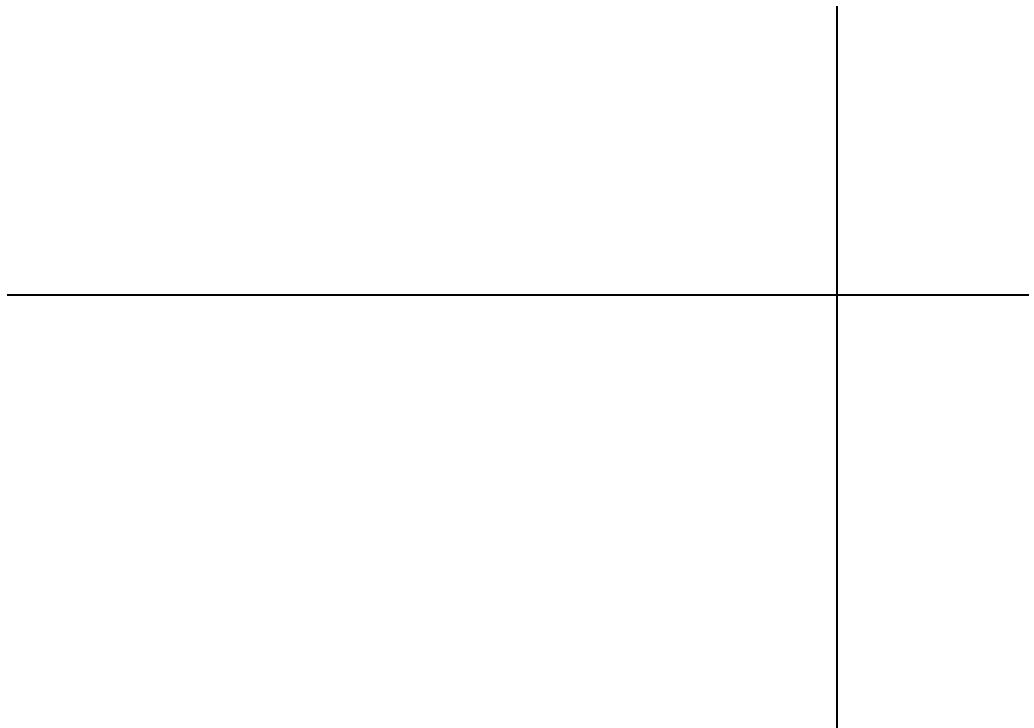


SNOMED Clinical Terms[®] Namespace Identifier Guide

January 2008 International Release



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SNOMED CT has been created by combining SNOMED RT and a computer based nomenclature and classification known as Clinical Terms Version 3, formerly known as Read Codes Version 3, which was created on behalf of the UK Department of Health and is Crown copyright.

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Document History

Version	Notes
March 2004	<ul style="list-style-type: none">• First Publication
July 2004	<ul style="list-style-type: none">• Updated Inventory of Documentation
January 2005	<ul style="list-style-type: none">• Updated Copyright• Updated contacts
July 2007	<ul style="list-style-type: none">• Updates to reflect transfer of IP to the International Health Terminology Standards Development Organisation• Removal of references to College of American Pathologists (CAP) derivative products
January 2008	<ul style="list-style-type: none">•

Inventory of Documentation

The following documentation is currently available as part of the International Release of SNOMED CT from the International Health Terminology Standards Development Organisation (IHTSDO):

SNOMED CT Technical Reference Guide (TRG)

The TRG is intended for SNOMED CT implementers, such as software developers. The TRG assumes an information technology background. Clinical knowledge is not a prerequisite.

The TRG contains reference material related to the current release of SNOMED CT and includes file layouts, field sizes, required values and their meanings, and high-level data diagrams. It can be used to install and use SNOMED.

SNOMED CT Technical Implementation Guide (TIG)

The TIG is intended for SNOMED CT implementers, such as software designers. The TIG assumes information technology and software development experience. Clinical knowledge is not required, although some background is helpful to understand the application context and needs.

The TIG contains guidelines and advice about the design of applications using SNOMED CT, and covers topics such as terminology services, entering and storing information, and migration of legacy information.

SNOMED CT User Guide

The User Guide is intended for clinical personnel, business directors, software product managers, and project leaders; information technology experience, though not necessary, can be helpful.

The User Guide is intended to explain SNOMED CT's capabilities and uses from a content perspective. It explains the content and the principles used to model the terminology.

Additional Documentation

The following documentation is also included with the International Release of SNOMED CT:

- SNOMED CT Canonical Table Guide
- SNOMED CT Developer Toolkit Guide

1 Introduction

A namespace is a seven-digit identifier issued by the International Health Terminology Standards Development Organization (IHTSDO) to an organization creating its own customized extensions of SNOMED CT.

The namespace component in the structure of the SNOMED CT Identifier allows terminology developed for an organization to remain unique across organizations for data transmission and sharing, yet the terminology shares a common structure for ease in application development and so subsets can be defined over a combination of core and extension content. The namespace allows any user to identify the organization responsible for maintaining that component since the namespace is included in the identifier of the component.

Following the SNOMED CT Identifier structure precisely ensures that terminology components will remain unique across all organizations.

1.1 Purpose

This document provides information and references about the SNOMED Clinical Terms® (SNOMED CT®) Namespace Identifier – what it is as well as how, when and why it is used.

1.2 Who should read this guide?

This document is intended for any organization that wishes to develop extensions of SNOMED CT. Organizations include healthcare facilities and networks, specific regions (e.g. county, region, state or country), software developers and vendors. The intended audience is those individuals who will be formatting extension files or developing software to format the files.

1.3 Scope and format

This document is intended to be used with the SNOMED CT Technical Reference Guide (TRG). The TRG is the authoritative source for SNOMED CT structure, including namespaces and the SNOMED CT Identifier (SCTID) data type. If an unintended discrepancy occurs between the TRG and this document, please notify the IHTSDO and use the TRG. If any discrepancies are intentional, they will be explicitly noted and explained.

1.4 Feedback

Further information about SNOMED CT is available on the Internet at:

www.ihtsdo.org

Please send feedback by email to:

support@ihtsdo.org

or contact:

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2 Background

2.1 What is a namespace identifier?

A namespace is a seven-digit identifier issued by the IHTSDO to an organization creating its own customized extensions of SNOMED CT.

The namespace is used to create the SNOMED CT Identifiers (SCTIDs) for extension concepts, descriptions, relationships, subsets, cross maps, and cross map targets. The namespace ensures the identifiers remain unique to the organization and prevent any conflict with SNOMED CT identifiers or identifiers of other organizations.

An organization is typically allocated one namespace from which literally millions of customized identifiers can be generated.

2.2 What is an extension?

An extension is a customized data table, or set of data tables, created by an organization to extend the content of SNOMED CT so that it can accommodate the unique needs of its users. An extension can consist of concepts, descriptions, relationships, subsets, cross maps, or cross map targets.

Before creating an extension, please review this material:

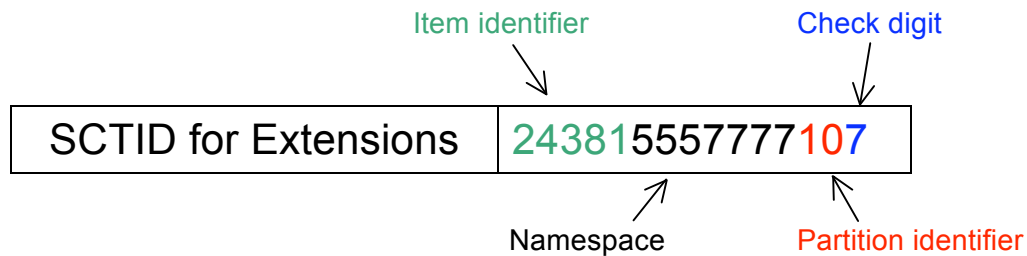
SNOMED CT Technical Reference Guide – Section 9 – Introducing Extensions

2.3 What is a SNOMED CT Identifier (SCTID)?

SNOMED CT components use numeric identifiers. In the Technical Reference Guide, the terminology tables have data elements with the data type SCTID. These identifiers have a common structure and the namespace is part of that structure.

All SCTIDs that use a seven-digit namespace identifier should be 11-18 digits in length. Leading zeros are not permitted. Leading zeros impact the calculation of the check digit and may result in ambiguity in validating an SCTID; hence they are not allowed.

In brief, the SCTID structure is:



- ❑ **Item identifier:** Uniquely identifies a particular component. Each organization can assign numbers from 1-8 digits and should devise a scheme to ensure the numbers are never repeated. See “Tips” section.
- ❑ **Namespace:** The seven-digit namespace assigned by the IHTSDO. Use the same namespace for all identifiers created by your organization.
- ❑ **Partition-identifier:** A two-digit identifier that ensures that extension components are distinguished from the main body of SNOMED CT. Extensions must use one of the following partition identifiers:
 - 10 A concept in an extension
 - 11 A description in an extension
 - 12 A relationship in an extension
 - 13 A subset in an extension
 - 14 A cross map in an extension
 - 15 A cross map target in an extension
- ❑ **Check digit:** Calculate this value using Verhoeff’s dihedral check algorithm.

Note that the SCTIDs of components in the core namespace do not have a namespace identifier and use a different set of partition-identifiers. The core namespace is maintained by the IHTSDO.

For example, here are the lowest and highest SCTIDs for an organization issued the namespace 5557777:

- **10 Concepts**
 - 15557777**108** = lowest value that can be created for a concept within this namespace
 - 999999995557777**104** = maximum value that can be created for a concept within this namespace
- **11 Descriptions**
 - 15557777**112** = lowest value that can be created for a description within this namespace
 - 999999995557777**115** = maximum value that can be created for a description within this namespace
- **12 Relationships**
 - 15557777**120** = lowest value that can be created for a relationship within this namespace
 - 999999995557777**127** = maximum value that can be created for a relationship within this namespace
- **13 Subsets**
 - 15557777**131** = lowest value that can be created for a subset within this namespace
 - 999999995557777**136** = maximum value that can be created for a subset within this namespace; 999 represents a local-space and is described in Section 4 below
- **14 Cross maps**
 - 15557777**149** = lowest value that can be created for a cross map within this namespace
 - 999999995557777**143** = maximum value that can be created for a cross map within this namespace
- **15 Cross map targets**
 - 15557777**154** = lowest value that can be created for a cross map target within this namespace
 - 999999995557777**158** = maximum value that can be created for cross map targets within this namespace

Before creating any SCTIDs, please review this material:

SNOMED CT Technical Reference Guide –

Appendix C – The SNOMED Clinical Terms Identifier (SCTID)

Appendix F – Check Digit Computation

3 Tips

3.1 Responsibility

It is highly recommended that **one** person or department be responsible for ensuring that the assignment of extension identifiers is coordinated and that a mechanism is in place to ensure that identifiers created by the organization are not duplicated.

An organization's namespace should never be used by another organization.

3.2 Quality Assurance

It is also recommended that all files containing SCTIDs include a validation step before use by the organization -- and especially before transmitting those files outside the organization.

3.3 Generating Extension Components – Process

3.3.1 Concepts

Before creating new concepts, please consider if the concept will be needed by other healthcare organizations. If so, rather than creating an extension concept, the new concept may be submitted to the IHTSDO.

In some organizations, it may be necessary to create the new concept in an extension even if it is submitted to the IHTSDO. In this case, the organization should consider whether to use the "Pending Move" mechanism to reflect the anticipated move from the extension to core, and whether the extension concept will be inactivated when it is also in the core namespace. See the TRG Section 9 for more information.

3.3.2 Descriptions

Valid synonyms may be submitted to the IHTSDO. Extension Descriptions can relate to Extension Concepts or Core Concepts.

3.3.3 Relationships

Extension Relationships can relate Extension concepts to each other and Extension concepts to Core Concepts.

Note that the relationships included in the Core for Core concepts will never point to an Extension concept. That is, a Core Relationship will never include an Extension concept in Concept1 or Concept2. This is because all recipients of the SNOMED CT Core may not have access to the same Extensions. Relationships between Core Concepts and Extension Concepts should be included as Extension relationships.

Please submit relationships that relate Core Concepts to each other to the IHTSDO for consideration for addition to SNOMED CT.

4 Generating Unique Extension Identifiers in a Multi-User Environment

4.1 The Challenge

Item Identifiers are usually generated sequentially to keep them unique. Depending on the type of components created and the tools used, a common issue is how to maintain unique numbers in a multi-user development environment. For example, a workstation-based tool may be installed on six personal computers and used by six people. If all users create new concepts in the same namespace that start with an Item Identifier = 1, the resulting SCTIDs will immediately duplicate each other.

4.2 Solution Ideas

The resolution may be easier in a server environment where a database system can be used along with the software program to ensure each user obtains the next number in sequence. If two people request a number at the same time, the database locking capability can help ensure duplicates are not generated.

Other solutions are also possible, such as using a web service to request and issue unique identifiers.

Another possibility is to only assign identifiers at the end of a terminology development cycle, just before the files are issued. Temporary identifiers, such as UUID's, can be used in the meantime as long as the Extension SCTIDs are not required immediately.

One approach that has been used is to designate “local-spaces” within an organization, with one local-space per user or per computer. As an example, for workstation-based software each personal computer can be supplied with a file that contains a number that is unique within the organization. That is, computer 1 is issued a file that contains a “001”, computer 2 is issued “002”, and computer 100 is issued “100.” A program can then create the SNOMED CT Item Identifier by: (a) starting or ending the Item Identifier with the unique number for each computer; and (b) sequentially assigning item identifiers that are appended to the computer number.

The process for assigning the computer identifier needs to be centralized. Configuration Management may be needed to distribute the file if a large number of computers and users are involved. Some checking may be instituted such as a calculated key to ensure the file is properly loaded and ready to use. A validation step and fall-back plan may be warranted. In this approach, the identifier used for each computer (or user) becomes a “local-space” because it subdivides the 8 digits of the Item Identifier consistently to avoid issuing duplicate numbers.

Note that in this sort of scheme, the number of digits to be used to identify the computers **needs to be decided when the organization first starts using its namespace to create SNOMED CT Identifiers**, and this number of digits is then standardized across the organization. So if no more than 99 computer workstations are anticipated to be used for Extension development work, a two-digit numbering system can be used, if more than 100 but less than 999 are anticipated, a three-digit number should be used, etc.). While it is not impossible to change this scheme later, it can be difficult while ensuring unique SNOMED CT Identifiers.