



Leading healthcare
terminology, worldwide

SNOMED CT National Release Center Guide

Publication date: 2024-09-16

Web version link: <http://snomed.org/nrcg>

SNOMED CT document library: <http://snomed.org/doc>

This PDF document was generated from the web version on the publication date shown above. Any changes made to the web pages since that date will not appear in the PDF. See the web version of this document for recent updates.

Table of Contents

Introduction	2
Background	2
Objective.....	2
Target Audience	2
What Is a National Release Center?.....	3
NRC responsibilities	4
NRC organization phases.....	9
List of NRC establishment decisions	9
Balance ambitions and resources	11
Communicate with fellow NRCs.....	11
NRC governance.....	11
The role of NRCs related to SNOMED CT licensing	12
Affiliate Licenses	12
National licenses	13
Sub-licenses	15
Implementation consultancy	16
SNOMED CT users.....	16
Engaging stakeholders	18
Education and training	19
SNOMED International Role in SNOMED CT Education.....	19
NRC Roles in SNOMED CT Education	23
Tooling.....	24
SNOMED International Tooling service.....	24
SNOMED CT browsers	26
Distribution of SNOMED CT	27
Access to SNOMED CT release files:	27
Release Lifecycle	27
Change requests	29
SNOMED CT International Content Request Service (CRS).....	29
Content development and SNOMED CT customization.....	31
Extensions	31
Translation	32
Reference set development.....	33

SNOMED International Governance, Advisory Groups and Events	35
General Assembly.....	36
Management Board	36
Advisory bodies	36
SNOMED International Meetings and Events.....	38
Further information	39

The SNOMED International logo, consisting of a blue square with the text "SNOMED International" in white.Leading healthcare
terminology, worldwide

The SNOMED CT National Release Center Guide provides an introduction to SNOMED International and SNOMED CT for those working in or planning to development a National Release Center. It is also applicable to countries considering joining SNOMED International and Members.
The SNOMED CT National Release Center Guide

Web browsable version: <http://snomed.org/nrcg>

SNOMED CT Document Library: <http://snomed.org/doc>

© Copyright 2024 International Health Terminology Standards Development Organisation, all rights reserved.

This document is a publication of International Health Terminology Standards Development Organisation, trading as SNOMED International. SNOMED International owns and maintains SNOMED CT®.

Any modification of this document (including without limitation the removal or modification of this notice) is prohibited without the express written permission of SNOMED International. This document may be subject to updates. Always use the latest version of this document published by SNOMED International. This can be viewed online and downloaded by following the links on the front page or cover of this document.

SNOMED®, SNOMED CT® and IHTSDO® are registered trademarks of International Health Terminology Standards Development Organisation. SNOMED CT® licensing information is available at <http://snomed.org/licensing>. For more information about SNOMED International and SNOMED International Membership, please refer to <http://www.snomed.org> or contact us at info@snomed.org.

Introduction

Background

When a country joins SNOMED International it gains a number of rights and obligations related to SNOMED International products, including SNOMED Clinical Terms (SNOMED CT). All Member countries¹ also play a key role within the governance and advisory bodies of SNOMED International. Therefore, joining SNOMED International brings with it a need to learn how SNOMED International works, the roles of SNOMED International Members and practical ways to maximize the benefits of membership.

An important first step is to designate an organization as a National Release Center (NRC) to fulfill the operational requirements of membership, including managing the national distribution of SNOMED CT. This guide is a high-level introductory document for National Release Centers.

Objective

The objective of the "SNOMED International National Release Center Guide" (NRC Guide) is to offer a practical and useful starting point for Member countries. It provides guidance on NRC responsibilities and the relationships between NRCs, SNOMED International, and implementers and users within a Member country.

This document is also intended to provide guidance on how NRCs can support an effective and efficient introduction of SNOMED CT in their countries. However, it does not provide a general introduction to SNOMED CT. Readers interested in learning more about SNOMED International's terminology should refer instead to the SNOMED CT Starter Guide.

The SNOMED CT Starter Guide can be found here: <http://snomed.org/starterguide>

Target Audience

The target audience of the NRC Guide is those people responsible for establishing, managing and working within a National Release Center. While primarily designed for new Members, this guide also provides a useful reference for NRC staff in existing Member countries.

Readers of this guide should already have an understanding of what a Member is and what an Affiliate is. SNOMED International Glossary can be used to clarify specific words and phrases used.

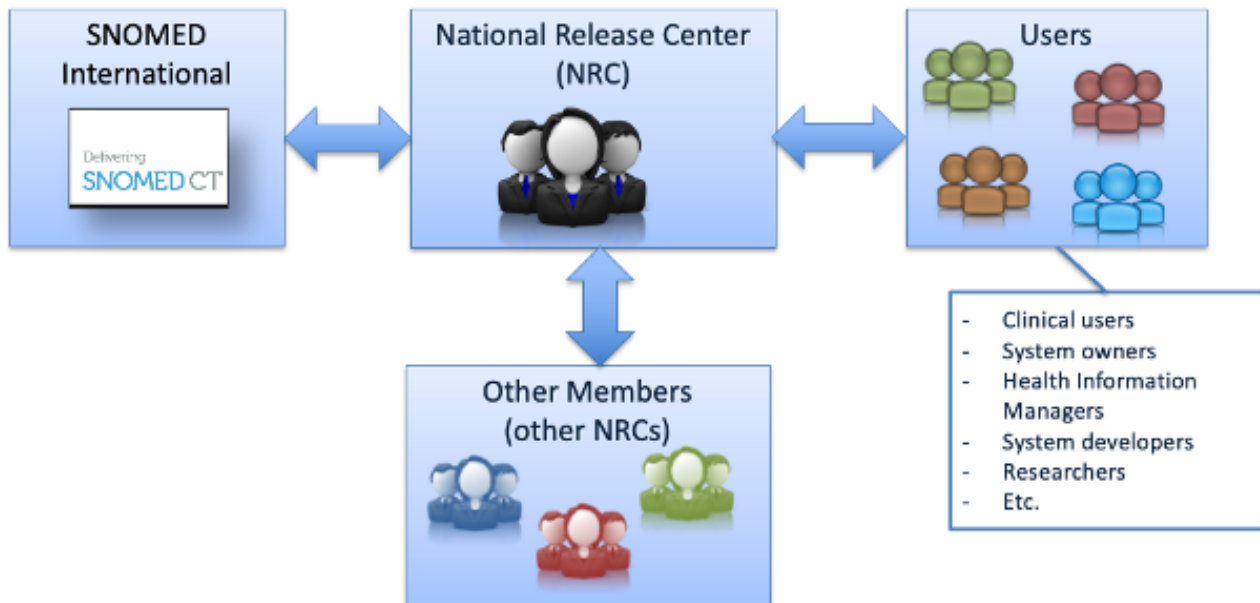
The SNOMED CT Glossary can be found here: <http://snomed.org/glossary>

¹ This document uses the term "Member country" as this is considered easier to understand than the more formal term "Member territory." In most cases Members are countries or states recognized by the United Nations, but in exceptional circumstances entities that are not strictly "countries" may be permitted to join SNOMED International as Members.

What Is a National Release Center?

A National Release Center (NRC) is an official point of contact within a Member's jurisdiction that has the responsibility to serve as the interface between SNOMED International, the national users and Affiliates, and other Members.

Figure 1 A National Release Center is the primary contact point for SNOMED International, users and other Members.



SNOMED International requires each Member to have a nominated organization that fulfills a small set of core NRC responsibilities. These responsibilities include receiving the International Release of SNOMED CT from SNOMED International, making it available to licensees in the Member country, and promoting and supporting adoption and deployment of SNOMED CT in the Member country. Some NRCs also provide additional products and services to support national use of SNOMED CT. Provided that the core responsibilities are fulfilled, each Member is free to decide whether or not their NRC should provide other related services or products.

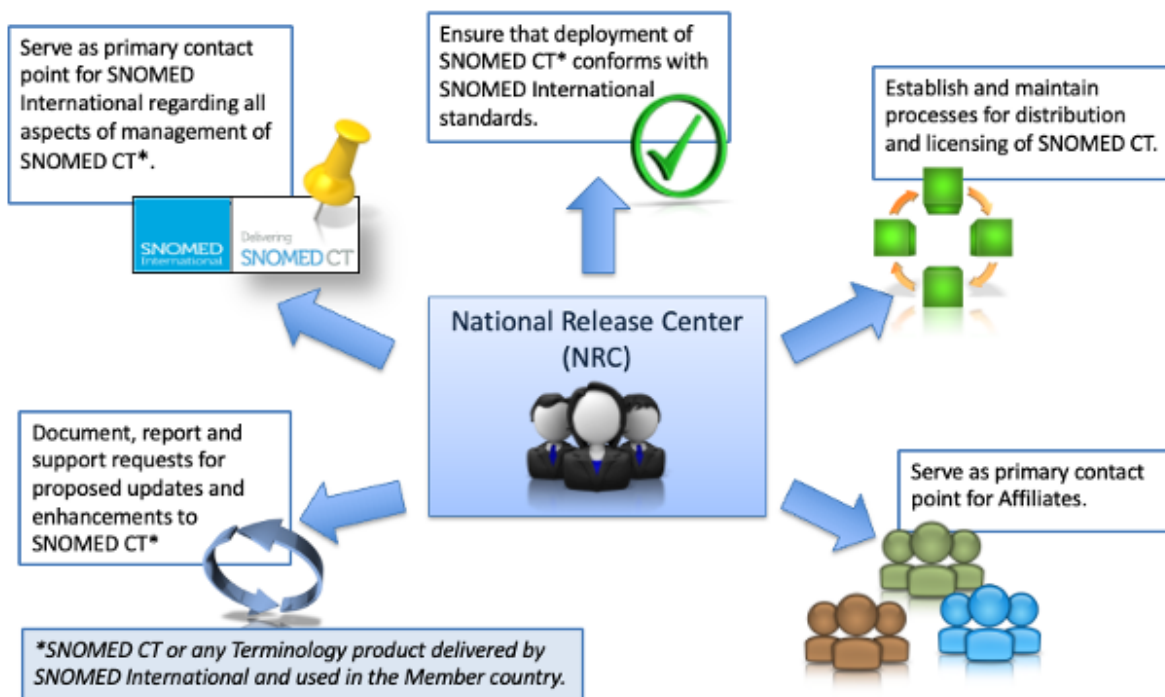
For Members that choose only to distribute the International Release of SNOMED CT, the NRC can be limited to only one or two people to undertake the minimal required services. NRCs of other Members are larger organizations that have many other responsibilities related to SNOMED CT and also manage the use of other health informatics standards within that country. An NRC can be established as a new body or organization within the Member country, or it can be folded into an existing body or organization.

As the primary contact point for both national Affiliates and SNOMED International, the NRC plays a central role in effective and efficient collaboration with the various partners. The term "National Release Center" is used by SNOMED International, but a Member may give the organization that fulfills this role in their country a different name.

NRC responsibilities

The best way to organize an NRC depends on a wide range of factors, including the number of potential Affiliates, the vision and strategy for use of SNOMED CT in the country, the national eHealth infrastructure, the extent of customization, etc. But Members of SNOMED International are, at a minimum, required to fulfill a set of core responsibilities within the Member's territory, as shown in Figure 2 and specified in the Articles of Association. Typically, the NRC fulfills most of these obligations, however a Member may make other arrangements to fulfill some of the obligations. The Articles of Association for SNOMED International can be found here: <http://snomed.org/articles>.

Figure 2. Obligations of Members.



- **NRCs are required to serve as primary points of contact for SNOMED International with regards to all aspects of the management of the terminology products.**
- **NRCs are the primary points of contact for Affiliates within a Member country.**
 - Affiliates should be able to contact the NRC for guidance and direction with respect to implementation and use of SNOMED CT within the Member country.
 - The NRCs should serve as intermediaries between the Affiliates and the SNOMED CT community, for example:
 - Encouraging experts and other appropriate persons to contribute to the work of SNOMED International;
 - Assisting SNOMED International to communicate with Affiliates and experts entitled to and wishing to be enrolled as SNOMED International Affiliates.
- **NRCs are required to establish and maintain processes necessary for distribution and licensing of SNOMED CT and the other terminology products.**
 - This includes developing the appropriate mechanisms for users to gain access to National (where applicable) and International Editions of SNOMED CT and related products, and mechanisms to retrieve and manage Affiliate licenses. (See section 9 on tooling for process support.)
 - This includes managing license reporting annually and reporting Affiliates' activities in non-Member countries to SNOMED International.
- **NRCs are required to ensure that any deployment of a terminology product owned by SNOMED International conforms to SNOMED International standards.**
- **NRCs must facilitate feedback from users on SNOMED CT, including managing change requests.**

Besides these areas, there is a range of other responsibilities that NRC may decide to undertake. The table below lists a set of possible responsibility areas. The list is not exhaustive but includes the main areas that NRCs currently cover. Some of the areas are marked as "Required," as these are part of the core responsibility areas.

Table 1. NRC Responsibility areas

Responsibility area	Required	Optional
Manage licenses (manually or automatically)	✓	
Distribute International Releases	✓	
Manage Extensions (Authoring, release, distribution and maintenance)		✓
Manage Reference sets (Authoring, release, distribution and maintenance)		✓
Manage Mappings (Authoring, release, distribution and maintenance)		✓
Manage Translations (Authoring, release, distribution and maintenance)		✓
Offer Tooling		
As user service : To enable users to access and explore SNOMED CT		✓
As NRC tool : Support SNOMED CT management		✓
Manage change requests for organizations in the country	✓	
Offer education, promotion and training		✓
Engage stakeholders		✓
Offer implementation consultancy		✓

NRC competencies

The competencies required for an NRC are dependent on what services the NRC chooses to deliver. However, most NRC staff should have a general understanding of SNOMED CT and SNOMED International.

If an NRC is unable to provide a specific type of service, it should seek to identify other resources that are able to meet the requirements of implementers and users in the Member country.

The following core competencies are typical for the work of an NRC. Some of these competency areas can be considered assignment-specific, as they will not be required as a constant competency within the NRC but are required to fulfill specific assignments, such as translation, mapping and development of Reference sets.

General competencies required	Terminology
	Technical and IT skills
	Communication
	Implementation
	Education
Assignment-specific competencies	Clinical and scientific domain specialty knowledge
	Linguistics and translation


Specific competencies required to undertake particular NRC related tasks are outlined in Table 2.

Table 2 Competencies and skills required to undertake particular NRC tasks 

Tasks	Main competencies	Knowledge/Skills areas
<ul style="list-style-type: none"> Distribute International release and National Extension 	<ul style="list-style-type: none"> Communication Technical/IT 	<ul style="list-style-type: none"> Communication with Affiliates, e.g. news updates Tooling support for access to the International Release and National Extension
<ul style="list-style-type: none"> Manage extensions 		
<ul style="list-style-type: none"> Content 	<ul style="list-style-type: none"> Terminology Domain specialty Translation 	<ul style="list-style-type: none"> Content development Terminologies, description logic
<ul style="list-style-type: none"> Technical 	<ul style="list-style-type: none"> Technical/IT 	<ul style="list-style-type: none"> Tooling support for extension development and management (See "Technical/IT" responsibility)
<ul style="list-style-type: none"> Manage Reference sets 		
<ul style="list-style-type: none"> Content 	<ul style="list-style-type: none"> Terminology Domain specialty (clinical experts, etc.) 	<ul style="list-style-type: none"> Reference set development and maintenance Domain insight, depending on the purpose of the Reference Set Concept selection <ul style="list-style-type: none"> Logical and concept model Search techniques

Tasks	Main competencies	Knowledge/Skills areas
<ul style="list-style-type: none"> ▪ Technical 	<ul style="list-style-type: none"> • Technical/IT 	<ul style="list-style-type: none"> • Tooling support for Reference set development and management (See "Technical/IT" responsibility)
<ul style="list-style-type: none"> • Manage Mappings 		
<ul style="list-style-type: none"> ▪ Content 	<ul style="list-style-type: none"> • Terminology • Domain specialty 	<ul style="list-style-type: none"> • Map development and maintenance • Knowledge of current practice for use of classifications and terminologies in the Member territory
<ul style="list-style-type: none"> ▪ Technical 	<ul style="list-style-type: none"> • Technical/IT 	<ul style="list-style-type: none"> • Tooling support for Reference Set development and management (See "Technical/IT" responsibility)
<ul style="list-style-type: none"> • Tooling Developments <ul style="list-style-type: none"> ▪ Browsing, Developing content, and Refsets, QA, Distribution 	<ul style="list-style-type: none"> • Technical/IT 	<ul style="list-style-type: none"> • SNOMED CT technical specifications and File formats • Software and database design and development • Information modeling/information model standards • SNOMED CT search and data entry techniques and software • Authoring and distribution requirements • Quality assurance techniques
<ul style="list-style-type: none"> • Manage translations 	<ul style="list-style-type: none"> • Terminology • Linguistics • Domain specialty 	<ul style="list-style-type: none"> • Translation processes • Concept definition • Quality assurance • Terminology authoring technology
<ul style="list-style-type: none"> • Change requests 	<ul style="list-style-type: none"> • Communication • Terminology • Translations 	<ul style="list-style-type: none"> • Content development • Terminologies, description logic
	<ul style="list-style-type: none"> • Technical/IT 	<ul style="list-style-type: none"> • Terminology authoring tool • Tooling support for change request submissions and management of change requests. (See "Technical/IT" responsibility)
<ul style="list-style-type: none"> • Education, promotion and training • Engaging stakeholders 	<ul style="list-style-type: none"> • Communication • Implementation • Education 	<ul style="list-style-type: none"> • Dissemination competencies • Users and user needs • Broad and deep knowledge of SNOMED CT, users and implementation aspects. • Examples, use cases • National health IT-infrastructure, current practices and regulation
<ul style="list-style-type: none"> • Implementation consultancy 	<ul style="list-style-type: none"> • Implementation • Technical/IT • Business Analysis 	<ul style="list-style-type: none"> • Broad and deep knowledge of SNOMED CT, users and implementation aspects. • Examples, use cases

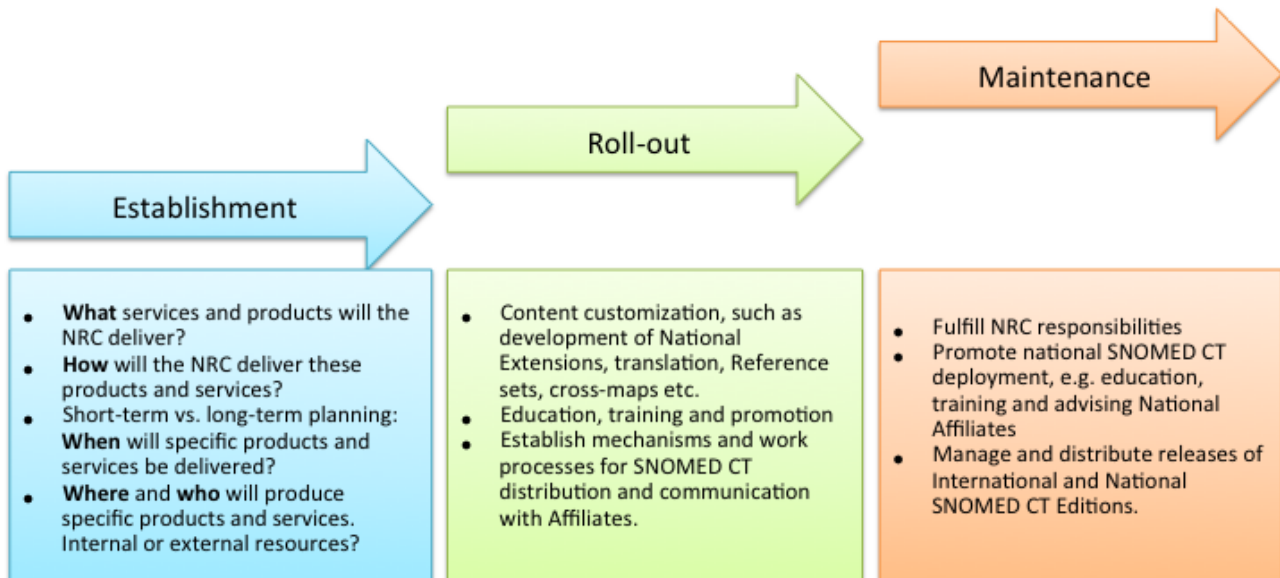
Tasks	Main competencies	Knowledge/Skills areas
		<ul style="list-style-type: none"> • Implementation levels and technical opportunities • Ability to understand requirements and relate to terminology
<ul style="list-style-type: none"> • Manage licenses (manually or automatically) 	<ul style="list-style-type: none"> • Communication • Technical/IT 	<ul style="list-style-type: none"> • Communication with Affiliates • Tooling support, e.g. license repository

 Note that the range of tasks that different NRCs undertake may vary.

NRC organization phases

Establishing a well-functioning NRC is not a trivial task, and awareness about the steps required to achieve an active and effective NRC is necessary in order to plan and recruit appropriately. The processes involved with setting up and running an NRC can be described in three phases: establishment, roll-out and maintenance.

Figure 3. Different stages of setting up and running NRCs



Each NRC can undertake a variety of responsibilities in order to facilitate implementation and use of SNOMED CT in the Member country. These responsibilities range from development, distribution and maintenance of SNOMED CT to support of SNOMED CT implementation projects, as well as education of people involved with SNOMED CT use and implementation. In the stage of establishing an NRC, it is vital to make decisions about which services will be provided and what national developments the NRC will undertake. These decisions also include deciding on the organization of the NRC, the work processes, the timetable and so on. It is of course possible for the scope of activity of the NRC to be increased (or decreased) in the future, as the needs change.

List of NRC establishment decisions

Prior to establishing an NRC, the following questions should be considered in order to be able to determine the best possible NRC organization and workflow, along with appropriate recruitment and training of staff to match the necessary NRC competencies for the planned national approach and goals. The list is not complete, but includes some core considerations that existing Members have found to be important.

NRC management decisions
<p>Regarding NRC management, decisions need to be made about work processes, timetables and resource allocation.</p> <ul style="list-style-type: none"> • What is the planned timeline for the establishment and roll out of the NRC? • What is the purpose/strategy for SNOMED CT in my country? • What resources will be spent on tailoring the International Release to meet national requirements? • Who will be responsible for managing specific work tasks?
Use of SNOMED CT with other terminologies, classifications and models

Typically a Member country also uses other terminologies, classifications systems or information models, and it is important for an NRC to have a clear strategy for how SNOMED CT is to align with the current or planned use of these other products in the Member country.

- What set of standard terminologies (in addition to SNOMED CT) will be used in the country? Are these required or suggested?
- Do you need mappings between SNOMED CT and other terminologies or classifications?
- Are there any interdependencies with other products (classifications/coding systems/information model initiatives) that would affect SNOMED CT releases, content, etc.?

National adjustment/extensions

An NRC should consider to what extent national SNOMED CT adjustments (translations, extensions, Reference sets, etc.) should be made to develop the SNOMED CT National Extension and conform this to the needs and desired use cases for the Member country.

- Do you need a translation of SNOMED CT into the language and/or dialects applied of our country?
- Do you need national Reference sets to constrain the amount of SNOMED CT concepts to be used within specific use cases, clinical domains, etc. and to support consistent use of SNOMED CT within these areas?
- Do you need national content (extensions to the International Edition of SNOMED CT) in order to meet specific national needs?
- Who will manage derivatives, for example Reference sets and mappings, in the longer term? The NRC or someone else?

Implementation and use cases

An NRC can take on very different strategies for supporting implementation and use of SNOMED CT in the specific Member country, and therefore an NRC should consider if, or to what extent, it will support specific SNOMED CT implementations. It should also consider how collaboration with the related stakeholders will be carried out.

- Who is responsible for what, for example in implementation projects?
 - What will be done at the national level?
 - What is the responsibility of the various stakeholders (NRC, clinicians, healthcare organizations, IT vendors, etc.)?
- Which organizations are already using SNOMED CT in the country and how will you engage with them?
- What level/type of support will you offer?
- Are there any priority use cases that you want to communicate?
- Do you intend to specify compliance standards for use of SNOMED CT in your country?

Education

An NRC should have a clear plan for its role with respect to SNOMED CT education and training of the various stakeholder groups within the country.

- Do you intend to offer any guidance documents over and above what SNOMED International provides?
- Do you intend to deliver training on SNOMED CT? At different levels?
- Will you translate all SNOMED International materials (beyond SNOMED CT terminology, e.g. education materials, translations guidelines, deployment guidelines) into your national language, or is use of English acceptable?

Tooling

It is important for an NRC to explore and discuss what specific tools are required to undertake the work of the NRC and to determine which tools will be used by the NRC.

- Will you use your own tooling or will you rely on SNOMED International's tools?
- What existing systems/processes/tooling do you already have in place that can be leveraged to fulfill your activities as an NRC?
- What tooling is required to support activities of your NRC? Where will these be obtained (from SNOMED International, vendors, in house development)?

Consideration of each of the above questions will lead to additional questions that need to be answered to obtain a

realistic overview/estimate of the magnitude and types of resources required to achieve the identified goals. For example, it is not enough to decide that you want to make a translation of SNOMED CT into your national language. This decision also requires elaboration of when and how you plan to do this, who should undertake the work and availability of required funding.

Balance ambitions and resources

If an NRC decides to develop a wide range of services and products to support the use of SNOMED CT in the Member country, it will likely promote successful adoption of the terminology. However, it is important that the NRC set up ambitions and timelines realistic in relation to the resources available. Members should carefully consider and define the national visions for use of SNOMED CT in the Member country. Hence, Members should be clear about the way they expect SNOMED CT to be used, which again must align with the national strategy and infrastructure.

It can be useful to consider a stepwise development process, where the NRC prioritizes the initiatives that should be carried out immediately and sets aside initiatives could be scheduled later. This is better than setting the bar too high and initiating too many projects that are difficult to complete.

Communicate with fellow NRCs

For every stage of NRC development it is essential to get in contact with other NRCs in order to gain insight to existing ways of organizing and running an NRC and to learn from others' experiences. SNOMED International facilitates communication between Members in different ways, for example through workshops during the biannual face-to-face meetings or by participation in the Member Forum (described later in this document).

NRC governance

Every NRC needs a clear governance structure to ensure that the work of the NRC and the strategic decisions are continuously aligned with user needs, national strategic priorities, SNOMED International developments and initiatives, collaborators' work, etc. The NRC should therefore consider what governance structure would be suitable to fulfill the needs of the NRC, as the needs may vary depending on the extent of services and the National Extension the NRC decides to develop.

In the simplest form, NRC governance can be carried out as operational line management of the responsibility for directing the day-to-day work of the NRC. Alternatively, there may be a need for having formal committees to advise on the direction of the NRC. This could, for example, be necessary if a National Extension is developed, as this may entail the need of an editorial committee to define and maintain editorial policies and ensure that they are being followed.

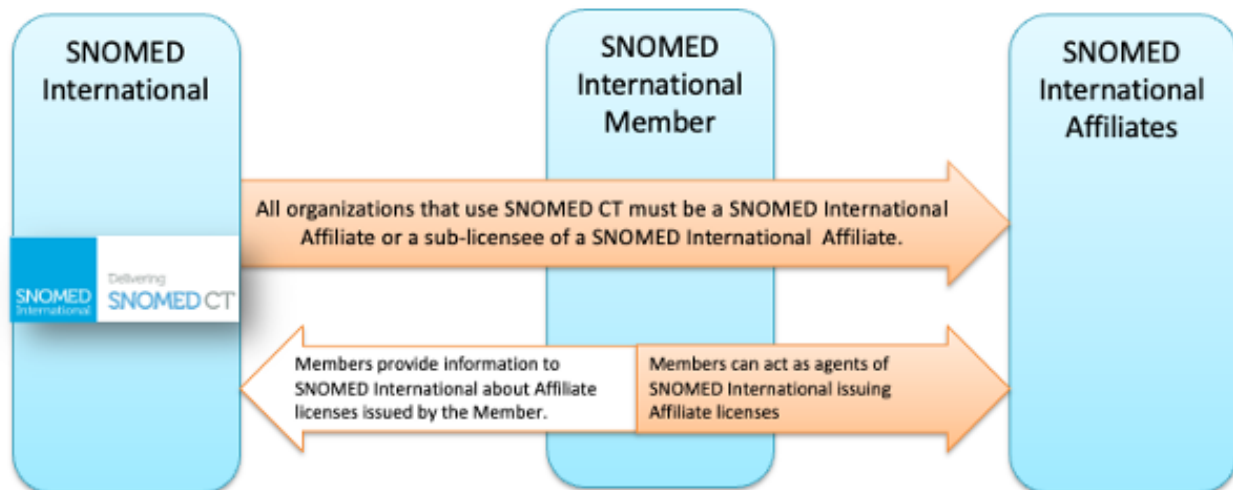
The role of NRCs related to SNOMED CT licensing

Affiliate Licenses

Organizations that develop or distribute products or services that include or provide access to SNOMED CT must be SNOMED International Affiliates. Organizations that use SNOMED CT must be either an SNOMED International Affiliate or a sub-licensee of an SNOMED International Affiliate. Becoming an Affiliate of SNOMED International requires an Affiliate License, which is a contractual agreement between SNOMED International and Affiliates.

Even though Affiliate Licenses are agreements between SNOMED International and Affiliates, Members often act as intermediate agents between SNOMED International and Affiliates by issuing the licenses. In this case, the NRC needs to provide information to SNOMED International about Affiliate Licenses issued by them. The SNOMED CT Affiliate License Agreement is a worldwide license for the use of the SNOMED CT International Edition. Acceptance of the License Agreement entitles an Affiliate to download releases of the SNOMED CT International Edition.

Figure 4 All Affiliate License Agreements are with SNOMED International. However Members, as agents of SNOMED International, may issue Affiliate licenses.



Full details of the conditions of use of SNOMED CT are provided by the [SNOMED CT Affiliate License agreement](#). The notes below highlight a few key points about the availability of Affiliate licenses, conditions of use and circumstances in which charges are applicable for use of SNOMED CT.

<p>Obtaining an SNOMED International Affiliate License</p> <ul style="list-style-type: none"> • Applicants in Member countries are asked to check the relevant Member webpage for advice on how to apply for an Affiliate License within their country : Members. • Applicants who are not in an Member country, or are in Member country that does not currently provide a registration service, can apply for a license using the Member Licensing and Distribution Service (MLDS).
<p>Use of SNOMED CT in Member countries</p> <p>SNOMED International does not charge for use of the SNOMED CT International Edition in Member countries. However, a Member is permitted to impose some conditions on use of SNOMED CT within its country.</p>
<p>Use of SNOMED CT outside Member countries</p>

Affiliates are required to pay [annual fees](#) to SNOMED International for use in each hospital, clinic and other institution in a country that is not a Member of SNOMED International. The charges for this vary according to the wealth of the country.

Affiliates are also liable to pay [fees](#) if they expose SNOMED CT content in ways that enable it to be used in non-Member countries. This includes providing access to SNOMED CT via the Internet, in web application, mobile phone application or as part of a published specification or standard.

Provision of services that enable access to SNOMED CT in non-Member countries

Companies or organizations providing apps, web portals and other software that incorporates all or part of SNOMED CT, or publishing mappings or other materials that include all or part of SNOMED CT require the permission of SNOMED International and a license for these activities.

Those providing such access to these service or materials to another company or organization for use in a non-Member country must first confirm that that company or organization is an Affiliate Licensee. Furthermore, they must ensure the recipient of the services or materials understands its obligation to report and pay fees to SNOMED International for use in Non-Member countries.

Web-based SNOMED CT browsers

Web-based SNOMED CT browsers that allow SNOMED CT content to be viewed are currently regarded as a special case on which SNOMED International has published guidelines (see [browser license guidance](#)). However, note that these guidelines only cover use to explore the content of SNOMED CT. They do not exempt those using SNOMED CT in Non-Member countries from obligation to pay fees for use.


National licenses

A Member may issue Affiliates with licenses for use of its National Extension of SNOMED CT (including translations, content additions and Reference sets). These licenses must include a requirement for the licensee to hold a SNOMED CT Affiliate License for the International Release. One way to achieve this is to include a copy of the SNOMED CT Affiliate License Agreement within the National License. In this case, care must be taken to ensure that the copy of this agreement is regularly updated with changes approved by SNOMED International.

The terms of the National License could be similar to the SNOMED CT Affiliate License but with the Member as the licensor and the National Extension as the licensed work. Alternatively, the National License might be part of a more general licensing policy for nationally owned works. However, SNOMED International requires that a licensee of a National Extension must also be a SNOMED CT Affiliate Licensee (i.e. a licensee with SNOMED International). A Member can meet this requirement by registering the Licensee's acceptance of the SNOMED CT Affiliate License Agreement.

Members can also impose additional requirements related to the use of the SNOMED CT International Edition in their countries. For example, a Member may require licensees to use of the National Extension when deploying SNOMED CT in its country.

The formal responsibility of the NRC is to maintain a register of all licenses granted by the Member to Affiliates within the Member country. This register must include information about:

1. The identity of the Affiliate
2. The products provided under the license
3. The payment terms under the license (if any )
4. Product usage in a non-Member country

If an Affiliate provides information about non-Member country use, the Member is obliged to inform SNOMED International of this so that the correct fees can be charged. In the event of termination of Membership, the former Member must submit the full register of all licenses it has issued to SNOMED International within 30 days.

Members are encouraged to share information about Affiliates they have registered that are based in or operating in other Member countries. They should also inform Affiliates about obtaining a National License in their country of origin.

Figure 5 Members manage licenses issued to Affiliates for national use of SNOMED CT



Sub-licenses

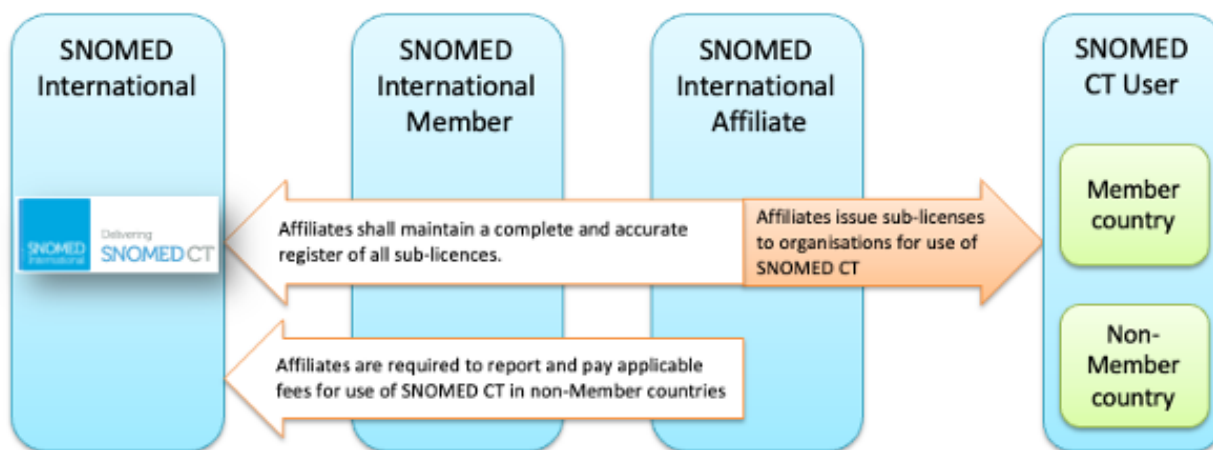
SNOMED International Affiliates can issue sub-licenses, to allow organizations/users to use SNOMED CT, as part of a software application or information system. An organization that is not itself an SNOMED International Affiliate is only permitted to use SNOMED CT in accordance with the terms of a sub-license issued by an SNOMED International Affiliate.

It is the Affiliate's responsibility to manage these sublicenses and make information about them available to SNOMED International. Affiliates are also required to report and make appropriate payments when SNOMED CT is used in non-Member countries.

Sub-licensing is not an NRC function but NRCs need to:

- Understand that Affiliates are required to issue sub-licenses to organizations that use SNOMED CT enabled systems and services that they provide;
- Ensure that Affiliates and users in their country are aware of this requirement.


Figure 6 Sub-licenses are issued by Affiliates.



Members are not required to facilitate or manage sub-licenses. However, as the primary point of contact for the national Affiliates, an NRC should be able to support and guide Affiliates in matters related to the management of sub-licenses and to point Affiliates to the appropriate source of information within SNOMED International.

Licensing and Distribution of SNOMED CT - Tools

SNOMED International provides a platform for licensing and distribution of SNOMED CT for its Member countries. This service is named the [Member Licensing and Distribution Services \(MLDS\)](#) and enables the NRC to have a web based portal in the preferred language where Affiliates register and update their licensing information as well as download SNOMED CT and other related products. The NRC is responsible for translating the interface terminology, etc., but SNOMED International helps the NRC get started. Once registered in MLDS, an Affiliate can access the national distribution from the NRC as well as other NRC products, so long as the Member country is using MLDS. For more information about using MLDS in your country contact your Customer Relations Executive.

 SNOMED International does not charge for use of SNOMED CT in Member countries. However, an Member country may charge Affiliates a small fee for cost recovery.

Implementation consultancy

A desirable function of an NRC is to act as a resource and advisory body for Affiliates. It is crucial for successful national adoption of SNOMED CT that Affiliates are able to obtain the required education, training and guidance. SNOMED International delivers a range of education and training resources, which are described in later sections. However, Affiliates may require further guidance on implementation aspects, on customization, or on SNOMED CT education for specific user groups. An NRC should clarify how it will support requests for education and implementation consultancy.

SNOMED CT users

In order to provide the most efficient support to national SNOMED CT users, the NRC should ensure that the available implementation and training resources are focused on the specific types of SNOMED CT users. The NRC must therefore have insight into the different aspects related to SNOMED CT implementation and use, know about the different types of SNOMED CT users, and understand the role and needs each of these groups of users with respect to SNOMED CT knowledge and skills.

Figure 7 illustrates three types of SNOMED CT users who have different needs with respect to learning about SNOMED CT. The knowledge required for users and professionals related to clinical data entry differ from the knowledge required for designers and developers. Moreover, users responsible for information management require more cross-disciplinary knowledge than healthcare professionals, being responsible for reconciling user needs, the terminological framework and system setup. Within the different types of SNOMED CT users there are various user roles, and the individuals in those user roles need to learn about SNOMED CT at various levels of detail and with different points of departure. These generic user types are intentionally broad. Individual Members may identify other user categories and subdivisions relevant to national circumstances taking account of different approaches to eHealth strategy and SNOMED CT implementation.

Figure 7 Three broad groups of SNOMED CT Users

Users	Designers and developers <i>(of IT systems)</i>	Terminology Developers
Educators and trainers		
Clinical information entry	Decision support systems	Concept model designers
Clinical information curation	Retrieval and analysis	Content authors
Clinical information utilization	Communication standards	Translators
	Terminology services	Map developers
	Terminology artifact development	Subsets and constraint developers
		Release process managers

A description and examples of the different user groups can be found below:

Users are those engaged in entry, storage, retrieval and/or reuse of clinical information.

Examples

- Healthcare practitioners (clinicians, nurses, therapists, etc.)
- Medical coders and secretaries engaged in clinical data entry
- Clinical knowledge providers and publishers
- Clinical researchers
- Information analysts
- Managers of migration from pre-existing data to SNOMED CT representation

Designers and Developers are those designing, developing, configuring or deploying software systems that use SNOMED CT. SNOMED International has developed a Vendor Guide to support vendors understanding SNOMED CT implementation: <http://snomed.org/vendorintro>.

Examples

- Healthcare solution providers – designers and software developers
- System integrators
- Researchers and innovators
- Clinical experts and others involved in customizing user interfaces and data entry protocols

Terminology Developers are organizations developing and distributing content and other artifacts such as subsets, maps, etc.

Examples

- IHTSDO
- National Release Centers
- Other institutions working with terminologies
- Researchers and innovators

Educators and trainers are those people involved with education and training of people involved with implementation and use of SNOMED CT.

Examples

- People with the sufficient knowledge to educate and train people within a specific user group and at the level required for the actual user.
-

Engaging stakeholders

Working with SNOMED CT and clinical terminology involves many different stakeholders with different objectives and different roles. An NRC can promote successful SNOMED CT adoption by engaging clinicians, vendors, system owners, etc. and supporting awareness of each stakeholder's role in the process of SNOMED CT adoption, implementation and use. However, engagement of users can be difficult, and it is therefore important that the NRC consider how best to engage the various stakeholders. Some Members choose to establish dedicated forums where users and vendors can be regularly updated on the latest initiatives and developments. Alternatively, newsletters and national conferences can be effective in maintaining communication and engagement with relevant stakeholders. For an NRC, such initiatives may also be used to encourage stakeholders to become involved in SNOMED CT development or implementation at an international level through involvement in SNOMED International, for example as participants in Advisory Groups, Project Groups or Clinical Reference Groups.

There are various ways to promote the engagement of stakeholders, but it is important to approach the stakeholders selectively on topics which are relevant to a specific user group. If the user can see the point and feel convinced of the potential benefits and the importance of their engagement, they will be more likely to feel encouraged to participate and take responsibility.

Advice for engaging stakeholders:

- **Disseminate SNOMED CT potential and benefits:** Who is it for? What can it do? What are the benefits?
 - **Give examples** that relate to the work of the specific stakeholder/user group.
 - **Engage in regular contact** to give stakeholders the opportunity to raise issues (and get them resolved) collectively.
 - **Find SNOMED CT Champions:** Find someone or a group that has successfully implemented SNOMED CT and leverage that success to engage others. Encourage these champions to tell others about their experience of the practical value of using SNOMED CT.
 - **Explain how SNOMED CT fits within the systems and standards already in use:** Usually users don't know how SNOMED CT will influence current practice.
 - **Take on national initiatives:** Focused subset and content development activities are very useful for engaging clinical groups.
-

Education and training

Users must be equipped with adequate knowledge and skills that enable them to practice the tasks of the specific user group. Moreover, it is important that users are trained to understand and conduct SNOMED CT implementation in accordance to the visions, strategy and infrastructure of the given Member country. The following sections consider the roles of SNOMED International and NRCs in education and training related to SNOMED CT.

SNOMED International Role in SNOMED CT Education

The overall role of SNOMED International in SNOMED CT education and training is to provide consistent information about SNOMED CT, advice about benefits and guidance on effective ways to use SNOMED CT in order to realize those benefits. In addition, wherever possible, SNOMED International shares its documents and training services in ways that enable NRCs to reuse, translate and customize them to meet national requirements. The documents, educational resources and services that SNOMED International provides to assist the process of learning about SNOMED CT are outlined below.

SNOMED CT Document Library

The SNOMED CT Document Library provides online access to a wide range of SNOMED CT related documents. These documents range from SNOMED CT introductions targeted at particular audiences, through to detailed specifications, specialized guides and reports. On the Document Library web pages you will find a short introduction to each of the documents, and a link to allow you to freely access these documents. These documents are available either for online browsing or as PDF downloads - and in many cases both formats are provided. Some documents include draft materials, and therefore readers should be aware of the status of the document or section, which is indicated either by textual status notes on individual pages or in the document preface.

The Document Library (<http://snomed.org/doc>) provides access to the key documents about SNOMED CT.

Key documents include

- The [SNOMED CT Starter Guide](#) which is a practical and useful starting point from which anyone with a general interest in healthcare information can begin learning about SNOMED CT.
- The [Extensions Practical Guide](#) presents the purpose, process and principles of creating, distributing and managing SNOMED CT extensions. Extension producers should be familiar with this guidance to ensure the quality and integrity of the SNOMED CT editions that they publish.
- [SNOMED CT Release File Specification](#) which formally defines the file formats in which SNOMED CT is distributed to SNOMED International Members and Affiliates.

Feedback from Members on the documentation is important for SNOMED International to ensure that the readers are provided with the best possible materials for learning about SNOMED CT. Members/users/readers are requested to provide any kind of feedback on the documentation, for example if clear faults or missing content are detected, or if there are some unclear parts that need clarification.

Comments on online documents can be posted as comments on the pages of the published document. For documents that are not available online, please look in the document for details of how to comment.

SNOMED CT Starter Tutorial And Education Resource Guide

The SNOMED CT Starter Tutorial provides an overview of the basics of SNOMED CT. The Education Resource Guide provides details of educational material that cover a range of topics related to SNOMED CT. Both can be found [here](#).

SNOMED CT E-Learning Courses

SNOMED International provides a range of Education offerings. The set of courses, learning pathways, and certification exams is introduced below.

 **Course Catalogue and E-Learning Platform**

To enrol in all SNOMED CT courses and certification exams, please visit our SNOMED CT course catalogue at <https://courses.ihtsdotools.org/> and select the relevant education product. Our E-Learning Platform, which hosts the majority of our education offerings can be accessed at <https://elearning.ihtsdotools.org/>.

Courses

- **Foundation course**
 - The course aims to provide authoritative coverage of a broad range of topics related to SNOMED CT at a relatively basic level. It also enables the growth of more detailed understanding of SNOMED CT by enabling those who complete this course to join more advanced SNOMED CT E-Learning courses in the future.
- **Implementation course**
 - This course builds on the knowledge gained during the SNOMED CT Foundation course. It provides an understanding of SNOMED CT that is sufficient for those engaged in various parts of the implementation process – from the decision to adopt SNOMED CT, through to specification and procurement and/or design and development of SNOMED CT enabled solutions, to deployment and practical use.
- **Authoring Level 1 course**
 - This course teaches you the knowledge and skills needed to perform basic SNOMED CT authoring tasks. Students will have the opportunity to learn and practice authoring tasks using a training version of SNOMED International’s authoring platform. Authoring exercises will be performed in a fictitious extension.
- **Authoring Level 2 course**
 - This course teaches experienced SNOMED CT authors to extend and develop their authoring skills. The course has a strong focus on students learning through practical authoring exercises performed on our training authoring platform and interactive online webinars with experienced authors. This course is a prerequisite for the SNOMED CT Authoring Level 2 certification exam.
- **Terminology Services course**
 - This course teaches the principles of using a SNOMED CT terminology server to search and retrieve SNOMED CT content, using two terminology service APIs - a native SNOMED CT API (Snowstorm) and the standard HL7 FHIR terminology service API.

Learning Pathways

SNOMED International's learning pathways contain a collection of E-Learning resources designed to teach a specific SNOMED CT skill set in a flexible way. Learning pathways currently available include:

- **SNOMED CT for Developers** - The goal of this learning pathway is to teach you enough about SNOMED CT in as short as possible a time to enable you to develop software applications that leverage its capabilities.
- **SNOMED CT for Data Analysts** - The goal of this learning pathway is to provide a solid understanding of how SNOMED CT can be used to support your clinical data analytics requirements.
- **SNOMED CT for Clinicians** - The goal of this learning pathway is to provide an introduction to the why, what and how of SNOMED CT from a clinical perspective.
- **SNOMED CT for Translators** - This short education pathway introduces SNOMED CT to Translators and covers the common requirements to understanding SNOMED CT. It incorporates e-learning content from pre-existing courses. By completing this pathway a learner will have the basic SNOMED CT knowledge that a translator may require in performing translation.

Certification Exams

SNOMED International's certification exams allow individuals to be recognized for their capabilities in specific skill areas. Currently, SNOMED International offers two certification exams:

- **SNOMED CT Authoring Level 1 Certification** - This certification recognizes your competence in performing basic SNOMED CT authoring tasks.
- **SNOMED CT Authoring Level 2 Certification** - This certification recognizes your competence in performing basic SNOMED CT authoring tasks.

- **Terminology Services Certification** - The SNOMED CT Terminology Services certification is a formal recognition of your competence in using SNOMED CT terminology services to search and retrieve SNOMED CT content.

Education Benefits for Members

As part of the 'Enhanced Membership Benefits', each Member is entitled to the following education benefits:

- Free SNOMED CT Courses
- Membership discount for all certifications offered
- NRC access to one free certification exam annually

Participants will be offered a **membership discount automatically** when they login to their E-Learning account during the enrolment process.

SNOMED National Release Centers (NRCs) can claim their **free NRC enrolment** in any of our certification exams by emailing elarning@snomed.org to request a 'Member free' voucher. This voucher can be used to register for free via our [Course Catalogue](#). Please include the name and email of the person who will be enrolling, and the certification intake in which they would like to participate. We will then send the voucher to the selected participant. All 'Member free' voucher allocations must be approved by the Member Forum representative in the respective Member country/territory.

Please note that NRCs can claim their free enrolments in each of our certifications every year - so please take advantage of this offer to educate your local team.

Education Partnerships

SNOMED International seeks to establish partnerships with organizations within our Member countries and territories, who would be interested in translating one or more of our Education offerings into their native language. For more information, please send a request to our education helpdesk (elarning@snomed.org).

SNOMED In Action

SNOMED International has a website called SNOMED In Action, which offers Members and other users an opportunity to register SNOMED CT deployments and provide various details about specific SNOMED CT implementation and usages. Other Members and users may be inspired to follow these examples, or get in contact with persons and institutions that have been involved with specific SNOMED CT implementations.

SNOMED International encourages Members and other stakeholders and users to register their SNOMED CT deployments on this site in order to facilitate knowledge sharing and awareness about how SNOMED CT can be applied and how to reap its benefits.

On this webpage you find an overview of different examples of SNOMED CT in use, and you also have the opportunity to register your own SNOMED deployment: <https://www.snomed.org/snomed-in-action>.

SNOMED CT Implementation Support Portal

Successfully implementing SNOMED CT is crucial for leveraging its benefits to users. The **Implementation Support Portal** serves as a comprehensive resource for individuals and organizations interested in implementing SNOMED CT in their healthcare systems. It provides access to a wide range of resources and tools, as well as guidance and support, to help users successfully implement.

Product and Services Catalog

This is a comprehensive [guide](#) to our products and services, complete with descriptions and links. It suggests relevant groups of products and services for different customer groups.

Value of SNOMED CT

The [Value of SNOMED CT](#) webpage is a useful resource including the case for investment and benefits of SNOMED CT.

NRC Roles in SNOMED CT Education

To address national implementation requirements, NRCs are encouraged to supplement or customize training resources published by SNOMED International. This includes translating documents and training resources where necessary. Education related to some specific aspects of national strategy may be well served by materials developed from scratch by the NRC. For example, if specific reference sets are to be used within specific clinical domains to meet specific reporting requirements, then guidance on the use of these Reference sets could be needed along with information about the reporting procedures.

Whether an NRC develops its own training materials or modifies resources provided by SNOMED International, it is important that any explanation of SNOMED CT be accurate and in accordance with the formal SNOMED CT specifications. Therefore, the NRC should regularly review its SNOMED CT related training materials to ensure alignment with updates to International materials.

If an NRC takes on the education of the national Affiliates and users, it is important that staff of the NRC have a broad and deep understanding of the different implementation levels and possibilities and can facilitate requests from different user groups. Alternatively, the NRC can advise or direct Affiliates to places and persons where they can get the appropriate guidance. The NRC must therefore be aware of people, nationally or internationally, who have the appropriate skillsets to educate and guide users on specific topics. A combination of internal and external resources to provide training and education is a reasonable solution for many NRCs.

Individuals learn in different ways. The NRC may wish to consider delivering face-to-face or online training so that individuals get a chance to ask questions and develop their thinking. Short introductory sessions on the principles of SNOMED CT and a walk through the release are good ways to get people started. They may then find the reference materials much more accessible.

Tooling

There are numerous tools that NRCs may need, depending on the extent to which they customize or extend the SNOMED CT International Edition.

The tools necessary for an NRC depend on what services the NRC will deliver and what approach the NRC will take to deliver its services. However, at a minimum, an NRC needs a platform where SNOMED CT can be made available to users, i.e. a tool to support distribution to users of the International Edition (received from SNOMED International) and potential National Extensions. Moreover, if the NRC decides to develop National Extensions, including a national translation or national Reference sets, tools are also required to support these tasks. Figure 8 shows various types of tooling that an NRC can use to support its work with SNOMED CT.

Figure 8 Tools useful for an NRC.

Work task	Tool
Distribution	Tools for distribution of the International Release of SNOMED CT and National Extensions
Change requests	Tools for management requests for changes to the International and National Edition of SNOMED CT
Development and customization	Tools for development and management of Extensions, Reference sets, maps
QA and file creation	Tool for creating release files and for running QA rules etc. (so that release files can be quality assured before they are distributed to users)
Search and browsing	Tools for exploring the content of the International and/or National Edition of SNOMED CT

Later sections of this document present the typical practice and tools related to each of the above work tasks .

SNOMED International Tooling service

NRCs are free to choose or develop tools to enable distribution and management of SNOMED CT and national derivatives in their countries. However, SNOMED International puts great effort into development of SNOMED International tooling services, which represent a range of services and tools that have been made available to support SNOMED International, Members, and the Community of Practice. Over time, SNOMED International aims to include tools necessary to support the full range of essential NRC functions in its tooling services.

Tooling service developments are now based on SNOMED International's Open Tooling Framework (OTF) and the source code is made available under an Apache v2 open source licence (where feasible). This framework is a set of standardized application programming interfaces (APIs), bound by a set of principles that define fundamental

software services. These services are consumed by business applications, which are being developed to satisfy the tooling requirements of SNOMED International and its Members.

SNOMED International tooling services are listed at <https://www.snomed.org/software-tools>.

Details of [implementation tooling](#) are also provided on the SNOMED CT Implementation Support Portal.

.

SNOMED CT browsers

SNOMED CT Browsers are software applications or tools used for searching, navigating, viewing and reviewing terminology content. For NRCs that want users and potential users to increase and enhance their knowledge of SNOMED CT, it can be a good idea to make a SNOMED CT browser freely available.

A typical browser can locate concepts and descriptions by searching the text of descriptions (terms) or by entering SNOMED CT identifiers. Browsers may also provide a way to navigate the SNOMED CT hierarchies. Browsers may display views of various artifacts including the set of related descriptions, the hierarchical relationships and other defining relationships of a concept.

A variety of different SNOMED CT browsers are available online, as downloadable applications or as web-based applications. But a Member can also choose to develop its own SNOMED CT browser and make it available for national users. This is especially relevant if national customized SNOMED CT content is developed and should be browsable, such as translations, Reference sets, etc. An NRC may download and install for national use the SNOMED International open source browser. As this is open source, it is also possible to add functionality to it. If an NRC does this, its contribution of the components back into the open source repository may be highly beneficial for all Members.

On the SNOMED International webpage on SNOMED CT Browsers, SNOMED International provides a list of the different types of browsers available. It is possible to add items to this list if you are aware of other browsers that are not included. Browsers are eligible for inclusion in the list if they are freely accessible software applications that provide searchable access to SNOMED CT.

- SNOMED International Browser can be found here: <http://browser.ihtsdotools.org>.
- An overview of some other SNOMED CT browsers can be found here: <http://snomed.org/browsers>

Distribution of SNOMED CT

A core responsibility of an NRC is to make the International Edition of SNOMED CT and/or the National Extension of SNOMED CT available for Affiliates.

Every NRC must therefore be able to provide guidance on access to SNOMED CT, version control and management. Moreover, the NRC should be able to provide guidance to users on specific terminology services that are provided by the NRC, and in the use of national SNOMED CT developments, such as National Extensions, Reference sets, etc.

SNOMED International maintains and delivers shared content and derivatives¹ that provide the foundation of SNOMED CT. This is known as the SNOMED CT International Edition.

SNOMED CT is distributed as sets of files containing terminology components and derivatives. These contain the basic data needed to implement SNOMED CT in various modes in a technology-neutral format. The format, content and names of the files delivered conform to SNOMED CT specifications and guidelines published in [SNOMED CT Release File Specification](#).

Components represent the content of the terminology.

The standard SNOMED CT representation for content is as three interrelated files. The Concept file contains unique identifiers for clinical ideas, the Description file links human readable terms with identified concepts, and the Relationship file represents associations between identified concepts.

Derivatives facilitate the effective use of the terminology.

The standard SNOMED CT representation for derivatives is a consistent but flexible file format, known as the Reference set format. Reference sets can be used for a wide range of purposes including subsets, language preferences, ordered lists, hierarchies, annotations and mappings to or from other terminologies, classifications and code systems.

Access to SNOMED CT release files:

Members of SNOMED International and Affiliates outside of Member countries, both access the release files via SNOMED International's SNOMED CT Licensing and Distribution Services (MLDS).

All files distributed to Members are available from the "SNOMED CT International Edition" product page on MLDS, and can be accessed here: <https://mlds.ihtsdotools.org/#/ihtsdoReleases/ihtsdoRelease/167>

Access and information about MLDS can be found here: <https://mlds.ihtsdotools.org>.

Release Lifecycle

SNOMED International provides regular updates to the SNOMED CT International Edition. SNOMED CT is released monthly on the first day of each month. Further details can be found in <https://www.snomed.org/releases>.

Similarly, Members and Affiliates that maintain Extensions should release updated versions of their Extensions to align with the SNOMED CT International Edition.

Members' Release

Regular changes to SNOMED CT are necessary in order to satisfy user needs and requirements and to improve the quality of SNOMED CT itself. An NRC must be aware that any change to SNOMED CT may have impact on National Extensions and guidance. Therefore, every release requires reconciliation to ensure that all National Extensions remain aligned with the International Edition.

If SNOMED CT components (concepts, descriptions or relationships) are added or inactivated, an assessment of how these changes affect a National Extension is required, and adjustments to the national developments may be needed. For example:

- Added concepts may require translation and may also be candidates for addition to national Reference sets.

- Inactivated concepts that members of a National Reference set may need to be replaced with an appropriate active concept.


Release files

With every SNOMED CT release two different release file types are made available:

- Full Release: containing the complete history of every component
- Snapshot Release: containing the current state of every component

Note on Delta Release (includes changes made between one version and the next): Delta files have been removed from the SNOMED International release package, Managed Service Extensions and Derivative packages. However a Delta Generation Tool is available for those who need it. The Delta Generation Tool allows users to create their own Delta between two fixed release dates - you can find it here: <https://github.com/IHTSDO/delta-generator-tool/releases>.

The International Edition is provided in both release types. However, as the Snapshot can be generated from the Full Release, the specification only requires that organizations that maintain Extensions provide a Full Release of their extension.

 A SNOMED CT Derivative is a document, subset, set of maps, or other resource that consists of, includes, references or is derived from one or more components. The standard computer processable representation for most types of SNOMED CT derivatives is a reference set.

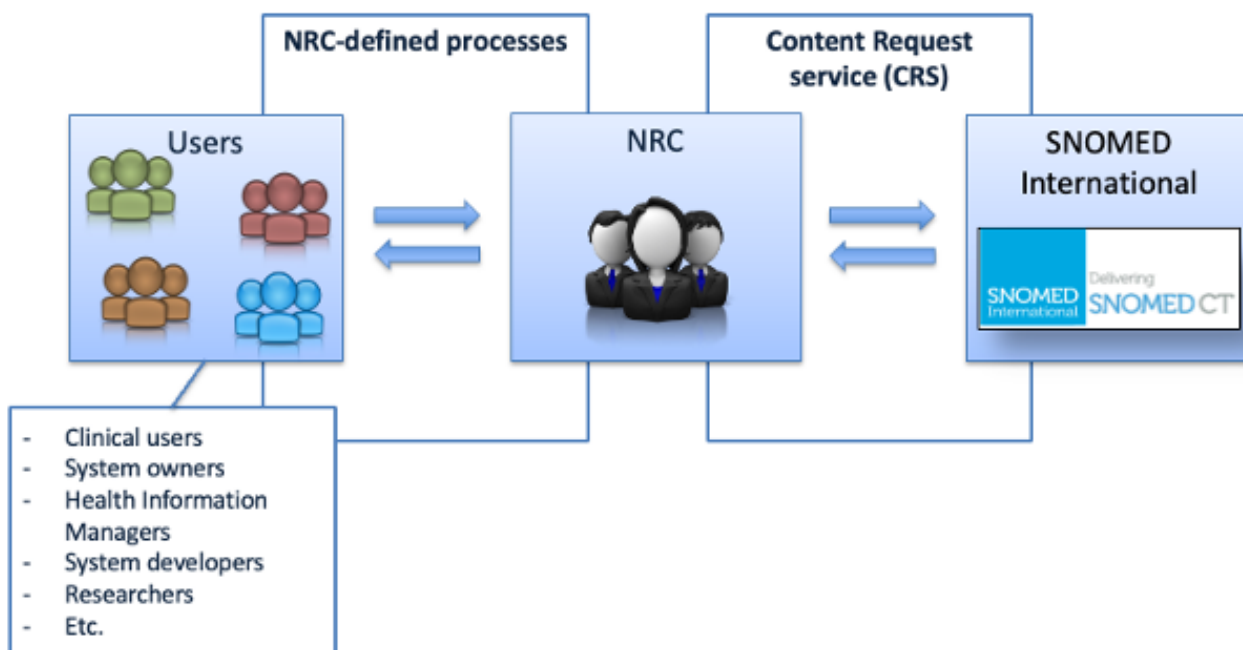
Change requests

SNOMED CT is developed for implementation and use in health IT systems, so it is essential for successful adoption that the terminology fulfill user requirements. To facilitate continued development and enhancement of SNOMED CT, SNOMED International is dependent on ongoing feedback from users. A significant responsibility of an NRC is therefore to provide SNOMED International with feedback from users in the Member countries on errors, limitations and suggestions for changes to the SNOMED CT content. Regarding management of change requests, each NRC must:

1. Maintain a record of problems and other issues reported within the Member country, and
2. Document, submit and support requests for proposed updates and enhancements to SNOMED CT

An NRC must therefore provide a mechanism for supporting requests from users, both related to the National Edition (where it exists) and International Edition of SNOMED CT. Requests for the International Edition should be communicated to SNOMED International, whereas requests for the National Edition must be managed locally.

Figure 9. NRCs manage user requests for changes to both the National and International Editions of SNOMED CT



How user requests are submitted to the NRC is up to each NRC to decide. An NRC can choose to have its own request submission system, but the solution could also be a simple mailing system or a file-transfer system. This depends on the level of SNOMED CT use (and hence, the number of requests) within the Member country. An NRC could decide to have a simple system in the NRC-establishment phase and then launch a more sophisticated system when the number of requests increases.

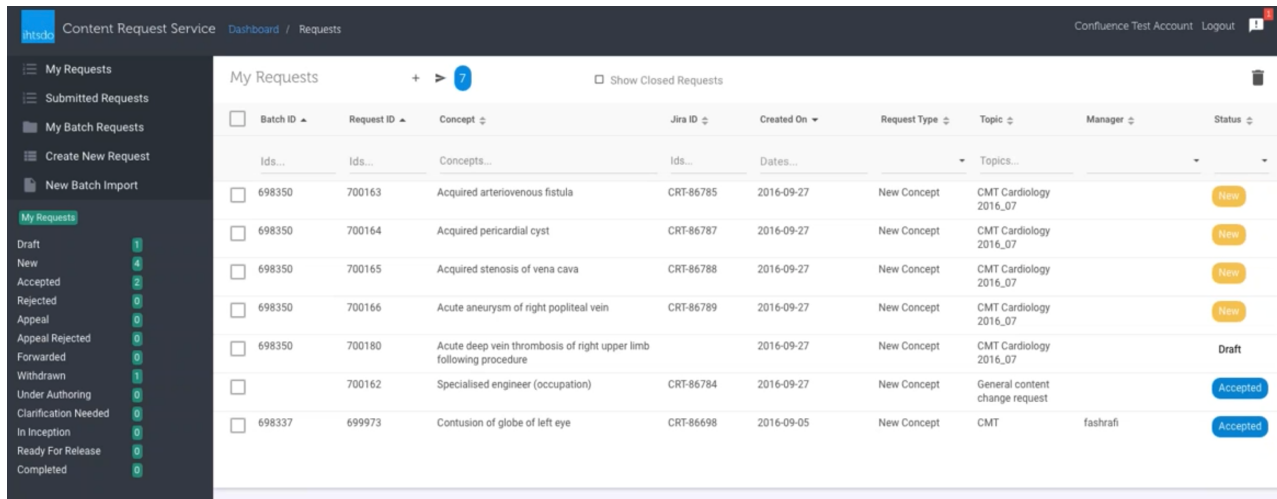
SNOMED CT International Content Request Service (CRS)

CRS is SNOMED International's online request submission system, which allows Member countries' NRCs and other authorized users to submit requests for change or addition of new content to the International Edition of SNOMED CT. Hence, all user requests for the International Edition of SNOMED CT should go via the NRC, and each NRC should have access to CRS. Concepts of only national relevance should not be submitted to SNOMED International. It is the responsibility of the NRC to determine which request is specific to its country and which are of international

relevance. NRCs should be aware of the editorial principles for SNOMED CT and only submit requests that meet those principles.

Requests submitted to CRS are reviewed by SNOMED International Authors, and requests that meet the SNOMED CT International Edition inclusion criteria are added to the International Edition. CRS is an online tool, which enables users to view the current status of all requests that have been made through the system, see Figure 10.

Figure 10 Screenshot from CRS. Example of overview of requests submitted to the system.



Batch ID	Request ID	Concept	Jira ID	Created On	Request Type	Topic	Manager	Status
698350	700163	Acquired arteriovenous fistula	CRT-86785	2016-09-27	New Concept	CMT Cardiology 2016_07		New
698350	700164	Acquired pericardial cyst	CRT-86787	2016-09-27	New Concept	CMT Cardiology 2016_07		New
698350	700165	Acquired stenosis of vena cava	CRT-86788	2016-09-27	New Concept	CMT Cardiology 2016_07		New
698350	700166	Acute aneurysm of right popliteal vein	CRT-86789	2016-09-27	New Concept	CMT Cardiology 2016_07		New
698350	700180	Acute deep vein thrombosis of right upper limb following procedure		2016-09-27	New Concept	CMT Cardiology 2016_07		Draft
	700162	Specialised engineer (occupation)	CRT-86784	2016-09-27	New Concept	General content change request		Accepted
698337	699973	Contusion of globe of left eye	CRT-86698	2016-09-05	New Concept	CMT	fashrafi	Accepted

Users are notified by email when a request changes status (accepted, not accepted, in process, or clarification requested). If a request is not accepted, a reason is provided to the requestor. A requestor who is unhappy with the reason for not non-acceptance can appeal using a formal appeals process.

For up-to-date information about current arrangements and for access to CRS see [CRS User Guide](#)

Further details on requesting content changes, or the addition of new content, are available from <http://www.snomed.org/snomed-ct/Use-SNOMED-CT/change-or-add>. The document "Customer Guidance For Requesting Changes to SNOMED CT" is available for download from this page. The document provides details of how to make a request, and what details need to be provided by the requestor as part of the process.

 Change requests to the International Edition are submitted to SNOMED International via the online SNOMED CT International Content Request Service (CRS)

Content development and SNOMED CT customization

For successful SNOMED CT adoption, it is important that the terminology conforms to the requirements of the specific use cases in the given country or within a given organization. In most situations this requires adjusting or extending the terminology, which can be done in various ways. SNOMED International authorizes Members and Affiliates to maintain and deliver additional components and derivatives known as SNOMED CT Extensions. These extensions are the formal way of conforming SNOMED CT to suit specific user requirements.

Extensions

Members may maintain and deliver additional terminology components and derivatives that adapt the terminology to meet specific national requirements. Moreover, SNOMED International Affiliates may also maintain and deliver additional terminology components and derivatives that adapt the terminology to meet the needs of a particular organization, customer or software solution. Extensions can therefore be distinguished as either National Extensions or Affiliate Extensions.

- The [Extensions Practical Guide](#) presents the purpose, process and principles of creating, distributing and managing SNOMED CT extensions. Extension producers should be familiar with this guidance to ensure the quality and integrity of the SNOMED CT editions that they publish.

A National Extension may include:

- translation into the national language or adaption to a national dialect;
- additional content to support national policy objectives, a national drug dictionary or other specific requirements;
- derivatives that configure use of SNOMED CT content by specifying subsets of content to be used for particular purposes;
- derivatives that map other code systems used in that country to or from SNOMED CT.

An Affiliate Extension may include:

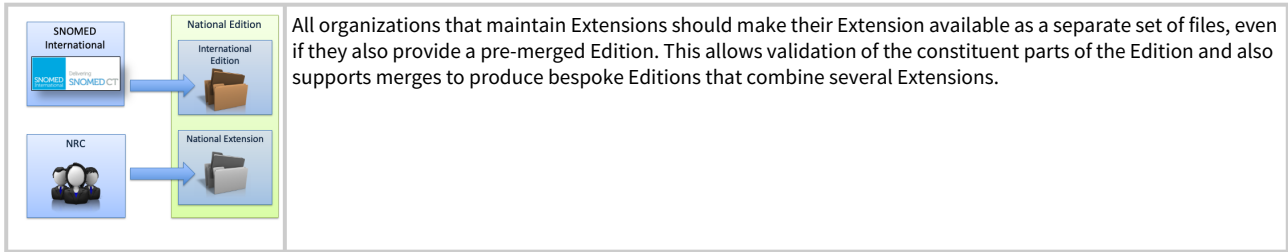
- additional content to enable a health provider organization or clinical specialty group to address its priority use cases;
- derivatives that configure use of SNOMED CT in ways that reflect the needs of a health provider organization or specialty;
- derivatives that configure the way SNOMED CT is used or presented to different customers using particular software applications;
- derivatives that map local or proprietary code systems to or from SNOMED CT.

Development of National or Affiliate Extensions requires the NRC or the Affiliate to have a Namespace Identifier, which is assigned by SNOMED International. A Namespace Identifier is used to identify the origin and the affiliation of each extension component. An NRC has the responsibility to ensure that any deployment of SNOMED CT and other SNOMED International terminology product conforms to SNOMED International standards. An NRC therefore serves as a point of contact for Affiliates to obtain guidance and advice in the development and maintenance of Affiliate Extensions.

Extensions and Editions

The SNOMED CT International Edition can be used without any Extensions. However, a SNOMED CT Extension cannot be used on its own because all Extensions are dependent on the International Edition, and some Extensions are also dependent on other Extensions. Therefore, for each Extension there is a corresponding Edition that includes the Extension, the International Edition and any other Extensions on which it depends.

Figure 11. A National Edition includes both the National Extension and the International Edition



Translation

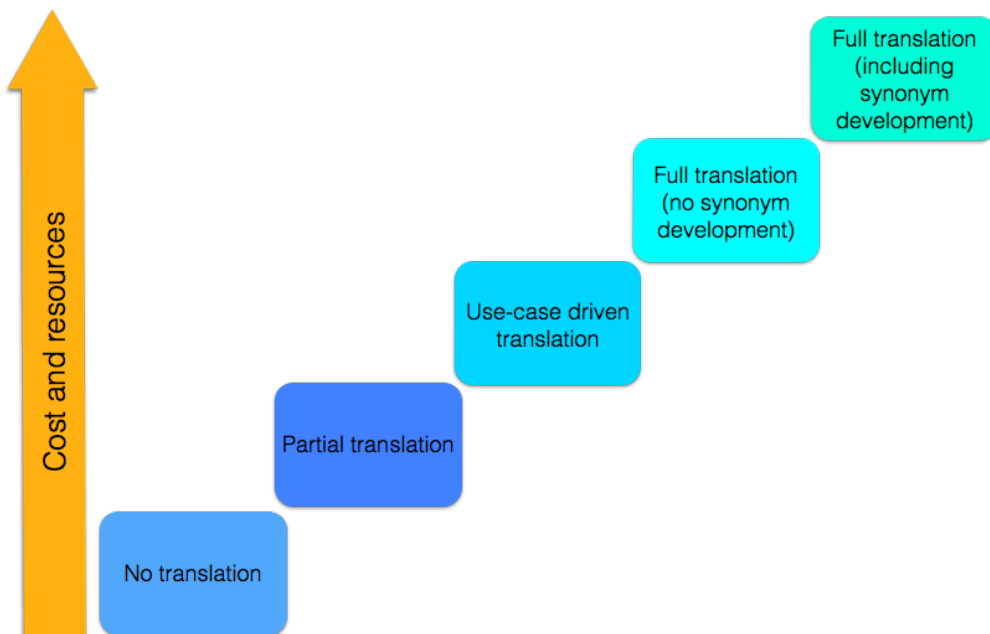
The International Release of SNOMED CT contains terms in US English, GB English and Spanish. However, SNOMED CT is designed to support multilingual use by enabling terms in any language to be linked to the same concepts. Many of the current Members do not use English as the primary language in the delivery of healthcare, and therefore Members may require a translation of SNOMED CT to achieve a national terminology resource and to support users in the correct interpretation of the SNOMED CT content. The responsibility for translation is with those Members that use a particular language in the specific Member country. However, while Members are permitted and encouraged to translate SNOMED CT, this is not an obligation of membership. Each Member should consider whether or not to translate SNOMED CT into the native language and/or dialect, given the actual visions for use of SNOMED CT within that Member country.

A number of Members have already translated SNOMED CT into their native languages. These translations are managed within each of the particular Member countries as National Extensions and have been created based on SNOMED International regulations but according to the particular Member's requirements. Each translation may be shared with other Members, and all Members have an obligation according to the Articles of Association to share their translations upon request.

Translation approaches

Translating SNOMED CT does not necessarily mean a translation of the full SNOMED CT International Edition. A Member can decide to translate parts of SNOMED CT to obtain a core set of components to be used within the country. Another approach is to translate concepts that are to be applied within a specific organization, clinical domain, etc., which means a more use-case driven translation.

Figure 12. Different levels of SNOMED CT translation



Translation Policy

SNOMED International believes that translations of SNOMED CT are very important because a translation can support SNOMED CT adoption due to enhanced understanding of the SNOMED CT content amongst the end users. Therefore SNOMED International has initiated a translation policy that reimburses a Member country for:

1. 100% of the cost of translating concepts, which will be considered the "core" or starter set;
2. The cost of translating one implementation document; and
3. The cost of one SNOMED CT course.

(The maximum payment for each Member will be 150,000 USD.)

More information about Translation can be found here: <https://www.snomed.org/use-snomed-ct>

Translation Guidance

Together with Members, SNOMED International has produced documentation that assists Members who decide to translate SNOMED CT. The documentation should support effective translation processes and enable Members to learn from the successes of those that have already set out on this task. The documentation can be found on the SNOMED International website and includes the following:

<p>Guidelines for Translation of SNOMED CT</p> <p>This document describes important issues relevant to the translation of SNOMED CT, formulates recommendations, and establishes guidelines. The general guidelines may be used as a template to develop national guidelines. In addition to linguistic and terminological guidelines, the document includes general recommendations about the steps involved in a translation workflow process and information about source documents or references that must be made available to those involved in the translation process.</p>
<p>Guidelines for the management translations of SNOMED CT</p> <p>This document is a companion guideline to be used with the "Guidelines for the Translation of SNOMED CT" and offers recommendations on management of a translation project. The purpose is to help new Members undertaking translations to avoid mistakes and enable them to build on existing experiences.</p>
<p>A methodology and toolkit for evaluating SNOMED CT Translation Quality</p> <p>This document describes the use of SNOMED International methodology and toolkit for evaluating SNOMED CT translation quality and has been developed to conform to SNOMED International Quality Assurance Framework. The document also includes the actual toolkit and therefore is useful for any Members looking for translation support materials.</p>
<p>SNOMED International Quality Assurance Framework</p> <p>SNOMED International Quality Assurance Framework, with its supporting SNOMED International Quality Assurance Toolkit, was developed by SNOMED International Quality Assurance Committee and aims to support the development and reporting of Quality Metrics across all areas of SNOMED International activity, including organizational processes and support, data products (e.g. terminology reference data, mappings, translations, subsets), documentation, and SNOMED International-responsible services and tooling provisions. Other resources are also available, mostly concerning the practical experiences of those who have undertaken translation development.</p>

Reference set development

Many implementations of SNOMED CT do not require users to have access to the full set of content. Often just a part of the data related to a particular discipline or organization will be needed. It is possible to constrain the content required by the use of the subsets or Reference sets.

Reference sets are sets of references to SNOMED CT components. Simple reference sets contain just the information needed to define a subset. However Reference sets can be richer than subsets, as they can also include further information about the components and have been defined for other purposes such as mappings to other vocabularies or providing alternative hierarchical structures.

Reference sets are distributed as tab-delimited text files with each row including a SNOMED CT component identifier for the Reference set member. There are also several standard fields that support versioning and additional fields defined to meet the requirements of specific Reference set types.

Full details on Reference sets and the Reference set format may be found in the [Reference Sets Guide](#).

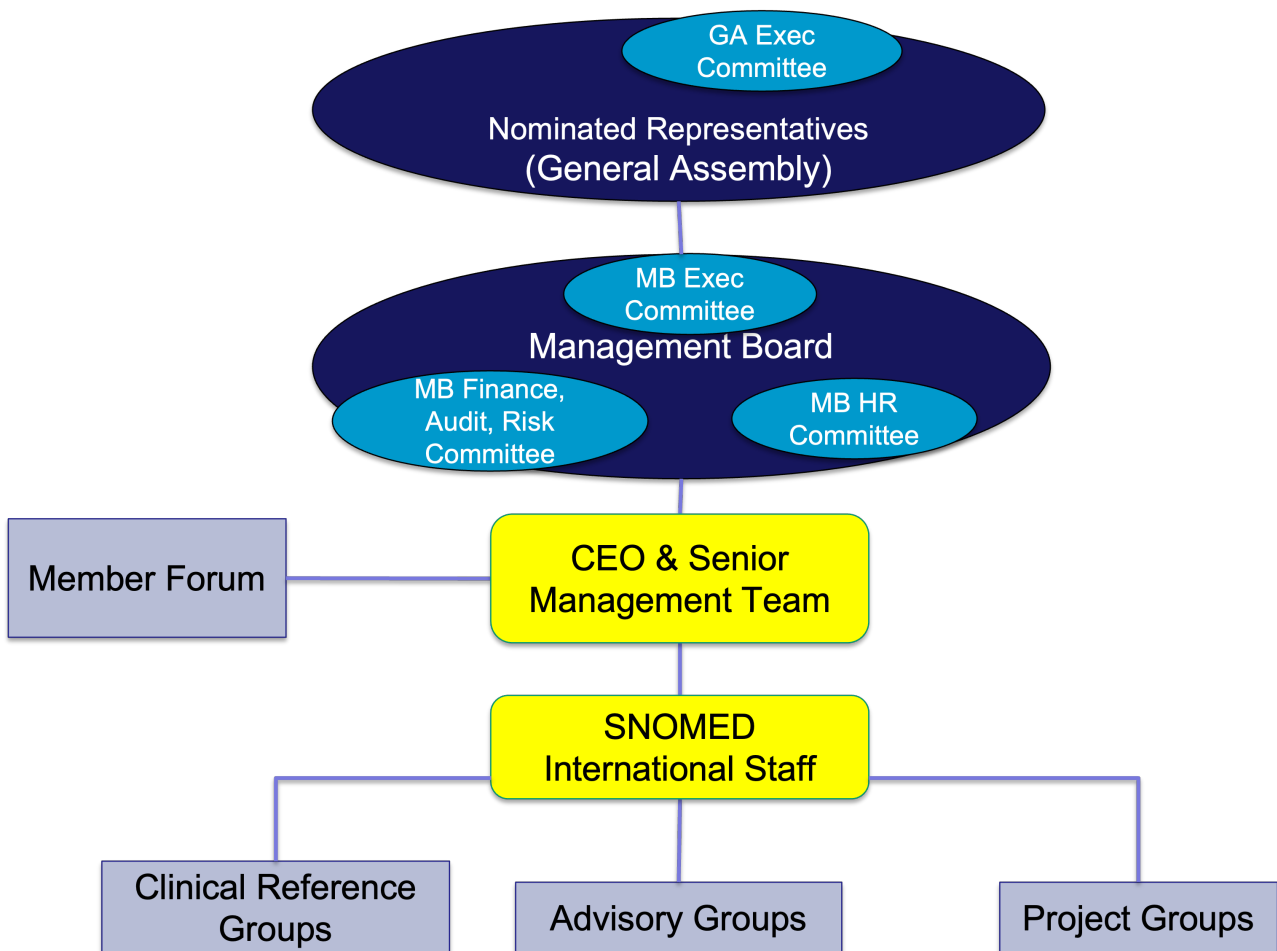
SNOMED International Governance, Advisory Groups and Events

It is important that all Members are familiar with the existence and responsibilities of the different bodies and forums of SNOMED International in order for them to know what roles and responsibilities the Member and, more specifically, the NRC plays (or can play) within these, but also to be acquainted with the support and benefit each Member can get by engaging in the different forums.

The bodies and forums of SNOMED International are the foundation for the continuous maintenance, development and distribution of SNOMED CT, and they provide the organizational framework for communication and collaboration between the different parts of the SNOMED CT community.

An overview of the different Bodies and Forums is shown below

Figure 13 SNOMED International Governance and Advisory Structures.



General Assembly

The General Assembly is the highest authority in SNOMED International and contains one representative from each of its national Members. The General Assembly is collectively responsible for assuring that the Purpose, Objects and Principles of the Association are pursued and that the interests of SNOMED International are safeguarded. It can make binding decisions regarding all matters relating to SNOMED International, subject to and in accordance with the provisions of the Articles of Association, such as budget, work plan and strategic goals. It is recommended though not required that General Assembly representatives attend all meetings. Face-to-face meetings occur usually twice per year with occasional teleconferences and electronic voting.

Management Board

The Management Board is appointed by the General Assembly. The Management Board directs the Association and has the responsibility for key business decisions. It has at least four face-to-face meetings per year with occasional teleconferences between these meetings.

The Management Board also appoints the Chief Executive Officer (CEO), who has day-to-day responsibility for running the organization. A Senior Management Team, with members each responsible for a particular line of business, supports the CEO and directs the work of employees.

Advisory bodies

Member Forum

Each Member is entitled to nominate two representatives to the Member Forum (MF). The MF acts as a non-voting advisory body to the CEO and Senior Management Team.

The MF is also a means for optimizing the collaboration and coordination among SNOMED International Member countries provides a means for Members to have discussions on specific Member issues. Moreover, the MF facilitates contact and communication between countries with similar foundations, needs, priorities, etc. It is recommended that each Member gets involved in the MF.

The MF can raise issues of concern to the CEO and Senior Management Team and is also requested to provide specific feedback on national priorities and other matters. The MF is the conduit for communicating widely on consultations that SNOMED International may undertake. These consultations may include specific issues related to SNOMED CT content or SNOMED International documents, products and services. The MF is also a key player in determining which SNOMED International work items should be undertaken and prioritized.

Advisory Groups

Advisory Groups were established in June 2015 to conduct specific activities that contribute to the fulfillment of the Senior Management Team's responsibilities or the organization's mandate. They are meant to be agile, given the changing needs and direction of the organization, therefore, each group is reviewed on an annual basis to determine if it is still required or if changes in the Terms of Reference are needed. Generally, Advisory Group members have specific skills and abilities related to that particular group.

The role of each Advisory Group is to provide advice to the applicable Senior Management Team member(s) on specific areas that are included in the Terms of Reference to further the knowledge and direction of the organization. At the beginning of each year, each Advisory Group develops a group work plan outline, determines whether Task and Finish sub-groups are required, outlines any resource requirements needed, and lays out a set of measures in order to monitor the progress of the applicable group work plan. The organization, with the approval of the Management Board, may elect to seek approval for separate budget items in the annual budget to assist the Advisory Groups in the completion of their approved work plans. All work plans are to be submitted to the CEO annually for review and approval.

NRCs should note that Advisory Group members are selected by two different nomination processes. The Terms of Reference of each Advisory Group describes which of the two is relevant (or if a combination of the two is used).

Member-based nominations

Member-based nominations are used when SNOMED International seeks to create a forum for SNOMED International staff to work closely with Members. Under this system, Members nominate representatives to serve on an Advisory Group, so the Advisory Group members represent their countries. Typically the Senior Management Team member who chairs the Advisory Group contacts the General Assembly and Member Forum representatives in May or June and invites them to nominate representatives with a particular skill set. SNOMED International then accepts all of those nominees or a subset of them. Any travel expenses of the Advisory Group members to attend approved face-to-face events are then assumed to be the responsibility of the Member. A Member's refusal or inability to pay these expenses does not invalidate or prejudice the nomination in any way, and teleconferencing for those who cannot attend in person is a typical option.

Standard nominations

Other Advisory Groups rely on a standard, open, skills-based nomination process. Advisory Group members selected through this process may submit to SNOMED International any approved travel expenses for reimbursement to attend approved face-to-face Advisory Group events (the SNOMED International Travel Policy has more information about approved expenses and means of submission).

Can Members nominate individuals to serve on Advisory Groups that utilize the standard nomination process? Yes. For example, a Member may nominate its NRC IT expert to serve on the Modeling Advisory Group, which uses the standard nomination process. SNOMED International may select them based on their skills. Who then pays for the travel expenses to attend an Advisory Group face-to-face meeting? The elected person would be entitled (but not required) to submit their expenses for reimbursement from SNOMED International, on the basis that they are serving on the Advisory Group as an expert, and not as a Member representative.

Table 1: Advisory Groups and their Nomination Processes

Group name	Nomination process
Content Managers AG	Member-based
E-Learning AG	Member-based
Modeling AG	Standard
SNOMED CT Editorial AG	Standard
Software Development AG	Standard
Terminology Release AG	Standard
Manage Service User Group	Member-based

More information about Advisory Groups can be found at <http://snomed.org/advisory>.

Clinical Reference Groups

Clinical input to support the development of SNOMED CT is delivered through Clinical Reference Groups. These groups are focused on clinical specialities, with each specialty having its own Confluence based site. Each site supports discussion and knowledge sharing. Access to the Clinical Reference Groups is through a central Confluence portal focused on clinical engagement activities at <http://snomed.org/crg>.

SNOMED International Collaborative Space – Confluence

Confluence is an online forum/space where the people within SNOMED International Governance and Advisory Bodies can communicate and share information. Confluence facilitates a range of types of communications, including written discussions, meeting announcements and document sharing.

Members, Affiliates, or other interested parties can gain access to the Collaborative Space to learn more about SNOMED International and SNOMED CT. The Confluence space also enables participation in Advisory Groups, Clinical Reference Groups and Project Groups.

Information about Confluence is available at <https://confluence.ihtsdotools.org>.

SNOMED International Meetings and Events

SNOMED International arranges two events a year. In April it holds a Business Meeting and in October a second Business Meeting is combined with the annual SNOMED CT EXPO. The venue of the October event varies each year and Members encouraged to submit proposals for hosting the event in their country.

Business Meetings

SNOMED International Business Meetings include face-to-face meetings of SNOMED International Governance Bodies and Advisory Groups. Business Meetings may also include face-to-face meetings of some Project Groups and Clinical Reference Groups.

While meetings of Advisory Groups are open to observers, some sessions of other groups are closed and may only be attended by members of the relevant bodies.

A key part of each Business Meeting is the open meeting of the General Assembly, where the key strategic decisions, plans and achievements are made and announced.

SNOMED CT EXPO

The [SNOMED CT EXPO](#) is an open event for anyone interested in SNOMED CT and practical applications of the terminology. The event includes invited keynote speakers and several tracks of peer-reviewed presentations about SNOMED CT in general with a focus on implementation experiences and developments that facilitate more effective use of the terminology.

The EXPO also includes tutorials and workshops for those seeking greater understanding of SNOMED CT, an exhibition of vendor products that use SNOMED CT and a range of poster presentations on related topics.

The EXPO is the main annual event in SNOMED International calendar for anyone interested in the use and development of the global healthcare terminology. In addition to the scheduled sessions, it provides an excellent opportunity to network with others with a shared interest in SNOMED CT.

Further information

The NRC Guide is intended as a useful starting point for National Release Centers. More detailed information and a range of informative documents and training materials can be accessed from the SNOMED International web site <http://www.snomed.org>. The table below provides links to many of the key resources for further learning about SNOMED CT.

Topic	Key reference
General information about SNOMED CT Materials include what is SNOMED CT?, value and benefits, and information about licensing.	https://www.snomed.org/what-is-snomed-ct https://www.snomed.org/value-of-snomedct http://snomed.org/license
SNOMED CT Document Library Access to a wide range of documents about SNOMED CT	http://snomed.org/doc
SNOMED CT Browsers The SNOMED International Browser and a list of other tools for exploring SNOMED CT content	http://browser.ihtsdotools.org http://snomed.org/browsers
SNOMED CT In Action Examples of how SNOMED CT is being used around the world.	https://www.snomed.org/snomed-in-action
SNOMED CT Starter Guide A general purpose introduction to SNOMED CT which complements this guide.	http://snomed.org/starterguide
Vendor Guide The Vendor Introduction to SNOMED CT provides an informative practical introduction to SNOMED CT focused primarily on the needs of vendors and developers of EHRs.	http://snomed.org/vendorintro
SNOMED CT E-Learning Server Access to a growing range of online training resources about SNOMED CT. Including formal courses and open-access materials.	http://snomed.org/elearning https://www.snomed.org/education
SNOMED CT Expo Presentations Presentation materials	https://www.youtube.com/@snomedct/playlists
About SNOMED International More information about the organization that owns and maintains SNOMED CT	https://www.snomed.org/about-us https://www.snomed.org/get-involved http://snomed.org/members https://www.snomed.org/our-partnerships https://www.snomed.org/snomed-ct-marketplace