need not be versioned. This Change Proposal therefore removes template version attributes from the Standard.

Baseline, Defined, and Enumerated Context Groups raise similar issues. Again, two independent concepts are conflated – the property of the invocation specifying whether use of a particular Context Group is required, and the extensibility property of the target Context Group. This Change Proposal therefore revises or establishes the definitions for Baseline and Defined Context Groups, and for Extensible and Non-extensible Context Groups.

With respect to versioning, however, Context Groups are different than Templates. There are use cases where knowing the version identifier for the Context Group used in the creation of a SOP Instance may be beneficial. And although Context Group versions are described in the standard, version identifiers have not been assigned in Part 16. This CP assigns a version ID of 20011231 to all Context Groups in the 2001 edition of the standard.

Finally, the duplicate SR-related definitions in Parts 3 and 16 are consolidated into a single location in Part 16.

Sections of documents affected

PS 3.3 Sections 3, 8, and 9

PS 3.6 Section 6

PS 3.16 Sections 3, 6, 7, and Annexes A and B

Correction Wording:

Move a definition from PS 3.3 Section 3.13 to Section 3.8.

~~3.13.5~~

3.8.14 Code Sequence Attribute: Attribute that (usually) includes the string "Code Sequence" in the Attribute Name and has a VR of SQ (Sequence of Items). Its purpose is to encode concepts using code values and optional text meanings from coding schemes. Sections 8.1 through 8.8 specify the Attributes of which the Sequence Items (Attribute Sets) of Code Sequence Attributes are constructed.

Modify the remaining definitions of PS 3.3 Section 3.13 to be by reference to PS3.16, removing the redundant definitions.

3.13 Codes and Controlled Terminology Definitions

This Part of the Standard makes use of the following terms defined in PS 3.16:

- a. Baseline Context Group Identifier (BCID)
- b. Defined Context Group Identifier (DCID)
- c. Context Group
- d. Context Group Version
- e. Context ID (CID)
- f. Mapping Resource
- g. Relationship Type
- h. DICOM Content Mapping Resource (DCMR)
- i. Template
- j. Template ID (TID)
- k. Value Set
- l. Baseline Template Identifier (BTID)
- m. Defined Template Identifier (DTID)
- n. Coding schemes

The following definitions are used:

~~3.13.1 Retired.~~

~~3.13.2 **Baseline Context Group:** Context Group that specifies the suggested Value Set for a Code Sequence Attribute.~~

~~3.13.3 **Defined Context Group:** Context Group that specifies the Value Set for a Code Sequence Attribute that shall be used, but may be extended.~~

~~3.13.4 **Enumerated Context Group:** Context Group that specifies the Value Set for a Code Sequence Attribute that shall be used and shall not be extended.~~

~~3.13.5 **Code Sequence Attribute:** Attribute that (usually) includes the string "Code Sequence" in the Attribute Name and has a VR of SQ (Sequence of Items). Its purpose is to encode concepts using code values and optional text meanings from coding schemes. Sections 8.1 through 8.8 specify the Attributes of which the Sequence Items (Attribute Sets) of Code Sequence Attributes are constructed.~~

~~3.13.6 Retired.~~

~~3.13.7 **Context Group:** Attribute Value Set defined by a Mapping Resource.~~

~~3.13.8 **Context Group Version:** Version of a Context Group.~~

~~3.13.9 **Context ID (CID):** Identifier of a Context Group.~~

~~3.13.10 Retired.~~

~~3.13.11 **Mapping Resource:** A resource that defines context dependent usage constraints (i.e. Value Set or Relationship Type restrictions) for Attributes. A resource that specifies the mapping of the content of an external controlled terminology to the components of a message standard.~~

~~3.13.12 Retired.~~

~~3.13.13 Retired.~~

~~3.13.14 Retired.~~

~~3.13.15 **Relationship Type:** The association between two Concepts. Examples: "HAS PROPERTIES", "CONTAINS", "INFERRED FROM".~~

~~3.13.16 **DICOM Content Mapping Resource (DCMR):** A Mapping Resource that defines Templates and Context Groups for use in DICOM IODs.~~

~~3.13.17 **Template:** A pattern that describes the Content Items, Value Types, Relationship Types and Value Sets that may be used in part of a Structured Report content tree, or in other coded entry items, such as Acquisition Context or Waveform Channel Description. Analogous to a Module of an Information Object Definition.~~

~~3.13.18 **Template ID (TID):** Identifier of a Template.~~

~~3.13.19 Retired.~~

~~3.13.20 **Value Set:** The allowed values of a Code Sequence Attribute in a given context. Specified either as one or more individual values or by reference to a Context Group.~~

~~3.13.21 **Baseline Template:** A template suggested in an IOD which may be used in the creation of a SOP Instance, replaced by another template or extended.~~

- 3.13.22 Defined Template:** A template defined in an IOD that specifies an extensible set of Content Items and corresponding Value Sets. A SOP Instance may optionally include additional Content Items beyond those specified in the template.
- 3.13.23 Enumerated Template:** A template defined in an IOD that specifies the exact set of Content Items and corresponding Value Sets that shall be used and which shall not be extended. A SOP Instance shall be created according to the exact Template specification and shall not include additional Content Items.
- 3.13.24 Coding schemes:** Dictionaries (lexicons) of terms with well defined meanings.
 Note:— Examples of coding schemes include SNOMED and LOINC.

Modify the definitions of PS 3.16 Section 3.1 (and editor renumber appropriately)

3.1 Codes and Controlled Terminology Definitions:

The following definitions are used in the specification of Interpretation Data Interchange commonly used in this Part of the DICOM Standard:

- 3.1.1 Baseline Context Group Identifier (BCID):** Context Group Identifier that specifies the suggested Context Group Value Set for a Code Sequence Attribute.
- 3.1.2 Defined Context Group Identifier (DCID):** Context Group Identifier that specifies the Context Group Value Set for a Code Sequence Attribute that shall be used, but may be extended.
- 3.1.2a Extensible Context Group:** Context Group that may be extended by a particular application by inclusion of additional concepts.
- 3.1.3 Enumerated Non-Extensible Context Group:** Context Group whose defined set of concepts that specifies the Value Set for a Code Sequence Attribute that shall be used and shall not be extended by an application.
- 3.1.4 Code Sequence Attribute:** Attribute that (usually) includes the string “Code Sequence” in the Attribute Name and has a VR of SQ (Sequence of Items). Its purpose is to encode concepts using code values and optional text meanings from coding schemes. Sections 8.1 through 8.8 specify the Attributes of which the Sequence Items (Attribute Sets) of Code Sequence Attributes are constructed.
- 3.1.5 Context Group:** Attribute Value A set of coded concepts defined by a Mapping Resource forming a set appropriate to use in a particular context.
- 3.1.6 Context Group Version:** Version of a Context Group.
- 3.1.7 Context ID (CID):** Identifier of a Context Group.
- 3.1.8 Mapping Resource:** A resource that defines context-dependent usage constraints (i.e. Value Set or Relationship Type restrictions) for Attributes. A resource that specifies the mapping of the content of an external controlled terminology to the components of a message standard.
- 3.1.9 Relationship Type:** The association between two Concepts. Examples: “HAS PROPERTIES”, “CONTAINS”, “INFERRED FROM”.
- 3.1.10 DICOM Content Mapping Resource (DCMR):** A Mapping Resource that defines Templates and Context Groups for use in DICOM IODs.
- 3.1.11 Template:** A pattern that describes the Content Items, Value Types, Relationship Types and Value Sets that may be used in part of a Structured Report content tree, or in other coded entry items, such as Acquisition Context or Waveform Channel Description. Analogous to a Module of an Information Object Definition.
- 3.1.12 Template ID (TID):** Identifier of a Template.
- 3.1.13 Value Set:** The allowed values of a Code Sequence Attribute in a given context. Specified either as one or more individual values or by reference to a Context Group.
- 3.1.14 Baseline Template Identifier (BTID):** Identifier that specifies a Template suggested in an IOD which may to be used in the creation of a set of Content Items SOP Instance, replaced by another template or extended.

- 3.1.15 Defined Template Identifier (DTID): Identifier that specifies** a Template **that shall be used in the creation of a** defined in an IOD that specifies an extensible set of Content Items and corresponding Value Sets.
- 3.1.15a Extensible Template:** A template **that may be extended by a particular application by inclusion of** A SOP Instance may optionally include additional Content Items beyond those specified in the template.
- 3.1.16 Enumerated Non-Extensible Template:** A template defined in an IOD that specifies the exact set of Content Items and corresponding Value Sets that shall be used and which shall not be extended **by an application**. A SOP Instance shall be created according to the exact Template specification and shall not include additional Content Items.
- 3.1.17 Coding schemes:** Dictionaries (lexicons) of **concepts (terms)** with **assigned codes and** well defined meanings.

Note: Examples of coding schemes include SNOMED and LOINC.

3.2 Information Object Definitions

This Part of the Standard makes use of the following terms defined in PS 3.3:

a. Code Sequence Attribute

Modify the text of PS 3.3 Section 8

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For any particular Code Sequence Attributes, the range of codes that may be used for that attribute (the Value Set) may be suggested or constrained by specification of a Context Group. The Module or Template in which the attribute is used will specify whether or not the context group is baseline, **or** defined ~~or enumerated~~. A Baseline Context Group lists codes for terms which are suggested and may be used, but are not required to be used. A Defined Context Group lists codes for terms which shall be used if the term is used, ~~but which may be extended with codes for other terms.~~ An Enumerated Context Group lists codes for terms that shall be used, and no other codes or terms shall be used.

Context Groups are defined in a Mapping Resource, such as the DICOM Content Mapping Resource (DCMR) specified in PS 3.16. Context Groups consist of lists of terms, including the Code Value (0008,0100) and Coding Scheme Designator (0008,0102). **The Context Group specification identifies whether it is extensible, i.e., whether it may be modified in an Application to use additional terms (see PS 3.16).** Whether a Context Group is used as a Baseline, ~~or~~ Defined ~~or Enumerated~~ Context Group is defined not in the mapping resource, but rather in the Template or Module in which the Code Sequence Attribute is used.

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Modify the Template Identification Macro of PS 3.3 Table 9-1

**Table 9-1
Template Identification Macro Attributes Description**

Attribute Name	Tag	Type	Attribute Description
Template Identifier	(0040,DB00)	1	Template identifier.
Mapping Resource	(0008,0105)	1	Mapping Resource that defines the template. See Section 8.4.

Template Version	(0040,DB06)	1C	Version of the Template. See Section 8.5. Required if the Template Identifier (0040,DB00) and Mapping Resource (0008,0105) are not sufficient to identify the template unambiguously.
Template Local Version	(0040,DB07)	1C	Local version number assigned to a template that contains private extensions. See Section 8.7. Required if the value of Template Extension Flag (0040,DB0B) is "Y".
Template Extension Flag	(0040,DB0B)	1C	Indicates that the template is a private extension of the template denoted by Template Identifier (0040,DB00), Mapping Resource (0008,0105) and Template Version (0040,DB06). See Section 8.7 of this Part. Enumerated Values: Y, N "Y" shall mean the template is a private extension of the template designated by Template Identifier (0040,DB00), Mapping Resource (0008,0105) and Template Version (0040,DB06). Required if the template is a private extension of the template designated by Template Identifier (0040,DB00), Mapping Resource (0008,0105) and Template Version (0040,DB06).
Template Extension Organization UID	(0040,DB0C)	2C	Identifies the organization that created and/or maintains an extension to a template, if defined. See Section 8.7. Required if the value of Template Extension Flag (0040,DB0B) is "Y".
Template Extension Creator UID	(0040,DB0D)	2C	Identifies the person who created and/or maintains an extension to a template. See Section 8.7. Required if the value of Template Extension Flag (0040,DB0B) is "Y".

Retire Template Version and Extension data elements in PS 3.6 Section 6

(0040,DB06)	Template Version	DT	1	<u>RET</u>
(0040,DB07)	Template Local Version	DT	1	<u>RET</u>
(0040,DB0B)	Template Extension Flag	CS	1	<u>RET</u>
(0040,DB0C)	Template Extension Organization UID	UI	1	<u>RET</u>
(0040,DB0D)	Template Extension Creator UID	UI	1	<u>RET</u>

Modify the text of PS 3.16 Section 6.1

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References to Context Groups take the following form:

BCID or DCID ~~or ECID~~ (CID) CNAME

e.g., Defined Context Group 5000 is represented as follows:
DCID (5000) Language.

References to Templates take the following form:

BTID or DTID ~~or ETID~~ (TID) TNAME

e.g., ~~Enumerated~~ **Baseline** Template 1000 is represented as follows:
~~BTID~~ (1000) Quotation.

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6.1.5 Concept Name

Any constraints on Concept Name are specified in this field as defined or enumerated coded entries, or as baseline, or ~~defined or enumerated~~ context groups. Alternatively, when the VT field is "INCLUDE", the Concept Name field specifies the template to be included.

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6.1.9 Value Set Constraint

Value Set Constraints, if any, are specified in this field as defined or enumerated coded entries, or as baseline, or ~~defined or enumerated~~ context groups.

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6.1.9.1 NUM Units Constraint

Constraints on units of measurement, if any, are specified in the Value Set Constraint field if and only if the Value Type is NUM. The constraints are specified either as defined or enumerated coded entries, or as baseline, or ~~defined or enumerated~~ context groups.

Add to PS 3.16 new Sections 6.2.5

6.2.5 Extension of Templates

An Extensible Template may be extended in an Application generating SOP Instances to include additional Content Items in its definition. Such Content Items shall not duplicate concepts for which an encoding is defined in the Template. I.e., if a method is provided for the encoding of a concept in the Template, that concept shall not be encoded using a different Content Item in an extension to the Template.

A Non-extensible Template shall not be modified in an Application by the addition of Content Items to its definition.

Notes: The set of Content Items in either an Extensible or a Non-extensible Template may be changed in subsequent editions of the Standard, in accordance with the procedures of the DICOM Standards Committee.

A Non-Extensible Template may include a Template that is Extensible. In invoking such a Template, the content structure of SOP Instances created from the Non-Extensible Template may vary according to the varying content structure allowed by the extension of the included Template.

Note: Specification of such extensible content in a Non-Extensible Template may be desirable if the Template defines, e.g., a fixed top level structure into which a variety of lower level structures may be "plugged".

Modify the text of PS 3.16 Section 7.2.3

7.2.3 Extension of Context Groups

As the standard evolves, those that are used in IODs or Templates only as baseline context groups may be modified to use additional or different terms. Those Context Groups that are used anywhere as defined context groups . **An Application may extend an Extensible Context Group by adding terms for new concepts. Applications may not substitute other terms of the same concept in the Context Group. Such extension may be made without a change in Context Group Identifier, but with the specification of Code Set Extension (see PS3.3).**

Those **Non-extensible** Context Groups that are used anywhere as enumerated context groups may **shall** not be modified **in an Application**.

Whether a particular Context Group is used as a baseline, defined or enumerated Context Group is determined at the point where the Context Group is invoked, and the most restrictive use is indicated where the Context Group is defined.

Note: **The set of concepts in either an Extensible or a Non-extensible Context Group may be changed in subsequent editions of the Standard, in accordance with the procedures of the DICOM Standards Committee.**

**Modify the text of PS 3.16 Annex A:
Replace all occurrences of "ETID" with "DTID", and all occurrences of "ECID" with "DCID".**

**TID 1001
OBSERVATION CONTEXT**

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1	HAS OBS CONTEXT	INCLUDE	ED TID (1002) "Observer Context"	1	MC	Required if all aspects of observer context are not inherited.	
2	HAS OBS CONTEXT	INCLUDE	ED TID (1005) "Procedure Context"	1	MC	Required if all aspects of procedure context are not inherited.	
3	HAS OBS CONTEXT	INCLUDE	ED TID (1006) "Subject Context"	1	MC	Required if all aspects of observation subject context are not inherited.	

**TID 1007
SUBJECT CONTEXT, PATIENT**

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
5		CODE	EV (121032,DCM, "Subject Sex")	1	U		Defaults to value of Patient's Sex (0010,0040) in Patient Module ED DCID (7455) Sex
6		NUM	EV (121033,DCM, "Subject Age")	1	U		Defaults to value of Patient's Age (0010,1010) in Patient Study Module Units ED DCID (7456) Units of Measure for Age
7		CODE	EV (121034,DCM, "Subject Species")	1	MC	Required if not inherited.	DCID (7454) Species to define various animals or plants, e.g. veterinary or research. Defaults to (L-85B00, SNM3, "homo sapiens").

**TID 1210
EQUIVALENT MEANING(S) OF CONCEPT NAME**

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1	HAS CONCEPT MOD	TEXT	(121050,DCM,"Equivalent Meaning of Concept Name")	1-n	MC	XOR Row 3	Plain text equivalent of code meaning of the concept name of the content item being modified, in the specified language from the specified country, using the default character set or a character set selected from Specified Character Set
2>		INCLUDE	ED TID (1201) Language of Value	1	U		
3	HAS CONCEPT MOD	CODE	(121050,DCM,"Equivalent Meaning of Concept Name")	1-n	MC	XOR Row 1	
4>		INCLUDE	ED TID (1201) Language of Value	1	U		

4	>	HAS CONCEPT MOD	INCLUDE	EDTID (1204) Language of Content Item and Descendants	1	U		
5	>	HAS OBS CONTEXT	INCLUDE	EDTID (1002) Observer Context	1	U		

**TID 4000
MAMMOGRAPHY CAD DOCUMENT ROOT**

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		CONTAINER	(111036, DCM, "Mammography CAD Report")	1	M		
2	>	HAS CONCEPT MOD	INCLUDE	EDTID (1204) "Language of Content Item and Descendants"	1	M	
3	>	CONTAINS	CONTAINER	(111028, DCM, "Image Library")	1	M	
4	>>	CONTAINS	INCLUDE	EDTID (4020) "Mammography CAD Image Library Entry"	1-n	M	
5	>	CONTAINS	INCLUDE	EDTID (4001) "Mammography CAD Overall Impression / Recommendation"	1	M	
6	>	CONTAINS	CODE	(111064, DCM, "Summary of Detections")	1	M	EDCID (6042) Status of Results
7	>>	INFERRED FROM	INCLUDE	EDTID (4015) "Mammography CAD Detections Performed"	1	MC	Shall be present unless the value of (111064, DCM, "Summary of Detections") is (111225, DCM, "Not Attempted")
8	>	CONTAINS	CODE	(111065, DCM, "Summary of Analyses")	1	M	EDCID (6042) Status of Results
9	>>	INFERRED FROM	INCLUDE	EDTID (4016) "Mammography CAD Analyses Performed"	1	MC	Shall be present unless the value of (111065, DCM, "Summary of Analyses") is (111225, DCM, "Not Attempted")

**TID 4001
MAMMOGRAPHY CAD OVERALL IMPRESSION/RECOMMENDATION**

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		CODE	(111017, DCM, "CAD Processing and Findings Summary")	1	M		EDCID (6047) CAD Processing and Findings Summary
2	>	HAS PROP	INCLUDE	EDTID (4002) "Mammography CAD Impression/Recommendation Body"	1	U	
3	>	INFERRED FROM	INCLUDE	EDTID (4003) "Mammography CAD Individual Impression/Recommendation"	1-n	MC	Shall be present if 1 or more (111059, DCM, "Single Image Finding") or (111015, DCM, "Composite Feature") content items are reported.

TID 4002
MAMMOGRAPHY CAD IMPRESSION/RECOMMENDATION BODY

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
8		INCLUDE	EDTID (4019) "CAD Algorithm Identification"	1-n	M		

TID 4003
MAMMOGRAPHY CAD INDIVIDUAL IMPRESSION/RECOMMENDATION

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		CONTAINER	(111034, DCM, "Individual Impression/ Recommendation")	1	M		
2	> HAS CONCEPT MOD	CODE	(111056, DCM, "Rendering Intent")	1	M		EDCID (6034) "Intended Use of CAD Output"
3	> CONTAINS	INCLUDE	EDTID (4002) "Mammography CAD Impression / Recommendation Body"	1	U		
4	> CONTAINS	INCLUDE	EDTID (4004) "Mammography CAD Composite Feature"	1-n	MC	At least one of rows 4, 5 shall be present.	
5	> CONTAINS	INCLUDE	EDTID (4006) "Mammography CAD Single Image Finding"	1-n	MC	At least one of rows 4, 5 shall be present.	

TID 4004
MAMMOGRAPHY CAD COMPOSITE FEATURE

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		CODE	(111015, DCM, "Composite Feature")	1	M		DCID (6016) "Mammography Composite Feature"
2	> HAS CONCEPT MOD	CODE	(111056, DCM, "Rendering Intent")	1	M		EDCID (6034) "Intended Use of CAD Output"
3	> HAS PROP	INCLUDE	EDTID (4005) "Mammography CAD Composite Feature Body"	1	M		
4	> INFERRED FROM	INCLUDE	EDTID (4004) "Mammography CAD Composite Feature"	1-n	MC	At least two items shall be present: two of row 4, two of row 5, or one of each.	
5	> INFERRED FROM	INCLUDE	EDTID (4006) "Mammography CAD Single Image Finding"	1-n	MC	At least two items shall be present: two of row 4, two of row 5, or one of each.	
6	> HAS OBS CONTEXT	INCLUDE	EDTID (4022) "CAD Observation Context"	1	MC	Shall be present only if this feature is incorporated from a different report than its parent.	

TID 4005
MAMMOGRAPHY CAD COMPOSITE FEATURE BODY

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		CODE	(111016, DCM, "Composite type")	1	M		EDCID (6035) "Composite Feature Relations ". The value shall be (111155, DCM, "Target content items are related contra-laterally") if the parent content item has code value (F-01792, SRT, "Focal asymmetric breast tissue") or (F-01793, SRT, "Asymmetric breast tissue").
2		CODE	(111057, DCM, "Scope of Feature")	1	M		EDCID (6036) "Scope of Feature"
10		INCLUDE	EDTID (4021) "Mammography CAD Geometry"	1-n	U		

**TID 4006
MAMMOGRAPHY CAD SINGLE IMAGE FINDING**

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		CODE	(111059, DCM, "Single Image Finding")	1	M		DCID (6014) "Mammography Single Image Finding"
2	> HAS CONCEPT MOD	CODE	(111056, DCM, "Rendering Intent")	1	M		EDCID (6034) "Intended Use of CAD Output"
3	> HAS PROP	INCLUDE	EDTID (4019) "CAD Algorithm Identification"	1	M		
4	> HAS PROP	NUM	(111012, DCM, "Certainty of Finding")	1	U		UNITS = EV (% , UCUM, "Percent") Value = 0 – 100
5	> HAS PROP	NUM	(111047, DCM, "Probability of cancer")	1	UC	May be present unless value of parent is (111006, DCM, "Breast composition"), (111100, DCM, "Breast geometry"), (T-04100, SNM3, "Nipple"), (111099, DCM, "Selected region"), (111101, DCM, "Image quality") or (111102, DCM, "Non-lesion")	UNITS = EV (% , UCUM, "Percent") Value = 0 – 100
6	> HAS PROP	INCLUDE	EDTID (4021) "Mammography CAD Geometry"	1	MC	Shall be present unless value of parent is (111006, DCM, "Breast composition"), (111100, DCM, "Breast geometry") or (111101, DCM, "Image quality")	
7	> HAS PROP	INCLUDE	EDTID (4007) "Mammography CAD Breast Composition"	1	MC	Shall be present only if value of parent is (111006, DCM, "Breast composition")	
8	> R-INFERRED FROM	CODE		1-n	UC	May be present only if value of parent is (111006, DCM, "Breast composition")	Shall reference a (111059, DCM, "Single Image Finding") of value: EV (111100, DCM, "Breast geometry")
9	> HAS PROP	INCLUDE	EDTID (4008) "Mammography CAD Breast Geometry"	1	MC	Shall be present only if value of parent is (111100, DCM, "Breast geometry")	

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
10 >	HAS PROP	INCLUDE	EDTID (4009) "Mammography CAD Individual Calcification"	1	UC	May be present only if value of parent is (111104, DCM, "Individual Calcification")	
11 >	HAS PROP	INCLUDE	EDTID (4010) "Mammography CAD Calcification Cluster"	1	UC	May be present only if value of parent is (111105, DCM, "Calcification Cluster")	
12 >	HAS PROP	INCLUDE	EDTID (4011) "Mammography CAD Density"	1	UC	May be present only if value of parent is (111103, DCM, "Density")	
13 >	HAS PROP	CODE	(111297, DCM, "Nipple Characteristic")	1	UC	May be present only if value of parent is (T-04100, SNM3, "Nipple")	DCID (6039) "Nipple Characteristic"
14 >	HAS PROP	INCLUDE	EDTID (4012) "Mammography CAD Non-Lesion"	1	MC	Shall be present only if value of parent is (111102, DCM, "Non-lesion")	
15 >	HAS PROP	INCLUDE	EDTID (4013) "Mammography CAD Selected Region"	1	MC	Shall be present only if value of parent is (111099, DCM, "Selected Region")	
19 >	HAS PROP	INCLUDE	EDTID (4014) "Mammography CAD Image Quality"	1-n	MC	Shall be present only if value of parent is (111101, DCM, "Image quality")	
20 >	INFERRED FROM	INCLUDE	EDTID (4006) "Mammography CAD Single Image Finding"	1-n	UC	May be present only if value of parent is (111105, DCM, "Calcification Cluster")	EV (111104, DCM, "Individual Calcification")
21 >	HAS OBS CONTEXT	INCLUDE	EDTID (4022) "CAD Observation Context"	1	MC	Shall be present only if this finding is incorporated from a different report than its parent.	

**TID 4015
MAMMOGRAPHY CAD DETECTIONS PERFORMED**

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		CONTAINER	(111063, DCM, "Successful Detections")	1	MC	Shall be present only if value of parent is (111222, DCM, "Succeeded") or (111223, DCM, "Partially Succeeded")	
2 >	CONTAINS	INCLUDE	EDTID (4017) "Mammography CAD Detection Performed"	1-n	M		
3		CONTAINER	(111025, DCM, "Failed Detections")	1	MC	Shall be present only if value of parent is (111224, DCM, "Failed") or (111223, DCM, "Partially Succeeded")	
4 >	CONTAINS	INCLUDE	EDTID (4017) "Mammography CAD Detection Performed"	1-n	M		

**TID 4016
MAMMOGRAPHY CAD ANALYSES PERFORMED**

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		CONTAINER	(111062, DCM, "Successful Analyses")	1	MC	Shall be present only if value of parent is (111222, DCM, "Succeeded") or (111223, DCM, "Partially Succeeded")	
2	>	CONTAINS	INCLUDE	EDTID (4018) "Mammography CAD Analysis Performed"	1-n	M	
3		CONTAINER	(111024, DCM, "Failed Analyses")	1	MC	Shall be present only if value of parent is (111224, DCM, "Failed") or (111223, DCM, "Partially Succeeded")	
4	>	CONTAINS	INCLUDE	EDTID (4018) "Mammography CAD Analysis Performed"	1-n	M	

**TID 4017
MAMMOGRAPHY CAD DETECTION PERFORMED**

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		CODE	(111022, DCM, "Detection Performed")	1	M		DCID (6014) "Mammography Single Image Finding"
2	>	HAS PROP	INCLUDE	EDTID (4019) "CAD Algorithm Identification"	1	M	

**TID 4018
MAMMOGRAPHY CAD ANALYSIS PERFORMED**

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1		CODE	(111004, DCM, "Analysis Performed")	1	M		DCID (6043) "Types of Mammography CAD Analysis"
2	>	HAS PROP	INCLUDE	EDTID (4019) "CAD Algorithm Identification"	1	M	

**TID 4020
MAMMOGRAPHY CAD IMAGE LIBRARY ENTRY**

NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint	
1		IMAGE		1	M			
2	>	HAS ACQ CONTEXT	CODE	(111027, DCM, "Image Laterality")	1	MC	Shall be present if (0020,0062) is in the Image IOD	EDCID (6022) "Side"

**TID 4022
CAD OBSERVATION CONTEXT**

	NL	Rel with Parent	VT	Concept Name	VM	Req Type	Condition	Value Set Constraint
1			COMPOSITE	(111040, DCM, "Original Source")	1	MC	Shall be present if the original source is a DICOM object.	
2	>	HAS CONCEPT MOD	INCLUDE	EDTID (1204) "Language of Content Item and Descendants"	1	M		
3			INCLUDE	EDTID (1001) "Observation Context"	1	M		

**Modify the text of PS 3.16 Annex B:
Add "Type: Non-extensible" to all targets of (former) ETID, "Type: Extensible" to all other templates.**

**TID 1000
QUOTATION
Type: Extensible**

**TID 1001
OBSERVATION CONTEXT
Type: Non-Extensible**

**TID 1002
OBSERVER CONTEXT
Type: Non-Extensible**

**TID 1003
PERSON OBSERVER IDENTIFYING ATTRIBUTES
Type: Extensible**

**TID 1004
DEVICE OBSERVER IDENTIFYING ATTRIBUTES
Type: Extensible**

**TID 1005
PROCEDURE CONTEXT
Type: Non-Extensible**

**TID 1006
SUBJECT CONTEXT
Type: Non-Extensible**

**TID 1007
SUBJECT CONTEXT, PATIENT
Type: Extensible**

**TID 1008
SUBJECT CONTEXT, FETUS
Type: Extensible**

**TID 1009
SUBJECT CONTEXT, SPECIMEN
Type: Extensible**

**TID 1200
LANGUAGE DESIGNATION
Type: Extensible**

**TID 1201
LANGUAGE OF VALUE
Type: Non-Extensible**

TID 1203
LANGUAGE OF NAME AND VALUE
Type: Extensible

TID 1204
LANGUAGE OF CONTENT ITEM AND DESCENDANTS
Type: Non-Extensible

TID 1210
EQUIVALENT MEANING(S) OF CONCEPT NAME
Type: Non-Extensible

TID 1211
EQUIVALENT MEANING(S) OF VALUE
Type: Extensible

TID 1350
NEGATION MODIFIER, PRESENCE OF FINDING
Type: Extensible

TID 1400
LINEAR MEASUREMENT
Type: Extensible

TID 1401
AREA MEASUREMENT
Type: Extensible

TID 1402
VOLUME MEASUREMENT
Type: Extensible

TID 2000 BASIC DIAGNOSTIC IMAGING REPORT

...

~~is not extensible. That is, no other content items may be added to this template, or the templates that are included, recursively.~~

TID 2000
BASIC DIAGNOSTIC IMAGING REPORT
Type: Non-Extensible

TID 2001
BASIC DIAGNOSTIC IMAGING REPORT OBSERVATIONS
Type: Non-Extensible

TID 2010 KEY OBJECT SELECTION

...

The Template can only be instantiated at the root node and cannot be included in other templates. ~~The Template is not extensible; that is, no other content items may be added to this template, or the templates that are included, recursively.~~

TID 2010 KEY OBJECT SELECTION

Type: Non-Extensible

TID 4000 MAMMOGRAPHY CAD DOCUMENT ROOT

Type: Non-Extensible

TID 4001 MAMMOGRAPHY CAD OVERALL IMPRESSION/RECOMMENDATION

Type: Non-Extensible

TID 4002 MAMMOGRAPHY CAD IMPRESSION/RECOMMENDATION BODY

Type: Non-Extensible

TID 4003 MAMMOGRAPHY CAD INDIVIDUAL IMPRESSION/RECOMMENDATION

Type: Non-Extensible

TID 4004 MAMMOGRAPHY CAD COMPOSITE FEATURE

Type: Non-Extensible

TID 4005 MAMMOGRAPHY CAD COMPOSITE FEATURE BODY

Type: Non-Extensible

TID 4006 MAMMOGRAPHY CAD SINGLE IMAGE FINDING

Type: Non-Extensible

TID 4007 MAMMOGRAPHY CAD BREAST COMPOSITION

Type: Non-Extensible

TID 4008 MAMMOGRAPHY CAD BREAST GEOMETRY

Type: Non-Extensible

TID 4009 MAMMOGRAPHY CAD INDIVIDUAL CALCIFICATION

Type: Non-Extensible

TID 4010 MAMMOGRAPHY CAD CALCIFICATION CLUSTER

Type: Non-Extensible

TID 4011
MAMMOGRAPHY CAD DENSITY
Type: Non-Extensible

TID 4012
MAMMOGRAPHY CAD NON-LESION
Type: Non-Extensible

TID 4013
MAMMOGRAPHY CAD SELECTED REGION
Type: Non-Extensible

TID 4014
MAMMOGRAPHY CAD IMAGE QUALITY
Type: Non-Extensible

TID 4015
MAMMOGRAPHY CAD DETECTIONS PERFORMED
Type: Non-Extensible

TID 4016
MAMMOGRAPHY CAD ANALYSES PERFORMED
Type: Non-Extensible

TID 4017
MAMMOGRAPHY CAD DETECTION PERFORMED
Type: Non-Extensible

TID 4018
MAMMOGRAPHY CAD ANALYSIS PERFORMED
Type: Non-Extensible

TID 4019
CAD ALGORITHM IDENTIFICATION
Type: Non-Extensible

TID 4020
MAMMOGRAPHY CAD IMAGE LIBRARY ENTRY
Type: Non-Extensible

TID 4021
MAMMOGRAPHY CAD GEOMETRY
Type: Non-Extensible

TID 4022
CAD OBSERVATION CONTEXT
Type: Non-Extensible

Modify the text of PS 3.16 Annex B:

Change all Context Groups with "Most Restricted Use: Enumerated" to "Type: Non-Extensible"; add version identifier "Version: 20020904"

Modify the text of PS 3.16 Annex B:

Change all Context Groups with "Most Restricted Use: Baseline" or "Most Restricted Use: Defined" to "Type: Extensible"; add version identifier "Version: 20020904"