SNOMED CT Version & History information[11](file:///C:\\Users\\Lisa\\Documents\\05%20Professional\\90%20HL7\\00%20Standard%20-%20TermInfo\\HL7PubTermInfo\\HL7PubTermInfo\\html\\terminfo\\terminfo.htm" \l "fn11)

A.4.1 Term representation

Information about the current release is contained in the Term of a Description for the Root Concept (ConceptID = 138875005) using a published convention. In brief, the information in the “version” synonym is represented in the Term field as follows:

“SNOMED Clinical Terms version: yyyymmdd [status] (description)”

* [status] represents a word indicating of whether this is a release [R] or has some other status (e.g. for development set [D], evaluation [E], etc.).
* yyyymmdd represents the release date in ISO format.
* (description) is an (optional) textual description of the release

A.4.1.1 File Representation

SNOMED CT release files are consistently named according to the following convention:

**sct\_filename\_yyyymmdd.txt**

yyyymmdd represents the release date in ISO format. For example, SNOMED CT First Release (January 31, 2002) contains files named:

* sct\_concepts\_20020131.txt
* sct\_descriptions\_20020131.txt
* sct\_relationships\_20020131.txt

A.4.1.2 History mechanisms

At a component level (where components are, for example, SNOMED CT Concepts and Descriptions), a detailed history mechanism exists. A Component History Table contains each change in the status of such components, as well as the release version in which the change was made.

In addition, a set of ‘historical relationships’ are generated, wherever appropriate, to maintain a link between inactivated components and active terminology components. The two relevant historical relationships that should be considered for value set testing are:

‘SAME AS’: If a Concept is inactivated as a duplicate, the inactive Concept is linked to its active counterpart by a relationshipType of ‘SAME AS’. This relationship should be included in value set membership testing for previously recorded entries used in HL7 v3 communications, since the source concepts may still, in principle, be valid set members (even though they would not be recognised as such by simple subsumption testing).

‘MAY BE A’: If a Concept is inactivated as ambiguous, the inactive Concept is linked to one or more active counterparts by a relationshipType of ‘MAY BE A’. This relationship should be included in value set membership testing for previously recorded entries used in HL7 v3 communications, since the source concepts may still, in principle, be valid set members (even though they would not be recognised as such by simple subsumption testing).

A.4.2 SNOMED CT Subset mechanism[12](file:///C:\\Users\\Lisa\\Documents\\05%20Professional\\90%20HL7\\00%20Standard%20-%20TermInfo\\HL7PubTermInfo\\HL7PubTermInfo\\html\\terminfo\\terminfo.htm" \l "fn12)

This document is not the place to provide a detailed description of the SNOMED CT Subset (‘Subset’) mechanism. Nevertheless the following introduction is useful since the Subset mechanism is used to illustrate the formalism required for post-coordination-accommodating SNOMED CT value set specifications.

A Subset is a collection of SNOMED CT components, selected and grouped for a particular purpose. A Subset can be used to meet a variety of practical applications, and the published mechanisms (see below) can be used to specify a number of different subset ‘types’. Preferred or optimal mechanisms in a given setting may depend variables such as the size of the resulting component subset, the type of subset required (e.g. ‘navigational’ subsets are only currently specified in a relational format), and the available resource for the maintenance of a specified Subset.

Table 7 lists a number of supported Subset types with very brief descriptions of the data that they can be used to specify.

|  |  |
| --- | --- |
| Table 7: Example SNOMED CT Subset types | |
| **Subset Type** | **Subset Description** |
| Language subsets | The descriptions that contain terms applicable to a particular language or dialect. |
| Realm concept subsets | The concepts applicable for a particular realm (where realm is an area of expertise, preference or authority). |
| Realm description subsets | The descriptions applicable for a particular realm. |
| Realm relationship subsets | The relationships applicable for a particular realm. |
| Context concept subsets | The concepts applicable to a particular context domain (where context is a specified part or field of a patient record, application, protocol, query message, or other communication specification. |
| Context description subsets | The descriptions applicable to a particular context domain. |
| Navigational subsets | A set of navigation links representing an ordered hierarchy appropriate for display and user navigation. |

Of greatest relevance to this document are the Realm and Context concept subsets, although the requirement to specify Descriptions Subsets needs consideration..

A.4.2.1 Explicit and Implicit representations

Realm and Context Concept Subsets can be specified either ‘explicitly’ or ‘implicitly’. Whilst (assuming sufficient clarity surrounding data and subset versions) the resulting ‘set’ of specified pre-coordinated Concepts will be the same for appropriately matched ‘explicit’ or ‘implicit’ specifications, it is the contention of this section that ‘implicit’ specifications are of particular advantage where it is anticipated that post-coordinated SNOMED CT content is to be used. This is because an implicit approach allows specifications to present a structured combination of attribute and value sets (with appropriate levels of recursion) against which content can be tested for suitability. Suitable content can then be either pre-coordinated Concepts or Post-coordinated Expressions.

A.4.2.2 Explicit (relational) representation

Explicit Subsets are released using two tables:

(1) The Subsets Table – each row in this table describes one release of a Subset and characteristics of that Subset. Its fields are summarized in Table 8.

|  |  |
| --- | --- |
| Table 8: Summary of the Subsets Table | |
| **Data and Key Fields** | |
| SubsetId (Key) | SubsetId The unique SNOMED CT Identifier for this Subset. |
| SubsetOriginalId (Data) | The unique SNOMED CT Identifier for the original Subset of which this Subset is a version |
| SubsetVersion(Data) | An integer incremented for each revised release of a Subset. |
| SubsetName(Data) | A name that describes the purpose or usage of this Subset. |
| SubsetType(Data) | Indicates the nature of the Subset and the type of SNOMED CT Component that may be a member of the Subset. |
| LanguageCode(Data) | Identifies the Language and optionally the Dialect to which the Subset applies (only used for description-based subsets: Language, Realm Description, and Realm Concept). |
| RealmId(Data) | Identifies the Realm to which the Subset applies. |
| ContextId(Data) | May identify the Context Domain to which the Subset applies. |

(2) The Subset Members Table – each row in this table represents one member of a Subset. The member may be a Concept or a Description. One, or more than one Subset may be packaged together in this table. Each row in the Subset Members Table sets the status of a member of an identified Subset. Its fields are summarized in Table 9.

|  |  |
| --- | --- |
| Table 9: Summary of the Subset Members Table | |
| **Data and Key Fields** | |
| SubsetId (Key) | The unique SNOMED CT Identifier for this Subset. Note this is the same SubsetId as defined in Table 7. |
| MemberId (Data) | The SNOMED CT Identifier of this Subset Member. This may be a ConceptId, DescriptionId or RelationshipId. |
| MemberStatus (Data) | An integer specifying the status, type or order of this member. Note: For Realm and Context Concept Subsets, a valid convention is that ‘membership’ is indicated by a value of ‘1’ – although additional features can be achieved by the use of multiple non-zero values. |
| LinkedId (Data) | Valid for Navigation and Duplicate Terms Subsets only. For Navigation Subsets it is the SNOMED CT Identifier for a Concept that is a Navigation child of the Subset Member. For Duplicate Terms Subsets it is the SNOMED CT Identifier for the highest priority Description sharing the Duplicate Term. Note: This field is not used in Realm and Context Concept Subsets. |

A.4.2.3 Implicit (definitional) representation

Implicit or definitional representation of Subsets is achieved by the production and distribution of an XML document that contains the definition of a Subset. The definition consists of a set of “rules” that can be applied to SNOMED CT reference data to determine the membership of the Subset, rather than having each member identified separately. The rules are expressed as clauses that contain tests for each concept or description. There are three types of tests:

**Hierarchical Selection**

This test identifies concepts that are subtypes (descendants) or supertypes (ancestors) of a specified concept. For example, create a subset that contains ‘infectious disease’ and all its subtypes.

**Relationship Selection**

This test identifies concepts that have a specified attribute and value. For example, create a subset that contains all concepts where the Finding Site (attribute) = ‘heart structure’ (value).

**Property Selection**

This test identifies concepts that match a property value in the SNOMED CT release tables. For example, create a subset that contains all concepts with a Status = 0 (current concepts) or concepts that contain the text string ‘K deficiency.’

The Subset Definition File allows multiple tests to be used to define a Subset, and to use true/false conditions to be specified to determine which tests, and in which sequence, the tests should be used. The tests determine the membership of the Subset and the value of the Member Status field. The Subset Definition File also contains metadata about the Subset, such as the Subset Identifier, the Subset Version, the Language Code, and Realm Identifier (as would be handled in the relational/explicit Subsets table). The Subset Definition File can be used to represent concept and description subsets. It cannot be used for navigation subsets, or for duplicate terms subsets.

A.4.2.4 SNOMED CT subset versioning & history mechanisms - Version information

The current unit of versioning is at the level of the Subset. The stable reference to any Subset is via its SubsetOriginalId value. On its first release, the SubsetId and the SubsetOriginalId are the same. On subsequent releases, new SubsetIds will be issued, and the SubsetVersion number will increase. A subset can therefore be referenced in several ways such as:

* By instructions of the form ‘apply the Subset with SubsetId=1234’
* By instructions of the form ‘apply the Subset with SubsetOriginalId=1234 and the highest SubsetVersion number’
* In the case of Implicit specifications, by instructions of the form ‘apply the Subset with SubsetOriginalId=1234 and the highest SubsetVersion number to the Core data with the Root description = SNOMED Clinical Terms version: 20050731 [R]’

A.4.2.5 SNOMED CT subset versioning & history mechanisms - Hitsory Mechanism

Currently the Subset mechanism does not have a component-level history mechanism.

A.4.3 Correspondences between SNOMED CT and HL7 components

Given the importance of CTS to HL7v3 development methodologies, it is desirable to be able to represent SNOMED CT-encoded vocabulary constraints in the published ‘language’ of CTS. By bringing both specifications together, it is possible to identify the class and attribute correspondences, and these are characterised in Table 10 and Table 11.

|  |  |  |  |
| --- | --- | --- | --- |
| Table 10: SCT and CTS vocab classes compared | | | |
| **CTS Vocabulary class** | **CTS Vocabulary attribute** | **SNOMED CT Table.Fieldname or Feature** | **Notes or other representation** |
| CodeSystem | codeSystem\_id |  | OID registry: 2.16.840.1.113883.6.96 |
|  | codeSystem\_name |  | OID registry: SNOMED-CT |
|  | fullName |  | OID registry:SNOMED Clinical Terms |
| CodeSystemVersion | VersionId | SNOMED CT Descriptions Table):Description of the form “SNOMED Clinical Terms version: yyyymmdd [status] (description)” attached to Root Concept (ConceptID = 138875005) |  |
| CodedConcept | Code | (SNOMED CT Concepts Table): ConceptId | For any Concept |
|  | ConceptStatus | (SNOMED CT Concepts Table):ConceptStatus |  |
| ConceptDesignation | designation | (SNOMED CT Descriptions Table): Term |  |
|  | language\_code | (SNOMED CT Descriptions Table): LanguageCode |  |
|  | preferredForLanguage | (SNOMED CT Descriptions Table): DescriptionType | ‘True’ Where SCT value = 1. Value can be localised by use of Language/dialect Subsets |

|  |  |  |  |
| --- | --- | --- | --- |
| Table 11: SCT and CTS value set classes compared | | | |
| **CTS Value set class** | **CTS Value set attribute** | **SNOMED CT Table.Fieldname or Feature** | **Notes** |
| VocabularyDomain | name |  | e.g. Observation, Procedure |
|  | description |  | From narrative description at abstract or refined Class level |
| ValueSet | description | (SNOMED CT Subsets table): SubsetName |  |
|  | definingExpression | Entire clause set and metadata of Subset definitionFile | Seems to be the only place to hold the implicit (definition-based) specifications. Will also need introductory ‘clause’ – ‘following transformation to normal form form…test possible value members against this definitionFile’. |
|  | valueSet\_Id | (SNOMED CT Subsets table): SubsetId | Datatype = OID; Given the need to nest SNOMED CT subsets within one another for detailed representation, sets of Subsets would actually be needed, but only the ‘Outer SubsetId’ would be required to uniquely identify their product. |
| CodedConcept | ConceptCode | (Subset Members Table): MemberId | ViaCodeReference |