SNOMED CT January 2019 International Edition - SNOMED International Release notes

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Page At A Glance

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1. Introduction

1.1. Background

SNOMED CT terminology provides a common language that enables a consistent way of indexing, storing, retrieving, and aggregating clinical data across specialties and sites of care.

SNOMED International maintains the SNOMED CT technical design, the content architecture, the SNOMED CT content (includes the concepts table, the descriptions table, the relationships table, a history table, and ICD mappings), and related technical documentation.

1.2. Purpose

This document provides a summarized description of the content changes included in the January 2019 release of SNOMED Clinical Terms® (SC T) International Release.

It also includes technical notes detailing the known issues which have been identified and agreed to be released. These are content or technical issues where the root cause is understood, and the fix has been discussed and agreed, but has yet to be implemented.

The SNOMED International Release Notes are available alongside the January 2019 International Edition release.

1.3. Scope

This document is written for the purpose described above and is not intended to provide details of the technical specifications for SNOMED CT or encompass every change made during the release.

1.4. Audience

The audience includes National Release Centers, WHO-FIC release centers, vendors of electronic health records, terminology developers and managers who wish to have an understanding of changes that have been incorporated into the January 2019 International Edition release.

2. Content Development Activity

2.1. Summary

Continuous quality improvement and enhancement of existing content is an ongoing process by SNOMED International for every release. The January 2019 International Release has seen a continuation of the work driven by contributions from: Kaiser Permanente Convergent Medical Terminology (CMT), Global Medical Device Nomenclature Agency (GMDNA), Orphanet and other domain specific collaborations as well as requests received via the Content Request System (CRS). Additionally quality improvement activities are in progress for new and enhanced content through project driven initiatives which are also summarized below. Also included as work items for every release are various updates to SNOMED CT derived maps such as ICD-10 and ICD-O and details are also included in these release notes. Information about editorial decisions may be found in the SNOMED CT Editorial Guide, mapping guidance for ICD-10 can be found at this link https://confluence.ihtsdotools.org/display/DOCICD10.

Reminder

Inactivation reason of LIMITED/WAS A is not allowed for any content after the July 2018 release. The WAS A association refset has not been updated thereafter.

Background

In 2015, a proposal was made to inactivate 159083000 |WAS A (attribute)| relationship and stop updating the 900000000000528000|WAS A association reference set (foundation metadata concept)| at the Editorial Advisory Group.

Since these recommendations were approved, a formal proposal for the technical approach to batch updating the terminology was created and a notice of the proposed inactivation sent to the Community of Practice.

The implementation of changes was postponed following feedback on utility for implementation and the potential impact to customers who were still using RF1.

The matter was discussed again at the meeting of the Editorial Advisory Group in Bratislava in October 2017. Since the requirements and potential issues can be addressed by deriving such information from the RF2 release format, the recommendation is to proceed with the decision for implementation after the July 2018 release.

2.2. Content Quality Improvement

SCT Statistics	New concept additions
SNOMED CT Concept (SNOMED RT+CTV3)	11903
Body structure (body structure)	442
Clinical finding (finding)	2114
Event (event)	27
Observable entity (observable entity)	56
Organism (organism)	326
Pharmaceutical / biologic product (product)	7986
Physical object (physical object)	59
Procedure (procedure)	393
Qualifier value (qualifier value)	135
Record artifact (record artifact)	61
SNOMED CT Model Component (metadata)	16
Situation with explicit context (situation)	50
Social context (social concept)	1
Specimen (specimen)	2
Staging and scales (staging scale)	11
Substance (substance)	223

Special concept (special concept)	1

SCT Improvement Statistics to Existing Concepts	Number
Total number of changes	72,376
Change to stated concept definition	20,294
Change to inferred concept definition	57,325
Change in concept definition status from Primitive to Sufficiently Defined	1,269
Description change	20,288
Inactivated concepts	3,035
Inactivated descriptions	12,663
Reactivated concepts	21

2.2.1. Anatomy

New anatomy concepts: 442

Content quality improvements:

- Descriptions of 44 concepts updated to conform to the editorial guidance for the naming convention for laterality.
- The attribute 123005000 |Part of (attribute)| has been inactivated and a new attribute |Proper part of| has been added in the January 2019 release. All part of relationships are inactivated and the different part of relationships will be implemented after the revision of hierarchical relationships for anatomy content.
- Revision of hierarchical relationships for anatomy content: the project plan is to review the hierarchical relationships for anatomy content in the production against the inferred relationships from the new anatomy model. The new anatomy concept model has implemented the Description Logic features, e.g. reflective and transitive property, general concept axioms, for consistent logical modeling and inferences.
  Content review and revision are divided by body systems. There is a total of 12,458 hierarchical relationships in anatomy for review. The revision will improve classification in other hierarchies such as disorders, procedures, observables and situations. In this release, over 4,100 relationships in the musculoskeletal system in body structure and over 6,000 relationships in other hierarchies were reviewed. There are about 2,000 changes to hierarchical relationships in anatomy and concept model for disorders and procedures. Further details can be found at https://confluence.ihtsdotools.org/display/IAP /Progress+of+IS+A+revision
  Please note, you may have to register for a Confluence user account in order to access the relevant links above.
- Revision of nail structures - all 'nail structure' concepts are replaced by nail unit structures to avoid misinterpretation of nail plate structures. |Nail plate structure| is a skin appendage. |Nail unit structure| includes |Nail plate structure| and skin around and under the nail plate. The concept |Nail structure| and its subconcepts were inactivated. Over 60 new nail unit concepts were added. Changes were made to stated relationships for over 300 concepts with impact to inferred relationships for about 500 concepts.

2.2.2. Clinical finding

Advance Notice

Planned changes to 'Co-occurrent and due to' pattern.

During the implementation of the new Description Logic features a conflict was uncovered between the modeling of 'Co-occurrent and due to' and General Concept Inclusions (GCIs). This has resulted in the need to reconsider the modeling of "Co-occurrent and due' and update the Editorial Guide for this area.

There are a number of new concepts in the January 2019 release that are based upon the existing guidance for 'Co-occurrent and due to'. The plan is to update the Editorial Guide and all concepts that are currently modeled as 'Co-occurrent and due to' for the July 2019 release.

New concepts for clinical findings and disorders: 2114

Quality Initiative

The Quality Initiative (QI) project is the implementation of the Quality Strategy. After a successful pilot project for the July 2018 release the next stage has been implemented for the January 2019 release.

Quality improvement tasks were deployed to improve internal structural consistency and ensure compliance with editorial policy related to the stated modeling of content. Additionally, correction or addition of defining relationships was carried out to accurately reflect current clinical knowledge and ensure the semantic reliability of descriptions associated with a concept.

The following subhierarchies of the Clinical Finding hierarchy were remodelled to the proximal primitive parent resulting in changes to inferred relationships.

- Fracture
- Bacterial infectious disease
- Disease caused by parasite
- Sexually transmitted disease
- Chronic inflammatory disease
- Aneurysm
- Arthritis
- Open wound
- Closed wound
- Bite wound
- Congenital malformation
- Protozoan infection
- Closed wound
- Viral disease
- Hernia of abdominal cavity - Structural improvement of subtypes of the concept 52515009 |Hernia of abdominal cavity (disorder)|. Further work will be undertaken in a subsequent release on the combined disorders where gangrene and /or obstruction is present due to a hernia as well as incisional hernias.
- Burn - Inactivation of burn concepts containing "with loss of body part" and "without loss of body part" approximately 161 concepts.
- Abrasion - As a result of changes made during the QI project, there are now 2 concepts which have the same preferred term.
  781488002 |Abrasion of foot (finding)
  211402004 |Abrasion of foot (disorder)
  782201009 |Abrasion (finding)|
  399963005 |Abrasion (disorder)|
  These concepts will be addressed as part the QI project for the July 2019 release.

Total count of changes for the QI project:

- Stated: A total of 12595 concepts had changes made to the Stated relationships in their models.
- Inferred: This resulted in 20012 concepts affected by inferred changes.
- Subsequent review of the Fracture hierarchy of 151 concepts identified no impact upon the previously published maps to ICD-10.
- Subsequent review of the Burn hierarchy of 375 concepts identified no impact upon the previously published maps to ICD-10.

Changes to Allergy Content

Approximately 2,000 concepts relating to hypersensitivity conditions have been remodeled to conform with new editorial guidance (excluding hypersensitivity reaction):

- Hypersensitivity/Allergy/Non-allergic hypersensitivity condition classes defined using General Concept Inclusion (GCI) axioms in order to encompass disorders, dispositions and processes (reactions).
- Propensity to adverse reaction and Allergic disposition moved from disorders to findings. The concepts were remodeled using the proximal primitive parents with a role group consisting of 719722006 |Has realization (attribute)| with value of allergic process or its subtype. The new convention for descriptions are Hypersensitivity/Allergy/Non-allergic hypersensitivity to X (finding).

- New Allergic disorder (disorder) hierarchy representing abnormal structures. The allergic disorders are modeled by associated inflammation morphology + allergic process or subtype + finding site X e.g. Allergic rhinitis).
- The contact hypersensitivity conditions have been remodeled using the new concepts for Immunoglobin E-mediated allergic contact hypersensitivity process (qualifier value) and Non-immunoglobin E-mediated allergic contact hypersensitivity process (qualifier value).
- New Intolerance to substance (finding) hierarchy created under Propensity to adverse reaction (finding) as a sibling of Hypersensitivity disposition (finding).
- 414029004 |Disorder of immune function (disorder)| is remodeled and defined by using a pathological process of 769247005 |Abnormal immune process (qualifier value). As a result, it subsumes allergic disorders and allergic reactions.
- Pseudoallergy condition and Pseudoallergy disposition renamed to Non-allergic hypersensitivity condition (finding) and Non-allergic hypersensitivity disposition (finding) and they have been remodeled following the new concept model.
- Inactivation of "Allergy to X" concepts where X is a modification of a base substance and replacement with Allergy to the base substance.

As the result of Allergy project requirements, the following top level groupers/Allergen classes in substance hierarchy were inactivated and their children assigned to appropriate structural and/or functional parents :

- 414052000 | Drug allergen by structure |
- 414057006 | Drug pseudoallergen|
- 414053005 | Drug allergen or pseudoallergen|
- 414058001 | Drug pseudoallergen by function|

Note: Other top level groupers (as specified in project Allergies-19) will be inactivated in the future releases.

Any maps from SNOMED CT to ICD-10 impacted by this Quality Initiative have been reviewed and updated.

Work **commenced** on the following Content Projects**:**

- IHTSDO- 393 Diabetes Complications: The Diabetes Project Group has begun its work on reviewing the current SNOMED CT Diabetes Mellitus disorder concepts. The group is small but is truly international and each member is currently seeking to engage with diabetes specialists within their geographical zone in order to ensure international interoperability within this domain.
- IHTSDO-41 Modeling of 'X' in remission - Approximately 170 disorder in remission concepts can now be found in the hierarchy 765205004 | Disorder in remission (disorder) | as well as the hierarchy relating to the underlying disorder.

Other content quality improvements:

- 371598009 |Heberden's node (finding)| changed to disorder. 201827009 |Heberden's nodes with arthropathy (disorder) | inactivated. 80400009 |External hyperostosis (morphologic abnormality)| moved from under 13814009 |Hypertrophy of bone (morphologic abnormality)| to 4147007 |Mass (morphologic abnormality)| and Heberden node (disorder) remodeled. The result is that Heberden node (disorder) is no longer a subtype of 298745009 |Hypertrophy of upper limb (finding)| but is now a subtype of 416189003 |Exostosis (disorder)|.
- Intrinsic vs. Extrinsic Asthma - changes made:
  - 424643009 |Immunoglobulin E-mediated allergic asthma (disorder)| removed synonym "Extrinsic asthma" as semantically non-equivalent and "refers to" 389145006 |Allergic asthma (disorder)|.
  - 389145006 |Allergic asthma (disorder)| - added preferred term.
  - "Extrinsic asthma" removed synonyms "Allergic atopic asthma" and "Atopic asthma" and "refers to" 424643009 |Immunoglobulin E-mediated allergic asthma (disorder)|.
  - 424643009 |Immunoglobulin E-mediated allergic asthma (disorder)| added synonyms "Allergic atopic asthma" and "Atopic asthma".
- Acquired disorder - Approximately 124 concepts were edited to continue with the work to remove the precoordinated morphology and replace with a single morphology and the occurrence "767023003|Period of life beginning after birth and ending before death (qualifier value)" in the relationship group.
- Remodeling of Joint instability - approximately 156 concepts remodeled using approach: FSN: |Instability of X (finding) |, Is a: 404684003|Clinical finding (finding), finding site: X body structure, relationship group: Interprets: 299444001 |Stability of X (observable entity)|/ Has interpretation: 263654008|Abnormal (qualifier value).
- Additions and improvements in areas of suspected/risk of bullying, abuse, and abandonment in clinical finding hierarchy.
- Inactivation of 112625008|Cutaneous eruption (morphologic abnormality) in favor of using 1806006|Eruption (morphologic abnormality)| relationship grouped with a finding site, approximately 51 concepts remodeled.
- Remodeling of joint temperature-related concepts: adding parents, interprets values and sufficiently defining where appropriate.

2.2.3. Convergent Medical Terminologies (CMT)

New CMT concepts: 1365

The majority of these newly authored concepts are in scope for mapping to ICD-10 and from the following domains:

- CMT Ear, Nose and Throat
- CMT Genitourinary
- CMT Infectious Disease
- CMT Injuries
- CMT Ophthalmology
- CMT Skin
- CMT Musculoskeletal

2.2.4. Procedure Hierarchy

New concepts for procedure hierarchy: 393

Diagnostic imaging - 121 requests were received for new imaging procedure concepts with various imaging modalities.

- Computed tomography 26 new concepts.
- Magnetic Resonance Imaging 26 new concepts.
- X-ray 1 new concept.
- Fluoroscopy 39 new concepts.
- Ultrasound 29 new concepts.

Repair of hernia - 102 new concepts

- Laparoscopic repair of hernia 54 new concepts.
- Repair of hernia 48 new concepts.

Other content quality improvements:

- Improved representation of 305349003 |Admission to department (procedure)| in the area of pediatric specialty and dental clinics by adding additional parents where possible.
- Relationships were added to, or changed in the procedure (and physical object) hierarchies in the area of spectacles, optical vision aids, telescopes in order to sufficiently define or correct the classification of these concepts.
- Improved representation of 438579008|Focused ultrasound ablation (procedure)| and descendants.

2.2.5. Collaboration/Harmonization Projects

2.2.5.1. Orphanet

As a result of collaboration with Orphanet (**http://www.orpha.net/consor/cgi-bin/index.php**) 460 new SNOMED CT concepts have been created to represent rare diseases in the disorder hierarchy. All of these concepts have been mapped to ICD-10.

2.2.5.2. Global Medical Device Nomenclature Agency (GMDNA)

55 new SNOMED CT concepts created and mapped in the Physical object hierarchy to support the GMDN collaboration agreement.

2.2.6. Event

New concepts added: 27

Work **continued** on the following Content Projects:

- IHTSDO-1071 - Continued inactivation of transport accidents; movement of all vehicle accidents to children of Transport accidents; Fully-defining some when possible and adding additional parents if appropriate.

2.2.7. Record Artifact

New concepts added: 61

54 new concepts added for care plan.

2.2.8. Organism

New organism concepts added: 326

Content quality improvements:

- 268 New concepts (Including 117 Shiga toxin producing E coli concepts) and 12 changes to the existing concepts' descriptions.
- Inactivation of 21 ambiguous concepts across multiple hierarchies which had included an animal species when referring to an Influenza virus (e.g., Myocarditis caused by avian influenza (disorder), Influenzavirus type A, avian, H5N1 strain (organism)). 6 new concepts were created in this process.
- Correction of Influenza virus descriptions: Around 350 corrections/changes were made to Influenza virus descriptions over multiple hierarchies (majority in substance hierarchy but also including disorder, procedure and organism hierarchies). Most of the changes consisted of inactivation of the erroneous description and replacement with a new correct description. In addition, two new concepts were added in the organism hierarchy.
- Application of consistent case sensitivity to organism descriptions containing "Taxon Rank": Change of the case sensitivity setting for 10282 descriptions (over 4964 concepts).
- Concepts with descriptions that include the word 'unclassified' were inactivated (7 concepts).
- Duplicate descriptions were identified and corrected for 11 Concepts.
- Spelling errors were corrected for 29 concepts.
- Historical associations were corrected for 32 concepts.

2.2.9. Pharmaceutical / biologic product

> ⚠ **Drug model project**
>
> For further details on the planned changes in this area, please refer to the Drug Model Working Group Directory section.
>
> *Please note, you may have to register for Confluence user account in order to access this project and the relevant links below.*

The following changes will be included in the 2019-January International Release.

Clinical drug (CD) concepts	- PTs updated and synonyms matching FSN removed for existing concepts (n4900) in accordance with Editorial Guidelines - Inactivated CDs that were modeled with both concentration and presentation strength; replaced with concepts containing concentration strength only (inactivated concepts n575; new concentration-only concepts n400) - Relocated CDs that have not been sufficiently defined to be descendants of 770654000 |TEMPORARY parent for CDs that are not updated (product)|; these concepts will be sufficiently defined or inactivated in future release (n2700) - Concepts that were not able to be mapped to dm+d but can be mapped to an RxNorm concept will be retained as primitive for the 2019-January Release in the existing location as descendants of 770654000	TEMPORARY parent for CDs that are not updated (product). These concepts will be sufficiently defined and remodeled in a future release. (n1800) Concepts that cannot be mapped to either dm+d or RxNorm concept will be retained as primitive for the 2019-January Release in the existing location as descendants of 770654000	TEMPORARY parent for CDs that are not updated (product). These concepts will be addressed in a future release. (n900) - Editorial Guidelines updated, including diagrams showing self-grouped attributes - Updated Member Forum Briefing Note - Implications of describing liquid dose form product concepts using presentation strength
Demo release	- Demo release distributed in 2018-Sep included the following for Medicinal product hierarchy: - Updated terming per Ed Guide for existing concepts - MP-only (near complete set of concepts to be included in 2019-Jan Release) - MPF-only (near complete set of concepts to be included in 2019-Jan Release) - Role (subset of content to be included in 2019-Jan Release)
Groupers based on disposition and/or structure	- Change semantic tag from (product) to (medicinal product) and updated terming for chemical element groupers (n30) in accordance with Editorial Guidelines - Added new disposition groupers (n25) - Added new structural groupers (n10) - Editorial Guidelines updated for disposition, structure, and dose form intended site groupers - PTs updated and synonyms matching FSN removed for existing concepts (n500) in accordance with Editorial Guidelines
Liposome modifications	- Create MP-only and MPF-only concepts for liposome products - Editorial Guidelines updated to identify these concepts as exceptions to the modification guideline

Medicinal product "containing" (MP-containing) concepts	• Editorial Guidelines updated, including diagrams showing self-grouped attributes • PTs updated and synonyms matching FSN removed for existing concepts (n3800) in accordance with Editorial Guidelines
Medicinal product "only" (MP-only) concepts	• Editorial Guidelines created, including diagrams showing self-grouped attributes • Initial deployment of MP-only concepts (n3800)
Medicinal product form "containing" (MPF-containing) concepts	• Editorial Guidelines updated, including diagrams showing self-grouped attributes • PTs updated and synonyms matching FSN removed for existing concepts (n2800) in accordance with Editorial Guidelines
Medicinal product form "only" (MPF-only) concepts	• Editorial Guidelines created, including diagrams showing self-grouped attributes • Initial deployment of MPF-only concepts (n2800)

National Extension model	• New top level concept added (for use by national extension model but not for International Release)
	   ○ 781405001 |Medicinal product package (product)|
	
	• New semantic tags added (for use by national extension model but not for International Release)
	   ○ (product name)
	   ○ (packaged clinical drug)
	   ○ (real clinical drug)
	   ○ (real medicinal product)
	   ○ (real packaged clinical drug)
	   ○ (supplier)
	
	• New attributes added (for use by national extension model but not for International Release)
	   ○ 774158006 |Has product name (attribute)|
	   ○ 774159003 |Has supplier (attribute)|
	   ○ 774160008 |Contains clinical drug (attribute)|
	   ○ 774161007 |Has pack size (attribute)|
	   ○ 774163005 |Has pack size unit (attribute)|
	
	• New hierarchies added (for use by national extension model but not for International Release)
	   ○ 774164004 |Supplier (supplier)|
	   ○ 774167006 |Product name (product name)|
	
	• Editorial Guidelines created

Role	• Created new 773830008 |Consumer product (product)| hierarchy as sibling of 763158003 |Medicinal product (product)|. Relocated descendants of 763087004 |Medicinal product categorized by therapeutic role (product)| as appropriate (e.g. Aftershave, Deodorant, Perfume) (n25)
	
	• Inactivated role concepts representing body site or body system (e.g. Gastrointestinal drug, Genitourinary drug) (n15)
	
	• Relocated 43747001 |Drug excipient (product)| as sibling of 763158003 |Medicinal product (product)|. Relocated descendants of 763087004 |Medicinal product categorized by therapeutic role (product)| as appropriate (e.g. Drug additive, Drug flavoring) (n15)
	
	• Created descendants of 766941000 |Therapeutic role (role)| (n80) and remodeled corresponding descendants of 763087004 |Medicinal product categorized by therapeutic role (product)| (n80)
	
	• Populated the following roles:
	   ○ 43927002 |Medicinal product acting as analeptic agent (product)| (additional axiom n5)
	   ○ 81839001 |Medicinal product acting as anticoagulant (product)| (additional axiom n25)
	   ○ 358926001 |Medicinal product acting as antidementia agent (product)| (additional axiom n10)
	   ○ 386757008 |Medicinal product acting as antiglaucoma agent (product)| (additional axiom n20)
	   ○ 781514009 |Medicinal product acting as antixerostomia agent (product)| (additional axiom n5)
	   ○ 96326006 |Medicinal product acting as ceruminolytic agent (product)| (additional axiom n5)
	   ○ 15117003 |Medicinal product acting as hemostatic (product)| (additional axiom n30)
	   ○ 61621000 |Medicinal product acting as laxative (product)| (additional axiom n120)

2.2.10. Veterinary Extension

10 concepts were moved to the Veterinary Extension.

2.2.11. Situation with Explicit Context

New concepts added : 50

32 new concepts were added for 'X disease suspected.'

Additions and improvements in areas of suspected/risk of bullying, abuse, and abandonment in situation hierarchy.

22 situation concept FSNs updated in areas of organism examination and samples sent.

2.2.12. Observable Entity

56 new concepts were added.

5 laboratory observable entity concepts added based on request by two member countries; 2 observable entity concepts added in a non-laboratory area.

1 observable entity laboratory concept inactivated.

2.2.13. Assessment Scale

Addition of 11 new assessment scale concepts.

2.2.14. Substances

223 new concepts were added.

Case Sensitivity changes:

Improvement of substance concepts by updating case sensitivity based on editorial guidelines in the following areas - 5000 concepts.

- Greek alphabetical terms in substance concepts have been made case insensitive.
- Single word substances incorrectly marked case sensitive have been amended.
- For substance terms that have a single letter - either a single lower case letter or a single upper case letter - the case sensitivity has been changed so now correctly reflects this.

- Substance terms containing proper names now reflect this capitalization requirement, and quality checks have been performed on the substance hierarchy based on the file used for automated spell-checking and automated case sensitivity checking. A decision was taken to make the substance hierarchy the 'source of truth' for other hierarchies within SNOMED CT.
- Rule established that numbers at the beginning of substance terms can be ignored for case significance, and the case sensitivity assignment now starts with the first letter, including batch amendment of incorrect capitalization in terms that include numbers.

Changes in the substance hierarchy as the result of Allergy project requirements:

- Inactivate top level groupers/Allergen classes in substance hierarchy by reassigning their children to appropriate structural and /or functional parents.
    - 414052000 | Drug allergen by structure |
    - 414058001 | Drug pseudoallergen by function |
    - 414057006 | Drug pseudoallergen |
    - 414053005 | Drug allergen or pseudoallergen |

Changes to language acceptability

- Primarily, but not limited to, Substance terms used in the Products hierarchy, the Preferred Term in the US dialect has been made Acceptable in the GB dialect and vice versa.
- Also work completed on the removal of some dialect variations (643 concepts):
    - Acceptability change of the Preferred Term (PT) in US dialect changing from Not acceptable to Acceptable as a GB synonym, and vice versa (GB PT made Acceptable as a synonym in US dialect previously Not acceptable) - 422 concepts.
    - Removed a dialect variation and now the concepts have a single PT that covers both dialects - 221 concepts.

Other content quality improvements:

- Added/updated "Is modification" attribute where applicable - 630 concepts.
- Added/updated modeling for existing concepts by adding "has disposition" attribute where applicable - 540 concepts.
- Added new disposition to model for existing content - 41 concepts.
- Added new structural grouper concepts to model for existing content - 61 concepts.
- Update of model for existing concepts by adding missing structural parent(s) - 1500 concepts.
- Improvement of substance concepts by aligning them to the International Nonproprietary Name (INN) - 380 concepts.
- Improvement of substance concepts by removing symbols like "[" in substance terms - 30 concepts.
- Spelling changes - 25 concepts.
- Missing historical associations found for 4 concepts and issue was resolved.

⚠️ **Release plans, Substance hierarchy**

For further details on the planned changes in this area, please refer to the Substances project.

Please note, you may have to register for Confluence user account in order to access this project and the relevant links above.

2.3. Internal Quality Improvement

2.3.1. Logic Profile Enhancements

Release of partial OWL expression refset

Content updates in the OWL axiom refset:

- 185 new additional axioms for product roles.
- 20 new General Concept Inclusion (GCI) axioms.
- 1 new property axiom for "Proper part of".
- 1 inactivation of property axiom for "Part of".

A set of documentation has been developed to support the Logic Profile Enhancements:

- SNOMED DL Profile Enhancements - https://docs.google.com/document/d /1tqNEA6S4fEF4fgj15OPabYA2E0VTz8epxvRRwczKizQ/edit?usp=sharing

- SNOMED CT Logic Profile Specification - http://snomed.org/lps
- SNOMED CT OWL Guide (OWL Refsets specification) - http://snomed.org/owl
- Snomed OWL Toolkit - https://github.com/IHTSDO/snomed-owl-toolkit
- Classifying SNOMED CT using the Snomed OWL Toolkit - https://youtu.be/-91egY9mJqA
- Creating an OWL file containing SNOMED CT - https://youtu.be/sfFbMMioA_4

2.3.2. Machine Readable Concept Model (MRCM)

6 new MRCM rules and 3 updates to the existing MRCM in the MRCM refsets and authoring platform were made for the January 2019 release:

- New MRCM for the new attribute 774081006 |Proper part of|
- New MRCM for new attribute 774160008 |Contains clinical drug (attribute)|
- New MRCM for new attribute 774161007 |Has pack size (attribute)|
- New MRCM for new attribute 774163005 |Has pack size unit (attribute)|
- New MRCM for new attribute 774159003 |Has supplier (attribute)|
- New MRCM for new attribute 774158006 |Has product name (attribute)|
- Inactivate MRCM for 363705008|Has definitional manifestation (attribute)|
- Inactivate MRCM for 123005000 |Part of|
- Expand the range of 370135005 |Pathological process (attribute)| to include << 769247005 |Abnormal immune process (qualifier value)|

The further details can be found here https://confluence.ihtsdotools.org/display/IAP/MRCM+changes+in+the+January+2019+release

Please note, you may have to register for a Confluence user account in order to access the relevant links above.

2.3.3. Definition Status

Improvements have been made to fully specified names and synonyms to clarify the intended meaning of the existing concepts for definition status. The decision to retain the existing concepts with improved descriptions was made to reduce disruption to users, though the definition status has limited logical value in SNOMED CT since the addition of the OWL Axiom Refset. The revised descriptions are consistent with the advice provided by the majority of SNOMED Modeling Advisory Group members.

The descriptions for the definition status with concept id 900000000000073002 are now:

- FSN: Sufficiently defined by necessary conditions definition status (core metadata concept)
- SYN (Preferred): Defined
- SYN (Acceptable): Sufficiently defined by necessary conditions definition status

The new fully specified name reflects that concepts with this definition status must have a set of necessary relationships that are sufficient to define the concept.

The descriptions for the definition status with concept id 900000000000074008 are now:

- FSN: Not sufficiently defined by necessary conditions definition status (core metadata concept)
- SYN (Preferred): Primitive
- SYN (Acceptable): Not sufficiently defined by necessary conditions definition status

The new fully specified name reflects that concepts with this definition status do not have a set of necessary relationships that are sufficient to define the concept.

Potential impact:

- The structural subsumption technique, based on definition status and inferred relationships, should not be used to test subsumption between SNOMED CT Expressions. This is because *sufficient but not necessary* relationships and other DL enhancements are not represented in the inferred relationship file. Accurate expression subsumption now requires use of the OWL refsets and a DL classifier.
- The colors and shapes used to represent concept model diagrams should follow the assigned or derived definition status.
- Some updates will be required to documentation and education materials.

2.4. SNOMED CT derived products

2.4.1. ICD-10 map

The SNOMED CT to the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (© World Health organisation 1994) 2016 Version map (SNOMED CT to ICD-10 Map) is included in the SNOMED CT International release as a Baseline. The SNOMED CT to ICD-10 Map was created to support the epidemiological, statistical and administrative reporting needs of SNOMED International member countries and WHO Collaborating Centres.

The SNOMED CT to ICD-10 Map is released in Release Format 2 (RF2) only. It is located in the file der2_iisssccRefset_ExtendedMapFull_INT_20190131.txt, which is in the Map folder under Refset, in each of the three RF2 Release Type folders.

The SNOMED CT to ICD-10 Map is released as Refset 447562003 |ICD-10 complex map reference set (foundation metadata concept)|.

2.4.1.1. Content development activity summary

The map is a directed set of relationships from SNOMED CT source concepts to ICD-10 target classification codes. The SNOMED CT source domains for the MAP are limited to subtypes of 404684003 |clinical finding|, 272379006 |event| and 243796009 |situation with explicit context|. The target classification codes are ICD-10 2016 release. As part of the ongoing quality improvement of the published maps SNOMED CT concepts mapped to code range Q90 - Q99 Chromosomal abnormalities, not elsewhere classified have been reviewed and the previously assigned map advice POSSIBLE REQUIREMENT FOR AN EXTERNAL CAUSE CODE has been removed for consistency purposes.

2.4.1.2. Mapped content for January 2019

The map provided for the January 2019 release has been updated, and now represents a complete map from SNOMED CT International release to ICD-10 2016 version.

- 2321 new concepts added

We would welcome feedback on any issues that users of the map may detect when using the map. Issues should be submitted via mapping@snomed.org

2.4.1.3. Technical Guide Exemplars

The Technical Guide Exemplars document has now been moved from the International Edition release package to a Confluence page. This page can be found as part of the ICD-10 Mapping Technical Guide (see Appendix B), which is hosted here: http://snomed.org/icd10map

2.4.2. ICD-O Map

There are 5 updates for the ICD-O Morphological abnormality map in January 2019 release.

2.4.3. SNOMED CT to OWL conversion and classification

The repository containing the toolkit enabling simple SNOMED CT to OWL conversion and classification can be found here, including documentation on its use:

> **https://github.com/IHTSDO/snomed-owl-toolkit**

Please contact SNOMED International at support@snomed.org if you would like to provide any feedback on ways to extend and improve the new toolkit.

3. Technical notes

3.1. Known Issues

Known Issues are content or technical issues where the root cause is understood, and the resolution has been discussed and agreed but has yet to be implemented. This can be due to a number of reasons, from lack of capacity within the current editing cycle, to the risk of impact to the stability of SNOMED CT if the fix were to be deployed at that stage in the Product lifecycle. For this International edition, the following Known Issues were identified, and agreed to be resolved in the next editing cycle:

Key	Summary	Description
ISRS-206	CaseSignificance changes that have yet to be implemented	A small percentage of the records updated for the caseSignficance changes have been identified as not having been implemented for July 2017 as expected. Due to their relatively low impact we are proposing to retain these as Known Issues for the current release, and resolve them as part of future editing cycles. KNOWN ISSUE: The SNOMED International Content Team have confirmed that deferring these fixes to later editing cycles is the correct approach. These will therefore be fixed in future editing cycles.
ISRS-459	Non-Breaking Space found in descriptions	Release report showing the problem descriptions: https://docs.google.com/spreadsheets/d/16iYcPwaua_J_bKbejeNGif2kiFav4MzomPfaiQBg3yQ/edit 447572000 Calculation of degree of stenosis of internal carotid artery using the diameter of the distal internal carotid artery lumen determined by ultrasound as denominator (procedure) (procedure) Non-breaking space Y 447572000 Calculation of degree of stenosis of internal carotid artery using the diameter of the distal internal carotid artery lumen determined by ultrasound as denominator (procedure) (procedure) Non-breaking space Y 447303007 Calculation of degree of stenosis of internal carotid artery using the diameter of the distal internal carotid artery lumen as denominator (procedure) (procedure) Non-breaking space Y 447303007 Calculation of degree of stenosis of internal carotid artery using the diameter of the distal internal carotid artery lumen as denominator (procedure) (procedure) Non-breaking space Y 707630002 Ribosomal ribonucleic acid of Anaplasma marginale (substance) (substance) Non-breaking space Y 707630002 Ribosomal ribonucleic acid of Anaplasma marginale (substance) (substance) Non-breaking space Y KNOWN ISSUE: Agreed by the SNOMED International Content Team to be historical issues, which will therefore be fixed in the July 2019 International Edition editing cycle.
ISRS-487	MRCM Domain contraint contraventions	3 concepts currently do not adhere to the MRCM Domain constraints, which require the |Procedure with explicit context| and |Finding with explicit context| hierarchies to be disjoint. ConceptId FSN 32271000119102 History of delivery of macrosomal infant (situation) 36601000119109 History of repair of tetralogy of Fallot (situation) 37851000119107 History of correction of ventricular septal defect (situation) KNOWN ISSUE: The SNOMED International Content Team has reviewed these concepts and confirmed them to be hisotorical issues, which will be addressed in the July 2019 International Edition release.

3 issues

3.2. Resolved Issues

Resolved issues are Known Issues which were not fixed as part of the previous release lifecycle, but which have now been resolved in this latest release of the International Edition. They can also be issues found during the Alpha and Beta testing of the current release, which were resolved before the final deployment of the associated Member release. Finally they can be issues which were reported or found during the testing phase, but which have been closed without any action taken. The Resolved Issues for this release of the International edition were:

Key	Summary	Description	Resolved
ISRS-392	Stated relationships with unexpected modules	There are 90 stated relationships on the core module for model component concepts. They are, however, on the model component module in DNF, so the classifier must be implementing rules for correct module assignment. RESOLUTION: Resolved in time for the January 2019 International Edition release.	2018-Nov-15
ISRS-416	January 2019 Tracker for Known Issue ISRS-392	This ticket is to allow us to track progress against the Jan 2019 International Edition for Known Issue ~~ISRS-392~~, so that we can verify completion without removing it from sight of the July 2108 Known Issues register. RESOLUTION: SNOMED International Content Team confirmed all issues now resolved, so ticket can be closed down	2018-Dec-19
ISRS-417	January 2019 Tracker for Known Issue ISRS-391	This ticket is to allow us to track progress against the Jan 2019 International Edition for Known Issue ~~ISRS-391~~, so that we can verify completion without removing it from sight of the July 2108 Known Issues register. RESOLUTION: SNOMED International Content Team confirmed all issues now resolved, so ticket can be closed down	2018-Dec-19
ISRS-418	January 2019 Tracker for Known Issue ISRS-323	This ticket is to allow us to track progress against the Jan 2019 International Edition for Known Issue ~~ISRS-323~~, so that we can verify completion without removing it from sight of the July 2108 Known Issues register. RESOLUTION: SNOMED International Content Team confirmed all issues now resolved, so ticket can be closed down	2018-Dec-19
ISRS-464	Error in concept inactivation to Veterinary extension for Jan 19 release	On reviewing some of the concept inactivations due for Jan 19 in the daily build data there seems to be an issue with the concept below: | ConceptID	Term	MOVED TO
26484003	Bordetellosis (disorder)	100009 - Veterinary extension | This concept is also in CTV3 in the UK. Taking from this the notion that all bordatella infections – and thus the very notion of the grouper - are exclusively only veterinary is an error. B. bronchiseptica may well be almost entirely non-human (cases do occur in the immunocompromised), but both B. pertussis and parapertussis are very definitely serious and usually notifiable human pathogens since they're the cause of whooping cough. The UK asked SNOMED International to consider re-activating this concept and bringing it back from the Veterinary extension before the data is released in January 2019. RESOLUTION: The SNOMED International Content team have added a new concept 782715005 |Infection caused by Bordetella (disorder)| into the content for the July 2019 release. 772146005 |Pertussis suspected (situation)| is available in the January 2019 International release.	2018-Nov-15
ISRS-466	RVF Assertion failure: c3249e80-84f0-11e1-b0c4-0800200c9a66	"assertionUuid": "c3249e80-84f0-11e1-b0c4-0800200c9a66", "assertionText": "Terms that contain en-us specific words are in the en-us language refset.", "failureCount": 18, "firstNInstances": [{"conceptId": "450755002","detail": "DESCRIPTION: id=3701315018: Synonym is prefered in en-us language refset but refers to a word that has en-gb spelling: dyspnoea"}, {"conceptId": "391120009","detail": "DESCRIPTION: id=3701317014: Synonym is prefered in en-us language refset but refers to a word that has en-gb spelling: dyspnoea" RESOLUTION: SNOMED International Content team confirmed that this is a warning only (that has been whitelisted), and so no further action is required.	2018-Nov-22

ISRS-467	RVF Assertion failure: c82246b1-a137-40c5-8653-554c9ce82c6b	"assertionUuid": "c82246b1-a137-40c5-8653-554c9ce82c6b", "assertionText": "Active preferred terms for active concepts are unique in the same hierarchy", "failureCount": 2, "firstNInstances": {"conceptId": "420559008","detail": "Preferred term=L is duplicated in hierarchy (qualifier value)"} {"conceptId": "258770004","detail": "Preferred term=L is duplicated in hierarchy (qualifier value)"} RESOLUTION: SNOMED International Content Team confirmed no changes required for this issue, as there is no way around this duplication. Both records are historically valid, so users will need to make sure they use the correct concept (which should be straightforward to do if they stay within the problem subhierarchy).	2018-Nov-22
ISRS-468	RVF Assertion failure: cc9c5340-84f0-11e1-b0c4-0800200c9a66	"assertionUuid": "cc9c5340-84f0-11e1-b0c4-0800200c9a66", "assertionText": "Terms that contain en-gb specific words are in the en-gb language refset.", "failureCount": 14, "firstNInstances": [{"conceptId": "774097001","detail": "DESCRIPTION: id=3727961012: Synonym is preferred in the en-gb language refset but refers to a word that has en-us spelling: apnea"}, {"conceptId": "774099003","detail": "DESCRIPTION: id=3727969014: Synonym is preferred in the en-gb language refset but refers to a word that has en-us spelling: apnea"}, RESOLUTION: SNOMED International Content team confirmed that this is a warning only (that has been whitelisted), and so no further action is required.	2018-Nov-22
ISRS-469	RVF Assertion failure: d9f8a8d6-2c02-11e7-b0e7-3c15c2c6e32e	"assertionUuid": "d9f8a8d6-2c02-11e7-b0e7-3c15c2c6e32e", "assertionText": "The FSN term should be unique in active content when case sensitivity is ignored.", "failureCount": 12, "firstNInstances": [{"conceptId": "15469000","detail": "FSN=Blood group antibody p (substance) concept=15469000: FSN term is not unique in description snapshot when case is ignored"}, {"conceptId": "37300006","detail": "FSN=Blood group antibody h (substance) concept=37300006: FSN term is not unique in description snapshot when case is ignored"}, RESOLUTION: SNOMED International Content Team confirmed no changes required for this issue, as these are not duplicates. This is because the case sensitivity is correctly applied here, e.g. "Blood group antibody c" and "Blood group antibody C" are different substances (c and C are two alleles of the same gene). These false positives can therefore be safely ignored.	2018-Nov-22
ISRS-470	RVF Assertion failure: 1852b9d6-38cf-11e7-8b36-3c15c2c6e32e	"assertionUuid": "1852b9d6-38cf-11e7-8b36-3c15c2c6e32e", "assertionText": "Previously published historical association components should not be modified.", "failureCount": 827, "firstNInstances": [{"conceptId": "326905008","detail": "Association refset id=8082fd31-548a-4f46-bfec-439b9c333b25 has historical association components changed since the previous release."}, {"conceptId": "374244005","detail": "Association refset id=811b60e3-b97f-4a71-a7ac-63b60eabd510 has historical association components changed since the previous release."}, RESOLUTION: This assertion is no longer valid (due to an update to the TIG), and therefore it will be removed. Until then any failures will be ignored as false positives.	2018-Nov-22
ISRS-471	RVF Assertion failure: 2ddc9a28-150d-47a4-9b0e-7dbff2efdd72	"assertionUuid": "2ddc9a28-150d-47a4-9b0e-7dbff2efdd72", "assertionText": "There is a 1:1 relationship between the id and the key values in the ASSOCIATION REFSET snapshot file.", "failureCount": 1, "firstNInstances": [\{"conceptId": "220023008","detail": "ReferencedComponentId:220023008 targetComponentId:372225004 and refsetId:734139008 are duplicated in the association refset snapshot file."}], RESOLVED: Resolved in time for the January 2019 International Edition Alpha release	2018-Nov-22
ISRS-472	"New" file type contains historical records, but re-badges them as brand new	The SNOMED Release Service is not picking up the historical records from the previously released OWL Axiom and OWL Ontology refsets as expected. RESOLUTION: The SRS was refined to allow an additional parameter ("includePrevReleaseFiles") that enables us to now pull data from multiple previously published files, and combine them into one new file in the latest International Edition. Here we are combining the data from the previously published OWLAxiom and OWLOntology refsets, into the new OWLExpression refset file.	2018-Dec-07

ISRS-480	Classification results not matching with termServer export	We're seeing a difference of 45 records between the Inferred file being exported from the termServer, and that being exported in the final package created by the SRS. So the classification itself looks good - instead there may be an ID collision in the relationships, or possibly the SRS is failing to re-activate inactive relationships correctly. RESOLUTION: Data fix applied to the CIS in time for the Jan 2019 Beta release - issue resolved.	2018-Dec-03
ISRS-485	MRCM attribute range refsetID validation	6 records were found to have a different refsetID from the historical MRCM attribute range records - 723561005 (MRCM Attribute Domain) as opposed to 723562003. The affected ids are: 11d8ff3a-80b1-40b5-a4a6-fd3268141085 2affaf44-9365-4d6d-84d3-31409206a77a 355c9063-7238-4409-81a8-13f22b2a8bff 608ab6f5-6830-4294-926a-5c3a20b62060 e491647d-1793-4b20-b92d-c1180a96b00f e5945adf-c075-4fb7-8f1b-515a124326cf RESOLUTION: refsetID values corrected in all 6 records, in time for the January 2019 International Edition release.	2019-Jun-20
ISRS-486	AttributeValue refset records referring to unexpected ID's	14 records in the Description Inactivation Indicator attribute-value refset (900000000000490003) refer to what look like non-existent description ids:- RESOLUTION: These refer to TextDefinition records instead of Description records, and so no action is required	2018-Dec-04
ISRS-488	MRCM validation warning - issue with UUID assignment	The MRCM attribute range refset should refer to 2 separate rules (see below), and therefore have 2 separate UUIDs - but instead they were assigned the same UUID, which meant that 20180731 rule overrode the 20170731 rule. The rules are similar on initial inspection - however, if the ruleStrength is mandatory for the first rule and optional for the second rule. So these rules BOTH need to be in force at the same time - it is mandatory that the range of |Has manufactured dose form| must be a << |Type of drug preparation| ... but there should be a warning if it is not a << |Pharmaceutical dose form|.	2018-Dec-19

4c177f0d-03bc-4f5f-b0f9-e792467e652b	20170731	1	900000000001204	SNOMED CT model component module (core metadata concept)	723562003	MRCM attribute range (INT) reference set	411160 01	Has manufactured dose form	<< 105904009 |Type of drug preparation (qualifier value)|
4c177f0d-03bc-4f5f-b0f9-e792467e652b	20180731	1	900000000001204	SNOMED CT model component module (core metadata concept)	723562003	MRCM attribute range (INT) reference set	411160 01	Has manufactured dose form	<< 736542009 |Pharmaceutical dose form (dose form)|

RESOLUTION: For the January 2019 International Edition, we simply added a new record to the MRCM AttributeRange refset, with a brand new UUID and effectiveTime 20190131 which reinstated the first (mandatory) rule. For July 2019 we need to implement the second half of this solution, see ~~ISRS-489~~ for this work...

ISRS-492	Issue found with one of the GCI Axiom records	The following Axiom record was found to reference a concept (72651009) that has just been made inactive in the January 2019 International Edition: • ce557fc3-6f02-4818-84f1-deb19a351838 20190131 1 900000000000207008 733073007 276206000 SubClassOf(ObjectIntersectionOf(:64572001 ObjectSomeValuesFrom(:609096000 ObjectIntersectionOf(ObjectSomeValuesFrom(:246075003 :414561005) ObjectSomeValuesFrom(: 363698007 :72651009) ObjectSomeValuesFrom(:370135005 :441862004)))) :276206000) RESOLUTION: The SNOMED International Content Team have resolved the issue by replacing the inactivated concept with the relevant active concept in the OWLExpression record above. The new record in the final Production release now looks like this: • ce557fc3-6f02-4818-84f1-deb19a351838 20190131 1 900000000000207008 733073007 276206000 SubClassOf(ObjectIntersectionOf(:64572001 ObjectSomeValuesFrom(:609096000 ObjectIntersectionOf(ObjectSomeValuesFrom(:246075003 :414561005) ObjectSomeValuesFrom(: 363698007 :770802007) ObjectSomeValuesFrom(:370135005 :441862004)))) :276206000)	2019-Jan-29

This has also had the effect of changing the classification results slightly (in comparison to the original Member release - reactivating the following 9 inferred relationship records, and inactivating the following 2 records in the January 2019 Public Production release:

Inactivated:

- 2686759022 20190131 0 900000000000207008 414941008 312146001 0 116680003 900000000000011006 900000000000451002

Removed (as no previous active record prior to 2019):

- 10524475027 20190131 1 900000000000207008 402134005 59258008 0 116680003 900000000000011006 900000000000451002< 10524475027 20190131 1 900000000000207008 402134005 59258008 0 116680003 900000000000011006 900000000000451002

Reactivated:

- 2706361027 20190131 1 900000000000207008 402134005 47382004 0 116680003 900000000000011006 900000000000451002> 2706361027 20190131 1 900000000000207008 402134005 47382004 0 116680003 900000000000011006 900000000000451002
- 11187378027 20190131 1 900000000000207008 414941008 276206000 0 116680003 900000000000011006 900000000000451002> 11187378027 20190131 1 900000000000207008 414941008 276206000 0 116680003 900000000000011006 900000000000451002
- 2689698024 20190131 1 900000000000207008 23549005 415723000 0 116680003 900000000000011006 900000000000451002> 2689698024 20190131 1 900000000000207008 23549005 415723000 0 116680003 900000000000011006 900000000000451002
- 2249445023 20190131 1 900000000000207008 403060001 403072007 0 116680003 900000000000011006 900000000000451002> 2249445023 20190131 1 900000000000207008 403060001 403072007 0 116680003 900000000000011006 900000000000451002
- 2706478024 20190131 1 900000000000207008 403061002 415723000 0 116680003 900000000000011006 900000000000451002> 2706478024 20190131 1 900000000000207008 403061002 415723000 0 116680003 900000000000011006 900000000000451002
- 2249450028 20190131 1 900000000000207008 403062009 403083003 0 116680003 900000000000011006 900000000000451002> 2249450028 20190131 1 900000000000207008 403062009 403083003 0 116680003 900000000000011006 900000000000451002
- 2249451029 20190131 1 900000000000207008 403063004 403084009 0 116680003 900000000000011006 900000000000451002> 2249451029 20190131 1 900000000000207008 403063004 403084009 0 116680003 900000000000011006 900000000000451002
- 2249454021 20190131 1 900000000000207008 403064005 403086006 0 116680003 900000000000011006 900000000000451002> 2249454021 20190131 1 900000000000207008 403064005 403086006 0 116680003 900000000000011006 900000000000451002
- 2230481025 20190131 1 900000000000207008 68543009 403065006 0 116680003 900000000000011006 900000000000451002> 2230481025 20190131 1 900000000000207008 68543009 403065006 0 116680003 900000000000011006 900000000000451002

Finally, several of the new records for Jan 2019 will naturally have new UUID's assigned to them (in comparison to the Member Release) as part of the standard Release process, and may therefore look like they've changed - however these are ID changes only and have no substantive impact on the content itself.

17 issues

3.3. Technical updates

3.3.1. RF2 package format

For future reference, the RF2 package convention dictates that it contains all relevant files, regardless of whether or not there is content to be included in each particular release. Therefore, the package contains a mixture of files which contain both header rows and content data, and also files that are intentionally left blank (including only a header record). The reason that these files are not removed from the package is to draw a clear distinction between

1. ...files that have been deprecated (and therefore removed from the package completely), due to the content no longer being relevant to RF2 in this or future releases, and

2. ...files that just happen to contain no data in this particular release (and are therefore included in the package but left blank, with only a header record), but are still relevant to RF2, and could therefore potentially contain data in future releases.

This allows users to easily distinguish between files that have purposefully been removed or not, as otherwise if files in option 2 above were left out of the package it could be interpreted as an error, rather than an intentional lack of content in that release.

3.3.2. Combination of two new refsets - OWLAxiom and OWLOntology

Please see section "2.3.1 Logic Profile Enhancements" above for full details of the reason behind the introduction of these new refsets. After the September 2018 Demonstration release, it was agreed to combine these two files into one "OWL Expression" file, which now contains both OWL Axiom + OWL Ontology refsets in the same file, in each section of the International Release package (Full, Snapshot and Delta):

- sct2_sRefset_OWLExpressionFull_INT_20190131.txt
- sct2_sRefset_OWLExpressionSnapshot_INT_20190131.txt
- sct2_sRefset_OWLExpressionDelta_INT_20190131.txt

The decision was taken to place the files in the "Terminology" folder in the release package (as opposed to the "Refset" folder), because these files are designed to eventually replace the Stated relationship files (in July 2019), and therefore contain core content which needs to be included in the Terminology folder.

3.3.3. Optional "on demand" package in addition to the January 2019 International edition

As part of the transition plan from Stated Relationships to OWL files, we are publishing an ancillary package alongside the January 2019 International Edition:

- This package contains *a complete set of* OWL records (including all Axioms - sufficient, transitivity etc) set to January 2019 effectiveTimes, as if this was the *complete* OWL file that we will introduce in July 2019. This package also contains all stated relationships from the previous release (July 2018 International Edition) marked as inactive.
- This acts as a second Demonstration release (similar to the September 2018 package), allowing everyone to thoroughly trial how the July 2019 Int Edition will work for them in practice. It therefore retains the same nomenclature and formatting as the Sept 2018 Demo release, with everything x prefixed and labelled to warn against use in Production clinical systems.
- This package will be published in MLDS alongside the final Production release of the January 2019 International Edition, and will therefore be available to everyone who has access to the International Edition:

  o *** [LOCATION] ***

3.3.4. Replacement of OWL conversion script with a link to the open source directory

In January 2017 the original OWL conversion script (a.k.a. the "Spackman OWL script") was removed from the International Edition package, and has since been published as a separate artefact alongside each Release.

Because this script does not recognize the two new OWL refsets (see section 3.3.2 of these Release Notes), the Terminology Release Advisory Group has determined that the script should no longer be distributed.

Going forward, Release Notes will now include a link to the new open source OWL conversion toolkit that can be found in the following repository (including documentation on its use):

https://github.com/IHTSDO/snomed-owl-toolkit

Please contact SNOMED International at support@snomed.org if you would like to provide any feedback on ways to extend and improve the new toolkit.

3.3.5. Deprecation of the Technical Guide Exemplars document from the International Edition release package

The Terminology Release Advisory Group has confirmed that there should be no impact from removing this almost entirely static document from the International Edition release package, and hosting it instead in a Confluence Page. From the July 2018 International release then, we have deprecated this file (doc_Icd10MapTechnicalGuideExemplars_[date].xlsx) from the Release package, and instead provide a link in the Release Notes to the new Confluence Page. Please see section 2.4.1.3 above for the relevant link.

3.3.6. Early visibility of impending change in the July 2019 International edition

Please see the following page for details of all upcoming changes planned for July 2019 and beyond:

https://confluence.ihtsdotools.org/display/RMT/Early+Visibility+July+2019+Release+-
+Planned+changes+to+upcoming+SNOMED+International+Release+packages

3.3.7. IMPORTANT CHANGES in the July 2019 International Edition

Replacement of the Stated Relationship files with the new OWL Axiom refset files

In the July 2019 release:

- The International Edition package will include both inactive Stated Relationships plus a *complete* OWL file (combined) from July 2019 effectiveTime onwards (ie) with NO history of OWL records that weren't included in the January 2019 International Edition package itself (as opposed to the *optional* package).
- We will also publish a separate *optional* package containing an OWL (combined) Delta file, identifying which of the concepts have had modelling changes in relation to the optional package detailed in section 3.3.3 of the Release notes above ("Optional "on demand" package in addition to the January 2019 International edition").
- No support for Stated Relationships will be provided from this point onwards, however we will continue to include the inactivated Stated Relationships in future International Edition packages, until it is decided that this is no longer required.
- Anyone who isn't yet ready to move forward with OWL will therefore remain on the January 2019 International Edition until they are ready to update to OWL with the July 2019 version onwards.

> ⚠ **IMPORTANT NOTE FOR USERS**
>
> *Users should carefully analyse any potential impact to their systems (upload routines, etc) and make provisions for these changes urgently (if not already done), in order to prevent any issues when these changes come into effect in January 2019. Please contact SNOMED International at support@snomed.org with "OWL Axiom refset files implementation question" in the subject line.*

The inferred relationship file will maintain the same format and structure, though it will no longer contain all necessary and sufficient conditions. The inferred relationship file is represented in Necessary Normal Form for distribution of relationships. It is a collection of all the necessary conditions and represents a subset of the full semantics from the 2018 July release and onwards. Most users will benefit from the improvements in the inferred relationships without requiring changes to their existing systems.

A set of documentations has been developed to support the Logic Profile Enhancements.

- SNOMED DL Profile Enhancements - https://docs.google.com/document/d/1tqNEA6S4fEF4fgj15OPabYA2E0VTz8epxvRRwczKizQ/edit?usp=sharing
- SNOMED CT Logic Profile Specification - http://snomed.org/lps
- SNOMED CT OWL Guide (OWL Refsets specification) - http://snomed.org/owl
- Necessary Normal Form for Inferred Relationships - https://docs.google.com/document/d/1dt0r0aetwpwmHOfiT9wt0EVukVLRvVjXYUn_vq-QhIM/edit?usp=sharing
- Snomed OWL Toolkit - https://github.com/IHTSDO/snomed-owl-toolkit
- Classifying SNOMED CT using the Snomed OWL Toolkit - https://youtu.be/-91egY9mJqA
- Creating an OWL file containing SNOMED CT - https://youtu.be/sfFbMMioA_4

3.3.8. Document links

All links provide information that is correct and current at the time of this Release. Updated versions may be available at a later date, but if so these will need to be requested from the relevant SNOMED International teams.

NOTE: To access any of the links in the pdf document, please visit the Release Notes online here:

https://confluence.ihtsdotools.org/display/RMT/SNOMED+CT+January+2019+International+Edition+-+SNOMED+International+Release+notes

Approvals

Final Version	Date	Approver	Comments
0.2	15 Nov 2018	Lesley MacNeil	Approved
0.2	15 Nov 2018	Maria Braithwaite	Approved
0.2	15 Nov 2018	Donna Morgan	Approved
0.2	16 Nov 2018	Jim Case/Paul Amos	Approved
1.0	31 Jan 2019	Rory Davidson	Approved
1.0	07 Dec 2018	Maria Braithwaite	Approved
1.0	30 Jan 2019	Lesley MacNeil	Approved

Draft Amendment History

Version	Date	Editor	Comments
0.1	20180802	Andrew Atkinson	First draft for review and comment
0.1	20181122	Maria Braithwaite / Andrew Atkinson	Final Alpha updates, including map record count update