

Data Migration Subpack

Map *from* Clinical Terms Version 3 (CTV3)
to SNOMED CT

FINAL RELEASE APRIL 2020



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1st April 2020

Dear User

Clinical Terms Version 3 (CTV3) to SNOMED CT Map

This document describes the scheduled **FINAL** April 2020 production release of the Clinical Terms Version 3 (CTV3) to SNOMED CT mapping table. The maps are synchronised with the final 25.0.0 production release of CTV3 (April 2018) and the current 29.0.0/29.0.1 production releases of SNOMED CT. This release replaces all previous releases.

WARNING

This product is designed to support migration of coded data in ONE direction only:

FROM Clinical Terms Version 3 (CTV3) **TO** SNOMED CT

Use of the table to migrate data in the opposite direction is
NOT RECOMMENDED OR SUPPORTED

Nature of changes since 28.0.0 (October 2019) release

5 maps were changed in response to specific user queries.

Effect of CTV3 end of maintenance (2018) and full withdrawal (2020):

Maintenance of the CTV3 codeset ended in April 2018; no new CTV3 codes will be released. New releases of this mapping table have, however, been issued biannually until April 2020. This permitted changes to correct mapping error or to reflect change in SNOMED CT itself as a mapping target (e.g. due to concept inactivation).

Product Status: this release is **Deprecated with Support**.

This is the final release of this product. No further scheduled releases will occur and the content will therefore remain static. Only if required to resolve critical clinical safety issues, unscheduled updates may occur until April 2023.

Introduction

Background

Systems that currently use CTV3 codes will need to be able to identify an appropriate SNOMED CT concept for existing CTV3 codes in order to transition to SNOMED CT. To assist this, a nationally provided set of maps for each CTV3 code and term have been provided. These tables should be used in association with any contractual requirements or guidance; in particular in relation to the is-assured flag.

Mapping Quality, Coverage and Assurance

The methodology used to determine the maps and the assurance of these has been undertaken in partnership with the Joint GP IT Committee and the SNOMED CT in primary care project, using the expertise of the NHS Terminology Service with additional tooling from Clinical Architecture.

The maps have been determined as clinically safe to use in the transition of general practice systems from CTV3 to SNOMED CT by the Joint GP IT Committee and GPSoC.

It is **strongly recommended** that the original rubric text, original source code and mapping table version used are preserved in any migrated dataset, alongside the mapped SNOMED CT code.

The mapping files do not include or provide maps for any of the Read Drug and Appliance Dictionary Codes.

The UK Drug Extension within SNOMED CT is primarily constructed from NHS dictionary of medicines and devices (dm+d) data and bears no relation to historic CTV3 drug and appliance dictionary data at product level. Although the ctv3sctmap2 table may provide limited high level mappings to SNOMED from CTV3 derived headers, including to some SNOMED concepts published as part of the UK Drug Extension of SNOMED CT, these should be used with special caution.

Reporting and Managing Mapping Errors

Implicit in the preceding section is an acceptance that the mapping table may contain errors. However, if any such errors exist such codes are likely to have extremely small usage.

Users of the mapping tables have a duty of care to report any suspected mapping errors they detect to information.standards@nhs.net and to avail themselves at the earliest opportunity of all update releases, in which such errors may be fixed.

Safe Use

The NHS Terminology Service within NHS Digital makes no express or implied assurances about the clinical safety or suitability of the map either in general or for any specific use case. Use of the maps must be undertaken in

conjunction with any additional contractual requirements or guidance provided in relation to any specific use of the maps.

Product History and Status

The first release of the CTV3 to SNOMED CT map occurred in April 2009.

An alternate encoding of the product (designated with the filename pattern `ctv3sctmap2_uk_yyyymmdd000001.txt` and containing additional information sufficient to permit clinically assured use) was introduced in October 2013. All three releases between October 2013 and October 2014 contained the product in *both* original *and* alternate encodings, but only the alternate encoding was clinically assured.

In December 2013 the UK Terminology Centre Editions Committee approved that the clinically *unassured* original specification should be withdrawn from the April 2015 release; the final release in the original specification therefore occurred as part of the October 2014 release.

The clinically assured design was approved as a 'Supported Product' from June 2015.

This release has **Deprecated With Support** status within the NHS Terminology Product Development Lifecycle¹. This means that:

1. Both the release format specification of the product and the method of its content preparation shall remain fixed indefinitely *unless* a significant safety risk is identified that cannot be mitigated without changing them. Where changes are deemed necessary to improve a product then a formal consultation procedure will be undertaken which may include some or all parts of the product development process and may include an option for parallel running (i.e. support for both existing and new specification).
2. NHS Digital commits to continue limited support until April 2023, after which proper product termination and data withdrawal procedures will occur. There will be no further scheduled maintenance updates of the product. Only if required to resolve critical clinical safety issues, unscheduled updates *may* occur until April 2023.
3. Quality assurance may be ongoing but the product is approved for deployment in live clinical systems, subject to standard safety assessment procedures associated with deployment of any product into a live environment
4. The commitment to release against a stable specification does not preclude continued parallel evolution of the specification and consequent development of improved variants which may or may not be considered as new products.

¹ <http://systems.hscic.gov.uk/data/uktc/snomed/governance/lifecycle.pdf>

Ctv3SctMap2 Mapping File Formats

The mapping file is presented as a TAB delimited file with rows terminated by CR/LF combination. The first row contains the relevant field names.

The format of the release table is as follows. The next pages provide further description of the content of the individual columns of the table and some example rows from the Ctv3SctMap2 table (Table 1):

Table 1. CTV3 Code + Term mapping structure (Ctv3SctMap2_uk_YYYYMMDD.txt)

Column	Length	Type / Pattern	Database type	Note
MapID	38	UUID	HUGEINT (INT128)	Unique Identifier
CTV3_ConceptID	5	STRING	VARCHAR (5)	CTV3 Concept Identifier
CTV3_TermID	5	STRING	VARCHAR (5)	CTV3 Term ID
CTV3_TermType	1	STRING	CHAR(1)	P=Preferred term, S=Synonym CTV3 Term Type for CTV3_TermID
SCT_ConceptID	18	SCTID	VARCHAR (18)	Identifier for SNOMED CT concept mapped to CTV3_ConceptID + CTV3_TermID _DRUG = no map
SCT_DescriptionID	18	SCTID	VARCHAR (18)	Identifier for SNOMED CT Description mapped to CTV3_ConceptID + CTV3_TermID
MapStatus	1	0 1	TINYINT	0=Inactive 1=Active. Value 1 for all columns in alpha release
EffectiveDate	8	YYYYMMDD	DATETIME	Date as YYYYMMDD e.g. 20061218
Is_Assured	1	0 1	TINYINT	0=Not assured 1=Assured

Table 1 : Ctv3SctMap Mapping File Example Rows

MAPID	CTV3_CONCEPTID	CTV3_TERMID	SCT_CONCEPTID	SCT_T3OID	SCT_T6OID	SCT_T198ID	MAPSTATUS	EFFECTIVEDATE
{387068f3-df89-102a-9f1e-3af521c168c4}	X20QM	Y21Eu	235016004	352206019			1	20071107
{38706ac5-df89-102a-9f1e-3af521c168c4}	X20QM	Y21Ev	235016004	352208018			1	20071107
{38706c98-df89-102a-9f1e-3af521c168c4}	X20QM	Y21Ew	235016004	352207011			1	20071107
{38706e75-df89-102a-9f1e-3af521c168c4}	X20QM	Y21Ex	235016004		352209014		1	20071107
{3870704b-df89-102a-9f1e-3af521c168c4}	X20QN	Y21Ey	111349000	187749015			1	20071107
{3870704b-df89-102a-9f1e-3af521c168c4}	X20QN	Y21Ey	111349000	187749015			0	20071112
{89ed5b98-e285-102a-9ba2-2c3a9d652484}	X20QN	Y21Ey	399165002	1778621013			1	20071112
{38707220-df89-102a-9f1e-3af521c168c4}	X20QN	Y21Ez	111349000	361370010			1	20071107
{38707220-df89-102a-9f1e-3af521c168c4}	X20QN	Y21Ez	111349000	361370010			0	20071112
{89ed6156-e285-102a-9ba2-2c3a9d652484}	X20QN	Y21Ez	399165002	1786725012			1	20071112
{387073f3-df89-102a-9f1e-3af521c168c4}	X20QN	Y50cw	111349000	361371014			1	20071107
{387073f3-df89-102a-9f1e-3af521c168c4}	X20QN	Y50cw	111349000	361371014			0	20071112
{89ed6568-e285-102a-9ba2-2c3a9d652484}	X20QN	Y50cw	399165002	1786726013			1	20071112
{38707bad-df89-102a-9f1e-3af521c168c4}	X20QO	Y21F9	235017008	352210016			1	20071107
{38707d87-df89-102a-9f1e-3af521c168c4}	X20QP	Y21FF	235018003	352211017			1	20071107
{38707f5a-df89-102a-9f1e-3af521c168c4}	X20QQ	Y21FJ	235019006	352212012			1	20071107
{3870812a-df89-102a-9f1e-3af521c168c4}	X20QR	Y21FK	235021001	352215014			1	20071107
{387082f1-df89-102a-9f1e-3af521c168c4}	X20QS	Y21FL	235022008	352216010			1	20071107
{387084d7-df89-102a-9f1e-3af521c168c4}	X20QT	Y21FM	109257007	335689016			1	20071107
{387086aa-df89-102a-9f1e-3af521c168c4}	X20QU	Y21FN	38438008	64225016			1	20071107
{3870887f-df89-102a-9f1e-3af521c168c4}	X20QV	Y21FP	235023003	352217018			1	20071107
{38708a52-df89-102a-9f1e-3af521c168c4}	X20QV	Y21FQ	235023003		352219015		1	20071107
{38708c2f-df89-102a-9f1e-3af521c168c4}	X20QV	Y21FR	235023003		352218011		1	20071107

Updates to the mapping table will use the EffectiveDate and MapStatus fields to indicate changes to each mapping.

This is described further below.

Mapping File Column Details

MapID

A unique and persistent globally unique (or near unique) identifier for the triad of a CTV3_ConceptID, a CTV3_TermID and a specific SNOMED CT Concept identifier.

Each MapID is a 128-bit Universally Unique Identifier (UUID / GUID) generated using the conventions of RFC-4122 and expressed in the file using the standard 38-character alphanumeric string (for details please refer to RFC-4122 at the following URL <http://www.ietf.org/rfc/rfc4122.txt>) .

CTV3_CONCEPTID

The five character alphanumeric code for the CTV3 concept.

Note: The CTV3_CONCEPTID must be processed in a Case Sensitive manner.

CTV3_TERMID

The five character alphanumeric code for a CTV3 Term, where that term has at some point been a valid term to associate with CTV3_CONCEPTID

Individual CTV3 concept codes, such as 'X20QM' in Table 1, can have multiple different terms associated with them. Each term is available in 30-, 60- and 198- character string-length variants and each such triad has its own five-character term code (e.g. 'Y21Eu', 'Y21Ev', 'Y21Ew' and 'Y21Ex'). Of all the term codes associated with a given concept code, one is the 'preferred' term for that concept and the others 'synonyms'.

Note: The CTV3_TERMID must be processed in a Case Sensitive manner.

CTV3_TERMTYP

The one character TERM TYPE code from the Descrip.v3 table of the main CTV3 release, indicating whether term referenced by CTV3_TERMID is the preferred term ('P') for or a synonym of ('S') the concept referenced by CTV3_CONCEPTID.

Null when the termID is no longer a valid term for the concept (e.g. when either the term or the concept itself have been retired).

SCT_CONCEPTID

EITHER

The SNOMED CT identifier for the Concept to which the combination of CTV3_CONCEPTID plus CTV3_TERMID is mapped; compliant with the SNOMED CT specification for identifiers.

OR

_DRUG = there is no active code in SNOMED CT that carries the same or any approximate meaning as the CTV3_ConceptID, and/or the CTV3_ConceptID DOES code for a drug or device

SCT_DESCRIPTIONID

EITHER

The SNOMED CT identifier for the Description, associated with the SCT_CONCEPTID, for which the IS_ASSURED value holds.

OR

NULL when SCT_CONCEPTID is _DRUG

EffectiveDate

The date from which a MapStatus value holds true: A given MapStatus for a mapping (as uniquely identified by a MapId) holds true indefinitely from the EffectiveDate unless and until superseded by a subsequent update release in which the same MapId appears but with a more recent value in the EffectiveDate field.

In the mapping file the date is represented in the ISO standard separator free from YYYYMMDD (e.g. "20061218")

MapStatus

The status of a mapping, as described in the table definitions. Normally:

0=Inactive

1=Active

2=Ambiguous with a SNOMED CT target concept marked as ambiguous.

3=Ambiguous with no ambiguous SNOMED CT target concept.

IS_ASSURED

Use of the IS_ASSURED field should be in line with any contractual or use case specific guidance.

The current clinical assurance status of each map assertion between a CTV3 concept and term ID pair, and a SNOMED concept ID.

0=Not assured

1=Assured

A semi-automatic quality assurance process was agreed with the NHS GP Systems of Choice (GPSoc) programme in October 2010 and subsequently with the Joint GP IT Committee. This methodology was reviewed and extended in 2016/17 to support the transition of general practice to SNOMED CT. Under this process, maps were automatically assured only if at least one of the three string-length variant strings encoded for by the source CTV3 TermCode was an *exact* lexical equivalent of the string encoded for by the target SNOMED CT DescriptionId (both strings normalised to lowercase). A more sophisticated map assurance algorithm was permitted from April 2017, with the result that some maps are automatically assured even though not exactly lexically equivalent.

In addition to this entirely automatic assurance, the agreed assurance process also requires a targeted manual inspection of maps without lexical

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equivalence; a primary manual review of the CTV3 to SNOMED map was concluded in mid-2013, and a second round in September 2017.

Thus, where the IS_ASSURED field holds a TRUE value, this now indicates:

EITHER that the SNOMED CT term encoded by the DescriptionId element of the map target is lexically identical to the original CTV3 rubric as defined above, or has been algorithmically determined to be otherwise equivalent though not exactly matching.

OR that, after inspection by at least two clinicians, the clinical consensus was that the meaning conveyed by the original CTV3 rubric was the same as (or sufficiently similar to) that conveyed by SNOMED CT term, even though the two strings are not lexically identical.

About the manual review

Detailed information on the mapping principles and an overview of the work undertaken to date is available on request from the SNOMED CT in primary care programme within NHS Digital..

Preparation and Use of the Mapping File

Note: the Data Migration Workbench is available as a Prototype/Demonstrator Implementation (available via TRUD).

Preparation

Each mapping file is provided in a form that supports tracking of historical changes to the maps. Therefore, the file may contain multiple rows relating to different mappings for the same pairing of a CTV3_CONCEPTID and CTV3_TERMID, where the mapping has been changed over time. Each of the mappings will be uniquely identified by a MapID.

At any given point in time only one row for a given combination of CTV3_CONCEPTID and CTV3_TERMID has the MapStatus value 1 (active). Previous mappings for that pairing will be reset to inactive by distribution of an additional table row in which the MapStatus value is 0.

Therefore, on receiving an update, the combination of the updated rows and the pre-existing rows should be processed to inactivate or ignore these rows.

The following query can be applied to determine the active map rows at a given date:

```
SELECT * FROM Ctv3SctMap2 As map
WHERE map.MapStatus>0 AND map.EffectiveDate=
    (SELECT MAX(LatestMap.EffectiveDate) AS LatestDate
     FROM Ctv3SctMap As LatestMap
     WHERE LatestMap.MapId=map.MapId
     AND LatestMap.EffectiveDate<='<Date as YYYYMMDD>')
```

Using the mapping file

These active map rows can then be used to map from a combination of a CTV3_CONCEPTID and CTV3_TERMID to the relevant SCT_CONCEPTID.

The following query illustrates how the current map for one pair of a CTV3_CONCEPTID and CTV3_TERMID can be retrieved from the ctv3sctmap table as distributed.

```
SELECT SCT_ConceptId FROM Ctv3SctMap2 AS map
WHERE map.CTV3_CONCEPTID='<CTV3 Concept Code>'
AND map.CTV3_TERMID ='<CTv3 Term Code>'
AND map.MapStatus>0 AND map.EffectiveDate=
    (SELECT MAX(LatestMap.EffectiveDate) AS LatestDate
     FROM Ctv3SctMap2 AS LatestMap
     WHERE LatestMap.MapId=map.MapId
     AND LatestMap.EffectiveDate<='<Date as YYYYMMDD>')
```

However, for practical purposes it may be more efficient to use a pre-generated view based on the query above and a simplified follow-on query for the individual mapping.

Note: The database must treat CTV3_CONCEPTID and CTV3_TERMID as Case Sensitive. The code “65a0.” has a different meaning from “65A0.”.

The preferred and synonymous terms associated with a given CTV3 concept may change over successive releases of CTV3. However, the mapping table currently provides an active mapping only for those valid pairings of a CTV3 concept and a term code published in or after the October 2007 release. Clinical data captured using earlier releases of CTV3 may therefore legitimately have associated a given CTV3_CONCEPTID with a CTV3_TERMID even though this association was no longer valid after October 2007.

In this situation, the ctv3sctmap2 table will contain no active map row for that pairing of a CTV3_CONCEPTID and CTV3_TERMID. Mapping should proceed instead according to the section below on how to use the map with a CTV3_CONCEPTID only.

Using the map with CTV3_CONCEPTID+Term but no CTV3_TERMID

Use the terms.v3 and dcf.v3 tables in the CTV3 release data to identify the CTV3_TERMID for the Term string when used with the CTV3_CONCEPTID, and then proceed as described in the preceding section.

Using the map with CTV3_CONCEPTID only

By contrast with READ 5-Byte (Version 2), it is generally the case that the set of terms associated with a given CTV3_CONCEPTID are truly synonyms of each other. As a result, the mapping for a given CTV3_CONCEPTID is *usually* the same for all its historically or currently valid CTV3_TERMID variants. An exception to this general rule arises where the CTV3 concept is an extinct code corresponding to an ambiguous V2 code. The mapping for such CTV3_CONCEPTIDs may be different for each TermCode. Other exceptions may be identified in the future.

For this reason we currently recommend that, where *either* no originally stored CTV3_TERMID or Term string is available *or* the pairing of the CTV3_CONCEPTID and CTV3_TERMID is not found in the mapping table, then use the stated map for the currently published preferred term for the CTV3_CONCEPTID, as indicated by a ‘P’ in the CTV3_TERMTYPE field:

```
SELECT SCT_CONCEPTID FROM Ctv3SctMap2 AS map
WHERE map.CTV3_CONCEPTID='<CTV3 Concept Code>'
AND map.CTV3_TERMTYPE ='P'
AND map.MapStatus>0 AND map.EffectiveDate=
    (SELECT MAX(LatestMap.EffectiveDate) AS LatestDate
     FROM Ctv3SctMap2 AS LatestMap
```

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```
WHERE LatestMap.MapId=map.MapId
AND LatestMap.EffectiveDate<='<Date as YYYYMMDD>')
```

Note: The map for a given CTV3_CONCEPTID is NOT the same for all CTV3_TERMID variants. Thus, the simpler query below is unsafe:

```
SELECT DISTINCT SCT_CONCEPTID FROM Ctv3SctMap2 AS map
WHERE map.CTV3_CONCEPTID='<CTV3 Concept Code>'
AND map.MapStatus>0 AND map.EffectiveDate=
    (SELECT MAX(LatestMap.EffectiveDate) AS LatestDate
     FROM Ctv3SctMap2 AS LatestMap
     WHERE LatestMap.MapId=map.MapId
     AND LatestMap.EffectiveDate<='<Date as YYYYMMDD>')
```