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Snap2SNOMED User Guide

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The logo for SNOMED International, featuring the word "SNOMED" in a large, bold, white sans-serif font above the word "International" in a smaller, white sans-serif font, both set against a solid blue square background.

SNOMED
International

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Snap2SNOMED (<https://snap.snomedtools.org>) is a mapping tool that supports the collaborative authoring and maintenance of simple maps from other code systems to SNOMED CT. This Snap2SNOMED user guide explains the main features of the tool, and how these features can be used to create and maintain maps to SNOMED CT.

For information about mapping best practice and guidelines, please refer to the [SNOMED CT Mapping Guide](#).

To contribute to future versions of the Snap2SNOMED mapping tool, please join the [Mapping Tool User Group](#). To provide feedback on Snap2SNOMED, please use the 'Feedback' link at the bottom of each page in the tool, or email us at info@snomed.org.

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

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1. Features

Snap2SNOMED has been built using a collaborative iterative agile approach. The current release of Snap2SNOMED supports a range of features including

- Ability to create simple maps to SNOMED CT
- Online and easily accessible (requires login from SNOMED International)
- Collaborative workflow features
 - Allows teams of users to author and review a map
 - Dual independent workflow is not yet available
- Automated mapping suggestions are available as a bulk operation and for single source terms
- Map review process available in workflow for map content
- Intuitive UI to make browsing and mapping to SNOMED CT easy and efficient
- Ability to perform map maintenance
- Import your own code sets and maps
- Export to CSV, TSV and XLSX

Licence

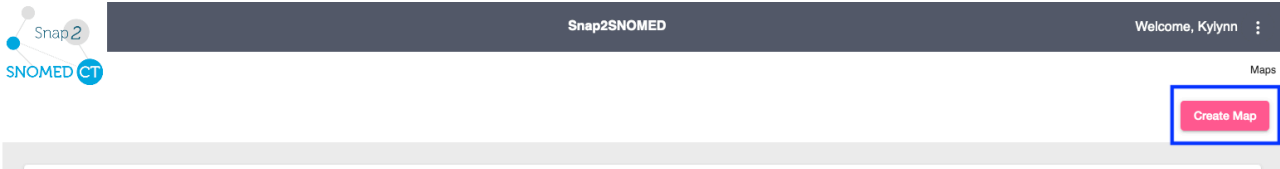
This tool is hosted by SNOMED International for use by member countries at <https://snap.snomedtools.org> and is also offered with a standard Apache 2 licence. Like other free software licenses, the license allows the user of the software the freedom to use the software for any purpose, to distribute it, to modify it, and to distribute modified versions of the software, under the terms of the license, without concern for royalties (http://en.wikipedia.org/wiki/Apache_License)

2. Quick start guide

The following sections provide a guide for the Snap2SNOMED for some of the most common functions. It is not intended as a comprehensive guide, but rather a quick guide to help new users get started.

2.1 Create a new map

After logging in, you can create a new map by clicking the "Create map" button.



This will open a dialogue to allow you to define and upload the metadata for the map (e.g. title, version, source, target, etc)

Create Map

Title *

Example map

Maximum characters 100 11/100

Version *

0.1

Maximum characters 30 3/30

Description

An example map from common diseases to SNOMED CT.

Maximum characters 200 49/200

Source code-set *

Common diseases: 1 +

Target SNOMED CT version *

International Edition, 20210731 ↺

Scope of map target (Common list)

Clinical Finding hierarchy ▾

Maximum characters 1024

Scope of map target (ECL) *

<< 404684003

[ECL Quick Reference](#)

Once you have filled in all mandatory (*) fields, click the "Save" button to create your new map.

2.2 Import an existing map file

It is possible to import a map file in one of two ways:

1. During the map creation process
2. From the view screen of an existing map

This page explains the expected map file format, and the two import approaches.

Import Map File Format

An existing mapping file used to import a map into Snap2SNOMED **must**:

- Be a CSV or TSV file
- Have a header row
- Be in one of the following formats
 - source_code, target_code, target_display, relationship_type
 - source_code, source_display, target_code, target_display, relationship_type
 - Note: This second format is the same as Snap2SNOMED's Export file format

Relationship type values in the map import file must be one of the following codes (from the first column of the table below):

Relationship Type Codes	Description
TARGET_EQUIVALENT	Target is equivalent to source
TARGET_INEXACT	Target is inexact to source
TARGET_BROADER	Target is broader than source
TARGET_NARROWER	Target is narrower than source

Import during map creation

You can import an existing map using the "Create map" dialogue. The "Import existing map" button will appear after uploading and/or selecting your source file.

Create Map

Title *
Test map
Maximum characters 100 8/100

Version *
1
Maximum characters 30 1/30

Description
Maximum characters 200 0/200

Source code-set *
codeset: 1

Target SNOMED CT version *
Australian Edition, 20211130

Scope of map target (Common list)
Any SNOMED code
Maximum characters 1024

Scope of map target (ECL) *
[ECL Quick Reference](#)
Maximum characters 1024 1/1024

Import existing map Selected Mapping File:

Project roles

Name	email	Role

Note: Large maps can take long to import, please do not refresh your browser while the import is running.

If there is an error in your imported map file, the import will fail, but a map with only the source code will be created. After correcting any errors, you can attempt to re-import your map file from within the new map (see 'Import into an existing map' below).

Import into an existing map

To import a map file into a map that has already been created in Snap2SNOMED, open/view the map, and click the IMPORT button near the top of the page (see screen shot below).

Test map
Version: 1

Source: codeset, Version 1
Target: Australian Edition, 30 Nov 2021
Scope: *

Owners: [EDIT](#)

You have no tasks
[EXPORT](#) **IMPORT** [VALIDATE](#) [BULK EDIT](#) [TASKS](#)

FILTER [RESET](#)

<input type="checkbox"/> Source index	Source code	Source label	Target code	Target label	Relationship	No map	Status	Flag	Last author/reviewer	Assigned author	Assigned reviewer
<input checked="" type="checkbox"/>	1	1		hypertension			UNMAPPED				
<input type="checkbox"/>	2	2		obese			UNMAPPED				

2.3 Author map rows

Once a new map has been created, users of the map can then create tasks to begin working on the map.

Users need to have the appropriate role to create tasks. Alternatively, tasks can be created by owners of the map and assigned to other users

To author map rows

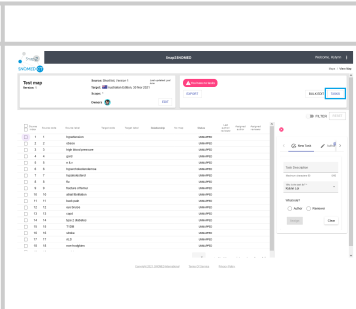
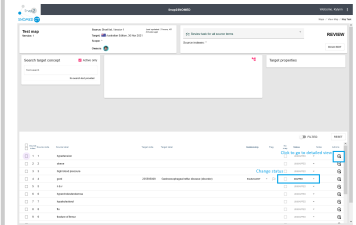
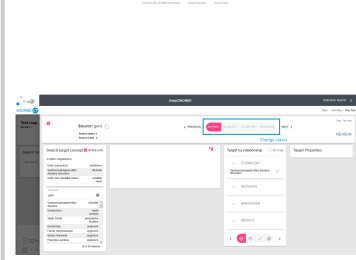
1. Open the map to be authored	
2. Create a task containing the rows required to be mapped	? Unknown Attachment
3. Open the task, and begin mapping process.	? Unknown Attachment
<ul style="list-style-type: none"> • Work can be completed in the table view by searching for concepts and dragging them into the map. • The detailed view can also be used to populate the map • Once populated, the status can be changed by using the drop down fields in the table view and the buttons in the detailed view 	? Unknown Attachment

2.4 Review a map

Once a new map has been [created](#), users of the map can then create [tasks](#) to begin working on the map.

Users need to have the appropriate [role](#) to create tasks. Alternatively, tasks can be created by owners of the map and assign them to other users

To review map rows

1. Open the map to be reviewed	
2. Create a task containing the rows required to be reviewed.	
3. Open task and begin reviewing.	
<p>Reviewing can be done</p> <ul style="list-style-type: none"> • in the table view of the map by changing the status • in the detailed view by clicking the status buttons <p>Please note: Map rows need to have an appropriate status to be able to be reviewed even when assigned to a review task</p>	

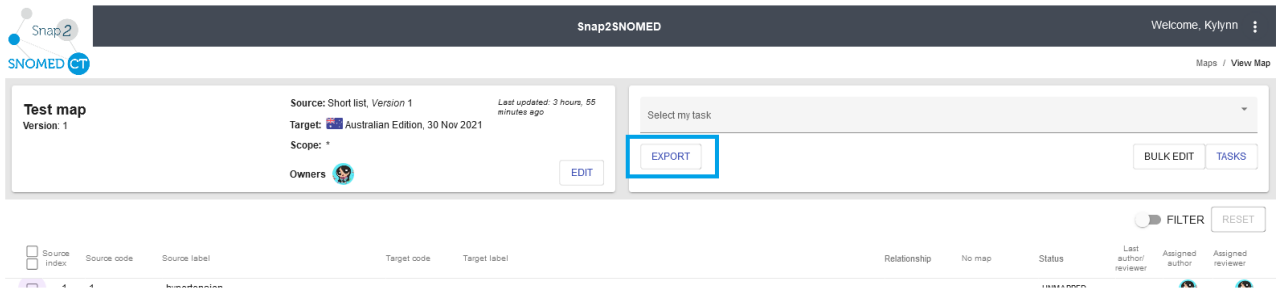
2.5 Export a map

Snap2SNOMED allows maps to be exported in CSV, TSV and XLSX file formats.

To export a map, log in and open/view the required map. Then click EXPORT (near the top of the screen) and select the required export format:

- Comma separated (CSV)
- Tab separated (TSV)

- Excel (XLSC)



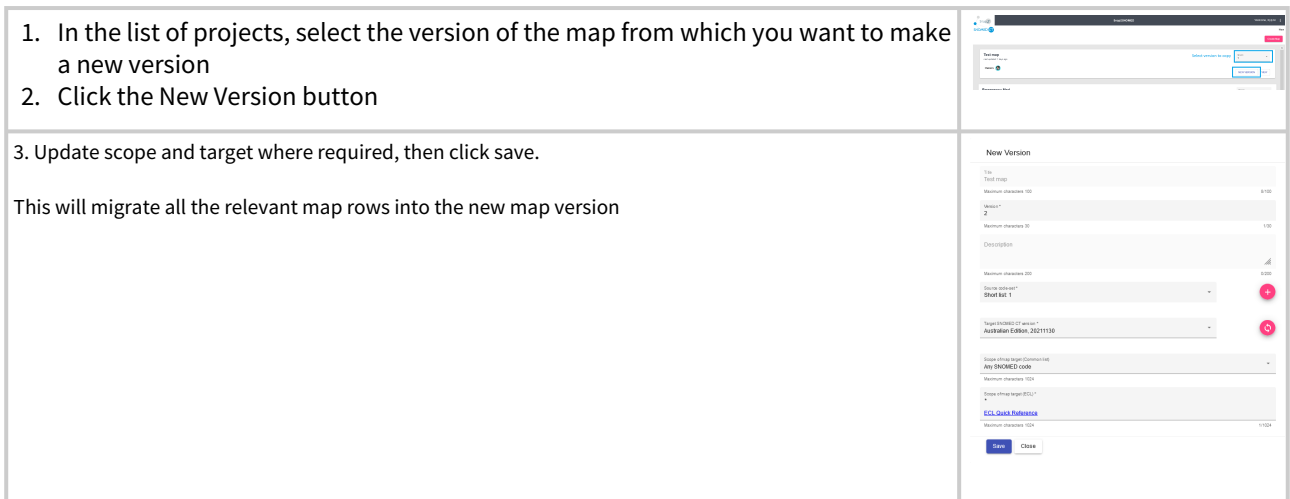
2.6 Create new version of map

An **owner** can create a new version of a map within the Snap2SNOMED tool as part of **maintenance**.

After logging in

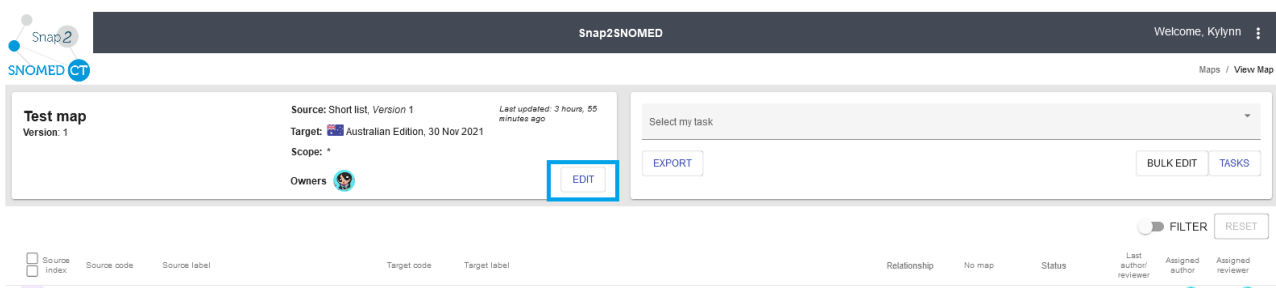
1. In the list of projects, select the version of the map from which you want to make a new version
2. Click the New Version button
3. Update scope and target where required, then click save.

This will migrate all the relevant map rows into the new map version



2.7 Manage users of a project

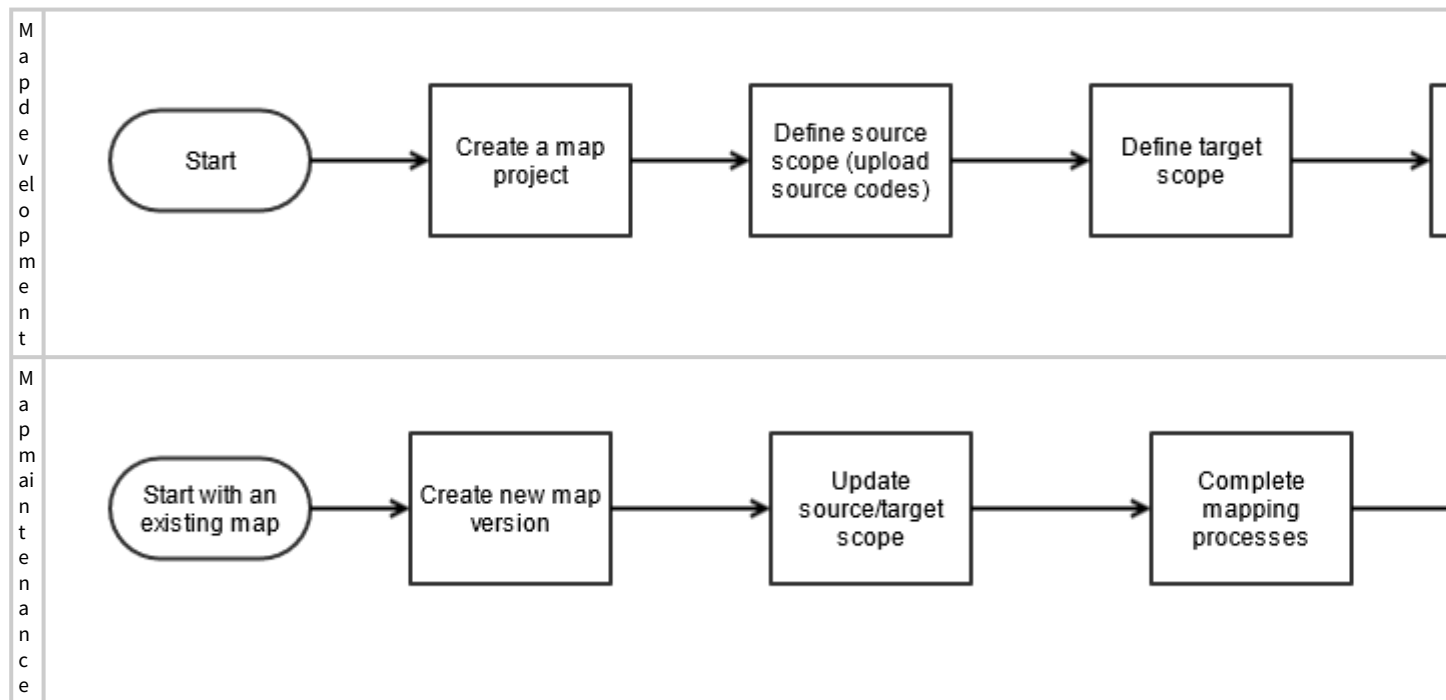
You can manage the membership as an **owner** of a project. To do this, click the EDIT button from within a map. This will give you a dialogue to manage the membership.



3. Mapping with Snap2SNOMED

Mapping is the process of defining a relationship between the source and target codes, concepts or terms.

General development process in Snap2SNOMED



3.1 Workflow

How Snap2SNOMED can fit into your mapping business processes

There are many different requirements for workflow and processes for people developing maps depending on their business situation.

A wide variety of different team sizes, management styles and business processes are in use and so Snap2SNOMED has been designed to provide workflow support for collaborative authoring and reviewing tasks when developing a map while remaining flexible enough to support as many different workflows as possible.

2.1.1 Workflow management

Snap2SNOMED supports the requirements of managing a variety of different workflows. Depending on business requirements and availability of personnel, a project owner can assign different roles to users to achieve different levels of control.

Participants can have one of three roles within a project:

Role	Description
Owner	An owner has full permissions within a project. They are able to completely manage project membership and project workflow. A project must have at least one owner.
Member	A member has some permissions within a project. They are able to manage their own workflow within a project
Guest	A guest has limited permissions within a project. They have read access to the project and are unable to manage any workflow. They can only complete tasks that are assigned to them by the owner(s)

Some example scenarios

Size of team	Scenario	Solution	Result	Work and tasking management	Membership management
1	Single user project	By default, a single user project has one owner. No other settings are required	The "Owner" is able to self-select work and manage membership to project	Full control of owner	1 user (owner) controlling membership
2+	Project owner wishes to direct the workflow of all author and review work and specify who does what and in what order. Project owner wants to have full control of project membership	Project owner can assign all participants in the project as "Guests".	Project owner can then create tasks and assign them to each "Guest" as required to complete the work "Guests" cannot self-select work, but need to be assigned tasks by the owner	High level of control of owner	1 user (owner) controlling membership
2+	Project owner wishes to allow some users to self-select and complete work, but direct work specifically to other users Project owner wants to have full control of project membership	Project owner can assign some participants as "Members" and some users as "Guests"	"Members" are able to self-select work "Guests" cannot self-select work, but need to be assigned tasks by the owner	Moderate level of control of owner	1 user (owner) controlling membership
2+	Project owner wishes all users to self-select and complete work Project owner wants to have full control of project membership	Project owner can assign all participants as "Members"	"Members" are able to self-select work	Low level of control of owner	1 user (owner) controlling memberships
2+	Project owner wishes all users to self-select and complete work Project owner wants assistance in controlling of project membership	Project owner can assign some participants as "Owners" and some users as "Members"	"Owners" are able to self-select work and manage membership to project "Members" are able to self-select work	Low level of control of owner	Multiple users (owners) controlling memberships

Size of team	Scenario	Solution	Result	Work and tasking management	Membership management
2+	Project owner wishes all users to self-select and complete work and to allow other participants to manage membership	Project owner can assign all participants as "Owners"	"Owners" are able to self-select work and manage membership to project	Low level of control of owner	Multiple users (owners) controlling memberships
2+	Project owner wishes to allow some users to self-select and complete work, but direct work specifically to other users Project owner wants assistance in controlling of project membership	Project owner can assign some participants as "Owners", some users as "Members", and some users as "Guests"	"Owners" are able to self-select work and manage membership to project. They can also create tasks and assign them to other users "Members" are able to self-select work "Guests" cannot self-select work, but need to be assigned tasks by the owner	Moderate level of control of owner	Multiple users (owners) controlling membership

2.1.2 Collaborative workflow

Snap2SNOMED is designed for collaborative map development. Currently, it supports multiple users working simultaneously on a map in a single author, single reviewer per source code manner. This means that work can be divided across a number of personnel to get work done.

There are future plans to support dual independent mapping processes.

A variety of workflows are currently supported, including:

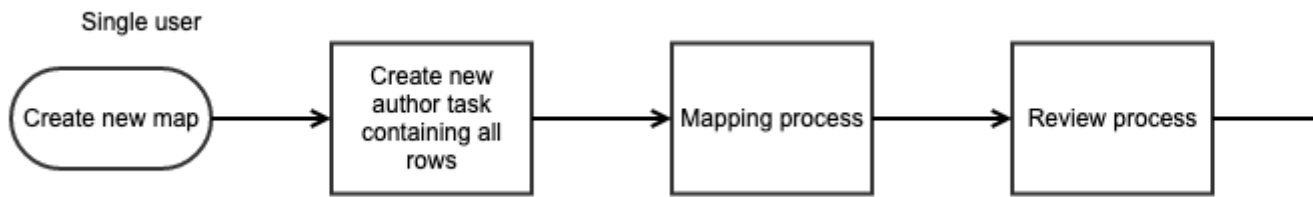
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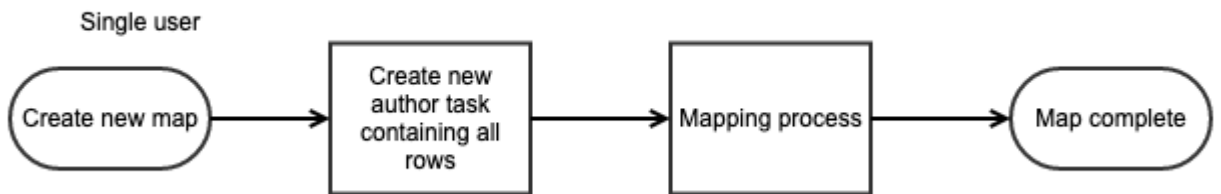
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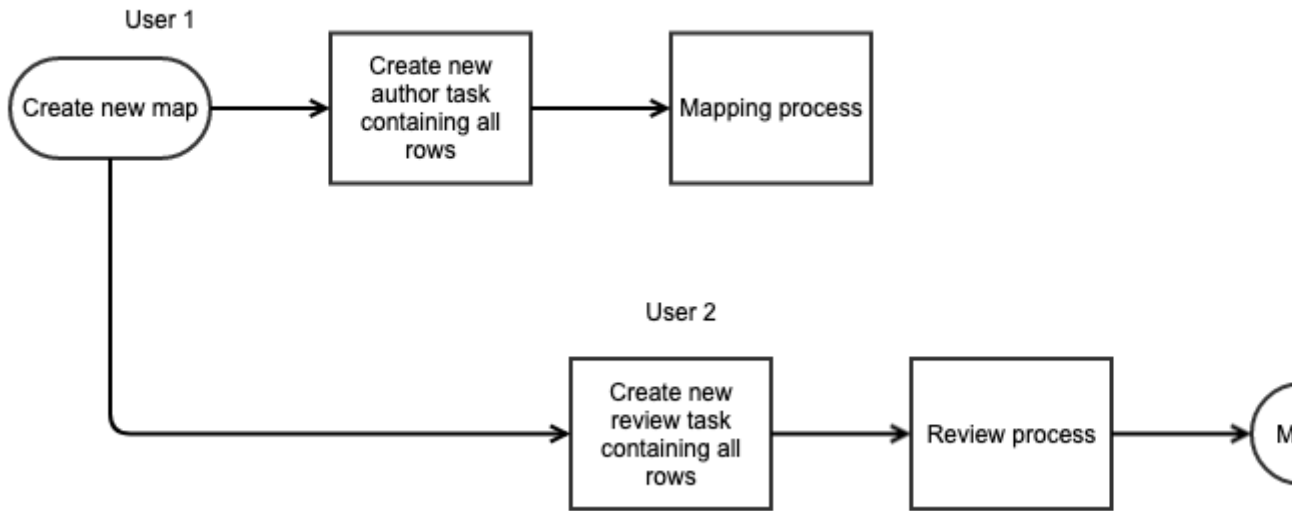
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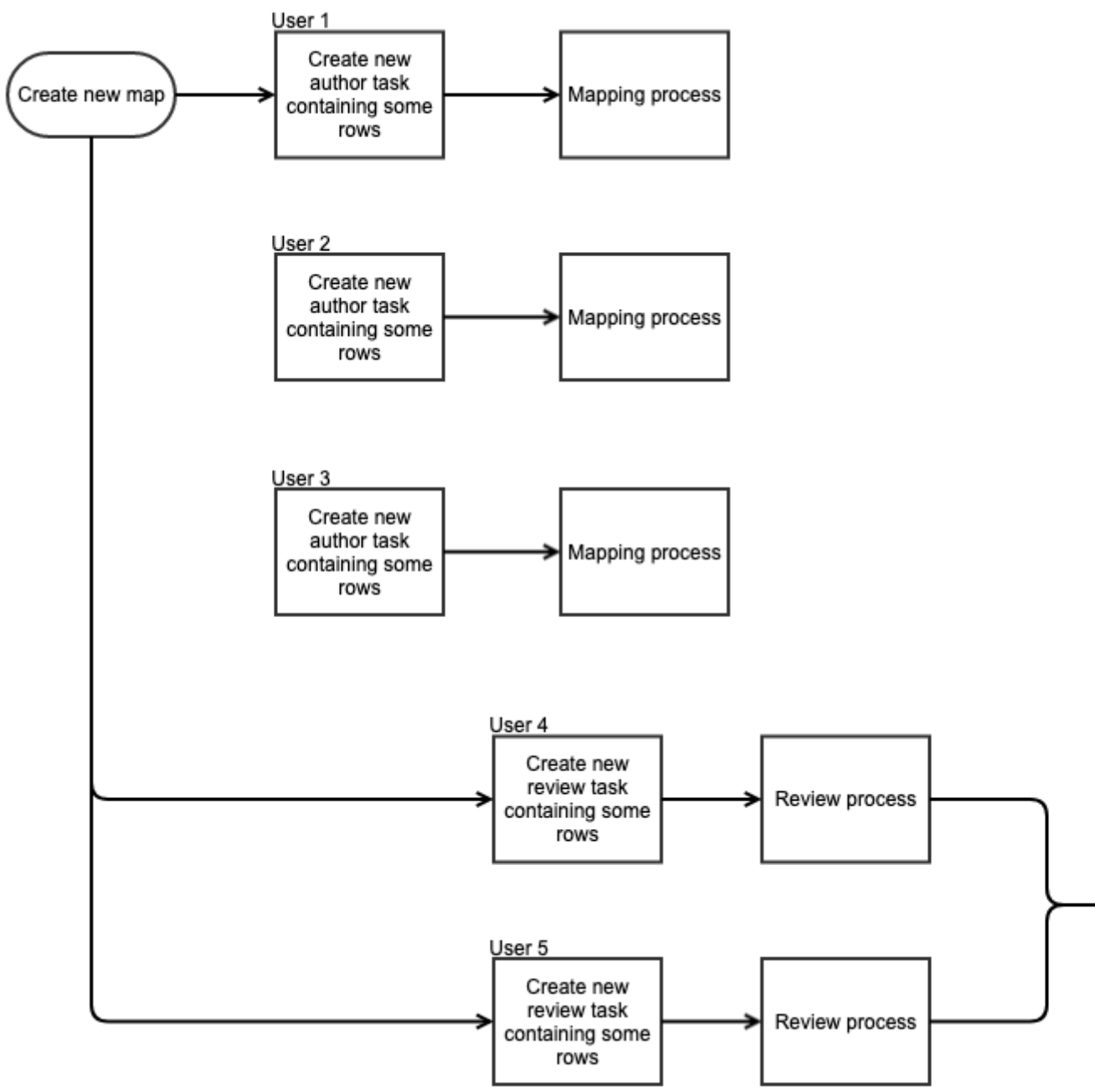
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Process flow

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Tips on using tasks

- Source codes can only be assigned to one task of each type at a time, however they can be assigned to both an author and a review task at the same time. This means that a source code needs to be released (task completed or cancelled) before it can be assigned to another task of the same type.
- You can use tasks to group together similar content to ensure that users are looking at similar things at the same time and improve efficiency and consistency of mappings.

2.1.3 Mapping process - author and review workflow

Depending on personnel resourcing availability and internal business requirements, there are different ways to set the author/review workflow.

Workflow	Description	Methodology
Series	<p>Authoring is completed before review is started.</p> <p>Once review is complete, an author can then pick up any rows that have been identified as problematic and then the author/reviewing cycle continues</p> <p>This may be useful when time is not an issue. Doing it this way may make it easier to ensure consistency as reviewing can be completed when looking at the map as a whole (as well as individual map rows). As work is not done in parallel, this method can be more time consuming.</p>	<ol style="list-style-type: none"> 1. Authoring tasks are created 2. Once all rows in the source code set have been mapped and all authoring tasks completed, review tasks are created 3. Review tasks are completed 4. Where there are rejected map rows, new author tasks can be created containing those filtered rows and assigned to user(s) to author/update 5. New review tasks are created containing those newly mapped/updated rows and assigned to user(s) to review 6. Steps 4-5 repeated until all rows are approved <p>Note: Once an author task is completed, if rows have been rejected by a reviewer, then a new author task needs to be created.</p>
Parallel	<p>While authoring is being completed, review is occurring simultaneously.</p> <p>This may be useful when time efficiency is required as processes can occur in parallel. It may also be useful where you do not have dedicated team members who can only spend shorter periods of time working on map development. It may be more difficult to maintain consistency, so clear, updated documentation and communication on mapping rules between team members is important.</p>	<ol style="list-style-type: none"> 1. Authoring tasks are created 2. As authoring begins review can begin. Review tasks can be created assigned <ul style="list-style-type: none"> ▪ At the beginning containing all rows - users can check their review tasks periodically and review rows belonging to the task that are in the appropriate state (MAPPED), returning back and checking again until complete; OR ▪ as required, filtering map rows that are ready to be reviewed (in a MAPPED state) to create a review task. This can be done periodically until all reviews are complete. 3. As reviews are being completed and there are any REJECTED rows that <ul style="list-style-type: none"> ▪ belong to an active author tasks, the assigned author can update as required ▪ do not belong to an active author task (as it has been completed or cancelled), then these can be filtered and assigned to a user(s) to author/update 4. This process is continued until all rows are approved

Workflow	Description	Methodology
Hybrid	<p>Mix of series and parallel workflows can be used. This can be a combination of completing authoring prior to review, and having some tasks open and close as resources such as specialised reviewers become available.</p> <p>A hybrid approach would require close management by the map owner to ensure all work is completed.</p> <p>This may be useful when you have a varying team with different resourcing availabilities. It may be more difficult to maintain consistency, so clear, updated documentation and communication on mapping rules between team members is important.</p>	

Note: there is currently no notification system available to notify users that work has been done or comments have been left. Manual monitoring needs to be done to keep track of workflow by users within a project.

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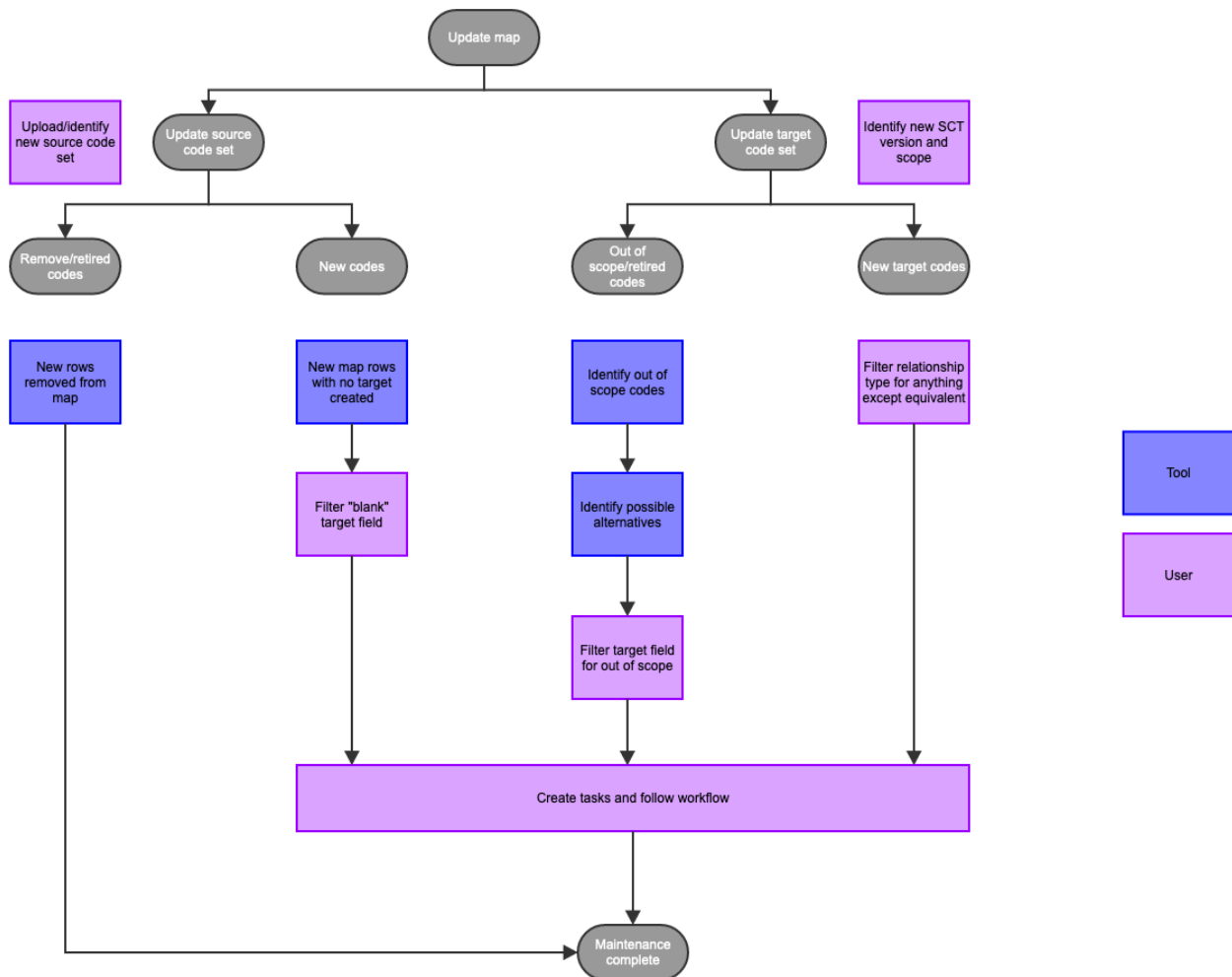
2.1.4 Maintenance workflow

Snap2SNOMED supports maintenance of maps that have been created within the tool and also allows upload of simple maps in a defined format for maintenance.

Maintenance is supported through the following workflows

Action	Description
Create new version of an existing map, update source scope (code system), target scope (code system) and migrate existing map rows	<p>A new version of an existing map in the tool can be created through the project list by selecting the version to be copied and then creating a new version.</p> <ul style="list-style-type: none"> For map rows that are copied, the tool will migrate <ul style="list-style-type: none"> source target relationship status (e.g. DRAFT, MAPPED, ACCEPTED, etc.) last author/reviewer data
Identify changes in map due to change in source scope	<p>Removed or retired codes in the source</p> <ul style="list-style-type: none"> tool will remove the rows from the map <p>New codes in the source</p> <ul style="list-style-type: none"> tool will create rows for the new source codes, with an empty target Owners or members can filter empty target fields to create a task to complete mapping process

Action	Description
Identify changes in map due to change in target scope	<p>Out of scope or retired codes in the target</p> <ul style="list-style-type: none"> • Owners can use VALIDATE function in tool to identify out of scope codes • Owners or members can filter identified rows to create a task to update map targets and complete mapping process <p>New target codes in code system</p> <ul style="list-style-type: none"> • Owners or members can filter relationship type for any type except for equivalent to create a task to review and update map targets and complete mapping process
Upload existing map	An existing map can be uploaded into the tool to then be updated.



3.2 Projects

A project is a collection of one or map versions that have the same source and target code systems (but not necessarily the same code system versions).

For example a single project could contain 2 maps: *ACME codes to SNOMED map v1 (source: ACME code system v1.0, target: SNOMED CT International version 20210131)* and *ACME codes to SNOMED map v2 (source: ACME code system v1.0, target SNOMED CT International version 202107031)*.

When creating a new map, a project is automatically created. When a new version of an existing map is created within the tool, it will be placed into the same project as the original version that has been copied.

3.3 Maps

Snap2SNOMED supports the creation of mappings between source codes and SNOMED CT target codes in the form of a map.

A map is a tabular form of the associations between source codes and target codes, and the relationship between them.

A new map is automatically created when creating a new project. A new map version can also be created from an existing map in the tool.

Maps require a

- Name
- Version
- Source scope (upload a source code set)
- Target scope (SNOMED CT version and ECL subset)

Maps can be authored/updated in Snap2SNOMED and [workflow](#) is managed through tasks.

Authoring

Within an [author task](#), the tool allows you to edit a row by interacting with the map table or by using the detailed view.

The map table view allows you to interact with the table directly (dragging and dropping terms from the search, selecting relationship and status from the drop downs etc.).

The detailed view is another view of a mapping which shows one source code and its associated information at a time. In this view you can add one or more target codes, update target codes, relationships and status.

Reviewing

Within a [review task](#), much like authoring, the tool allows you to edit a row by interacting with the map table or by using the detailed view.

The map table view allows you to interact with the table directly (changing status to review).

The detailed view is another view of a mapping which shows one source code and its associated information at a time. In this view you can change status to review, leave comments and flag targets.

3.4 Project roles and access

Roles are used to grant permissions to users to provide access to a project and to perform specific tasks within a project.

Users are unable to see projects until they have been given a role within a project by an owner.

There are three roles being used in the tool.

Role	Description
Owner	An owner has full permissions within a project. They are able to completely manage project membership and project workflow. A project must have at least one owner.

Role	Description
Member	A member has some permissions within a project. They are able to manage their own workflow within a project
Guest	A guest has limited permissions within a project. They have read access to the project and are unable to manage any workflow. They can only complete tasks that are assigned to them by the owner(s)

Role permissions

Project membership management	Owner	Member	Guest
Adding or removing users from a project	Yes	No	No
Assigning roles to users in a project	Yes	No	No
Tasking actions	Owner	Member	Guest
Create tasks for any user in project	Yes	No	No
Create tasks for self	Yes	Yes	No
Be an assignee for a task	Yes	Yes	Yes
Create tasks to re-allocate rows that have already been allocated to a user for the same task type/action	Yes	No	No
Create tasks to allow same user to author and review the same row	Yes	No	No
Complete a task assigned to self	Yes	Yes	Yes
Cancel a task assigned to self	Yes	Yes	Yes
Cancel a task assigned to any user in project	Yes	No	No
Other actions	Owner	Member	Guest
Author actions within an assigned author task	Yes	Yes	Yes
Author actions outside of an assigned author task	Yes - limited through bulk edit	No	No
Review actions within an assigned review task	Yes	Yes	Yes
Review actions outside of an assigned review task	Yes - limited through bulk edit	No	No
Create new version of a map within a project, update source and/or target scopes	Yes	No	No
Export map	Yes	Yes	Yes

3.5 Tasks

Tasks are the way that Snap2SNOMED manages the workflow. All work being done within a map should be done through the tasking process.

Each task has a task type, an assigned user and assigned rows. Permissions for creating tasks is determined by the user's role (see table X)

Task types

There are two different task types

- Author tasks
- Review tasks

Author tasks

Author tasks allow an assigned user to edit a source code mapping by adding or updating target codes, or adding "No Map" flags.

Review tasks

Review tasks allow an assigned users to review mapped source codes by giving them statuses of ACCEPTED and REJECTED.

Task assigned user

This is the user who is able to complete the task. Users who are not the assigned user are not able to access the task.

Task assigned rows

These are the rows that are assigned to a task. They allow users to interact with these rows within the task.

3.6 Status

Status denotes the state of the mapping of a **source** code (not specifically to the targets).

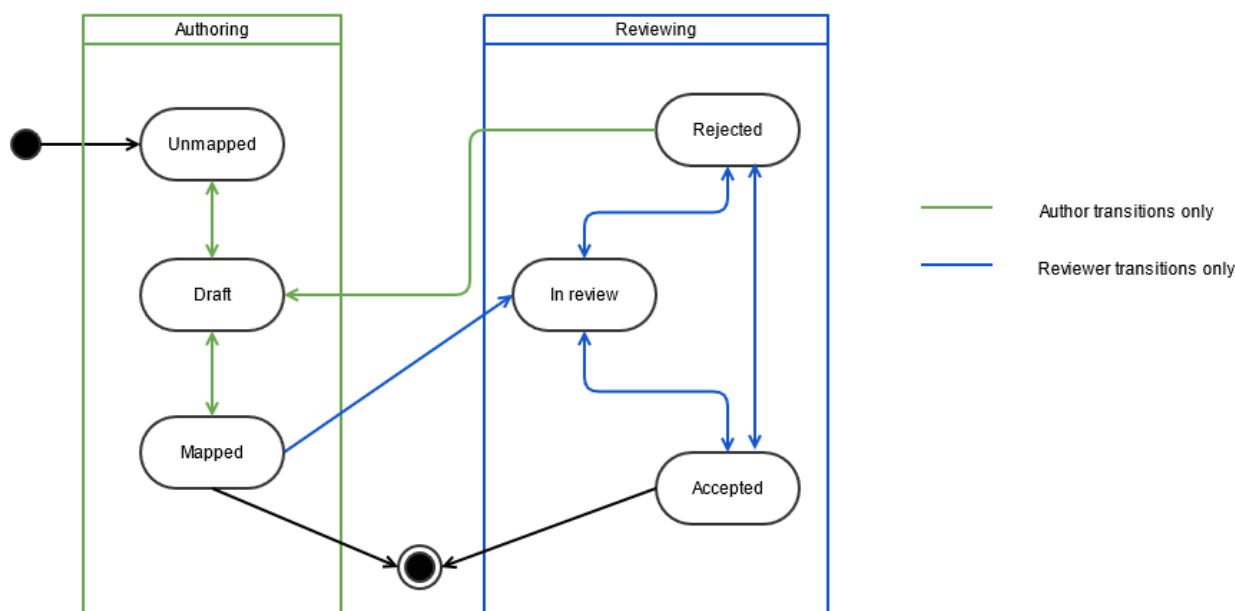
Status	Definition	Description
UNMAPPED	Source code has neither a target or "No map" flag assigned	This is the default status when a map has been created and a target is yet to be assigned. It will also occur when a "No map" flag has been removed.
DRAFT	Source code has one or more target codes or a "No map" flag assigned and is in a draft state	The status will automatically change to draft when a map row has been edited. Examples: <ul style="list-style-type: none"> • when a target code has been added to source code with a status of UNMAPPED • when a target code is changed for a source code with a status of MAPPED • when a No Map flag is added to a source code
MAPPED	Source code has one or more target codes or a "No map" flag assigned and is in a completed map state.	This is a manual status change by an author to denote when the authoring of a mapping of a source code is complete and ready for review (if a review process is being used). When a source code has this status, it can be reviewed if required
IN REVIEW	Source code and its mapping(s) is currently being reviewed	This is a manual status change by a reviewer to lock the source code from any changes by an author.
ACCEPTED	Source code and its mapping(s) have been accepted by the reviewer and mapping is complete	This is a manual status change by a reviewer to accept the mapping and is now locked for any changes by an author
REJECTED	Source code and its mapping(s) have been rejected by the reviewer and needs remapping by an author	This is a manual status change by a reviewer to reject the mapping and should be remapped by an author.

The statuses used in this tool are split between the two task types, mapping and reviewing.

- Mapping statuses are UNMAPPED, DRAFT and MAPPED.
- Reviewing statuses are IN REVIEW, ACCEPTED and REJECTED.

In a mapping task, a user is able to transition a source code's status between UNMAPPED, DRAFT and MAPPED and where a source code has been rejected by a reviewer, the user can also change REJECTED to DRAFT or MAPPED. If a review process is being used, a status of MAPPED can also be considered the same as "ready for review".

In a review task, a user is able to transition a MAPPED source code to IN REVIEW, ACCEPTED and REJECTED. The IN REVIEW status is designed to be like a lock for the source code so no further changes can be made by the author. A reviewer can choose to bulk change all the status of the valid rows in their task to IN REVIEW if they wish to lock them while they are working.



3.7 Relationship types

Each map between source and target should have a defined type of map relationship describing the type of relationship or degree of equivalence of source and target code.

Snap2SNOMED uses the following definitions

Relationship type	Description
Equivalent	The definitions of the concepts mean the same thing (including when structural implications of meaning are considered) (i.e. extensionally identical).
Broader	The target mapping is broader in meaning than the source concept.
Narrower	The target mapping is narrower in meaning than the source concept.
Inexact	The target mapping overlaps with the source concept, but both source and target cover additional meaning, or the definitions are imprecise and it is uncertain whether they have the same boundaries to their meaning.
No match/ unmatched	There is no match for this concept in the target code system.

3.8 Automated mapping assistance

Snap2SNOMED has two features to assist with mapping

Bulk automap feature

This feature is available to users within an author task.

The bulk automap feature will attempt to return a match within the target scope of the map. If no map can be found, the target will remain blank.

All matches found will be set with a relationship type of "INEXACT". This is because the automap feature is unable to determine the level of equivalency of the match.

It is strongly recommended that all matches suggested by the automap feature are checked by a human mapper.

Automated match suggestions

This feature is available in the detailed view of a source code. Users can use these suggestions for mapping by dragging and dropping their choices into the relationship box.

3.9 Bulk edit

In order to facilitate efficient mapping and assist workflow, a bulk edit feature has been provided.

Within a task, the bulk edit feature allows users to bulk change all rows or a selection of rows.

A user can

- Change relationship types
- Change mapping status
- Mark all as "No map"
- Remove all "No map"
- Clear targets

The bulk edit feature only allows one operation at a time, and can only enact changes on rows that have a [valid starting point](#) to allow that change when following a normal mapping process.

Examples:

- Within an author task, a user is not able to change any status to APPROVED or IN REVIEW as these belong to review tasks only
- Within an author task, if the starting status is UNMAPPED (and so has no target assigned), then the bulk change will not be able to change the status to MAPPED
- Within a review task, a user is not able to change any status to MAPPED as these belong to author tasks only

NOTE: It is intended that the bulk edit function is used only within a task, however there is a bulk edit function available to Owners from the map view to allow Owners to manage workflow.

The bulk edit function in the map view will adhere to the normal rules for changing status. This means the Owner must complete a sequence of bulk actions in line with the status change rules.

For example, to clear all the content of a row containing a target code cannot be changed to UNMAPPED, a status of DRAFT cannot be changed to ACCEPTED

3.10 Publication

Publication of maps is out of scope of Snap2SNOMED. Therefore any publishing processes need to be completed outside this tool. However an [export function](#) is available for users to download their map in CSV, TSV or XLSX format from the tool.

Quality assurance and final testing should also be performed outside the tool prior to publishing.