

4.2.2 LOINC Term to Expression Reference Set

Introduction

The [LOINC Term to Expression reference set](#) is an instance of a [Code to expression type reference set](#). The general specification of the reference set type is included below and this is followed by specific notes on the [LOINC Term to Expression reference set](#).



Code to Expression Type Reference Set

Purpose

The [Code to expression type reference set](#) is designed to enable associations between codes in another code system ([other-codes](#)) and [SNOMED CT concepts](#), where the following constraints apply:

1. Some of the [other-codes](#) cannot be mapped to an individual SNOMED CT [concept](#).
2. Licensing conditions (or other considerations) prevent addition of new SNOMED CT concepts to represent the same meaning as the [other-codes](#).
3. The [other-codes](#) can be logically defined using the [SNOMED concept model](#) to represent the same meaning ([sufficiently defined](#)) or a similar though less specific meaning ([primitive](#)).
4. Other requirements similar for those applicable to mapping may also apply including:
 - a. An indication of the degree of correlation between the [other-code](#) and the SNOMED CT expression.
 - b. An indication of whether the [other-code](#) was created before any single concept representation of that meaning in SNOMED CT or whether the single concept representation in SNOMED CT predated the creation of the association.

Data Structure

The general approach to the above requirements is to associate each of the [other-codes](#) with a representation of the same logic based definition as would have been applied to a SNOMED CT concept with that meaning. However, since the [other-code](#) are not identified by an [SCTID](#), the logical definition cannot be represented using [defining relationships](#). There are two potential approaches to this, one would be to use a general purpose description logic language (e.g. [OWL](#)) and the other is to use a [SNOMED CT expression](#) to represent each definition. The [Code to expression type reference set](#) is designed to support the expression-based approach.

Table 5.2.15-1: Code to expression type reference set - Data Structure

Field	Data type	Purpose	Mutuable	Part of Primary Key
id	UUID	A 128 bit unsigned Integer , uniquely identifying this reference set member . Different versions of a reference set member share the same id but have different effectiveTime . This allows a reference set member to be modified or made inactive (i.e. removed from the active set) at a specified time.	NO	YES (Full /Snapshot)
effectiveTime	Time	The inclusive date or time at which this version of the identified reference set member became the current version. Note: In distribution files the effectiveTime should follow the short ISO date format (YYYYMMDD) and should not include the hours, minutes, seconds or timezone indicator. The current version of this reference set member at time <i>T</i> is the version with the most recent effectiveTime prior to or equal to time <i>T</i> .	YES	YES (Full) Optional (Snapshot)
active	Boolean	The state of the identified reference set member as at the specified effectiveTime . If active = 1 (true) the reference set member is part of the current version of the set, if active = 0 (false) the reference set member is not part of the current version of the set.	YES	NO
moduleId	SCTID	Identifies the SNOMED CT module that contains this reference set member as at the specified effectiveTime . The value must be a subtype of 900000000000443000 Module (core metadata concept) within the metadata hierarchy .	YES	NO
refsetId	SCTID	Identifies the reference set to which this reference set member belongs. In this case, a subtype descendant of: Code to expression type reference set	NO	NO
referenceComponentId	SCTID	A reference to the SNOMED CT component to be included in the reference set . A subtype of 705113004 Terminology system identifying the code system from which the code in the mapTarget field is derived. • For example: 705114005 LOINC Code System .	NO	NO
mapTarget	String	The other-code to/from which the concept is mapped.	NO	NO
expression	String	A SNOMED CT expression that represents the SNOMED CT definition of the other-code . This expression may be a stated or inferred view of the definition provided that documentation of each identified reference set specifies the view provided. The expression must conform to the syntax defined in the SNOMED CT Compositional Grammar - Specification and Guide (http://snomed.org/scg).	YES	NO
definitionStatusId	SCTID	Indicates whether or not the expression contains a sufficient definition of the other-code in the mapTarget field. Possible values are the following subtypes of 900000000000444006 Definition status : 900000000000074008 Necessary but not sufficient concept definition status 900000000000073002 Sufficiently defined concept definition status	YES	NO
correlationId	SCTID	The correlation between the SNOMED CT expression and the other-code . Possible values are the following subtypes of 447247004 SNOMED CT source code to target map code correlation value : 447559001 Broad to narrow map from SNOMED CT source code to target code 447557004 Exact match map from SNOMED CT source code to target code 447558009 Narrow to broad map from SNOMED CT source code to target code 447560006 Partial overlap between SNOMED CT source code and target code When these values are applied to this reference set type, the phrase " SNOMED source code " is interpreted as meaning " SNOMED expression " and "target code" refers to the other-code ..	YES	NO
contentOriginId	SCTID	Indication of whether the concept was initially in one of the terminologies (SNOMED CT or other-codes) and added to the other as part of mapping or was in both terminologies at the outset. Values are subtypes of 705116007 Original code system source for linked content value .	YES	NO

Specific Notes on the LOINC Term to Expression Reference Set

Rationale for Using a Code to Expression Type Reference Set

The [Code to expression type reference set](#) was designed to meet the known requirements for associating LOINC Terms with SNOMED CT expressions, in accordance with the terms of the cooperation agreement. The main reason for using expressions rather than OWL to represent the definitions, is that expressions can precisely represent all aspects of the definitions represented by SNOMED CT defining relationships. An additional factor was the relative human-readability of this format for review as demonstrated by the expression tab in the [SNOMED International online browser](#) (<http://snomed.org/browser>).

LOINC Associations

Each LOINC Term Code within the scope of the cooperative work completed to date is associated with a SNOMED CT expressions that represent its formal logical definition. The definition is represented in accordance with the SNOMED CT concept model and thus each LOINC Term code is related directly to the SNOMED CT concepts that define it. The same definition could a expression to represent the definition. If a LOINC Term is recognized as having the same meaning as an existing SNOMED CT concept the associated expression may in future be supplemented by a direct map.

Expression Format

Each expression conforms to the SNOMED CT Composition Grammar. For further details of the syntax please see the [Compositional Grammar - Specification and Guide](#) (<http://snomed.org/scg>). The expression represents the SNOMED CT definition of the LOINC Term based in the recently developed concept model for the [Observable entity](#) domain. Note that the expression that represents a LOINC Term does not include any inferred relationships with other LOINC Terms. Furthermore, since the new [Observable entity](#) has not yet been applied to many SNOMED CT concepts, the LOINC Terms are defined as subtypes [Observable entity](#) with an appropriate set of attribute relationships. Thus the expressions released in the beta release on 2017-03-31 included only stated relationships.

LOINC Term Code Status Changes

Deprecated statuses will cause the expression associations to be marked as inactive but trial use status will not be represented. LOINC Terms that were already deprecated at the time of initial mapping will not be included in maps and associations. However, dependent on demand and priority to assessments, it is possible these may be added later.

Values Specific to LOINC Term Expression Associations

The following values are used in this reference set.

Value for refsetId

- 705110001 [LOINC Term to Expression reference set](#)

Value for referencedComponentId

- 705114005 [LOINC Code System](#)

Values for contentOriginId

705117003 [Originally in LOINC](#)
705118008 [Originally in SNOMED CT](#)
705119000 [Originally in both LOINC and SNOMED CT](#)

Other Values

All other values are as specified for the [Code to expression type reference set](#).
